

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

State of New Mexico
Energy Minerals and Natural Resources

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

HOBBS OCD

MAR 05 2014

RECEIVED

Form C-141
Revised October 10, 2003

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

Release Notification and Corrective Action

OPERATOR

☐ Initial Report ☒ Final Report

Name of Company COG Operating LLC	Contact Robert McNeill
Address 600 W. Illinois Ave, Midland, Texas 79701	Telephone No. (432) 685-4332
Facility Name Jon-Bob #1	Facility Type Tank Battery

Surface Owner: Federal	Mineral Owner	Lease No. (API#) 30-025-24973
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LOCATION OF RELEASE

Unit Letter A	Section 35	Township 17S	Range 32E	Feet from the	North/South Line	Feet from the	East/West Line	County Lea
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Latitude 32.79640° N Longitude 103.72955° W

NATURE OF RELEASE

Type of Release: Oil	Volume of Release 352bbls	Volume Recovered 45bbls
Source of Release Oil Tank	Date and Hour of Occurrence 08-14-2013	Date and Hour of Discovery 08-14-2013 10:30am
Was Immediate Notice Given? ☒ Yes ☐ No ☐ Not Required	If YES, To Whom? Geoffrey Leking - NMOCD / James Amos - BLM	
By Whom? Michelle Mullins	Date and Hour 08-14-2013 4:14pm	
Was a Watercourse Reached? ☐ Yes ☒ No	If YES, Volume Impacting the Watercourse. N/A	

If a Watercourse was Impacted, Describe Fully.*

N/A

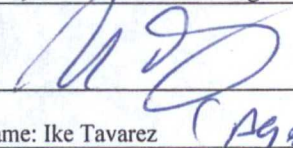
Describe Cause of Problem and Remedial Action Taken.*

A hole developed in the bottom of the oil tank. Replaced the oil tank with a new tank.

Describe Area Affected and Cleanup Action Taken.*

Initially 352bbls of oil were released due to a hole in the bottom of the oil tank and contained inside the facility firewall. Approximately 45 bbls of oil were recovered by a vacuum truck. Tetra Tech inspected site and collected samples to define spills extent. If accessible, the impacted soil that exceeded RRAL was removed and hauled away for proper disposal. The excavations were capped with clay and backfilled with clean soil to grade. Tetra Tech prepared closure report and submitted to NMOCD for review.

I hereby certify that the information given above is true and complete to the best of my knowledge and understand that pursuant to NMOCD rules and regulations all operators are required to report and/or file certain release notifications and perform corrective actions for releases which may endanger public health or the environment. The acceptance of a C-141 report by the NMOCD marked as "Final Report" does not relieve the operator of liability should their operations have failed to adequately investigate and remediate contamination that pose a threat to ground water, surface water, human health or the environment. In addition, NMOCD acceptance of a C-141 report does not relieve the operator of responsibility for compliance with any other federal, state, or local laws and/or regulations.

Signature: 		<u>OIL CONSERVATION DIVISION</u>	
Printed Name: Ike Tavaréz <i>(Agmt for COG)</i>		Approved by District Supervisor:	
Title: Project Manager		Approval Date:	Expiration Date:
E-mail Address: ike.tavarez@tetrattech.com		Conditions of Approval:	Attached ☐
Date: 01/30/2014 Phone: (432) 682-4559			

Attach Additional Sheets If Necessary

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PJXK 16 01145538
4100
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Release Notification and Corrective Action

OPERATOR

☒ Initial Report ☐ Final Report

Name of Company	COG OPERATING LLC	Contact	Pat Ellis
Address	600 West Illinois Avenue, Midland, TX 79701	Telephone No.	432-230-0077
Facility Name	Jon-Bob #001	Facility Type	Tank Battery
Surface Owner	Federal	Mineral Owner	Lease No. (API#) 30-025-24973

LOCATION OF RELEASE

Unit Letter	Section	Township	Range	Feet from the	North/South Line	Feet from the	East/West Line	County
A	35	17S	32E					Lea

Latitude 32.79640 Longitude 103.72955

NATURE OF RELEASE

Type of Release	Oil	Volume of Release	352bbbls	Volume Recovered	45bbbls
Source of Release	Oil tank	Date and Hour of Occurrence	08-14-2013	Date and Hour of Discovery	08-14-2013 10:30am
Was Immediate Notice Given?	☒ Yes ☐ No ☐ Not Required	If YES, To Whom?	Geoffrey Leking - NMOCD / James Amos - BLM		
By Whom?	Michelle Mullins	Date and Hour	08-14-2013 4:14pm		
Was a Watercourse Reached?	☐ Yes ☒ No	If YES, Volume Impacting the Watercourse.			

If a Watercourse was Impacted, Describe Fully.*

Describe Cause of Problem and Remedial Action Taken.*

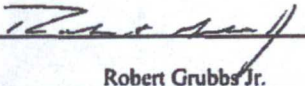
A hole developed in the bottom of the oil tank. Replaced the oil tank with a new tank.

Describe Area Affected and Cleanup Action Taken.*

Initially 352bbbls of oil were released due to a hole in the bottom of the oil tank. We were able to recover 45bbbls of oil with a vacuum truck. All free fluid has been recovered. Tetra Tech will sample the spill site area to delineate any possible contamination from the release and we will present a work plan to the NMOCD/BLM for approval prior to any significant remediation work.

I hereby certify that the information given above is true and complete to the best of my knowledge and understand that pursuant to NMOCD rules and regulations all operators are required to report and/or file certain release notifications and perform corrective actions for releases which may endanger public health or the environment. The acceptance of a C-141 report by the NMOCD marked as "Final Report" does not relieve the operator of liability should their operations have failed to adequately investigate and remediate contamination that pose a threat to ground water, surface water, human health or the environment. In addition, NMOCD acceptance of a C-141 report does not relieve the operator of responsibility for compliance with any other federal, state, or local laws and/or regulations.

OIL CONSERVATION DIVISION

Signature:			
Printed Name:	Robert Grubbs Jr.		
Title:	Senior Environmental Coordinator	Approval Date:	Expiration Date:
E-mail Address:	rgrubbs@concho.com	Conditions of Approval:	Attached ☐
Date:	08-15-2013	Phone:	432-661-6601

* Attach Additional Sheets If Necessary

SITE INFORMATION

Report Type: Closure Report

General Site Information:

Site:	Jon-Bob #001					
Company:	COG Operating LLC					
Section, Township and Range	Unit A	Sec 35	T17S	R32E		
Lease Number:	API-30-015-24973					
County:	Lea County					
GPS:	32.79640° N			103.72955° W		
Surface Owner:	Federal					
Mineral Owner:						
Directions:	From Loco Hills head east on Hwy 82 to Hwy 529 approx. 6.16 miles. Turn southeast on Hwy 529 and travel from approx. 8.75 miles. Turn north on the lease road and travel 0.5 miles north turning east to the location.					

Release Data:

Date Released:	8/14/2013
Type Release:	Oil
Source of Contamination:	Hole in Bottom of Tank
Fluid Released:	325 bbls
Fluids Recovered:	45 bbls

Official Communication:

Name:	Robert McNeill	Ike Tavaréz
Company:	COG Operating, LLC	Tetra Tech
Address:	One Concho Center 600 W. Illinois Ave.	4000 N. Big Spring St.
City:	Midland Texas, 79701	Midland, Texas
Phone number:	(432) 686-3023	(432) 682-4559
Fax:	(432) 684-7137	
Email:	rmcneill@conchoresources.com	ike.tavarez@tetrattech.com

Ranking Criteria

Depth to Groundwater:	Ranking Score	Site Data
<50 ft	20	20
50-99 ft	10	
>100 ft.	0	0
WellHead Protection:	Ranking Score	Site Data
Water Source <1,000 ft., Private <200 ft.	20	
Water Source >1,000 ft., Private >200 ft.	0	0
Surface Body of Water:	Ranking Score	Site Data
<200 ft.	20	
200 ft - 1,000 ft.	10	
>1,000 ft.	0	0
Total Ranking Score:		20

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Acceptable Soil RRAL (mg/kg)		
Benzene	Total BTEX	TPH
10	50	100



TETRA TECH

January 28, 2014

HOBBS OCD

MAR 05 2014

RECEIVED

Mr. Geoffrey Leking
Environmental Engineer Specialist
Oil Conservation Division, District 1
1625 North French Drive
Hobbs, New Mexico 88240

**Re: Closure Report for the COG Operating LLC., Jon Bob #1 Tank Battery,
Unit A, Section 35, Township 17 South, Range 32 East, Lea County,
New Mexico.**

Mr. Leking:

Tetra Tech, Inc. (Tetra Tech) was contacted by COG Operating LLC. (COG) to assess a spill from the Jon Bob #1 Tank Battery located in Unit A, Section 35, Township 17 South, Range 32 East, Lea County, New Mexico (Site). The spill site coordinates are N 32.79640°, W 103.72955°. 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 August 14, 2013, and released approximately three hundred and fifty two (352) barrels of oil from a hole in the bottom of a crude oil tank. To alleviate the problem, COG personnel replaced the tank. Forty eight (48) barrels of oil were recovered. The spill was isolated to within the tank battery berms affecting an area approximately 85' X 15' and 55' x 20'. The initial C-141 form is enclosed in Appendix A.

Groundwater

There are no wells listed from Section 32. According to the NMOCD groundwater map the depth to groundwater is approximately 25' – 50' below surface. The groundwater data is shown in Appendix B.

Tetra Tech

4000 North Big Spring, Midland, TX 79705

Tel 432.682.4559 Fax 432.682.3946 www.tetrattech.com



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 100 mg/kg.

Soil Assessment and Analytical Results

On August 29, 2013, 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. Selected samples were analyzed for TPH analysis by EPA method 8015 modified, BTEX by EPA Method 8021B and chloride by EPA method 300.0. Copies of laboratory analysis and chain-of-custody documentation are included in Appendix C. The sampling results are summarized in Table 1. The auger hole locations are shown on Figure 3.

Referring to Table 1, an elevated hydrocarbon impact was detected in the subsurface soils. Auger holes (AH-2 and AH-3) were not vertically defined with bottom auger hole samples at 6.6.5' of TPH (27,190 and 50,400 mg/kg), total BTEX (2,135 mg/kg and 2,831 mg/kg) and benzene of (271 mg/kg and 350 mg/kg), respectively. Deeper samples were not collected by a hand auger due to the dense formation at the site. In the area of AH-1, the TPH and BTEX concentrations significantly declined below the RRAL at 5-5.5', with concentrations of TPH of 430 mg/kg, benzene of <0.020 and total BTEX of 1.39 mg/kg.

In addition, the chlorides detected ranged from <20.0 mg/kg to 685 mg/kg. The chloride concentrations detected do not appear to be an environmental concern as the 685 mg/kg chloride detected in AH-3 continued to decline with depth.

On October 10, 2013, Tetra Tech supervised the installation of two (2) boreholes to define the hydrocarbon extents. The borehole locations are shown in Figure 3. The boreholes were advance to a depth of approximately 15' to 20' below surface. The soil boring results are summarized in Table 1. Referring to Table 1, boreholes (BH-1 and BH-2) were vertically defined and declined with depth below the RRAL for TPH and BTEX at 10.0' and 14-15' below surface.



Remedial Activities

On December 30, 2013, Tetra Tech supervised the removal of impacted material as highlighted (green) in Table 1 and shown on Figure 4. The area of AH-1 was excavated to 5.5' below surface, and the areas of auger holes AH-2 and AH-3 were excavated to 4.5' below surface.

Referring to Table 1, the areas of AH-1, AH-2, and AH-3 showed some elevated TPH and BTEX concentrations at the respective excavation depths and sidewalls which could not be removed due to the close proximity of equipment and lines. The remaining impacted would be deferred until the abandonment of the facility. Once excavated, the bottoms were capped with clay material to prevent any additional vertical migration. Approximately 280 yards of excavated soil were transported offsite for proper disposal and the areas will be backfilled with clean material to grade.

Conclusion

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

Respectfully submitted,
TETRA TECH

Ike Tavaréz, PG
Project Manager

cc: Robert McNeill – COG

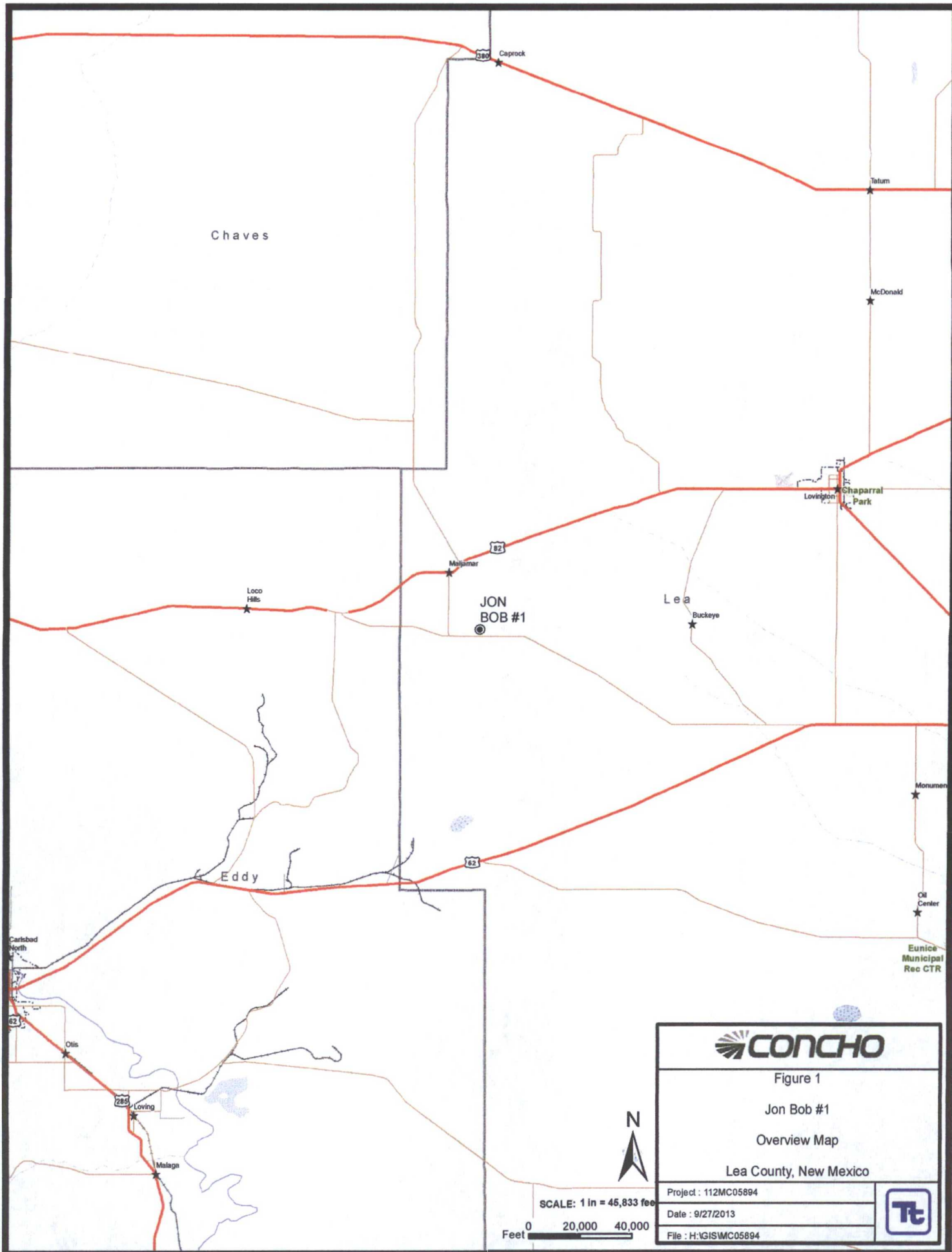


Figure 1

Jon Bob #1

Overview Map

Lea County, New Mexico

Project : 112MC05894

Date : 9/27/2013

File : H:\GIS\MC05894



SCALE: 1 in = 45,833 feet

0 20,000 40,000
Feet



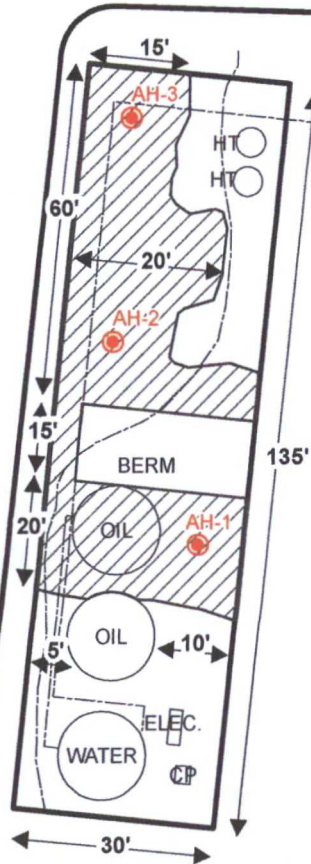


PASTURE

PJ

PAD

LEASE ROAD



EXPLANATION

● AUGER HOLE SAMPLE LOCATIONS

▨ SPILL AREA

* ALL STAINED AREA EXCAVATED 6"



SCALE: 1 IN = 33 FEET

Feet 0 10 20



Figure 3

Jon Bob #1

Spill Assessment Map

Lea County, New Mexico

Project : 112MC05894

Date : 9/27/2013

File : H:\GIS\MC05894



PASTURE

PAD

LEASE ROAD

15'

60'

20'

15'

20'

5'

135'

30'

BERM

AH-3

AH-2

AH-1

WATER

CP

EXPLANATION

● AUGER HOLE SAMPLE LOCATIONS

▨ SPILL AREA

* ALL STAINED AREA EXCAVATED 6"

SCALE: 1 IN = 25 FEET

Feet 0 10 20



Figure 3

Jon Bob #1

Spill Assessment Map

Lea County, New Mexico

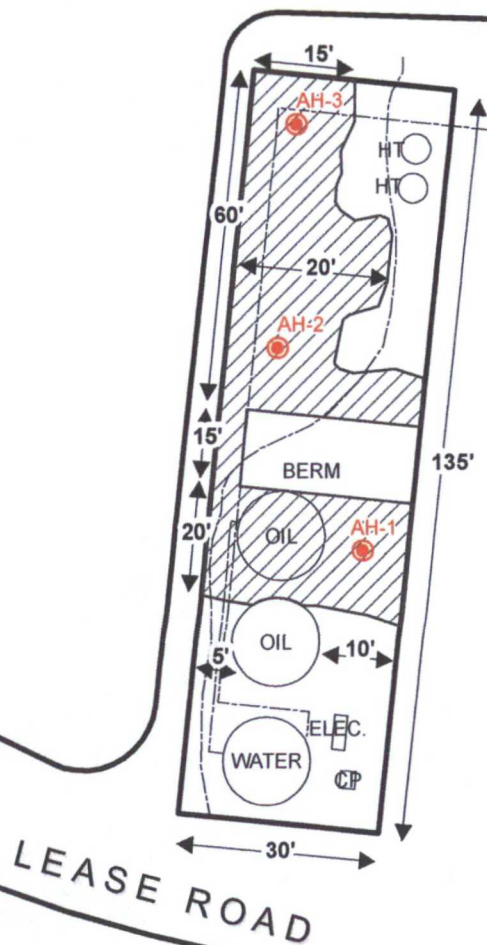
Project : 112MC05894

Date : 9/27/2013

File : H:\GIS\MC05894



PASTURE



PJ

PAD

LEASE ROAD

EXPLANATION

- AUGER HOLE SAMPLE LOCATIONS
- ▨ SPILL AREA
- * ALL STAINED AREA EXCAVATED 6"



SCALE: 1 IN = 33 FEET
Feet 0 10 20



Figure 3

Jon Bob #1

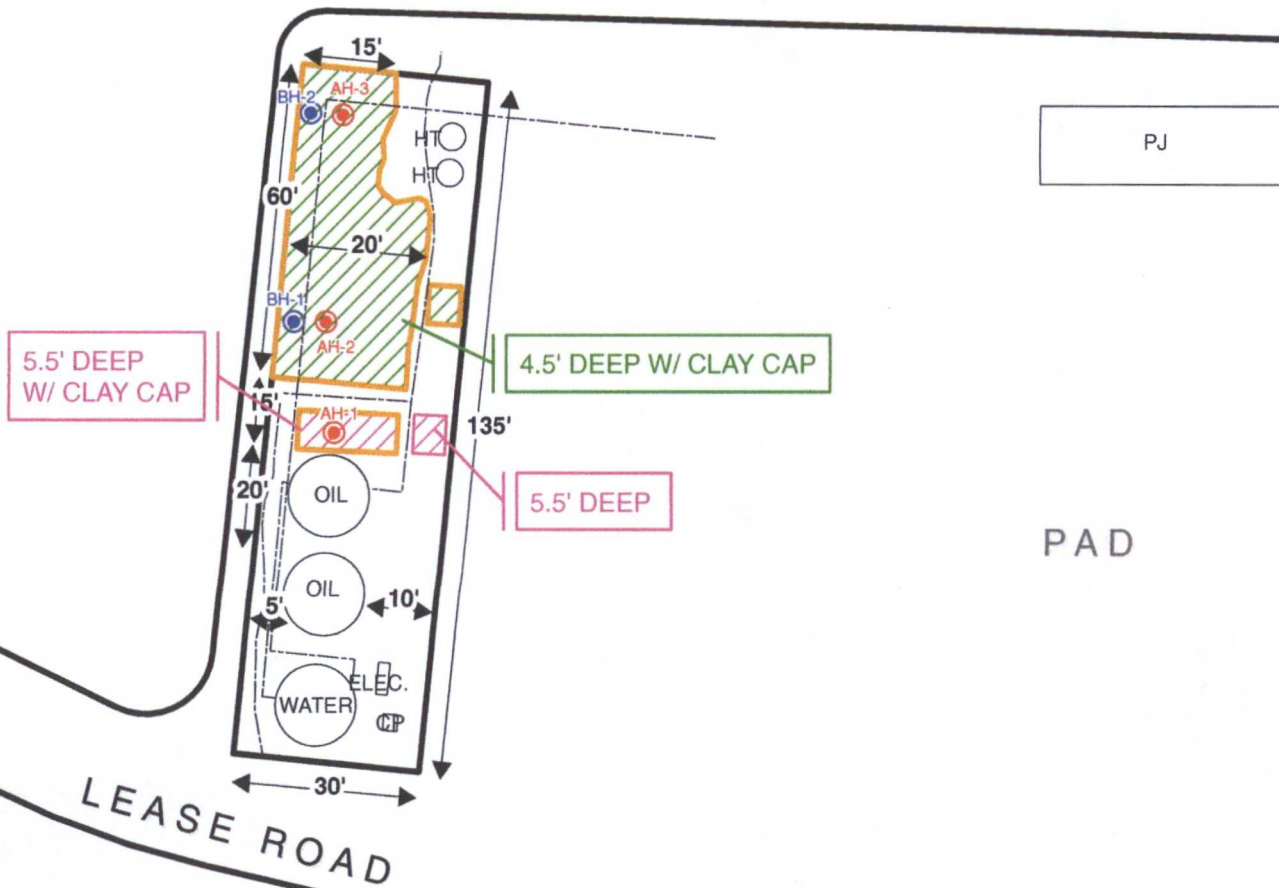
Spill Assessment Map

Lea County, New Mexico

Project : 112MC05894
Date : 9/27/2013
File : H:\GIS\WC05894



PASTURE



PASTURE

EXPLANATION

- AUGER HOLE SAMPLE LOCATIONS
- BORE HOLE SAMPLE LOCATIONS
- CLAY CAP INSTALLED
- EXCAVATED AREAS



SCALE: 1 IN = 38 FEET

Feet 0 10 20



Figure 4

Jon Bob #1

Excavation Areas & Depths Map

Lea County, New Mexico

Project : 112MC05894

Date : 1/30/2014

File : H:\GIS\MC05894



Table 1
COG Operating LLC.
Jon Bob #1
Lea County, New Mexico

Sample ID	Sample Date	Sample Depth (ft)	Excavation Depth (ft)	Soil Status		TPH (mg/kg)			Benzene (mg/kg)	Toluene (mg/kg)	Ethylbenzene (mg/kg)	Xylene (mg/kg)	Total BTEX (mg/kg)	Chloride (mg/kg)
				In-Situ	Removed	GRO	DRO	Total						
AH-1	8/29/2013	0-1	-		X	2,440	5,680	8,120	8.98	89.6	62.3	37.1	198	<20.0
	"	1-1.5	-		X	1,510	1,010	2,520	13.3	51.2	33.0	51.3	149	<20.0
	"	2-2.5	-		X	4,280	623	4,903	35.8	212	122	176	546	<20.0
	"	3-3.5	-		X	5,520	942	6,462	84.2	320	154	148	706	<20.0
	"	4-4.5	-		X	8,960	3,580	12,540	116	447	204	251	1,018	<20.0
	"	5-5.5	-		X	339	91.0	430	<0.020	0.089	0.440	0.863	1.39	<20.0
	"	6-6.5	-	X		<2.00	<50.0	<50.0	-	-	-	-	-	<20.0
	"	7-7.5	-	X		<4.00	<50.0	<50.0	-	-	-	-	-	<20.0
Bottom Hole	1/2/2014	-	5.5	X		9,270	15,490	24,760	171	550	237	312	1,270	-
North SW	"	-		X		6,900	10,610	17,510	123	471	202	264	1,060	-
South SW	"	-		X		7,750	12,290	42,270	120	478	221	292	1,110	-
West SW	"	-		X		4,820	7,544	12,364	85.0	329	162	209	786	-
East SW	"	-		X		6,620	12,100	18,720	35	116	141	250	542	-
AH-2	8/29/2013	0-1	-		X	3,490	2,670	6,160	5.12	158	121	169	453	<20.0
	"	1-1.5	-		X	12,100	4,070	16,170	80.8	560	316	398	1,355	<20.0
	"	2-2.5	-		X	9,570	7,290	16,860	74.8	452	247	299	1,073	<20.0
	"	3-3.5	-		X	17,500	8,030	25,530	158	819	430	533	1,940	91.0
	"	4-4.5	-		X	10,700	10,200	20,900	95.0	506	270	334	1,205	71.9
	"	5-5.5	-	X		18,100	18,600	36,700	251	897	411	502	2,061	110
	"	6-6.5	-	X		18,300	8,890	27,190	271	929	419	516	2,135	91.0
BH-1	10/10/2013	5	-		X	9,300	8,390	17,690	21.20	241	184	238	684	<20.0
"	"	10	-	X		6.30	<50.0	6.30	<0.0200	<0.0200	<0.0200	<0.0200	<0.0200	122
"	"	14-15	-	X		<4.00	<50.0	<50.0	<0.0200	<0.0200	<0.0200	<0.0200	<0.0200	37.5
"	"	19-20	-	X		-	-	-	-	-	-	-	-	61.0
"	"	24-25	-	X		-	-	-	-	-	-	-	-	51.6
"	"	29-30	-	X		-	-	-	-	-	-	-	-	28.1
Bottom Hole	1/2/2014	-	4.5	X		20.4	<10.0	20.4	0.366	0.543	0.241	0.367	1.52	-
South SW	"	-		X		16.8	<10.0	16.8	0.054	0.080	<0.050	<0.150	<0.300	-
East SW	"	-		X		<10.0	<10.0	<10.0	<0.050	0.077	<0.050	<0.150	<0.300	-
West SW	"	-		X		<10.0	33.6	33.6	<0.050	0.088	0.086	0.203	0.417	-

Table 1
COG Operating LLC.
Jon Bob #1
Lea County, New Mexico

Sample ID	Sample Date	Sample Depth (ft)	Excavation Depth (ft)	Soil Status		TPH (mg/kg)			Benzene (mg/kg)	Toluene (mg/kg)	Ethylbenzene (mg/kg)	Xylene (mg/kg)	Total BTEX (mg/kg)	Chloride (mg/kg)
				In-Situ	Removed	GRO	DRO	Total	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)
AH-3	8/29/2013	0-1	-		X	3,330	7,080	10,410	11.8	149	105	120	386	364
	"	1-1.5	-		X	9,080	7,060	16,140	71.6	456	237	298	1,063	489
	"	2-2.5	-		X	16,400	15,100	31,500	163	788	397	497	1,845	685
	"	3-3.5	-		X	10,000	11,300	21,300	90.7	454	247	309	1,101	173
	"	4-4.5	-		X	21,000	29,400	50,400	350	1,230	559	692	2,831	249
BH-2	10/10/2013	5	-		X	19,400	10,800	30,200	83.3	457	266	309	1,115	459
	"	10	-	X		11,400	21,300	32,700	256	653	289	326	1,524	159
	"	14-15	-	X		8.82	90.2	99.0	<0.0200	0.104	0.350	0.579	1.033	220
	"	19-20	-	X		<4.00	<50.0	<50.0	-	-	-	-	-	136
	"	24-25	-	X		-	-	-	-	-	-	-	-	202
	"	29-30	-	X		-	-	-	-	-	-	-	-	151
Bottom Hole	1/2/2014	-	4.5	X		7,400	15,850	23,250	46	354	218	304	922	-
North SW	"	-		X		8,840	18,650	27,490	80.5	610	356	492	1,540	-
East SW	"	-		X		7,200	14,610	50,740	78.9	509	281	371	1,240	-
West SW	"	-		X		14,100	26,270	40,370	168	883	418	620	2090	-

(-) Not Analyzed

(BEB) Below Excavation Bottom

Excavation Depths

Clay Cap Location

SW Sidewall

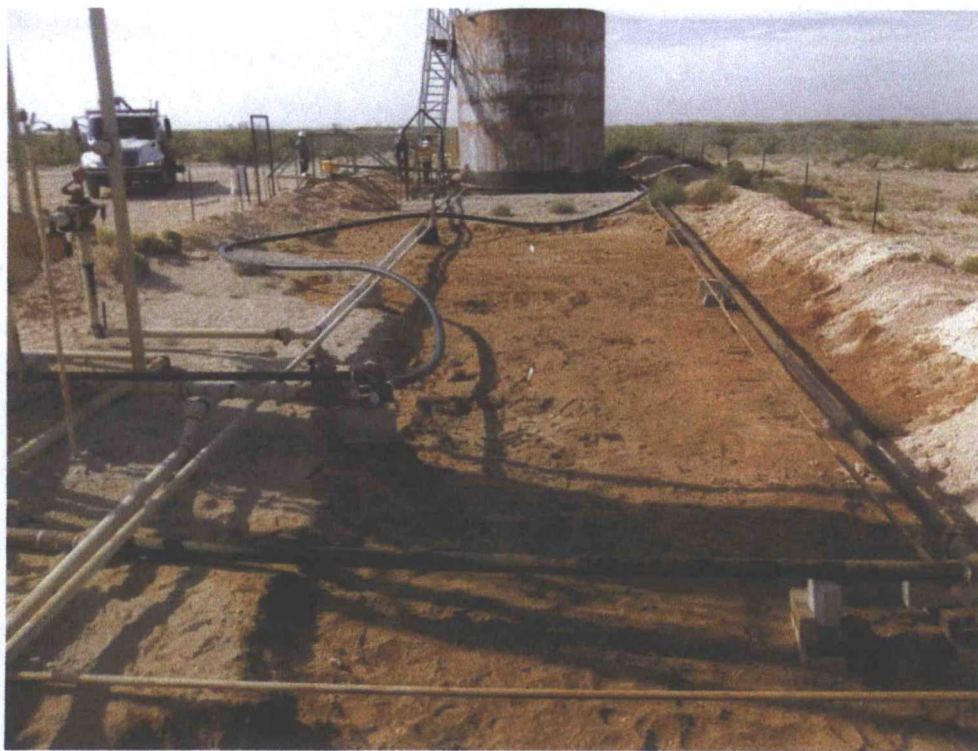
COG Operating LLC
Jon-Bob #001
Lea County, New Mexico



TETRA TECH



View Northwest – Area of AH-1



View South – Area of AH-2 and AH-3

COG Operating LLC
Jon-Bob #001
Lea County, New Mexico



TETRA TECH



View South – AH-1 excavation area



View South – AH-1 excavation area and clay cap

COG Operating LLC
Jon-Bob #001
Lea County, New Mexico



View South – AH-2 and AH-3 excavation areas and clay cap



View South –AH-2 and AH-3 backfilled area

Water Well Data
Average Depth to Groundwater (ft)
COG - Jon Bob #001
Lea County, New Mexico

16 South 31 East

6	5	4	3	2	290	1
7	8	9	10	11		12
18	17	16	15	14	113	13 299
19	20	21	22	23	314	24
30	29	28	27	26		25
31	32	33	34	35		36
290						

16 South 32 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
					260

16 South 33 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
190	168		160		

17 South 31 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
					271

17 South 32 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
					SITE

17 South 33 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
					155

18 South 31 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
					261

18 South 32 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
					117

18 South 33 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
					177

- New Mexico State Engineers Well Reports
- USGS Well Reports
- Geology and Groundwater Conditions in Southern Eddy, County, NM
- NMOCD - Groundwater Data
- Field water level
- New Mexico Water and Infrastructure Data System

Summary Report

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

Report Date: September 18, 2013

Work Order: 13090435

Project Location: Lea Co., NM
Project Name: COG/Jon-Bob #1
Project Number: TBD

Sample	Description	Matrix	Date Taken	Time Taken	Date Received
340903	AH-1 0-1'	soil	2013-08-29	00:00	2013-09-04
340904	AH-1 1-1.5'	soil	2013-08-29	00:00	2013-09-04
340905	AH-1 2-2.5'	soil	2013-08-29	00:00	2013-09-04
340906	AH-1 3-3.5'	soil	2013-08-29	00:00	2013-09-04
340907	AH-1 4-4.5'	soil	2013-08-29	00:00	2013-09-04
340908	AH-1 5-5.5'	soil	2013-08-29	00:00	2013-09-04
340909	AH-1 6-6.5'	soil	2013-08-29	00:00	2013-09-04
340910	AH-1 7-7.5'	soil	2013-08-29	00:00	2013-09-04
340911	AH-2 0-1'	soil	2013-08-29	00:00	2013-09-04
340912	AH-2 1-1.5'	soil	2013-08-29	00:00	2013-09-04
340913	AH-2 2-2.5'	soil	2013-08-29	00:00	2013-09-04
340914	AH-2 3-3.5'	soil	2013-08-29	00:00	2013-09-04
340915	AH-2 4-4.5'	soil	2013-08-29	00:00	2013-09-04
340916	AH-2 5-5.5'	soil	2013-08-29	00:00	2013-09-04
340917	AH-2 6-6.5'	soil	2013-08-29	00:00	2013-09-04
340918	AH-3 0-1'	soil	2013-08-29	00:00	2013-09-04
340919	AH-3 1-1.5'	soil	2013-08-29	00:00	2013-09-04
340920	AH-3 2-2.5'	soil	2013-08-29	00:00	2013-09-04
340921	AH-3 3-3.5'	soil	2013-08-29	00:00	2013-09-04
340922	AH-3 4-4.5'	soil	2013-08-29	00:00	2013-09-04

Sample - Field Code	BTEX				TPH DRO - NEW	TPH GRO
	Benzene (mg/Kg)	Toluene (mg/Kg)	Ethylbenzene (mg/Kg)	Xylene (mg/Kg)	DRO (mg/Kg)	GRO (mg/Kg)
340903 - AH-1 0-1'	8.98	89.6	62.3	37.1	5680 Qs	2440 Qs
340904 - AH-1 1-1.5'	13.3	51.2	33.0	51.3	1010 Qs	1510 Qs
340905 - AH-1 2-2.5'	35.8	212	122	176	623 Qs	4280 Qs
340906 - AH-1 3-3.5'	84.2	320	154	148	942 Qs	5520 Qs

continued ...

... continued

Sample - Field Code	BTEX				TPH DRO - NEW	TPH GRO
	Benzene (mg/Kg)	Toluene (mg/Kg)	Ethylbenzene (mg/Kg)	Xylene (mg/Kg)	DRO (mg/Kg)	GRO (mg/Kg)
340907 - AH-1 4-4.5'	116	447	204	251	3580 Qs	8960 Je, Qs
340908 - AH-1 5-5.5'	<0.0200	0.0890	0.440	0.863	91.0 Qs	339 Qs
340909 - AH-1 6-6.5'					<50.0	<200 Qs
340910 - AH-1 7-7.5'					<50.0 Qs	<4.00 Qs
340911 - AH-2 0-1'	5.12	158	121	169	2670 Qs	3490 Qs
340912 - AH-2 1-1.5'	80.8	560 Je	316	398	4070 Qs	12100 Je, Qs
340913 - AH-2 2-2.5'	74.8	452 Je	247	299	7290	9570 Je, Qs
340914 - AH-2 3-3.5'	158	819 Je	430	533	8030	17500 Je, Qs
340915 - AH-2 4-4.5'	95.0	506	270	334	10200	10700 Qs
340916 - AH-2 5-5.5'	251	897 Je	411	502	18600	18100 Je, Qs
340917 - AH-2 6-6.5'	271	929 Je	419	516	8890	18300 Je, Qs
340918 - AH-3 0-1'	11.8	149	105	120	7080	3330 Qs
340919 - AH-3 1-1.5'	71.6	456	237	298	7060	9080 Qs
340920 - AH-3 2-2.5'	163	788	397	497	15100	16400 Je, Qs
340921 - AH-3 3-3.5'	90.7	454	247	309	11300	10000 Qs
340922 - AH-3 4-4.5'	350	1230	559	692	29400	22100 Qs

Sample: 340903 - AH-1 0-1'

Param	Flag	Result	Units	RL
Chloride		<20.0	mg/Kg	4

Sample: 340904 - AH-1 1-1.5'

Param	Flag	Result	Units	RL
Chloride		<20.0	mg/Kg	4

Sample: 340905 - AH-1 2-2.5'

Param	Flag	Result	Units	RL
Chloride		<20.0	mg/Kg	4

Sample: 340906 - AH-1 3-3.5'

Param	Flag	Result	Units	RL
Chloride		<20.0	mg/Kg	4

Sample: 340907 - AH-1 4-4.5'

Param	Flag	Result	Units	RL
Chloride		<20.0	mg/Kg	4

Sample: 340908 - AH-1 5-5.5'

Param	Flag	Result	Units	RL
Chloride		<20.0	mg/Kg	4

Sample: 340909 - AH-1 6-6.5'

Param	Flag	Result	Units	RL
Chloride		<20.0	mg/Kg	4

Sample: 340910 - AH-1 7-7.5'

Param	Flag	Result	Units	RL
Chloride		<20.0	mg/Kg	4

Sample: 340911 - AH-2 0-1'

Param	Flag	Result	Units	RL
Chloride		<20.0	mg/Kg	4

Sample: 340912 - AH-2 1-1.5'

Param	Flag	Result	Units	RL
Chloride		<20.0	mg/Kg	4

Sample: 340913 - AH-2 2-2.5'

Param	Flag	Result	Units	RL
Chloride		<20.0	mg/Kg	4

Sample: 340914 - AH-2 3-3.5'

Param	Flag	Result	Units	RL
Chloride		91.0	mg/Kg	4

Sample: 340915 - AH-2 4-4.5'

Param	Flag	Result	Units	RL
Chloride		71.9	mg/Kg	4

Sample: 340916 - AH-2 5-5.5'

Param	Flag	Result	Units	RL
Chloride		110	mg/Kg	4

Sample: 340917 - AH-2 6-6.5'

Param	Flag	Result	Units	RL
Chloride		91.0	mg/Kg	4

Sample: 340918 - AH-3 0-1'

Param	Flag	Result	Units	RL
Chloride		364	mg/Kg	4

Sample: 340919 - AH-3 1-1.5'

Param	Flag	Result	Units	RL
Chloride		489	mg/Kg	4

Sample: 340920 - AH-3 2-2.5'

Param	Flag	Result	Units	RL
Chloride		685	mg/Kg	4

Sample: 340921 - AH-3 3-3.5'

Param	Flag	Result	Units	RL
Chloride		173	mg/Kg	4

Sample: 340922 - AH-3 4-4.5'

Param	Flag	Result	Units	RL
Chloride		249	mg/Kg	4



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(BioAquatic) 2501 Mayes Rd., Suite 100 Carrollton, Texas 75006 972-242-7750
E-Mail: lab@traceanalysis.com WEB: www.traceanalysis.com

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 18, 2013

Work Order: 13090435

Project Location: Lea Co., NM
Project Name: COG/Jon-Bob #1
Project Number: TBD

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

Sample	Description	Matrix	Date Taken	Time Taken	Date Received
340903	AH-1 0-1'	soil	2013-08-29	00:00	2013-09-04
340904	AH-1 1-1.5'	soil	2013-08-29	00:00	2013-09-04
340905	AH-1 2-2.5'	soil	2013-08-29	00:00	2013-09-04
340906	AH-1 3-3.5'	soil	2013-08-29	00:00	2013-09-04
340907	AH-1 4-4.5'	soil	2013-08-29	00:00	2013-09-04
340908	AH-1 5-5.5'	soil	2013-08-29	00:00	2013-09-04
340909	AH-1 6-6.5'	soil	2013-08-29	00:00	2013-09-04
340910	AH-1 7-7.5'	soil	2013-08-29	00:00	2013-09-04
340911	AH-2 0-1'	soil	2013-08-29	00:00	2013-09-04
340912	AH-2 1-1.5'	soil	2013-08-29	00:00	2013-09-04
340913	AH-2 2-2.5'	soil	2013-08-29	00:00	2013-09-04
340914	AH-2 3-3.5'	soil	2013-08-29	00:00	2013-09-04
340915	AH-2 4-4.5'	soil	2013-08-29	00:00	2013-09-04
340916	AH-2 5-5.5'	soil	2013-08-29	00:00	2013-09-04
340917	AH-2 6-6.5'	soil	2013-08-29	00:00	2013-09-04
340918	AH-3 0-1'	soil	2013-08-29	00:00	2013-09-04
340919	AH-3 1-1.5'	soil	2013-08-29	00:00	2013-09-04
340920	AH-3 2-2.5'	soil	2013-08-29	00:00	2013-09-04

Sample	Description	Matrix	Date Taken	Time Taken	Date Received
340921	AH-3 3-3.5'	soil	2013-08-29	00:00	2013-09-04
340922	AH-3 4-4.5'	soil	2013-08-29	00:00	2013-09-04

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



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

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Sample 340912 (AH-2 1-1.5')	18
Sample 340913 (AH-2 2-2.5')	19
Sample 340914 (AH-2 3-3.5')	21
Sample 340915 (AH-2 4-4.5')	22
Sample 340916 (AH-2 5-5.5')	24
Sample 340917 (AH-2 6-6.5')	25
Sample 340918 (AH-3 0-1')	27
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QC Batch 104931 - CCV (3)	50
QC Batch 104949 - CCV (1)	50
QC Batch 104949 - CCV (2)	50
QC Batch 104953 - CCV (1)	50
QC Batch 104953 - CCV (2)	51
QC Batch 104964 - CCV (1)	51
QC Batch 104964 - CCV (2)	51
QC Batch 104964 - CCV (3)	51
QC Batch 104965 - CCV (1)	52
QC Batch 104965 - CCV (2)	52
QC Batch 104965 - CCV (3)	52
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Case Narrative

Samples for project COG/Jon-Bob #1 were received by TraceAnalysis, Inc. on 2013-09-04 and assigned to work order 13090435. Samples for work order 13090435 were received intact at a temperature of 5.4 C.

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

Test	Method	Prep Batch	Prep Date	QC Batch	Analysis Date
BTEX	S 8021B	88876	2013-09-10 at 12:20	104964	2013-09-12 at 07:43
BTEX	S 8021B	88968	2013-09-11 at 14:10	105005	2013-09-12 at 14:17
Chloride (Titration)	SM 4500-Cl B	88902	2013-09-10 at 10:51	104949	2013-09-11 at 14:00
Chloride (Titration)	SM 4500-Cl B	88902	2013-09-10 at 10:51	104953	2013-09-11 at 14:21
TPH DRO - NEW	S 8015 D	88863	2013-09-09 at 10:00	104876	2013-09-10 at 10:19
TPH DRO - NEW	S 8015 D	88905	2013-09-10 at 15:00	104931	2013-09-11 at 11:38
TPH DRO - NEW	S 8015 D	88943	2013-09-11 at 14:00	104972	2013-09-12 at 10:02
TPH GRO	S 8015 D	88876	2013-09-10 at 12:20	104965	2013-09-12 at 07:50
TPH GRO	S 8015 D	88968	2013-09-11 at 14:10	105006	2013-09-12 at 14:19

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 13090435 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 18, 2013
TBD

Work Order: 13090435
COG/Jon-Bob #1

Page Number: 6 of 56
Lea Co., NM

Analytical Report

Sample: 340903 - AH-1 0-1'

Laboratory: Midland
Analysis: BTEX
QC Batch: 104964
Prep Batch: 88876

Analytical Method: S 8021B
Date Analyzed: 2013-09-12
Sample Preparation: 2013-09-10

Prep Method: S 5035
Analyzed By: AK
Prepared By: AK

Parameter	Flag	Cert	RL Result	Units	Dilution	RL
Benzene		1	8.98	mg/Kg	50	0.0200
Toluene		1	89.6	mg/Kg	50	0.0200
Ethylbenzene		1	62.3	mg/Kg	50	0.0200
Xylene		1	37.1	mg/Kg	50	0.0200

Surrogate	Flag	Cert	Result	Units	Dilution	Spike Amount	Percent Recovery	Recovery Limits
Trifluorotoluene (TFT)	Qsr	Qsr	0.00	mg/Kg	50	2.00	0	70 - 130
4-Bromofluorobenzene (4-BFB)	Qsr	Qsr	27.2	mg/Kg	50	2.00	1360	70 - 130

Sample: 340903 - AH-1 0-1'

Laboratory: Midland
Analysis: Chloride (Titration)
QC Batch: 104949
Prep Batch: 88902

Analytical Method: SM 4500-Cl B
Date Analyzed: 2013-09-11
Sample Preparation: 2013-09-11

Prep Method: N/A
Analyzed By: AR
Prepared By: AR

Parameter	Flag	Cert	RL Result	Units	Dilution	RL
Chloride	u		<20.0	mg/Kg	5	4.00

Sample: 340903 - AH-1 0-1'

Laboratory: Midland
Analysis: TPH DRO - NEW
QC Batch: 104972
Prep Batch: 88943

Analytical Method: S 8015 D
Date Analyzed: 2013-09-12
Sample Preparation: 2013-09-11

Prep Method: N/A
Analyzed By: CW
Prepared By: CW

Parameter	Flag	Cert	RL Result	Units	Dilution	RL
DRO	Qs	1	5680	mg/Kg	5	50.0

Report Date: September 18, 2013
TBD

Work Order: 13090435
COG/Jon-Bob #1

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Lea Co., NM

Surrogate	Flag	Cert	Result	Units	Dilution	Spike Amount	Percent Recovery	Recovery Limits
n-Tricosane	Qsr	Qsr	360	mg/Kg	5	100	360	76.3 - 192.6

Sample: 340903 - AH-1 0-1'

Laboratory: Midland
Analysis: TPH GRO
QC Batch: 104965
Prep Batch: 88876

Analytical Method: S 8015 D
Date Analyzed: 2013-09-12
Sample Preparation: 2013-09-10

Prep Method: S 5035
Analyzed By: AK
Prepared By: AK

Parameter	Flag	Cert	RL Result	Units	Dilution	RL
GRO	Qs	1	2440	mg/Kg	50	4.00

Surrogate	Flag	Cert	Result	Units	Dilution	Spike Amount	Percent Recovery	Recovery Limits
Trifluorotoluene (TFT)			2.45	mg/Kg	50	2.00	122	70 - 130
4-Bromofluorobenzene (4-BFB)	Qsr	Qsr	38.0	mg/Kg	50	2.00	1900	70 - 130

Sample: 340904 - AH-1 1-1.5'

Laboratory: Midland
Analysis: BTEX
QC Batch: 104964
Prep Batch: 88876

Analytical Method: S 8021B
Date Analyzed: 2013-09-12
Sample Preparation: 2013-09-10

Prep Method: S 5035
Analyzed By: AK
Prepared By: AK

Parameter	Flag	Cert	RL Result	Units	Dilution	RL
Benzene		1	13.3	mg/Kg	50	0.0200
Toluene		1	51.2	mg/Kg	50	0.0200
Ethylbenzene		1	33.0	mg/Kg	50	0.0200
Xylene		1	51.3	mg/Kg	50	0.0200

Surrogate	Flag	Cert	Result	Units	Dilution	Spike Amount	Percent Recovery	Recovery Limits
Trifluorotoluene (TFT)	Qsr	Qsr	3.96	mg/Kg	50	2.00	198	70 - 130
4-Bromofluorobenzene (4-BFB)	Qsr	Qsr	16.0	mg/Kg	50	2.00	800	70 - 130

Report Date: September 18, 2013
TBD

Work Order: 13090435
COG/Jon-Bob #1

Page Number: 8 of 56
Lea Co., NM

Sample: 340904 - AH-1 1-1.5'

Laboratory: Midland
Analysis: Chloride (Titration)
QC Batch: 104949
Prep Batch: 88902

Analytical Method: SM 4500-Cl B
Date Analyzed: 2013-09-11
Sample Preparation: 2013-09-11

Prep Method: N/A
Analyzed By: AR
Prepared By: AR

Parameter	Flag	Cert	RL Result	Units	Dilution	RL
Chloride	u		<20.0	mg/Kg	5	4.00

Sample: 340904 - AH-1 1-1.5'

Laboratory: Midland
Analysis: TPH DRO - NEW
QC Batch: 104972
Prep Batch: 88943

Analytical Method: S 8015 D
Date Analyzed: 2013-09-12
Sample Preparation: 2013-09-11

Prep Method: N/A
Analyzed By: CW
Prepared By: CW

Parameter	Flag	Cert	RL Result	Units	Dilution	RL
DRO	Qs	1	1010	mg/Kg	1	50.0

Surrogate	Flag	Cert	Result	Units	Dilution	Spike Amount	Percent Recovery	Recovery Limits
n-Tricosane			172	mg/Kg	1	100	172	76.3 - 192.6

Sample: 340904 - AH-1 1-1.5'

Laboratory: Midland
Analysis: TPH GRO
QC Batch: 104965
Prep Batch: 88876

Analytical Method: S 8015 D
Date Analyzed: 2013-09-12
Sample Preparation: 2013-09-10

Prep Method: S 5035
Analyzed By: AK
Prepared By: AK

Parameter	Flag	Cert	RL Result	Units	Dilution	RL
GRO	Qs	1	1510	mg/Kg	50	4.00

Surrogate	Flag	Cert	Result	Units	Dilution	Spike Amount	Percent Recovery	Recovery Limits
Trifluorotoluene (TFT)	Qsr	Qsr	0.00	mg/Kg	50	2.00	0	70 - 130
4-Bromofluorobenzene (4-BFB)	Qsr	Qsr	38.0	mg/Kg	50	2.00	1900	70 - 130

Report Date: September 18, 2013
TBD

Work Order: 13090435
COG/Jon-Bob #1

Page Number: 9 of 56
Lea Co., NM

Sample: 340905 - AH-1 2-2.5'

Laboratory: Midland

Analysis: BTEX

QC Batch: 104964

Prep Batch: 88876

Analytical Method: S 8021B

Date Analyzed: 2013-09-12

Sample Preparation: 2013-09-10

Prep Method: S 5035

Analyzed By: AK

Prepared By: AK

Parameter	Flag	Cert	RL Result	Units	Dilution	RL
Benzene		1	35.8	mg/Kg	50	0.0200
Toluene		1	212	mg/Kg	50	0.0200
Ethylbenzene		1	122	mg/Kg	50	0.0200
Xylene		1	176	mg/Kg	50	0.0200

Surrogate	Flag	Cert	Result	Units	Dilution	Spike Amount	Percent Recovery	Recovery Limits
Trifluorotoluene (TFT)	Qsr	Qsr	3.83	mg/Kg	50	2.00	192	70 - 130
4-Bromofluorobenzene (4-BFB)	Qsr	Qsr	38.2	mg/Kg	50	2.00	1910	70 - 130

Sample: 340905 - AH-1 2-2.5'

Laboratory: Midland

Analysis: Chloride (Titration)

QC Batch: 104949

Prep Batch: 88902

Analytical Method: SM 4500-Cl B

Date Analyzed: 2013-09-11

Sample Preparation: 2013-09-11

Prep Method: N/A

Analyzed By: AR

Prepared By: AR

Parameter	Flag	Cert	RL Result	Units	Dilution	RL
Chloride	u		<20.0	mg/Kg	5	4.00

Sample: 340905 - AH-1 2-2.5'

Laboratory: Midland

Analysis: TPH DRO - NEW

QC Batch: 104972

Prep Batch: 88943

Analytical Method: S 8015 D

Date Analyzed: 2013-09-12

Sample Preparation: 2013-09-11

Prep Method: N/A

Analyzed By: CW

Prepared By: CW

Parameter	Flag	Cert	RL Result	Units	Dilution	RL
DRO	Qs	1	623	mg/Kg	1	50.0

Surrogate	Flag	Cert	Result	Units	Dilution	Spike Amount	Percent Recovery	Recovery Limits
n-Tricosane			140	mg/Kg	1	100	140	76.3 - 192.6

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Sample: 340905 - AH-1 2-2.5'

Laboratory: Midland
Analysis: TPH GRO
QC Batch: 104965
Prep Batch: 88876

Analytical Method: S 8015 D
Date Analyzed: 2013-09-12
Sample Preparation: 2013-09-10

Prep Method: S 5035
Analyzed By: AK
Prepared By: AK

Parameter	Flag	Cert	RL Result	Units	Dilution	RL
GRO	Q _{NT}	1	4280	mg/Kg	50	4.00

Surrogate	Flag	Cert	Result	Units	Dilution	Spike Amount	Percent Recovery	Recovery Limits
Trifluorotoluene (TFT)	Q _{NT}	Q _{NT}	0.00	mg/Kg	50	2.00	0	70 - 130
4-Bromofluorobenzene (4-BFB)	Q _{NT}	Q _{NT}	65.5	mg/Kg	50	2.00	3275	70 - 130

Sample: 340906 - AH-1 3-3.5'

Laboratory: Midland
Analysis: BTEX
QC Batch: 104964
Prep Batch: 88876

Analytical Method: S 8021B
Date Analyzed: 2013-09-12
Sample Preparation: 2013-09-10

Prep Method: S 5035
Analyzed By: AK
Prepared By: AK

Parameter	Flag	Cert	RL Result	Units	Dilution	RL
Benzene		1	84.2	mg/Kg	50	0.0200
Toluene		1	320	mg/Kg	50	0.0200
Ethylbenzene		1	154	mg/Kg	50	0.0200
Xylene		1	148	mg/Kg	50	0.0200

Surrogate	Flag	Cert	Result	Units	Dilution	Spike Amount	Percent Recovery	Recovery Limits
Trifluorotoluene (TFT)	Q _{NT}	Q _{NT}	3.59	mg/Kg	50	2.00	180	70 - 130
4-Bromofluorobenzene (4-BFB)	Q _{NT}	Q _{NT}	45.0	mg/Kg	50	2.00	2250	70 - 130

Sample: 340906 - AH-1 3-3.5'

Laboratory: Midland
Analysis: Chloride (Titration)
QC Batch: 104949
Prep Batch: 88902

Analytical Method: SM 4500-Cl B
Date Analyzed: 2013-09-11
Sample Preparation: 2013-09-11

Prep Method: N/A
Analyzed By: AR
Prepared By: AR

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sample 340906 continued ...

Parameter	Flag	Cert	RL Result	Units	Dilution	RL
Parameter	Flag	Cert	RL Result	Units	Dilution	RL
Chloride	U		<20.0	mg/Kg	5	4.00

Sample: 340906 - AH-1 3-3.5'

Laboratory: Midland
Analysis: TPH DRO - NEW
QC Batch: 104972
Prep Batch: 88943

Analytical Method: S 8015 D
Date Analyzed: 2013-09-12
Sample Preparation: 2013-09-11

Prep Method: N/A
Analyzed By: CW
Prepared By: CW

Parameter	Flag	Cert	RL Result	Units	Dilution	RL
DRO	Qs	1	942	mg/Kg	1	50.0

Surrogate	Flag	Cert	Result	Units	Dilution	Spike Amount	Percent Recovery	Recovery Limits
n-Tricosane			162	mg/Kg	1	100	162	76.3 - 192.6

Sample: 340906 - AH-1 3-3.5'

Laboratory: Midland
Analysis: TPH GRO
QC Batch: 104965
Prep Batch: 88876

Analytical Method: S 8015 D
Date Analyzed: 2013-09-12
Sample Preparation: 2013-09-10

Prep Method: S 5035
Analyzed By: AK
Prepared By: AK

Parameter	Flag	Cert	RL Result	Units	Dilution	RL
GRO	Qs	1	5520	mg/Kg	50	4.00

Surrogate	Flag	Cert	Result	Units	Dilution	Spike Amount	Percent Recovery	Recovery Limits
Trifluorotoluene (TFT)	Qsr	Qsr	0.00	mg/Kg	50	2.00	0	70 - 130
4-Bromofluorobenzene (4-BFB)	Qsr	Qsr	127	mg/Kg	50	2.00	6350	70 - 130

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Sample: 340907 - AH-1 4-4.5'

Laboratory: Midland
Analysis: BTEX
QC Batch: 104964
Prep Batch: 88876

Analytical Method: S 8021B
Date Analyzed: 2013-09-12
Sample Preparation: 2013-09-10

Prep Method: S 5035
Analyzed By: AK
Prepared By: AK

Parameter	Flag	Cert	RL Result	Units	Dilution	RL
Benzene		1	116	mg/Kg	50	0.0200
Toluene		1	447	mg/Kg	50	0.0200
Ethylbenzene		1	204	mg/Kg	50	0.0200
Xylene		1	251	mg/Kg	50	0.0200

Surrogate	Flag	Cert	Result	Units	Dilution	Spike Amount	Percent Recovery	Recovery Limits
Trifluorotoluene (TFT)			4.18	mg/Kg	50	2.00	209	70 - 130
4-Bromofluorobenzene (4-BFB)			63.7	mg/Kg	50	2.00	3185	70 - 130

Sample: 340907 - AH-1 4-4.5'

Laboratory: Midland
Analysis: Chloride (Titration)
QC Batch: 104949
Prep Batch: 88902

Analytical Method: SM 4500-Cl B
Date Analyzed: 2013-09-11
Sample Preparation: 2013-09-11

Prep Method: N/A
Analyzed By: AR
Prepared By: AR

Parameter	Flag	Cert	RL Result	Units	Dilution	RL
Chloride	u		<20.0	mg/Kg	5	4.00

Sample: 340907 - AH-1 4-4.5'

Laboratory: Midland
Analysis: TPH DRO - NEW
QC Batch: 104972
Prep Batch: 88943

Analytical Method: S 8015 D
Date Analyzed: 2013-09-12
Sample Preparation: 2013-09-11

Prep Method: N/A
Analyzed By: CW
Prepared By: CW

Parameter	Flag	Cert	RL Result	Units	Dilution	RL
DRO	Q _{st}	1	3580	mg/Kg	5	50.0

Surrogate	Flag	Cert	Result	Units	Dilution	Spike Amount	Percent Recovery	Recovery Limits
n-Tricosane	Q _{st}	Q _{st}	257	mg/Kg	5	100	257	76.3 - 192.6

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Sample: 340907 - AH-1 4-4.5'

Laboratory: Midland
Analysis: TPH GRO
QC Batch: 104965
Prep Batch: 88876

Analytical Method: S 8015 D
Date Analyzed: 2013-09-12
Sample Preparation: 2013-09-10

Prep Method: S 5035
Analyzed By: AK
Prepared By: AK

Parameter	Flag	Cert	RL Result	Units	Dilution	RL
GRO	Je, Qs	1	8960	mg/Kg	50	4.00

Surrogate	Flag	Cert	Result	Units	Dilution	Spike Amount	Percent Recovery	Recovery Limits
Trifluorotoluene (TFT)	Qsr	Qsr	0.00	mg/Kg	50	2.00	0	70 - 130
4-Bromofluorobenzene (4-BFB)	Qsr	Qsr	180	mg/Kg	50	2.00	9000	70 - 130

Sample: 340908 - AH-1 5-5.5'

Laboratory: Midland
Analysis: BTEX
QC Batch: 105005
Prep Batch: 88968

Analytical Method: S 8021B
Date Analyzed: 2013-09-12
Sample Preparation: 2013-09-11

Prep Method: S 5035
Analyzed By: AK
Prepared By: AK

Parameter	Flag	Cert	RL Result	Units	Dilution	RL
Benzene	U	1	<0.0200	mg/Kg	1	0.0200
Toluene		1	0.0890	mg/Kg	1	0.0200
Ethylbenzene		1	0.440	mg/Kg	1	0.0200
Xylene		1	0.863	mg/Kg	1	0.0200

Surrogate	Flag	Cert	Result	Units	Dilution	Spike Amount	Percent Recovery	Recovery Limits
Trifluorotoluene (TFT)			1.47	mg/Kg	1	2.00	74	70 - 130
4-Bromofluorobenzene (4-BFB)			2.11	mg/Kg	1	2.00	106	70 - 130

Sample: 340908 - AH-1 5-5.5'

Laboratory: Midland
Analysis: Chloride (Titration)
QC Batch: 104949
Prep Batch: 88902

Analytical Method: SM 4500-Cl B
Date Analyzed: 2013-09-11
Sample Preparation: 2013-09-11

Prep Method: N/A
Analyzed By: AR
Prepared By: AR

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sample 340908 continued ...

Parameter	Flag	Cert	RL Result	Units	Dilution	RL
Parameter	Flag	Cert	RL Result	Units	Dilution	RL
Chloride	U		<20.0	mg/Kg	5	4.00

Sample: 340908 - AH-1 5-5.5'

Laboratory: Midland

Analysis: TPH DRO - NEW

QC Batch: 104972

Prep Batch: 88943

Analytical Method: S 8015 D

Date Analyzed: 2013-09-12

Sample Preparation: 2013-09-11

Prep Method: N/A

Analyzed By: CW

Prepared By: CW

Parameter	Flag	Cert	RL Result	Units	Dilution	RL
DRO	B, Q _{sr}	1	91.0	mg/Kg	1	50.0

Surrogate	Flag	Cert	Result	Units	Dilution	Spike Amount	Percent Recovery	Recovery Limits
n-Tricosane			123	mg/Kg	1	100	123	76.3 - 192.6

Sample: 340908 - AH-1 5-5.5'

Laboratory: Midland

Analysis: TPH GRO

QC Batch: 104965

Prep Batch: 88876

Analytical Method: S 8015 D

Date Analyzed: 2013-09-12

Sample Preparation: 2013-09-10

Prep Method: S 5035

Analyzed By: AK

Prepared By: AK

Parameter	Flag	Cert	RL Result	Units	Dilution	RL
GRO	Q _{sr}	1	339	mg/Kg	50	4.00

Surrogate	Flag	Cert	Result	Units	Dilution	Spike Amount	Percent Recovery	Recovery Limits
Trifluorotoluene (TFT)	Q _{sr}	Q _{sr}	2.82	mg/Kg	50	2.00	141	70 - 130
4-Bromofluorobenzene (4-BFB)	Q _{sr}	Q _{sr}	10.6	mg/Kg	50	2.00	530	70 - 130

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Sample: 340909 - AH-1 6-6.5'

Laboratory: Midland
Analysis: Chloride (Titration)
QC Batch: 104949
Prep Batch: 88902

Analytical Method: SM 4500-Cl B
Date Analyzed: 2013-09-11
Sample Preparation: 2013-09-11

Prep Method: N/A
Analyzed By: AR
Prepared By: AR

Parameter	Flag	Cert	RL Result	Units	Dilution	RL
Chloride	u		<20.0	mg/Kg	5	4.00

Sample: 340909 - AH-1 6-6.5'

Laboratory: Midland
Analysis: TPH DRO - NEW
QC Batch: 104876
Prep Batch: 88863

Analytical Method: S 8015 D
Date Analyzed: 2013-09-10
Sample Preparation: 2013-09-09

Prep Method: N/A
Analyzed By: CW
Prepared By: CW

Parameter	Flag	Cert	RL Result	Units	Dilution	RL
DRO	jb	1	<50.0	mg/Kg	1	50.0

Surrogate	Flag	Cert	Result	Units	Dilution	Spike Amount	Percent Recovery	Recovery Limits
n-Tricosane			123	mg/Kg	1	100	123	76.3 - 192.6

Sample: 340909 - AH-1 6-6.5'

Laboratory: Midland
Analysis: TPH GRO
QC Batch: 104965
Prep Batch: 88876

Analytical Method: S 8015 D
Date Analyzed: 2013-09-12
Sample Preparation: 2013-09-10

Prep Method: S 5035
Analyzed By: AK
Prepared By: AK

Parameter	Flag	Cert	RL Result	Units	Dilution	RL
GRO	qs	1	<200	mg/Kg	50	4.00

Surrogate	Flag	Cert	Result	Units	Dilution	Spike Amount	Percent Recovery	Recovery Limits
Trifluorotoluene (TFT)			2.69	mg/Kg	50	2.00	134	70 - 130
4-Bromofluorobenzene (4-BFB)			5.91	mg/Kg	50	2.00	296	70 - 130

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Sample: 340910 - AH-1 7-7.5'

Laboratory:	Midland	Analytical Method:	SM 4500-Cl B	Prep Method:	N/A
Analysis:	Chloride (Titration)	Date Analyzed:	2013-09-11	Analyzed By:	AR
QC Batch:	104949	Sample Preparation:	2013-09-11	Prepared By:	AR
Prep Batch:	88902				

Parameter	Flag	Cert	RL Result	Units	Dilution	RL
Chloride	U		<20.0	mg/Kg	5	4.00

Sample: 340910 - AH-1 7-7.5'

Laboratory:	Midland	Analytical Method:	S 8015 D	Prep Method:	N/A
Analysis:	TPH DRO - NEW	Date Analyzed:	2013-09-12	Analyzed By:	CW
QC Batch:	104972	Sample Preparation:	2013-09-11	Prepared By:	CW
Prep Batch:	88943				

Parameter	Flag	Cert	RL Result	Units	Dilution	RL
DRO	Jb, Qs	1	<50.0	mg/Kg	1	50.0

Surrogate	Flag	Cert	Result	Units	Dilution	Spike Amount	Percent Recovery	Recovery Limits
n-Tricosane			118	mg/Kg	1	100	118	76.3 - 192.6

Sample: 340910 - AH-1 7-7.5'

Laboratory:	Midland	Analytical Method:	S 8015 D	Prep Method:	S 5035
Analysis:	TPH GRO	Date Analyzed:	2013-09-12	Analyzed By:	AK
QC Batch:	104965	Sample Preparation:	2013-09-10	Prepared By:	AK
Prep Batch:	88876				

Parameter	Flag	Cert	RL Result	Units	Dilution	RL
GRO	Qs, U	1	<4.00	mg/Kg	1	4.00

Surrogate	Flag	Cert	Result	Units	Dilution	Spike Amount	Percent Recovery	Recovery Limits
Trifluorotoluene (TFT)			2.10	mg/Kg	1	2.00	105	70 - 130
4-Bromofluorobenzene (4-BFB)			2.08	mg/Kg	1	2.00	104	70 - 130

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Sample: 340911 - AH-2 0-1'

Laboratory: Midland
Analysis: BTEX
QC Batch: 104964
Prep Batch: 88876

Analytical Method: S 8021B
Date Analyzed: 2013-09-12
Sample Preparation: 2013-09-10

Prep Method: S 5035
Analyzed By: AK
Prepared By: AK

Parameter	Flag	Cert	RL Result	Units	Dilution	RL
Benzene		1	5.12	mg/Kg	50	0.0200
Toluene		1	158	mg/Kg	50	0.0200
Ethylbenzene		1	121	mg/Kg	50	0.0200
Xylene		1	169	mg/Kg	50	0.0200

Surrogate	Flag	Cert	Result	Units	Dilution	Spike Amount	Percent Recovery	Recovery Limits
Trifluorotoluene (TFT)	Qsr	Qsr	4.00	mg/Kg	50	2.00	200	70 - 130
4-Bromofluorobenzene (4-BFB)	Qsr	Qsr	42.6	mg/Kg	50	2.00	2130	70 - 130

Sample: 340911 - AH-2 0-1'

Laboratory: Midland
Analysis: Chloride (Titration)
QC Batch: 104949
Prep Batch: 88902

Analytical Method: SM 4500-Cl B
Date Analyzed: 2013-09-11
Sample Preparation: 2013-09-11

Prep Method: N/A
Analyzed By: AR
Prepared By: AR

Parameter	Flag	Cert	RL Result	Units	Dilution	RL
Chloride	U		<20.0	mg/Kg	5	4.00

Sample: 340911 - AH-2 0-1'

Laboratory: Midland
Analysis: TPH DRO - NEW
QC Batch: 104972
Prep Batch: 88943

Analytical Method: S 8015 D
Date Analyzed: 2013-09-12
Sample Preparation: 2013-09-11

Prep Method: N/A
Analyzed By: CW
Prepared By: CW

Parameter	Flag	Cert	RL Result	Units	Dilution	RL
DRO	Qs	1	2670	mg/Kg	1	50.0

Surrogate	Flag	Cert	Result	Units	Dilution	Spike Amount	Percent Recovery	Recovery Limits
n-Tricosane	Qsr	Qsr	203	mg/Kg	1	100	203	76.3 - 192.6

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Sample: 340911 - AH-2 0-1'

Laboratory: Midland
Analysis: TPH GRO
QC Batch: 104965
Prep Batch: 88876

Analytical Method: S 8015 D
Date Analyzed: 2013-09-12
Sample Preparation: 2013-09-10

Prep Method: S 5035
Analyzed By: AK
Prepared By: AK

Parameter	Flag	Cert	RL Result	Units	Dilution	RL
GRO	Q _{sr}	1	3490	mg/Kg	50	4.00

Surrogate	Flag	Cert	Result	Units	Dilution	Spike Amount	Percent Recovery	Recovery Limits
Trifluorotoluene (TFT)	Q _{sr}	Q _{sr}	0.00	mg/Kg	50	2.00	0	70 - 130
4-Bromofluorobenzene (4-BFB)	Q _{sr}	Q _{sr}	66.9	mg/Kg	50	2.00	3345	70 - 130

Sample: 340912 - AH-2 1-1.5'

Laboratory: Midland
Analysis: BTEX
QC Batch: 104964
Prep Batch: 88876

Analytical Method: S 8021B
Date Analyzed: 2013-09-12
Sample Preparation: 2013-09-10

Prep Method: S 5035
Analyzed By: AK
Prepared By: AK

Parameter	Flag	Cert	RL Result	Units	Dilution	RL
Benzene		1	80.8	mg/Kg	50	0.0200
Toluene	Ja	1	560	mg/Kg	50	0.0200
Ethylbenzene		1	316	mg/Kg	50	0.0200
Xylene		1	398	mg/Kg	50	0.0200

Surrogate	Flag	Cert	Result	Units	Dilution	Spike Amount	Percent Recovery	Recovery Limits
Trifluorotoluene (TFT)	Q _{sr}	Q _{sr}	0.00	mg/Kg	50	2.00	0	70 - 130
4-Bromofluorobenzene (4-BFB)	Q _{sr}	Q _{sr}	96.6	mg/Kg	50	2.00	4830	70 - 130

Sample: 340912 - AH-2 1-1.5'

Laboratory: Midland
Analysis: Chloride (Titration)
QC Batch: 104949
Prep Batch: 88902

Analytical Method: SM 4500-Cl B
Date Analyzed: 2013-09-11
Sample Preparation: 2013-09-11

Prep Method: N/A
Analyzed By: AR
Prepared By: AR

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sample 340912 continued ...

Parameter	Flag	Cert	RL Result	Units	Dilution	RL
Parameter	Flag	Cert	RL Result	Units	Dilution	RL
Chloride	U		<20.0	mg/Kg	5	4.00

Sample: 340912 - AH-2 1-1.5'

Laboratory: Midland
Analysis: TPH DRO - NEW
QC Batch: 104972
Prep Batch: 88943

Analytical Method: S 8015 D
Date Analyzed: 2013-09-12
Sample Preparation: 2013-09-11

Prep Method: N/A
Analyzed By: CW
Prepared By: CW

Parameter	Flag	Cert	RL Result	Units	Dilution	RL
DRO	Qs	1	4070	mg/Kg	5	50.0

Surrogate	Flag	Cert	Result	Units	Dilution	Spike Amount	Percent Recovery	Recovery Limits
n-Tricosane	Qsr	Qsr	279	mg/Kg	5	100	279	76.3 - 192.6

Sample: 340912 - AH-2 1-1.5'

Laboratory: Midland
Analysis: TPH GRO
QC Batch: 104965
Prep Batch: 88876

Analytical Method: S 8015 D
Date Analyzed: 2013-09-12
Sample Preparation: 2013-09-10

Prep Method: S 5035
Analyzed By: AK
Prepared By: AK

Parameter	Flag	Cert	RL Result	Units	Dilution	RL
GRO	Je, Qs	1	12100	mg/Kg	50	4.00

Surrogate	Flag	Cert	Result	Units	Dilution	Spike Amount	Percent Recovery	Recovery Limits
Trifluorotoluene (TFT)	Qsr	Qsr	0.00	mg/Kg	50	2.00	0	70 - 130
4-Bromofluorobenzene (4-BFB)	Qsr	Qsr	270	mg/Kg	50	2.00	13500	70 - 130

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Sample: 340913 - AH-2 2-2.5'

Laboratory: Midland
Analysis: BTEX
QC Batch: 104964
Prep Batch: 88876

Analytical Method: S 8021B
Date Analyzed: 2013-09-12
Sample Preparation: 2013-09-10

Prep Method: S 5035
Analyzed By: AK
Prepared By: AK

Parameter	Flag	Cert	RL Result	Units	Dilution	RL
Benzene		1	74.8	mg/Kg	50	0.0200
Toluene	Je	1	452	mg/Kg	50	0.0200
Ethylbenzene		1	247	mg/Kg	50	0.0200
Xylene		1	299	mg/Kg	50	0.0200

Surrogate	Flag	Cert	Result	Units	Dilution	Spike Amount	Percent Recovery	Recovery Limits
Trifluorotoluene (TFT)	Qsr	Qsr	0.00	mg/Kg	50	2.00	0	70 - 130
4-Bromofluorobenzene (4-BFB)	Qsr	Qsr	78.8	mg/Kg	50	2.00	3940	70 - 130

Sample: 340913 - AH-2 2-2.5'

Laboratory: Midland
Analysis: Chloride (Titration)
QC Batch: 104953
Prep Batch: 88902

Analytical Method: SM 4500-Cl B
Date Analyzed: 2013-09-11
Sample Preparation: 2013-09-11

Prep Method: N/A
Analyzed By: AR
Prepared By: AR

Parameter	Flag	Cert	RL Result	Units	Dilution	RL
Chloride	U		<20.0	mg/Kg	5	4.00

Sample: 340913 - AH-2 2-2.5'

Laboratory: Midland
Analysis: TPH DRO - NEW
QC Batch: 104876
Prep Batch: 88863

Analytical Method: S 8015 D
Date Analyzed: 2013-09-10
Sample Preparation: 2013-09-09

Prep Method: N/A
Analyzed By: CW
Prepared By: CW

Parameter	Flag	Cert	RL Result	Units	Dilution	RL
DRO		1	7290	mg/Kg	5	50.0

Surrogate	Flag	Cert	Result	Units	Dilution	Spike Amount	Percent Recovery	Recovery Limits
n-Tricosane	Qsr	Qsr	425	mg/Kg	5	100	425	76.3 - 192.6

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Sample: 340913 - AH-2 2-2.5'

Laboratory: Midland
Analysis: TPH GRO
QC Batch: 104965
Prep Batch: 88876

Analytical Method: S 8015 D
Date Analyzed: 2013-09-12
Sample Preparation: 2013-09-10

Prep Method: S 5035
Analyzed By: AK
Prepared By: AK

Parameter	Flag	Cert	RL Result	Units	Dilution	RL
GRO	Je, Qs	1	9570	mg/Kg	50	4.00

Surrogate	Flag	Cert	Result	Units	Dilution	Spike Amount	Percent Recovery	Recovery Limits
Trifluorotoluene (TFT)	Qsr	Qsr	0.00	mg/Kg	50	2.00	0	70 - 130
4-Bromofluorobenzene (4-BFB)	Qsr	Qsr	217	mg/Kg	50	2.00	10850	70 - 130

Sample: 340914 - AH-2 3-3.5'

Laboratory: Midland
Analysis: BTEX
QC Batch: 104964
Prep Batch: 88876

Analytical Method: S 8021B
Date Analyzed: 2013-09-12
Sample Preparation: 2013-09-10

Prep Method: S 5035
Analyzed By: AK
Prepared By: AK

Parameter	Flag	Cert	RL Result	Units	Dilution	RL
Benzene		1	158	mg/Kg	100	0.0200
Toluene	Je	1	819	mg/Kg	100	0.0200
Ethylbenzene		1	430	mg/Kg	100	0.0200
Xylene		1	533	mg/Kg	100	0.0200

Surrogate	Flag	Cert	Result	Units	Dilution	Spike Amount	Percent Recovery	Recovery Limits
Trifluorotoluene (TFT)	Qsr	Qsr	0.00	mg/Kg	100	2.00	0	70 - 130
4-Bromofluorobenzene (4-BFB)	Qsr	Qsr	142	mg/Kg	100	2.00	7100	70 - 130

Sample: 340914 - AH-2 3-3.5'

Laboratory: Midland
Analysis: Chloride (Titration)
QC Batch: 104953
Prep Batch: 88902

Analytical Method: SM 4500-Cl B
Date Analyzed: 2013-09-11
Sample Preparation: 2013-09-11

Prep Method: N/A
Analyzed By: AR
Prepared By: AR

continued ...

Report Date: September 18, 2013
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sample 340914 continued ...

Parameter	Flag	Cert	RL Result	Units	Dilution	RL
Parameter	Flag	Cert	RL Result	Units	Dilution	RL
Chloride			91.0	mg/Kg	5	4.00

Sample: 340914 - AH-2 3-3.5'

Laboratory: Midland

Analysis: TPH DRO - NEW

QC Batch: 104876

Prep Batch: 88863

Analytical Method: S 8015 D

Date Analyzed: 2013-09-10

Sample Preparation: 2013-09-09

Prep Method: N/A

Analyzed By: CW

Prepared By: CW

Parameter	Flag	Cert	RL Result	Units	Dilution	RL
DRO		1	8030	mg/Kg	5	50.0

Surrogate	Flag	Cert	Result	Units	Dilution	Spike Amount	Percent Recovery	Recovery Limits
n-Tricosane	Qsr	Qsr	463	mg/Kg	5	100	463	76.3 - 192.6

Sample: 340914 - AH-2 3-3.5'

Laboratory: Midland

Analysis: TPH GRO

QC Batch: 104965

Prep Batch: 88876

Analytical Method: S 8015 D

Date Analyzed: 2013-09-12

Sample Preparation: 2013-09-10

Prep Method: S 5035

Analyzed By: AK

Prepared By: AK

Parameter	Flag	Cert	RL Result	Units	Dilution	RL
GRO	Je, Qsr	1	17500	mg/Kg	100	4.00

Surrogate	Flag	Cert	Result	Units	Dilution	Spike Amount	Percent Recovery	Recovery Limits
Trifluorotoluene (TFT)	Qsr	Qsr	0.00	mg/Kg	100	2.00	0	70 - 130
4-Bromofluorobenzene (4-BFB)	Qsr	Qsr	384	mg/Kg	100	2.00	19200	70 - 130

Report Date: September 18, 2013
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Work Order: 13090435
COG/Jon-Bob #1

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Sample: 340915 - AH-2 4-4.5'

Laboratory: Midland
Analysis: BTEX
QC Batch: 104964
Prep Batch: 88876

Analytical Method: S 8021B
Date Analyzed: 2013-09-12
Sample Preparation: 2013-09-10

Prep Method: S 5035
Analyzed By: AK
Prepared By: AK

Parameter	Flag	Cert	RL Result	Units	Dilution	RL
Benzene		1	95.0	mg/Kg	100	0.0200
Toluene		1	506	mg/Kg	100	0.0200
Ethylbenzene		1	270	mg/Kg	100	0.0200
Xylene		1	334	mg/Kg	100	0.0200

Surrogate	Flag	Cert	Result	Units	Dilution	Spike Amount	Percent Recovery	Recovery Limits
Trifluorotoluene (TFT)	Qsr	Qsr	0.00	mg/Kg	100	2.00	0	70 - 130
4-Bromofluorobenzene (4-BFB)	Qsr	Qsr	94.5	mg/Kg	100	2.00	4725	70 - 130

Sample: 340915 - AH-2 4-4.5'

Laboratory: Midland
Analysis: Chloride (Titration)
QC Batch: 104953
Prep Batch: 88902

Analytical Method: SM 4500-Cl B
Date Analyzed: 2013-09-11
Sample Preparation: 2013-09-11

Prep Method: N/A
Analyzed By: AR
Prepared By: AR

Parameter	Flag	Cert	RL Result	Units	Dilution	RL
Chloride			71.9	mg/Kg	5	4.00

Sample: 340915 - AH-2 4-4.5'

Laboratory: Midland
Analysis: TPH DRO - NEW
QC Batch: 104876
Prep Batch: 88863

Analytical Method: S 8015 D
Date Analyzed: 2013-09-10
Sample Preparation: 2013-09-09

Prep Method: N/A
Analyzed By: CW
Prepared By: CW

Parameter	Flag	Cert	RL Result	Units	Dilution	RL
DRO		1	10200	mg/Kg	5	50.0

Surrogate	Flag	Cert	Result	Units	Dilution	Spike Amount	Percent Recovery	Recovery Limits
n-Tricosane	Qsr	Qsr	544	mg/Kg	5	100	544	76.3 - 192.6

Report Date: September 18, 2013
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Sample: 340915 - AH-2 4-4.5'

Laboratory: Midland
Analysis: TPH GRO
QC Batch: 104965
Prep Batch: 88876

Analytical Method: S 8015 D
Date Analyzed: 2013-09-12
Sample Preparation: 2013-09-10

Prep Method: S 5035
Analyzed By: AK
Prepared By: AK

Parameter	Flag	Cert	RL Result	Units	Dilution	RL
GRO	Q _{nr}	1	10700	mg/Kg	100	4.00

Surrogate	Flag	Cert	Result	Units	Dilution	Spike Amount	Percent Recovery	Recovery Limits
Trifluorotoluene (TFT)	Q _{nr}	Q _{nr}	0.00	mg/Kg	100	2.00	0	70 - 130
4-Bromofluorobenzene (4-BFB)	Q _{nr}	Q _{nr}	130	mg/Kg	100	2.00	6500	70 - 130

Sample: 340916 - AH-2 5-5.5'

Laboratory: Midland
Analysis: BTEX
QC Batch: 104964
Prep Batch: 88876

Analytical Method: S 8021B
Date Analyzed: 2013-09-12
Sample Preparation: 2013-09-10

Prep Method: S 5035
Analyzed By: AK
Prepared By: AK

Parameter	Flag	Cert	RL Result	Units	Dilution	RL
Benzene		1	251	mg/Kg	100	0.0200
Toluene	Ja	1	897	mg/Kg	100	0.0200
Ethylbenzene		1	411	mg/Kg	100	0.0200
Xylene		1	502	mg/Kg	100	0.0200

Surrogate	Flag	Cert	Result	Units	Dilution	Spike Amount	Percent Recovery	Recovery Limits
Trifluorotoluene (TFT)	Q _{nr}	Q _{nr}	4.40	mg/Kg	100	2.00	220	70 - 130
4-Bromofluorobenzene (4-BFB)	Q _{nr}	Q _{nr}	130	mg/Kg	100	2.00	6500	70 - 130

Sample: 340916 - AH-2 5-5.5'

Laboratory: Midland
Analysis: Chloride (Titration)
QC Batch: 104953
Prep Batch: 88902

Analytical Method: SM 4500-Cl B
Date Analyzed: 2013-09-11
Sample Preparation: 2013-09-11

Prep Method: N/A
Analyzed By: AR
Prepared By: AR

continued ...

Report Date: September 18, 2013
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Work Order: 13090435
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sample 340916 continued ...

Parameter	Flag	Cert	RL Result	Units	Dilution	RL
Parameter	Flag	Cert	RL Result	Units	Dilution	RL
Chloride			110	mg/Kg	5	4.00

Sample: 340916 - AH-2 5-5.5'

Laboratory: Midland

Analysis: TPH DRO - NEW

QC Batch: 104876

Prep Batch: 88863

Analytical Method: S 8015 D

Date Analyzed: 2013-09-10

Sample Preparation: 2013-09-09

Prep Method: N/A

Analyzed By: CW

Prepared By: CW

Parameter	Flag	Cert	RL Result	Units	Dilution	RL
DRO		1	18600	mg/Kg	5	50.0

Surrogate	Flag	Cert	Result	Units	Dilution	Spike Amount	Percent Recovery	Recovery Limits
n-Tricosane	Qsr	Qsr	875	mg/Kg	5	100	875	76.3 - 192.6

Sample: 340916 - AH-2 5-5.5'

Laboratory: Midland

Analysis: TPH GRO

QC Batch: 104965

Prep Batch: 88876

Analytical Method: S 8015 D

Date Analyzed: 2013-09-12

Sample Preparation: 2013-09-10

Prep Method: S 5035

Analyzed By: AK

Prepared By: AK

Parameter	Flag	Cert	RL Result	Units	Dilution	RL
GRO	Je, Qs	1	18100	mg/Kg	100	4.00

Surrogate	Flag	Cert	Result	Units	Dilution	Spike Amount	Percent Recovery	Recovery Limits
Trifluorotoluene (TFT)	Qsr	Qsr	0.00	mg/Kg	100	2.00	0	70 - 130
4-Bromofluorobenzene (4-BFB)	Qsr	Qsr	364	mg/Kg	100	2.00	18200	70 - 130

Report Date: September 18, 2013
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Sample: 340917 - AH-2 6-6.5'

Laboratory: Midland
Analysis: BTEX
QC Batch: 104964
Prep Batch: 88876

Analytical Method: S 8021B
Date Analyzed: 2013-09-12
Sample Preparation: 2013-09-10

Prep Method: S 5035
Analyzed By: AK
Prepared By: AK

Parameter	Flag	Cert	RL Result	Units	Dilution	RL
Benzene		1	271	mg/Kg	100	0.0200
Toluene	Je	1	929	mg/Kg	100	0.0200
Ethylbenzene		1	419	mg/Kg	100	0.0200
Xylene		1	516	mg/Kg	100	0.0200

Surrogate	Flag	Cert	Result	Units	Dilution	Spike Amount	Percent Recovery	Recovery Limits
Trifluorotoluene (TFT)	Qsr	Qsr	4.74	mg/Kg	100	2.00	237	70 - 130
4-Bromofluorobenzene (4-BFB)	Qsr	Qsr	121	mg/Kg	100	2.00	6050	70 - 130

Sample: 340917 - AH-2 6-6.5'

Laboratory: Midland
Analysis: Chloride (Titration)
QC Batch: 104953
Prep Batch: 88902

Analytical Method: SM 4500-Cl B
Date Analyzed: 2013-09-11
Sample Preparation: 2013-09-11

Prep Method: N/A
Analyzed By: AR
Prepared By: AR

Parameter	Flag	Cert	RL Result	Units	Dilution	RL
Chloride			91.0	mg/Kg	5	4.00

Sample: 340917 - AH-2 6-6.5'

Laboratory: Midland
Analysis: TPH DRO - NEW
QC Batch: 104876
Prep Batch: 88863

Analytical Method: S 8015 D
Date Analyzed: 2013-09-10
Sample Preparation: 2013-09-09

Prep Method: N/A
Analyzed By: CW
Prepared By: CW

Parameter	Flag	Cert	RL Result	Units	Dilution	RL
DRO		1	8890	mg/Kg	5	50.0

Surrogate	Flag	Cert	Result	Units	Dilution	Spike Amount	Percent Recovery	Recovery Limits
n-Tricosane	Qsr	Qsr	483	mg/Kg	5	100	483	76.3 - 192.6

Report Date: September 18, 2013
TBD

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COG/Jon-Bob #1

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Sample: 340917 - AH-2 6-6.5'

Laboratory: Midland
Analysis: TPH GRO
QC Batch: 104965
Prep Batch: 88876

Analytical Method: S 8015 D
Date Analyzed: 2013-09-12
Sample Preparation: 2013-09-10

Prep Method: S 5035
Analyzed By: AK
Prepared By: AK

Parameter	Flag	Cert	RL Result	Units	Dilution	RL
GRO	Je, Qs	1	18300	mg/Kg	100	4.00

Surrogate	Flag	Cert	Result	Units	Dilution	Spike Amount	Percent Recovery	Recovery Limits
Trifluorotoluene (TFT)	Qsr	Qsr	0.00	mg/Kg	100	2.00	0	70 - 130
4-Bromofluorobenzene (4-BFB)	Qsr	Qsr	355	mg/Kg	100	2.00	17750	70 - 130

Sample: 340918 - AH-3 0-1'

Laboratory: Midland
Analysis: BTEX
QC Batch: 104964
Prep Batch: 88876

Analytical Method: S 8021B
Date Analyzed: 2013-09-12
Sample Preparation: 2013-09-10

Prep Method: S 5035
Analyzed By: AK
Prepared By: AK

Parameter	Flag	Cert	RL Result	Units	Dilution	RL
Benzene		1	11.8	mg/Kg	50	0.0200
Toluene		1	149	mg/Kg	50	0.0200
Ethylbenzene		1	105	mg/Kg	50	0.0200
Xylene		1	120	mg/Kg	50	0.0200

Surrogate	Flag	Cert	Result	Units	Dilution	Spike Amount	Percent Recovery	Recovery Limits
Trifluorotoluene (TFT)	Qsr	Qsr	3.55	mg/Kg	50	2.00	178	70 - 130
4-Bromofluorobenzene (4-BFB)	Qsr	Qsr	38.2	mg/Kg	50	2.00	1910	70 - 130

Sample: 340918 - AH-3 0-1'

Laboratory: Midland
Analysis: Chloride (Titration)
QC Batch: 104953
Prep Batch: 88902

Analytical Method: SM 4500-Cl B
Date Analyzed: 2013-09-11
Sample Preparation: 2013-09-11

Prep Method: N/A
Analyzed By: AR
Prepared By: AR

continued ...

Report Date: September 18, 2013
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Work Order: 13090435
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sample 340918 continued ...

Parameter	Flag	Cert	RL Result	Units	Dilution	RL
Parameter	Flag	Cert	RL Result	Units	Dilution	RL
Chloride			364	mg/Kg	5	4.00

Sample: 340918 - AH-3 0-1'

Laboratory: Midland

Analysis: TPH DRO - NEW

QC Batch: 104876

Prep Batch: 88863

Analytical Method: S 8015 D

Date Analyzed: 2013-09-10

Sample Preparation: 2013-09-09

Prep Method: N/A

Analyzed By: CW

Prepared By: CW

Parameter	Flag	Cert	RL Result	Units	Dilution	RL
DRO		1	7080	mg/Kg	5	50.0

Surrogate	Flag	Cert	Result	Units	Dilution	Spike Amount	Percent Recovery	Recovery Limits
n-Tricosane	Qsr	Qsr	838	mg/Kg	5	100	838	76.3 - 192.6

Sample: 340918 - AH-3 0-1'

Laboratory: Midland

Analysis: TPH GRO

QC Batch: 104965

Prep Batch: 88876

Analytical Method: S 8015 D

Date Analyzed: 2013-09-12

Sample Preparation: 2013-09-10

Prep Method: S 5035

Analyzed By: AK

Prepared By: AK

Parameter	Flag	Cert	RL Result	Units	Dilution	RL
GRO	Qsr	1	3330	mg/Kg	50	4.00

Surrogate	Flag	Cert	Result	Units	Dilution	Spike Amount	Percent Recovery	Recovery Limits
Trifluorotoluene (TFT)	Qsr	Qsr	0.00	mg/Kg	50	2.00	0	70 - 130
4-Bromofluorobenzene (4-BFB)	Qsr	Qsr	50.6	mg/Kg	50	2.00	2530	70 - 130

Report Date: September 18, 2013
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Sample: 340919 - AH-3 1-1.5'

Laboratory: Midland
Analysis: BTEX
QC Batch: 104964
Prep Batch: 88876

Analytical Method: S 8021B
Date Analyzed: 2013-09-12
Sample Preparation: 2013-09-10

Prep Method: S 5035
Analyzed By: AK
Prepared By: AK

Parameter	Flag	Cert	RL Result	Units	Dilution	RL
Benzene		1	71.6	mg/Kg	100	0.0200
Toluene		1	456	mg/Kg	100	0.0200
Ethylbenzene		1	237	mg/Kg	100	0.0200
Xylene		1	298	mg/Kg	100	0.0200

Surrogate	Flag	Cert	Result	Units	Dilution	Spike Amount	Percent Recovery	Recovery Limits
Trifluorotoluene (TFT)	Qsr	Qsr	6.61	mg/Kg	100	2.00	330	70 - 130
4-Bromofluorobenzene (4-BFB)	Qsr	Qsr	79.0	mg/Kg	100	2.00	3950	70 - 130

Sample: 340919 - AH-3 1-1.5'

Laboratory: Midland
Analysis: Chloride (Titration)
QC Batch: 104953
Prep Batch: 88902

Analytical Method: SM 4500-Cl B
Date Analyzed: 2013-09-11
Sample Preparation: 2013-09-11

Prep Method: N/A
Analyzed By: AR
Prepared By: AR

Parameter	Flag	Cert	RL Result	Units	Dilution	RL
Chloride			489	mg/Kg	5	4.00

Sample: 340919 - AH-3 1-1.5'

Laboratory: Midland
Analysis: TPH DRO - NEW
QC Batch: 104876
Prep Batch: 88863

Analytical Method: S 8015 D
Date Analyzed: 2013-09-10
Sample Preparation: 2013-09-09

Prep Method: N/A
Analyzed By: CW
Prepared By: CW

Parameter	Flag	Cert	RL Result	Units	Dilution	RL
DRO		1	7060	mg/Kg	5	50.0

Surrogate	Flag	Cert	Result	Units	Dilution	Spike Amount	Percent Recovery	Recovery Limits
n-Tricosane	Qsr	Qsr	405	mg/Kg	5	100	405	76.3 - 192.6

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Sample: 340919 - AH-3 1-1.5'

Laboratory: Midland
Analysis: TPH GRO
QC Batch: 104965
Prep Batch: 88876

Analytical Method: S 8015 D
Date Analyzed: 2013-09-12
Sample Preparation: 2013-09-10

Prep Method: S 5035
Analyzed By: AK
Prepared By: AK

Parameter	Flag	Cert	RL Result	Units	Dilution	RL
GRO	Q _{st}	1	9080	mg/Kg	100	4.00

Surrogate	Flag	Cert	Result	Units	Dilution	Spike Amount	Percent Recovery	Recovery Limits
Trifluorotoluene (TFT)	Q _{st}	Q _{st}	0.00	mg/Kg	100	2.00	0	70 - 130
4-Bromofluorobenzene (4-BFB)	Q _{st}	Q _{st}	118	mg/Kg	100	2.00	5900	70 - 130

Sample: 340920 - AH-3 2-2.5'

Laboratory: Midland
Analysis: BTEX
QC Batch: 104964
Prep Batch: 88876

Analytical Method: S 8021B
Date Analyzed: 2013-09-12
Sample Preparation: 2013-09-10

Prep Method: S 5035
Analyzed By: AK
Prepared By: AK

Parameter	Flag	Cert	RL Result	Units	Dilution	RL
Benzene		1	163	mg/Kg	100	0.0200
Toluene		1	788	mg/Kg	100	0.0200
Ethylbenzene		1	397	mg/Kg	100	0.0200
Xylene		1	497	mg/Kg	100	0.0200

Surrogate	Flag	Cert	Result	Units	Dilution	Spike Amount	Percent Recovery	Recovery Limits
Trifluorotoluene (TFT)			5.70	mg/Kg	100	2.00	285	70 - 130
4-Bromofluorobenzene (4-BFB)			122	mg/Kg	100	2.00	6100	70 - 130

Sample: 340920 - AH-3 2-2.5'

Laboratory: Midland
Analysis: Chloride (Titration)
QC Batch: 104953
Prep Batch: 88902

Analytical Method: SM 4500-Cl B
Date Analyzed: 2013-09-11
Sample Preparation: 2013-09-11

Prep Method: N/A
Analyzed By: AR
Prepared By: AR

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Report Date: September 18, 2013
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Work Order: 13090435
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sample 340920 continued ...

Parameter	Flag	Cert	RL Result	Units	Dilution	RL
Parameter	Flag	Cert	RL Result	Units	Dilution	RL
Chloride			685	mg/Kg	5	4.00

Sample: 340920 - AH-3 2-2.5'

Laboratory: Midland

Analysis: TPH DRO - NEW

QC Batch: 104876

Prep Batch: 88863

Analytical Method: S 8015 D

Date Analyzed: 2013-09-10

Sample Preparation: 2013-09-09

Prep Method: N/A

Analyzed By: CW

Prepared By: CW

Parameter	Flag	Cert	RL Result	Units	Dilution	RL
DRO		1	15100	mg/Kg	5	50.0

Surrogate	Flag	Cert	Result	Units	Dilution	Spike Amount	Percent Recovery	Recovery Limits
n-Tricosane	Qsr	Qsr	642	mg/Kg	5	100	642	76.3 - 192.6

Sample: 340920 - AH-3 2-2.5'

Laboratory: Midland

Analysis: TPH GRO

QC Batch: 104965

Prep Batch: 88876

Analytical Method: S 8015 D

Date Analyzed: 2013-09-12

Sample Preparation: 2013-09-10

Prep Method: S 5035

Analyzed By: AK

Prepared By: AK

Parameter	Flag	Cert	RL Result	Units	Dilution	RL
GRO	Je, Qsr	1	16400	mg/Kg	100	4.00

Surrogate	Flag	Cert	Result	Units	Dilution	Spike Amount	Percent Recovery	Recovery Limits
Trifluorotoluene (TFT)	Qsr	Qsr	0.00	mg/Kg	100	2.00	0	70 - 130
4-Bromofluorobenzene (4-BFB)	Qsr	Qsr	192	mg/Kg	100	2.00	9600	70 - 130

Report Date: September 18, 2013
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Sample: 340921 - AH-3 3-3.5'

Laboratory: Midland

Analysis: BTEX

QC Batch: 104964

Prep Batch: 88876

Analytical Method: S 8021B

Date Analyzed: 2013-09-12

Sample Preparation: 2013-09-10

Prep Method: S 5035

Analyzed By: AK

Prepared By: AK

Parameter	Flag	Cert	RL Result	Units	Dilution	RL
Benzene		1	90.7	mg/Kg	100	0.0200
Toluene		1	454	mg/Kg	100	0.0200
Ethylbenzene		1	247	mg/Kg	100	0.0200
Xylene		1	309	mg/Kg	100	0.0200

Surrogate	Flag	Cert	Result	Units	Dilution	Spike Amount	Percent Recovery	Recovery Limits
Trifluorotoluene (TFT)	Qsr	Qsr	0.00	mg/Kg	100	2.00	0	70 - 130
4-Bromofluorobenzene (4-BFB)	Qsr	Qsr	91.2	mg/Kg	100	2.00	4560	70 - 130

Sample: 340921 - AH-3 3-3.5'

Laboratory: Midland

Analysis: Chloride (Titration)

QC Batch: 104953

Prep Batch: 88902

Analytical Method: SM 4500-Cl B

Date Analyzed: 2013-09-11

Sample Preparation: 2013-09-11

Prep Method: N/A

Analyzed By: AR

Prepared By: AR

Parameter	Flag	Cert	RL Result	Units	Dilution	RL
Chloride			173	mg/Kg	5	4.00

Sample: 340921 - AH-3 3-3.5'

Laboratory: Midland

Analysis: TPH DRO - NEW

QC Batch: 104876

Prep Batch: 88863

Analytical Method: S 8015 D

Date Analyzed: 2013-09-10

Sample Preparation: 2013-09-09

Prep Method: N/A

Analyzed By: CW

Prepared By: CW

Parameter	Flag	Cert	RL Result	Units	Dilution	RL
DRO		1	11300	mg/Kg	5	50.0

Surrogate	Flag	Cert	Result	Units	Dilution	Spike Amount	Percent Recovery	Recovery Limits
n-Tricosane	Qsr	Qsr	1440	mg/Kg	5	100	1440	76.3 - 192.6

Report Date: September 18, 2013
TBD

Work Order: 13090435
COG/Jon-Bob #1

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Sample: 340921 - AH-3 3-3.5'

Laboratory: Midland
Analysis: TPH GRO
QC Batch: 104965
Prep Batch: 88876

Analytical Method: S 8015 D
Date Analyzed: 2013-09-12
Sample Preparation: 2013-09-10

Prep Method: S 5035
Analyzed By: AK
Prepared By: AK

Parameter	Flag	Cert	RL Result	Units	Dilution	RL
GRO	Q _{sr}	1	10000	mg/Kg	100	4.00

Surrogate	Flag	Cert	Result	Units	Dilution	Spike Amount	Percent Recovery	Recovery Limits
Trifluorotoluene (TFT)	Q _{sr}	Q _{sr}	0.00	mg/Kg	100	2.00	0	70 - 130
4-Bromofluorobenzene (4-BFB)	Q _{sr}	Q _{sr}	126	mg/Kg	100	2.00	6300	70 - 130

Sample: 340922 - AH-3 4-4.5'

Laboratory: Midland
Analysis: BTEX
QC Batch: 105005
Prep Batch: 88968

Analytical Method: S 8021B
Date Analyzed: 2013-09-12
Sample Preparation: 2013-09-11

Prep Method: S 5035
Analyzed By: AK
Prepared By: AK

Parameter	Flag	Cert	RL Result	Units	Dilution	RL
Benzene		1	350	mg/Kg	200	0.0200
Toluene		1	1230	mg/Kg	200	0.0200
Ethylbenzene		1	559	mg/Kg	200	0.0200
Xylene		1	692	mg/Kg	200	0.0200

Surrogate	Flag	Cert	Result	Units	Dilution	Spike Amount	Percent Recovery	Recovery Limits
Trifluorotoluene (TFT)	Q _{sr}	Q _{sr}	11.6	mg/Kg	200	2.00	580	70 - 130
4-Bromofluorobenzene (4-BFB)	Q _{sr}	Q _{sr}	162	mg/Kg	200	2.00	8100	70 - 130

Sample: 340922 - AH-3 4-4.5'

Laboratory: Midland
Analysis: Chloride (Titration)
QC Batch: 104953
Prep Batch: 88902

Analytical Method: SM 4500-Cl B
Date Analyzed: 2013-09-11
Sample Preparation: 2013-09-11

Prep Method: N/A
Analyzed By: AR
Prepared By: AR

continued ...

Report Date: September 18, 2013
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sample 340922 continued ...

Parameter	Flag	Cert	RL Result	Units	Dilution	RL
Parameter	Flag	Cert	RL Result	Units	Dilution	RL
Chloride			249	mg/Kg	5	4.00

Sample: 340922 - AH-3 4-4.5'

Laboratory: Midland

Analysis: TPH DRO - NEW

QC Batch: 104931

Prep Batch: 88905

Analytical Method: S 8015 D

Date Analyzed: 2013-09-11

Sample Preparation: 2013-09-10

Prep Method: N/A

Analyzed By: KC

Prepared By: KC

Parameter	Flag	Cert	RL Result	Units	Dilution	RL
DRO		1	29400	mg/Kg	10	50.0

Surrogate	Flag	Cert	Result	Units	Dilution	Spike Amount	Percent Recovery	Recovery Limits
n-Tricosane	Qsr	Qsr	1300	mg/Kg	10	100	1300	76.3 - 192.6

Sample: 340922 - AH-3 4-4.5'

Laboratory: Midland

Analysis: TPH GRO

QC Batch: 105006

Prep Batch: 88968

Analytical Method: S 8015 D

Date Analyzed: 2013-09-12

Sample Preparation: 2013-09-11

Prep Method: S 5035

Analyzed By: AK

Prepared By: AK

Parameter	Flag	Cert	RL Result	Units	Dilution	RL
GRO	Qsr	1	22100	mg/Kg	200	4.00

Surrogate	Flag	Cert	Result	Units	Dilution	Spike Amount	Percent Recovery	Recovery Limits
Trifluorotoluene (TFT)	Qsr	Qsr	0.00	mg/Kg	200	2.00	0	70 - 130
4-Bromofluorobenzene (4-BFB)	Qsr	Qsr	442	mg/Kg	200	2.00	22100	70 - 130

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Method Blanks

Method Blank (1) QC Batch: 104876

QC Batch: 104876
Prep Batch: 88863

Date Analyzed: 2013-09-10
QC Preparation: 2013-09-09

Analyzed By: CW
Prepared By: CW

Parameter	Flag	Cert	MDL Result	Units	RL
DRO		1	17.8	mg/Kg	50

Surrogate	Flag	Cert	Result	Units	Dilution	Spike Amount	Percent Recovery	Recovery Limits
n-Tricosane			106	mg/Kg	1	100	106	64.1 - 164.4

Method Blank (1) QC Batch: 104931

QC Batch: 104931
Prep Batch: 88905

Date Analyzed: 2013-09-11
QC Preparation: 2013-09-10

Analyzed By: KC
Prepared By: KC

Parameter	Flag	Cert	MDL Result	Units	RL
DRO		1	20.0	mg/Kg	50

Surrogate	Flag	Cert	Result	Units	Dilution	Spike Amount	Percent Recovery	Recovery Limits
n-Tricosane			101	mg/Kg	1	100	101	64.1 - 164.4

Method Blank (1) QC Batch: 104949

QC Batch: 104949
Prep Batch: 88902

Date Analyzed: 2013-09-11
QC Preparation: 2013-09-10

Analyzed By: AR
Prepared By: AR

Parameter	Flag	Cert	MDL Result	Units	RL
Chloride			<3.85	mg/Kg	4

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Method Blank (1) QC Batch: 104953

QC Batch: 104953
Prep Batch: 88902

Date Analyzed: 2013-09-11
QC Preparation: 2013-09-10

Analyzed By: AR
Prepared By: AR

Parameter	Flag	Cert	MDL Result	Units	RL
Chloride			<3.85	mg/Kg	4

Method Blank (1) QC Batch: 104964

QC Batch: 104964
Prep Batch: 88876

Date Analyzed: 2013-09-12
QC Preparation: 2013-09-10

Analyzed By: AK
Prepared By: AK

Parameter	Flag	Cert	MDL Result	Units	RL
Benzene		1	<0.00810	mg/Kg	0.02
Toluene		1	<0.00750	mg/Kg	0.02
Ethylbenzene		1	<0.00730	mg/Kg	0.02
Xylene		1	<0.00700	mg/Kg	0.02

Surrogate	Flag	Cert	Result	Units	Dilution	Spike Amount	Percent Recovery	Recovery Limits
Trifluorotoluene (TFT)			1.78	mg/Kg	1	2.00	89	70 - 130
4-Bromofluorobenzene (4-BFB)			1.66	mg/Kg	1	2.00	83	70 - 130

Method Blank (1) QC Batch: 104965

QC Batch: 104965
Prep Batch: 88876

Date Analyzed: 2013-09-12
QC Preparation: 2013-09-10

Analyzed By: AK
Prepared By: AK

Parameter	Flag	Cert	MDL Result	Units	RL
GRO		1	<2.32	mg/Kg	4

Surrogate	Flag	Cert	Result	Units	Dilution	Spike Amount	Percent Recovery	Recovery Limits
Trifluorotoluene (TFT)			2.04	mg/Kg	1	2.00	102	70 - 130
4-Bromofluorobenzene (4-BFB)			2.01	mg/Kg	1	2.00	100	70 - 130

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Method Blank (1) QC Batch: 104972

QC Batch: 104972
Prep Batch: 88943

Date Analyzed: 2013-09-12
QC Preparation: 2013-09-11

Analyzed By: CW
Prepared By: CW

Parameter	Flag	Cert	MDL Result	Units	RL
DRO		1	19.0	mg/Kg	50

Surrogate	Flag	Cert	Result	Units	Dilution	Spike Amount	Percent Recovery	Recovery Limits
n-Tricosane			115	mg/Kg	1	100	115	64.1 - 164.4

Method Blank (1) QC Batch: 105005

QC Batch: 105005
Prep Batch: 88968

Date Analyzed: 2013-09-12
QC Preparation: 2013-09-11

Analyzed By: AK
Prepared By: AK

Parameter	Flag	Cert	MDL Result	Units	RL
Benzene		1	<0.00810	mg/Kg	0.02
Toluene		1	<0.00750	mg/Kg	0.02
Ethylbenzene		1	<0.00730	mg/Kg	0.02
Xylene		1	<0.00700	mg/Kg	0.02

Surrogate	Flag	Cert	Result	Units	Dilution	Spike Amount	Percent Recovery	Recovery Limits
Trifluorotoluene (TFT)			1.85	mg/Kg	1	2.00	92	70 - 130
4-Bromofluorobenzene (4-BFB)			1.80	mg/Kg	1	2.00	90	70 - 130

Method Blank (1) QC Batch: 105006

QC Batch: 105006
Prep Batch: 88968

Date Analyzed: 2013-09-12
QC Preparation: 2013-09-11

Analyzed By: AK
Prepared By: AK

Parameter	Flag	Cert	MDL Result	Units	RL
GRO		1	<2.32	mg/Kg	4

Surrogate	Flag	Cert	Result	Units	Dilution	Spike Amount	Percent Recovery	Recovery Limits
Trifluorotoluene (TFT)			2.19	mg/Kg	1	2.00	110	70 - 130

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Surrogate	Flag	Cert	Result	Units	Dilution	Spike Amount	Percent Recovery	Recovery Limits
4-Bromofluorobenzene (4-BFB)			2.20	mg/Kg	1	2.00	110	70 - 130

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Laboratory Control Spikes

Laboratory Control Spike (LCS-1)

QC Batch: 104876
Prep Batch: 88863

Date Analyzed: 2013-09-10
QC Preparation: 2013-09-09

Analyzed By: CW
Prepared By: CW

Param	F	C	LCS Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit
DRO		1	283	mg/Kg	1	250	17.8	106	53.8 - 129

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

Param	F	C	LCSD Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit	RPD	RPD Limit
DRO		1	283	mg/Kg	1	250	17.8	106	53.8 - 129	0	20

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

Surrogate	LCS Result	LCSD Result	Units	Dil.	Spike Amount	LCS Rec.	LCSD Rec.	Rec. Limit
n-Tricosane	113	103	mg/Kg	1	100	113	103	61.3 - 170.4

Laboratory Control Spike (LCS-1)

QC Batch: 104931
Prep Batch: 88905

Date Analyzed: 2013-09-11
QC Preparation: 2013-09-10

Analyzed By: KC
Prepared By: KC

Param	F	C	LCS Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit
DRO		1	280	mg/Kg	1	250	20	104	53.8 - 129

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

Param	F	C	LCSD Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit	RPD	RPD Limit
DRO		1	287	mg/Kg	1	250	20	107	53.8 - 129	2	20

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

Surrogate	LCS Result	LCSD Result	Units	Dil.	Spike Amount	LCS Rec.	LCSD Rec.	Rec. Limit
n-Tricosane	101	106	mg/Kg	1	100	101	106	61.3 - 170.4

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Laboratory Control Spike (LCS-1)

QC Batch: 104949
Prep Batch: 88902

Date Analyzed: 2013-09-11
QC Preparation: 2013-09-10

Analyzed By: AR
Prepared By: AR

Param	F	C	LCS Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit
Chloride			2610	mg/Kg	1	2500	<3.85	104	89.7 - 115.9

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

Param	F	C	LCSD Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit	RPD Limit
Chloride			2530	mg/Kg	1	2500	<3.85	101	89.7 - 115.9	3 20

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

Laboratory Control Spike (LCS-1)

QC Batch: 104953
Prep Batch: 88902

Date Analyzed: 2013-09-11
QC Preparation: 2013-09-10

Analyzed By: AR
Prepared By: AR

Param	F	C	LCS Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit
Chloride			2380	mg/Kg	1	2500	<3.85	95	89.7 - 115.9

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

Param	F	C	LCSD Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit	RPD Limit
Chloride			2310	mg/Kg	1	2500	<3.85	92	89.7 - 115.9	3 20

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

Laboratory Control Spike (LCS-1)

QC Batch: 104964
Prep Batch: 88876

Date Analyzed: 2013-09-12
QC Preparation: 2013-09-10

Analyzed By: AK
Prepared By: AK

Param	F	C	LCS Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit
Benzene		1	1.76	mg/Kg	1	2.00	<0.00810	88	70 - 130
Toluene		1	1.80	mg/Kg	1	2.00	<0.00750	90	70 - 130
Ethylbenzene		1	1.79	mg/Kg	1	2.00	<0.00730	90	70 - 130

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Param	F	C	LCS Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit
Xylene		1	5.49	mg/Kg	1	6.00	<0.00700	92	70 - 130

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

Param	F	C	LCSD Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit	RPD	RPD Limit
Benzene		1	1.76	mg/Kg	1	2.00	<0.00810	88	70 - 130	0	20
Toluene		1	1.79	mg/Kg	1	2.00	<0.00750	90	70 - 130	1	20
Ethylbenzene		1	1.76	mg/Kg	1	2.00	<0.00730	88	70 - 130	2	20
Xylene		1	5.43	mg/Kg	1	6.00	<0.00700	90	70 - 130	1	20

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

Surrogate	LCS Result	LCSD Result	Units	Dil.	Spike Amount	LCS Rec.	LCSD Rec.	Rec. Limit
Trifluorotoluene (TFT)	1.97	2.00	mg/Kg	1	2.00	98	100	70 - 130
4-Bromofluorobenzene (4-BFB)	2.03	1.76	mg/Kg	1	2.00	102	88	70 - 130

Laboratory Control Spike (LCS-1)

QC Batch: 104965
Prep Batch: 88876

Date Analyzed: 2013-09-12
QC Preparation: 2013-09-10

Analyzed By: AK
Prepared By: AK

Param	F	C	LCS Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit
GRO		1	15.2	mg/Kg	1	20.0	<2.32	76	70 - 130

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

Param	F	C	LCSD Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit	RPD	RPD Limit
GRO		1	16.8	mg/Kg	1	20.0	<2.32	84	70 - 130	10	20

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

Surrogate	LCS Result	LCSD Result	Units	Dil.	Spike Amount	LCS Rec.	LCSD Rec.	Rec. Limit
Trifluorotoluene (TFT)	1.91	2.16	mg/Kg	1	2.00	96	108	70 - 130
4-Bromofluorobenzene (4-BFB)	2.17	2.22	mg/Kg	1	2.00	108	111	70 - 130

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Laboratory Control Spike (LCS-1)

QC Batch: 104972
Prep Batch: 88943

Date Analyzed: 2013-09-12
QC Preparation: 2013-09-11

Analyzed By: CW
Prepared By: CW

Param	F	C	LCS Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit
DRO		1	297	mg/Kg	1	250	19	111	53.8 - 129

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

Param	F	C	LCSD Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit	RPD	RPD Limit
DRO		1	297	mg/Kg	1	250	19	111	53.8 - 129	0	20

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

Surrogate	LCS Result	LCSD Result	Units	Dil.	Spike Amount	LCS Rec.	LCSD Rec.	Rec. Limit
n-Tricosane	108	108	mg/Kg	1	100	108	108	61.3 - 170.4

Laboratory Control Spike (LCS-1)

QC Batch: 105005
Prep Batch: 88968

Date Analyzed: 2013-09-12
QC Preparation: 2013-09-11

Analyzed By: AK
Prepared By: AK

Param	F	C	LCS Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit
Benzene		1	1.64	mg/Kg	1	2.00	<0.00810	82	70 - 130
Toluene		1	1.70	mg/Kg	1	2.00	<0.00750	85	70 - 130
Ethylbenzene		1	1.66	mg/Kg	1	2.00	<0.00730	83	70 - 130
Xylene		1	5.02	mg/Kg	1	6.00	<0.00700	84	70 - 130

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

Param	F	C	LCSD Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit	RPD	RPD Limit
Benzene		1	1.67	mg/Kg	1	2.00	<0.00810	84	70 - 130	2	20
Toluene		1	1.69	mg/Kg	1	2.00	<0.00750	84	70 - 130	1	20
Ethylbenzene		1	1.66	mg/Kg	1	2.00	<0.00730	83	70 - 130	0	20
Xylene		1	5.04	mg/Kg	1	6.00	<0.00700	84	70 - 130	0	20

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

Surrogate	LCS Result	LCSD Result	Units	Dil.	Spike Amount	LCS Rec.	LCSD Rec.	Rec. Limit
Trifluorotoluene (TFT)	1.77	1.79	mg/Kg	1	2.00	88	90	70 - 130

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Surrogate	LCS Result	LCSD Result	Units	Dil.	Spike Amount	LCS Rec.	LCSD Rec.	Rec. Limit
4-Bromofluorobenzene (4-BFB)	1.69	1.66	mg/Kg	1	2.00	84	83	70 - 130

Laboratory Control Spike (LCS-1)

QC Batch: 105006
Prep Batch: 88968

Date Analyzed: 2013-09-12
QC Preparation: 2013-09-11

Analyzed By: AK
Prepared By: AK

Param	F	C	LCS Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit
GRO		1	16.5	mg/Kg	1	20.0	<2.32	82	70 - 130

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

Param	F	C	LCSD Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit	RPD	RPD Limit
GRO		1	16.9	mg/Kg	1	20.0	<2.32	84	70 - 130	2	20

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

Surrogate	LCS Result	LCSD Result	Units	Dil.	Spike Amount	LCS Rec.	LCSD Rec.	Rec. Limit
Trifluorotoluene (TFT)	2.13	2.08	mg/Kg	1	2.00	106	104	70 - 130
4-Bromofluorobenzene (4-BFB)	2.38	2.23	mg/Kg	1	2.00	119	112	70 - 130

Matrix Spike (MS-1) Spiked Sample: 340909

QC Batch: 104876
Prep Batch: 88863

Date Analyzed: 2013-09-10
QC Preparation: 2013-09-09

Analyzed By: CW
Prepared By: CW

Param	F	C	MS Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit
DRO		1	323	mg/Kg	1	250	34.8	115	29 - 168.5

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

Param	F	C	MSD Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit	RPD	RPD Limit
DRO		1	321	mg/Kg	1	250	34.8	114	29 - 168.5	1	20

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	119	120	mg/Kg	1	100	119	120	59.5 - 168.9

Matrix Spike (MS-1) Spiked Sample: 341000

QC Batch: 104931
Prep Batch: 88905

Date Analyzed: 2013-09-11
QC Preparation: 2013-09-10

Analyzed By: KC
Prepared By: KC

Param	F	C	MS Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit
DRO		1	369	mg/Kg	1	250	64.4	122	29 - 168.5

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

Param	F	C	MSD Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit	RPD	RPD Limit
DRO		1	337	mg/Kg	1	250	64.4	109	29 - 168.5	9	20

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

Surrogate	MS Result	MSD Result	Units	Dil.	Spike Amount	MS Rec.	MSD Rec.	Rec. Limit
n-Tricosane	106	111	mg/Kg	1	100	106	111	59.5 - 168.9

Matrix Spike (MS-1) Spiked Sample: 340912

QC Batch: 104949
Prep Batch: 88902

Date Analyzed: 2013-09-11
QC Preparation: 2013-09-10

Analyzed By: AR
Prepared By: AR

Param	F	C	MS Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit
Chloride			2440	mg/Kg	5	2500	<19.2	98	78.9 - 121

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

Param	F	C	MSD Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit	RPD	RPD Limit
Chloride			2580	mg/Kg	5	2500	<19.2	103	78.9 - 121	6	20

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

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Matrix Spike (MS-1) Spiked Sample: 340922

QC Batch: 104953
Prep Batch: 88902

Date Analyzed: 2013-09-11
QC Preparation: 2013-09-10

Analyzed By: AR
Prepared By: AR

Param	F	C	MS Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit
Chloride			2720	mg/Kg	5	2500	249	99	78.9 - 121

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

Param	F	C	MSD Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit	RPD	RPD Limit
Chloride			2590	mg/Kg	5	2500	249	94	78.9 - 121	5	20

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

Matrix Spike (MS-1) Spiked Sample: 341000

QC Batch: 104964
Prep Batch: 88876

Date Analyzed: 2013-09-12
QC Preparation: 2013-09-10

Analyzed By: AK
Prepared By: AK

Param	F	C	MS Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit
Benzene		1	1.62	mg/Kg	1	2.00	<0.00810	81	70 - 130
Toluene		1	1.65	mg/Kg	1	2.00	<0.00750	82	70 - 130
Ethylbenzene		1	1.63	mg/Kg	1	2.00	<0.00730	82	70 - 130
Xylene		1	4.98	mg/Kg	1	6.00	<0.00700	83	70 - 130

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

Param	F	C	MSD Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit	RPD	RPD Limit
Benzene		1	1.69	mg/Kg	1	2.00	<0.00810	84	70 - 130	4	20
Toluene		1	1.72	mg/Kg	1	2.00	<0.00750	86	70 - 130	4	20
Ethylbenzene		1	1.69	mg/Kg	1	2.00	<0.00730	84	70 - 130	4	20
Xylene		1	5.16	mg/Kg	1	6.00	<0.00700	86	70 - 130	4	20

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

Surrogate	MS Result	MSD Result	Units	Dil.	Spike Amount	MS Rec.	MSD Rec.	Rec. Limit
Trifluorotoluene (TFT)	1.77	1.84	mg/Kg	1	2	88	92	70 - 130
4-Bromofluorobenzene (4-BFB)	1.68	1.65	mg/Kg	1	2	84	82	70 - 130

Report Date: September 18, 2013
TBD

Work Order: 13090435
COG/Jon-Bob #1

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Matrix Spike (MS-1) Spiked Sample: 341000

QC Batch: 104965
Prep Batch: 88876

Date Analyzed: 2013-09-12
QC Preparation: 2013-09-10

Analyzed By: AK
Prepared By: AK

Param	F	C	MS Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit
GRO	Q _s	Q _s	1	12.8	mg/Kg	1	20.0	<2.32	64 70 - 130

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

Param	F	C	MSD Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit	RPD	RPD Limit
GRO	Q _s	Q _s	1	12.0	mg/Kg	1	20.0	<2.32	60 70 - 130	6	20

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

Surrogate	MS Result	MSD Result	Units	Dil.	Spike Amount	MS Rec.	MSD Rec.	Rec. Limit
Trifluorotoluene (TFT)	2.10	2.13	mg/Kg	1	2	105	106	70 - 130
4-Bromofluorobenzene (4-BFB)	2.31	2.33	mg/Kg	1	2	116	116	70 - 130

Matrix Spike (MS-1) Spiked Sample: 340903

QC Batch: 104972
Prep Batch: 88943

Date Analyzed: 2013-09-12
QC Preparation: 2013-09-11

Analyzed By: CW
Prepared By: CW

Param	F	C	MS Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit
DRO	Q _s	Q _s	1	3190	mg/Kg	5	250	5680	-996 29 - 168.5

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

Param	F	C	MSD Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit	RPD	RPD Limit
DRO	Q _s	Q _s	1	2830	mg/Kg	5	250	5680	-1140 29 - 168.5	12	20

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

Surrogate	MS Result	MSD Result	Units	Dil.	Spike Amount	MS Rec.	MSD Rec.	Rec. Limit
n-Tricosane	Q _{sr}	Q _{sr}	251	233	mg/Kg	5	100	251 233 59.5 - 168.9

Report Date: September 18, 2013
TBD

Work Order: 13090435
COG/Jon-Bob #1

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Matrix Spike (MS-1) Spiked Sample: 341010

QC Batch: 105005
Prep Batch: 88968

Date Analyzed: 2013-09-12
QC Preparation: 2013-09-11

Analyzed By: AK
Prepared By: AK

Param	F	C	MS Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit
Benzene		1	1.62	mg/Kg	1	2.00	<0.00810	81	70 - 130
Toluene		1	1.68	mg/Kg	1	2.00	<0.00750	84	70 - 130
Ethylbenzene		1	1.66	mg/Kg	1	2.00	<0.00730	83	70 - 130
Xylene		1	5.05	mg/Kg	1	6.00	<0.00700	84	70 - 130

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

Param	F	C	MSD Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit	RPD	RPD Limit
Benzene		1	1.54	mg/Kg	1	2.00	<0.00810	77	70 - 130	5	20
Toluene		1	1.59	mg/Kg	1	2.00	<0.00750	80	70 - 130	6	20
Ethylbenzene		1	1.59	mg/Kg	1	2.00	<0.00730	80	70 - 130	4	20
Xylene		1	4.85	mg/Kg	1	6.00	<0.00700	81	70 - 130	4	20

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

Surrogate	MS Result	MSD Result	Units	Dil.	Spike Amount	MS Rec.	MSD Rec.	Rec. Limit
Trifluorotoluene (TFT)	1.81	1.76	mg/Kg	1	2	90	88	70 - 130
4-Bromofluorobenzene (4-BFB)	1.79	1.80	mg/Kg	1	2	90	90	70 - 130

Matrix Spike (MS-1) Spiked Sample: 341010

QC Batch: 105006
Prep Batch: 88968

Date Analyzed: 2013-09-12
QC Preparation: 2013-09-11

Analyzed By: AK
Prepared By: AK

Param	F	C	MS Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit
GRO	Qs	Qs	12.7	mg/Kg	1	20.0	<2.32	64	70 - 130

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

Param	F	C	MSD Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit	RPD	RPD Limit
GRO	Qs	Qs	13.5	mg/Kg	1	20.0	<2.32	68	70 - 130	6	20

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

continued ...

Report Date: September 18, 2013
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matrix spikes continued ...

Surrogate	MS Result	MSD Result	Units	Dil.	Spike Amount	MS Rec.	MSD Rec.	Rec. Limit
Surrogate	MS Result	MSD Result	Units	Dil.	Spike Amount	MS Rec.	MSD Rec.	Rec. Limit
Trifluorotoluene (TFT)	2.07	2.05	mg/Kg	1	2	104	102	70 - 130
4-Bromofluorobenzene (4-BFB)	2.51	2.51	mg/Kg	1	2	126	126	70 - 130

Calibration Standards

Standard (CCV-1)

QC Batch: 104876

Date Analyzed: 2013-09-10

Analyzed By: CW

Param	Flag	Cert	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
DRO		1	mg/Kg	250	268	107	80 - 120	2013-09-10

Standard (CCV-2)

QC Batch: 104876

Date Analyzed: 2013-09-10

Analyzed By: CW

Param	Flag	Cert	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
DRO		1	mg/Kg	250	270	108	80 - 120	2013-09-10

Standard (CCV-3)

QC Batch: 104876

Date Analyzed: 2013-09-10

Analyzed By: CW

Param	Flag	Cert	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
DRO		1	mg/Kg	250	275	110	80 - 120	2013-09-10

Standard (CCV-1)

QC Batch: 104931

Date Analyzed: 2013-09-11

Analyzed By: KC

Param	Flag	Cert	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
DRO		1	mg/Kg	250	298	119	80 - 120	2013-09-11

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Standard (CCV-2)

QC Batch: 104931

Date Analyzed: 2013-09-11

Analyzed By: KC

Param	Flag	Cert	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
DRO		1	mg/Kg	250	260	104	80 - 120	2013-09-11

Standard (CCV-3)

QC Batch: 104931

Date Analyzed: 2013-09-11

Analyzed By: KC

Param	Flag	Cert	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
DRO		1	mg/Kg	250	269	108	80 - 120	2013-09-11

Standard (CCV-1)

QC Batch: 104949

Date Analyzed: 2013-09-11

Analyzed By: AR

Param	Flag	Cert	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
Chloride			mg/Kg	100	99.8	100	85 - 115	2013-09-11

Standard (CCV-2)

QC Batch: 104949

Date Analyzed: 2013-09-11

Analyzed By: AR

Param	Flag	Cert	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
Chloride			mg/Kg	100	100	100	85 - 115	2013-09-11

Standard (CCV-1)

QC Batch: 104953

Date Analyzed: 2013-09-11

Analyzed By: AR

Report Date: September 18, 2013
TBD

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Param	Flag	Cert	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
Chloride			mg/Kg	100	100	100	85 - 115	2013-09-11

Standard (CCV-2)

QC Batch: 104953

Date Analyzed: 2013-09-11

Analyzed By: AR

Param	Flag	Cert	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
Chloride			mg/Kg	100	100	100	85 - 115	2013-09-11

Standard (CCV-1)

QC Batch: 104964

Date Analyzed: 2013-09-12

Analyzed By: AK

Param	Flag	Cert	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
Benzene		1	mg/kg	0.100	0.0899	90	80 - 120	2013-09-12
Toluene		1	mg/kg	0.100	0.0897	90	80 - 120	2013-09-12
Ethylbenzene		1	mg/kg	0.100	0.0857	86	80 - 120	2013-09-12
Xylene		1	mg/kg	0.300	0.264	88	80 - 120	2013-09-12

Standard (CCV-2)

QC Batch: 104964

Date Analyzed: 2013-09-12

Analyzed By: AK

Param	Flag	Cert	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
Benzene		1	mg/kg	0.100	0.0922	92	80 - 120	2013-09-12
Toluene		1	mg/kg	0.100	0.0919	92	80 - 120	2013-09-12
Ethylbenzene		1	mg/kg	0.100	0.0878	88	80 - 120	2013-09-12
Xylene		1	mg/kg	0.300	0.267	89	80 - 120	2013-09-12

Report Date: September 18, 2013
TBD

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Standard (CCV-3)

QC Batch: 104964

Date Analyzed: 2013-09-12

Analyzed By: AK

Param	Flag	Cert	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
Benzene		1	mg/kg	0.100	0.0917	92	80 - 120	2013-09-12
Toluene		1	mg/kg	0.100	0.0936	94	80 - 120	2013-09-12
Ethylbenzene		1	mg/kg	0.100	0.0885	88	80 - 120	2013-09-12
Xylene		1	mg/kg	0.300	0.266	89	80 - 120	2013-09-12

Standard (CCV-1)

QC Batch: 104965

Date Analyzed: 2013-09-12

Analyzed By: AK

Param	Flag	Cert	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
GRO		1	mg/Kg	1.00	0.962	96	80 - 120	2013-09-12

Standard (CCV-2)

QC Batch: 104965

Date Analyzed: 2013-09-12

Analyzed By: AK

Param	Flag	Cert	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
GRO		1	mg/Kg	1.00	1.01	101	80 - 120	2013-09-12

Standard (CCV-3)

QC Batch: 104965

Date Analyzed: 2013-09-12

Analyzed By: AK

Param	Flag	Cert	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
GRO		1	mg/Kg	1.00	1.03	103	80 - 120	2013-09-12

Report Date: September 18, 2013
TBD

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Standard (CCV-1)

QC Batch: 104972

Date Analyzed: 2013-09-12

Analyzed By: CW

Param	Flag	Cert	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
DRO		1	mg/Kg	250	291	116	80 - 120	2013-09-12

Standard (CCV-2)

QC Batch: 104972

Date Analyzed: 2013-09-12

Analyzed By: CW

Param	Flag	Cert	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
DRO		1	mg/Kg	250	295	118	80 - 120	2013-09-12

Standard (CCV-1)

QC Batch: 105005

Date Analyzed: 2013-09-12

Analyzed By: AK

Param	Flag	Cert	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
Benzene		1	mg/kg	0.100	0.0923	92	80 - 120	2013-09-12
Toluene		1	mg/kg	0.100	0.0931	93	80 - 120	2013-09-12
Ethylbenzene		1	mg/kg	0.100	0.0882	88	80 - 120	2013-09-12
Xylene		1	mg/kg	0.300	0.270	90	80 - 120	2013-09-12

Standard (CCV-2)

QC Batch: 105005

Date Analyzed: 2013-09-12

Analyzed By: AK

Param	Flag	Cert	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
Benzene		1	mg/kg	0.100	0.0910	91	80 - 120	2013-09-12
Toluene		1	mg/kg	0.100	0.0907	91	80 - 120	2013-09-12
Ethylbenzene		1	mg/kg	0.100	0.0856	86	80 - 120	2013-09-12
Xylene		1	mg/kg	0.300	0.259	86	80 - 120	2013-09-12

Report Date: September 18, 2013
TBD

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Standard (CCV-1)

QC Batch: 105006

Date Analyzed: 2013-09-12

Analyzed By: AK

Param	Flag	Cert	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
GRO		1	mg/Kg	1.00	1.03	103	80 - 120	2013-09-12

Standard (CCV-2)

QC Batch: 105006

Date Analyzed: 2013-09-12

Analyzed By: AK

Param	Flag	Cert	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
GRO		1	mg/Kg	1.00	0.889	89	80 - 120	2013-09-12

Appendix

Report Definitions

Name	Definition
MDL	Method Detection Limit
MQL	Minimum Quantitation Limit
SDL	Sample Detection Limit

Laboratory Certifications

C	Certifying Authority	Certification Number	Laboratory Location
-	NCTRCA	WFWB384444Y0909	TraceAnalysis
-	DBE	VN 20657	TraceAnalysis
-	HUB	1752439743100-86536	TraceAnalysis
-	WBE	237019	TraceAnalysis
1	NELAP	T104704392-12-4	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 than ten times the concentration found in the method blank. The result should be considered non-detect to the SDL.
Je	Estimated concentration exceeding calibration range.
MI1	Split peak or shoulder peak
MI2	Instrument software did not integrate
MI3	Instrument software misidentified the peak
MI4	Instrument software integrated improperly
MI5	Baseline correction
Qc	Calibration check outside of laboratory limits.
Qr	RPD outside of laboratory limits
Qs	Spike recovery outside of laboratory limits.
Qsr	Surrogate recovery outside of laboratory limits.
U	The analyte is not detected above the SDL

Attachments

Report Date: September 18, 2013
TBD

Work Order: 13090435
COG/Jon-Bob #1

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

13090435

Analysis Request of Chain of Custody Record

PAGE: 2 OF: 2

ANALYSIS REQUEST
(Circle or Specify Method No.)**TETRA TECH**1910 N. Big Spring St.
Midland, Texas 79705
(432) 682-4559 • Fax (432) 682-3946

CLIENT NAME: <u>COG</u>		SITE MANAGER: <u>Mike Foyak</u>		PROJECT NAME: <u>San Bob #1</u>		PRESERVATIVE METHOD		NUMBER OF CONTAINERS		FILTERED (Y/N)		HCL		HNO3		ICE		NONE	
LAB I.D. NUMBER	DATE	TIME	MATRIX	COMP.	GRAB	SAMPLE IDENTIFICATION													
913	4-29		S		X	2-2.5													
914			S		X	3-3.5													
915			S		X	4-4.5													
916			S		X	5-5.5													
917			S		X	6-6.5													
918			S		X	0-1													
919			S		X	1-1.5													
920			S		X	2-2.5													
921			S		X	3-3.5													
922			S		X	4-4.5													

RELINQUISHED BY: (Signature)		RECEIVED BY: (Signature)		DATE		TIME	
<u>[Signature]</u>		<u>[Signature]</u>		<u>9/4/13</u>		<u>14:00</u>	
RELINQUISHED BY: (Signature)		RECEIVED BY: (Signature)		DATE		TIME	
<u>[Signature]</u>		<u>[Signature]</u>		<u>9/4/13</u>		<u>14:35</u>	
RELINQUISHED BY: (Signature)		RECEIVED BY: (Signature)		DATE		TIME	
<u>[Signature]</u>		<u>[Signature]</u>		<u>9/4/13</u>		<u>14:35</u>	

RECEIVING LABORATORY:		DATE		TIME	
<u>[Signature]</u>		<u>9/4/13</u>		<u>14:00</u>	

ADDRESS:		STATE:		PHONE:		ZIP:	
<u>[Address]</u>		<u>[State]</u>		<u>[Phone]</u>		<u>[Zip]</u>	

SAMPLE CONDITION WHEN RECEIVED:		REMARKS:	
<u>5.40</u>		<u>[Remarks]</u>	

TETRA TECH CONTACT PERSON:		RESULTS BY:	
<u>[Name]</u>		<u>[Name]</u>	

RUSH CHARGES AUTHORIZED:		YES		NO	
<u>[Signature]</u>		<u>[Signature]</u>		<u>[Signature]</u>	

AIRBILL #:		OTHER:	
<u>[Airbill #]</u>		<u>[Other]</u>	

SAMPLE SHIPPED BY: (Circle)		FEDEX		BUS		UPS	
<u>[Signature]</u>		<u>[Signature]</u>		<u>[Signature]</u>		<u>[Signature]</u>	

SAMPLED BY: (Print & Initial)		DATE		TIME	
<u>[Signature]</u>		<u>9/4/13</u>		<u>14:00</u>	

PAH 8270		PCRA Metals Ag As Ba Cd Cr Pb Hg Se		TCLP Metals Ag As Ba Cd Vr Pd Hg Se		TCLP Volatiles		RCL		GC/MS Vol. 8240/8260/624		GC/MS Semi. Vol. 8270/625		PCB's 8080/608		Pest. 808/608		Chloride		Gamma Spec.		Alpha Beta (Air)		PLM (Asbestos)		Major Anions/Cations, pH, TDS	
<u>[Signature]</u>		<u>[Signature]</u>		<u>[Signature]</u>		<u>[Signature]</u>		<u>[Signature]</u>		<u>[Signature]</u>		<u>[Signature]</u>		<u>[Signature]</u>		<u>[Signature]</u>		<u>[Signature]</u>		<u>[Signature]</u>		<u>[Signature]</u>		<u>[Signature]</u>		<u>[Signature]</u>	

Summary Report

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

Report Date: October 22, 2013

Work Order: 13101126

Project Location: Lea Co., NM
Project Name: COG/Jon-Bob #1
Project Number: 112MC05894

Sample	Description	Matrix	Date Taken	Time Taken	Date Received
343700	BH-1 5'	soil	2013-10-10	00:00	2013-10-11
343702	BH-1 10'	soil	2013-10-10	00:00	2013-10-11
343703	BH-1 14-15'	soil	2013-10-10	00:00	2013-10-11
343704	BH-1 19-20'	soil	2013-10-10	00:00	2013-10-11
343705	BH-1 24-25'	soil	2013-10-10	00:00	2013-10-11
343706	BH-1 29-30'	soil	2013-10-10	00:00	2013-10-11
343709	BH-2 5'	soil	2013-10-10	00:00	2013-10-11
343711	BH-2 10'	soil	2013-10-10	00:00	2013-10-11
343712	BH-2 14-15'	soil	2013-10-10	00:00	2013-10-11
343713	BH-2 19-20'	soil	2013-10-10	00:00	2013-10-11
343714	BH-2 24-25'	soil	2013-10-10	00:00	2013-10-11
343715	BH-2 29-30'	soil	2013-10-10	00:00	2013-10-11

Sample - Field Code	BTEX				TPH DRO - NEW	TPH GRO
	Benzene (mg/Kg)	Toluene (mg/Kg)	Ethylbenzene (mg/Kg)	Xylene (mg/Kg)	DRO (mg/Kg)	GRO (mg/Kg)
343700 - BH-1 5'	21.2 Qs	241	184	238	8390	9300
343702 - BH-1 10'	<0.0200	<0.0200	<0.0200	<0.0200	<50.0	6.30
343703 - BH-1 14-15'	<0.0200	<0.0200	<0.0200	<0.0200	<50.0	<4.00
343709 - BH-2 5'	83.3 Qs	457	266	309	10800	19400
343711 - BH-2 10'	256 Qs	653	289	326	21300	11400
343712 - BH-2 14-15'	<0.0200	0.104	0.350	0.579	90.2	8.82
343713 - BH-2 19-20'					<50.0	<4.00

Sample: 343700 - BH-1 5'

Param	Flag	Result	Units	RL
Chloride		<20.0	mg/Kg	4

Sample: 343702 - BH-1 10'

Param	Flag	Result	Units	RL
Chloride		122	mg/Kg	4

Sample: 343703 - BH-1 14-15'

Param	Flag	Result	Units	RL
Chloride		37.5	mg/Kg	4

Sample: 343704 - BH-1 19-20'

Param	Flag	Result	Units	RL
Chloride		61.0	mg/Kg	4

Sample: 343705 - BH-1 24-25'

Param	Flag	Result	Units	RL
Chloride		51.6	mg/Kg	4

Sample: 343706 - BH-1 29-30'

Param	Flag	Result	Units	RL
Chloride		28.1	mg/Kg	4

Sample: 343709 - BH-2 5'

Param	Flag	Result	Units	RL
Chloride		459	mg/Kg	4

Sample: 343711 - BH-2 10'

Param	Flag	Result	Units	RL
Chloride		159	mg/Kg	4

Sample: 343712 - BH-2 14-15'

Param	Flag	Result	Units	RL
Chloride		220	mg/Kg	4

Sample: 343713 - BH-2 19-20'

Param	Flag	Result	Units	RL
Chloride		136	mg/Kg	4

Sample: 343714 - BH-2 24-25'

Param	Flag	Result	Units	RL
Chloride		202	mg/Kg	4

Sample: 343715 - BH-2 29-30'

Param	Flag	Result	Units	RL
Chloride		151	mg/Kg	4



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Certifications

WBE HUB NCTRCA DBE NELAP DoD LELAP Kansas Oklahoma ISO 17025

Analytical and Quality Control Report

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

Report Date: October 22, 2013

Work Order: 13101126

Project Location: Lea Co., NM
Project Name: COG/Jon-Bob #1
Project Number: 112MC05894

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

Sample	Description	Matrix	Date Taken	Time Taken	Date Received
343700	BH-1 5'	soil	2013-10-10	00:00	2013-10-11
343702	BH-1 10'	soil	2013-10-10	00:00	2013-10-11
343703	BH-1 14-15'	soil	2013-10-10	00:00	2013-10-11
343704	BH-1 19-20'	soil	2013-10-10	00:00	2013-10-11
343705	BH-1 24-25'	soil	2013-10-10	00:00	2013-10-11
343706	BH-1 29-30'	soil	2013-10-10	00:00	2013-10-11
343709	BH-2 5'	soil	2013-10-10	00:00	2013-10-11
343711	BH-2 10'	soil	2013-10-10	00:00	2013-10-11
343712	BH-2 14-15'	soil	2013-10-10	00:00	2013-10-11
343713	BH-2 19-20'	soil	2013-10-10	00:00	2013-10-11
343714	BH-2 24-25'	soil	2013-10-10	00:00	2013-10-11
343715	BH-2 29-30'	soil	2013-10-10	00:00	2013-10-11

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 39 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/Jon-Bob #1 were received by TraceAnalysis, Inc. on 2013-10-11 and assigned to work order 13101126. Samples for work order 13101126 were received intact at a temperature of 6.0 C.

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

Test	Method	Prep Batch	Prep Date	QC Batch	Analysis Date
BTEX	S 8021B	89730	2013-10-15 at 14:30	105978	2013-10-16 at 08:28
BTEX	S 8021B	89764	2013-10-16 at 10:05	106024	2013-10-17 at 07:29
Chloride (Titration)	SM 4500-Cl B	89770	2013-10-15 at 10:33	105992	2013-10-16 at 10:34
Chloride (Titration)	SM 4500-Cl B	89770	2013-10-15 at 10:33	106064	2013-10-18 at 09:50
Chloride (Titration)	SM 4500-Cl B	89770	2013-10-15 at 10:33	106066	2013-10-18 at 10:01
TPH DRO - NEW	S 8015 D	89771	2013-10-15 at 12:00	105994	2013-10-16 at 11:21
TPH DRO - NEW	S 8015 D	89809	2013-10-16 at 15:00	106033	2013-10-17 at 11:01
TPH DRO - NEW	S 8015 D	89880	2013-10-21 at 10:20	106110	2013-10-21 at 16:01
TPH GRO	S 8015 D	89797	2013-10-17 at 07:51	106089	2013-10-18 at 15:46

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 13101126 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.

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Analytical Report

Sample: 343700 - BH-1 5'

Laboratory: Midland
Analysis: BTEX
QC Batch: 106024
Prep Batch: 89764

Analytical Method: S 8021B
Date Analyzed: 2013-10-17
Sample Preparation: 2013-10-16

Prep Method: S 5035
Analyzed By: AK
Prepared By: AK

Parameter	Flag	Cert	RL Result	Units	Dilution	RL
Benzene	Qs	1	21.2	mg/Kg	50	0.0200
Toluene		1	241	mg/Kg	50	0.0200
Ethylbenzene		1	184	mg/Kg	50	0.0200
Xylene		1	238	mg/Kg	50	0.0200

Surrogate	Flag	Cert	Result	Units	Dilution	Spike Amount	Percent Recovery	Recovery Limits
Trifluorotoluene (TFT)	Qsr	Qsr	8.10	mg/Kg	50	2.00	405	70 - 130
4-Bromofluorobenzene (4-BFB)	Qsr	Qsr	66.2	mg/Kg	50	2.00	3310	70 - 130

Sample: 343700 - BH-1 5'

Laboratory: Midland
Analysis: Chloride (Titration)
QC Batch: 105992
Prep Batch: 89770

Analytical Method: SM 4500-Cl B
Date Analyzed: 2013-10-16
Sample Preparation: 2013-10-17

Prep Method: N/A
Analyzed By: AR
Prepared By: AR

Parameter	Flag	Cert	RL Result	Units	Dilution	RL
Chloride	u		<20.0	mg/Kg	5	4.00

Sample: 343700 - BH-1 5'

Laboratory: Midland
Analysis: TPH DRO - NEW
QC Batch: 105994
Prep Batch: 89771

Analytical Method: S 8015 D
Date Analyzed: 2013-10-16
Sample Preparation: 2013-10-15

Prep Method: N/A
Analyzed By: KC
Prepared By: KC

Parameter	Flag	Cert	RL Result	Units	Dilution	RL
DRO		1	8390	mg/Kg	5	50.0

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Surrogate	Flag	Cert	Result	Units	Dilution	Spike Amount	Percent Recovery	Recovery Limits
n-Tricosane	Q _{sr}	Q _{sr}	763	mg/Kg	5	100	763	76.3 - 192.6

Sample: 343700 - BH-1 5'

Laboratory: Midland
Analysis: TPH GRO
QC Batch: 106089
Prep Batch: 89797

Analytical Method: S 8015 D
Date Analyzed: 2013-10-18
Sample Preparation: 2013-10-17

Prep Method: S 5035
Analyzed By: AK
Prepared By: AK

Parameter	Flag	Cert	RL Result	Units	Dilution	RL
GRO		1	9300	mg/Kg	100	4.00

Surrogate	Flag	Cert	Result	Units	Dilution	Spike Amount	Percent Recovery	Recovery Limits
Trifluorotoluene (TFT)	Q _{sr}	Q _{sr}	3.13	mg/Kg	100	2.00	156	70 - 130
4-Bromofluorobenzene (4-BFB)	Q _{sr}	Q _{sr}	270	mg/Kg	100	2.00	13500	70 - 130

Sample: 343702 - BH-1 10'

Laboratory: Midland
Analysis: BTEX
QC Batch: 105978
Prep Batch: 89730

Analytical Method: S 8021B
Date Analyzed: 2013-10-16
Sample Preparation: 2013-10-15

Prep Method: S 5035
Analyzed By: AK
Prepared By: AK

Parameter	Flag	Cert	RL Result	Units	Dilution	RL
Benzene	U	1	<0.0200	mg/Kg	1	0.0200
Toluene	U	1	<0.0200	mg/Kg	1	0.0200
Ethylbenzene	U	1	<0.0200	mg/Kg	1	0.0200
Xylene	U	1	<0.0200	mg/Kg	1	0.0200

Surrogate	Flag	Cert	Result	Units	Dilution	Spike Amount	Percent Recovery	Recovery Limits
Trifluorotoluene (TFT)			1.73	mg/Kg	1	2.00	86	70 - 130
4-Bromofluorobenzene (4-BFB)			1.91	mg/Kg	1	2.00	96	70 - 130

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Sample: 343702 - BH-1 10'

Laboratory:	Midland	Analytical Method:	SM 4500-Cl B	Prep Method:	N/A
Analysis:	Chloride (Titration)	Date Analyzed:	2013-10-18	Analyzed By:	AR
QC Batch:	106064	Sample Preparation:	2013-10-17	Prepared By:	AR
Prep Batch:	89770				

Parameter	Flag	Cert	RL Result	Units	Dilution	RL
Chloride			122	mg/Kg	5	4.00

Sample: 343702 - BH-1 10'

Laboratory:	Midland	Analytical Method:	S 8015 D	Prep Method:	N/A
Analysis:	TPH DRO - NEW	Date Analyzed:	2013-10-17	Analyzed By:	KC
QC Batch:	106033	Sample Preparation:	2013-10-16	Prepared By:	KC
Prep Batch:	89809				

Parameter	Flag	Cert	RL Result	Units	Dilution	RL
DRO		1	<50.0	mg/Kg	1	50.0

Surrogate	Flag	Cert	Result	Units	Dilution	Spike Amount	Percent Recovery	Recovery Limits
n-Tricosane			133	mg/Kg	1	100	133	76.3 - 192.6

Sample: 343702 - BH-1 10'

Laboratory:	Midland	Analytical Method:	S 8015 D	Prep Method:	S 5035
Analysis:	TPH GRO	Date Analyzed:	2013-10-18	Analyzed By:	AK
QC Batch:	106089	Sample Preparation:	2013-10-17	Prepared By:	AK
Prep Batch:	89797				

Parameter	Flag	Cert	RL Result	Units	Dilution	RL
GRO		1	6.30	mg/Kg	1	4.00

Surrogate	Flag	Cert	Result	Units	Dilution	Spike Amount	Percent Recovery	Recovery Limits
Trifluorotoluene (TFT)			2.45	mg/Kg	1	2.00	122	70 - 130
4-Bromofluorobenzene (4-BFB)	Qsr	Qsr	3.17	mg/Kg	1	2.00	158	70 - 130

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Sample: 343703 - BH-1 14-15'

Laboratory: Midland
Analysis: BTEX
QC Batch: 105978
Prep Batch: 89730

Analytical Method: S 8021B
Date Analyzed: 2013-10-16
Sample Preparation: 2013-10-15

Prep Method: S 5035
Analyzed By: AK
Prepared By: AK

Parameter	Flag	Cert	RL Result	Units	Dilution	RL
Benzene	u	1	<0.0200	mg/Kg	1	0.0200
Toluene	u	1	<0.0200	mg/Kg	1	0.0200
Ethylbenzene	u	1	<0.0200	mg/Kg	1	0.0200
Xylene	u	1	<0.0200	mg/Kg	1	0.0200

Surrogate	Flag	Cert	Result	Units	Dilution	Spike Amount	Percent Recovery	Recovery Limits
Trifluorotoluene (TFT)			1.84	mg/Kg	1	2.00	92	70 - 130
4-Bromofluorobenzene (4-BFB)			1.80	mg/Kg	1	2.00	90	70 - 130

Sample: 343703 - BH-1 14-15'

Laboratory: Midland
Analysis: Chloride (Titration)
QC Batch: 106064
Prep Batch: 89770

Analytical Method: SM 4500-Cl B
Date Analyzed: 2013-10-18
Sample Preparation: 2013-10-17

Prep Method: N/A
Analyzed By: AR
Prepared By: AR

Parameter	Flag	Cert	RL Result	Units	Dilution	RL
Chloride			37.5	mg/Kg	5	4.00

Sample: 343703 - BH-1 14-15'

Laboratory: Midland
Analysis: TPH DRO - NEW
QC Batch: 106033
Prep Batch: 89809

Analytical Method: S 8015 D
Date Analyzed: 2013-10-17
Sample Preparation: 2013-10-16

Prep Method: N/A
Analyzed By: KC
Prepared By: KC

Parameter	Flag	Cert	RL Result	Units	Dilution	RL
DRO	u	1	<50.0	mg/Kg	1	50.0

Surrogate	Flag	Cert	Result	Units	Dilution	Spike Amount	Percent Recovery	Recovery Limits
n-Tricosane			108	mg/Kg	1	100	108	76.3 - 192.6

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Sample: 343703 - BH-1 14-15'

Laboratory: Midland
Analysis: TPH GRO
QC Batch: 106089
Prep Batch: 89797

Analytical Method: S 8015 D
Date Analyzed: 2013-10-18
Sample Preparation: 2013-10-17

Prep Method: S 5035
Analyzed By: AK
Prepared By: AK

Parameter	Flag	Cert	RL Result	Units	Dilution	RL
GRO	u	1	<4.00	mg/Kg	1	4.00

Surrogate	Flag	Cert	Result	Units	Dilution	Spike Amount	Percent Recovery	Recovery Limits
Trifluorotoluene (TFT)			2.34	mg/Kg	1	2.00	117	70 - 130
4-Bromofluorobenzene (4-BFB)			2.06	mg/Kg	1	2.00	103	70 - 130

Sample: 343704 - BH-1 19-20'

Laboratory: Midland
Analysis: Chloride (Titration)
QC Batch: 106064
Prep Batch: 89770

Analytical Method: SM 4500-Cl B
Date Analyzed: 2013-10-18
Sample Preparation: 2013-10-17

Prep Method: N/A
Analyzed By: AR
Prepared By: AR

Parameter	Flag	Cert	RL Result	Units	Dilution	RL
Chloride			61.0	mg/Kg	5	4.00

Sample: 343705 - BH-1 24-25'

Laboratory: Midland
Analysis: Chloride (Titration)
QC Batch: 106064
Prep Batch: 89770

Analytical Method: SM 4500-Cl B
Date Analyzed: 2013-10-18
Sample Preparation: 2013-10-17

Prep Method: N/A
Analyzed By: AR
Prepared By: AR

Parameter	Flag	Cert	RL Result	Units	Dilution	RL
Chloride			51.6	mg/Kg	5	4.00

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Sample: 343706 - BH-1 29-30'

Laboratory:	Midland	Analytical Method:	SM 4500-Cl B	Prep Method:	N/A
Analysis:	Chloride (Titration)	Date Analyzed:	2013-10-18	Analyzed By:	AR
QC Batch:	106064	Sample Preparation:	2013-10-17	Prepared By:	AR
Prep Batch:	89770				

Parameter	Flag	Cert	RL Result	Units	Dilution	RL
Chloride			28.1	mg/Kg	5	4.00

Sample: 343709 - BH-2 5'

Laboratory:	Midland	Analytical Method:	S 8021B	Prep Method:	S 5035
Analysis:	BTEX	Date Analyzed:	2013-10-17	Analyzed By:	AK
QC Batch:	106024	Sample Preparation:	2013-10-16	Prepared By:	AK
Prep Batch:	89764				

Parameter	Flag	Cert	RL Result	Units	Dilution	RL
Benzene	Qs	1	83.3	mg/Kg	200	0.0200
Toluene		1	457	mg/Kg	200	0.0200
Ethylbenzene		1	266	mg/Kg	200	0.0200
Xylene		1	309	mg/Kg	200	0.0200

Surrogate	Flag	Cert	Result	Units	Dilution	Spike Amount	Percent Recovery	Recovery Limits
Trifluorotoluene (TFT)	Qor	Qor	27.3	mg/Kg	200	2.00	1365	70 - 130
4-Bromofluorobenzene (4-BFB)	Qor	Qor	100	mg/Kg	200	2.00	5000	70 - 130

Sample: 343709 - BH-2 5'

Laboratory:	Midland	Analytical Method:	SM 4500-Cl B	Prep Method:	N/A
Analysis:	Chloride (Titration)	Date Analyzed:	2013-10-18	Analyzed By:	AR
QC Batch:	106064	Sample Preparation:	2013-10-17	Prepared By:	AR
Prep Batch:	89770				

Parameter	Flag	Cert	RL Result	Units	Dilution	RL
Chloride			459	mg/Kg	5	4.00

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Sample: 343709 - BH-2 5'

Laboratory: Midland
Analysis: TPH DRO - NEW
QC Batch: 105994
Prep Batch: 89771

Analytical Method: S 8015 D
Date Analyzed: 2013-10-16
Sample Preparation: 2013-10-15

Prep Method: N/A
Analyzed By: KC
Prepared By: KC

Parameter	Flag	Cert	RL Result	Units	Dilution	RL
DRO		1	10800	mg/Kg	5	50.0

Surrogate	Flag	Cert	Result	Units	Dilution	Spike Amount	Percent Recovery	Recovery Limits
n-Tricosane	Q _{sr}	Q _{sr}	928	mg/Kg	5	100	928	76.3 - 192.6

Sample: 343709 - BH-2 5'

Laboratory: Midland
Analysis: TPH GRO
QC Batch: 106089
Prep Batch: 89797

Analytical Method: S 8015 D
Date Analyzed: 2013-10-18
Sample Preparation: 2013-10-17

Prep Method: S 5035
Analyzed By: AK
Prepared By: AK

Parameter	Flag	Cert	RL Result	Units	Dilution	RL
GRO		1	19400	mg/Kg	200	4.00

Surrogate	Flag	Cert	Result	Units	Dilution	Spike Amount	Percent Recovery	Recovery Limits
Trifluorotoluene (TFT)	Q _{sr}	Q _{sr}	3.89	mg/Kg	200	2.00	194	70 - 130
4-Bromofluorobenzene (4-BFB)	Q _{sr}	Q _{sr}	455	mg/Kg	200	2.00	22750	70 - 130

Sample: 343711 - BH-2 10'

Laboratory: Midland
Analysis: BTEX
QC Batch: 106024
Prep Batch: 89764

Analytical Method: S 8021B
Date Analyzed: 2013-10-17
Sample Preparation: 2013-10-16

Prep Method: S 5035
Analyzed By: AK
Prepared By: AK

Parameter	Flag	Cert	RL Result	Units	Dilution	RL
Benzene	Q _s	1	256	mg/Kg	200	0.0200
Toluene		1	653	mg/Kg	200	0.0200
Ethylbenzene		1	289	mg/Kg	200	0.0200
Xylene		1	326	mg/Kg	200	0.0200

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Surrogate	Flag	Cert	Result	Units	Dilution	Spike Amount	Percent Recovery	Recovery Limits
Trifluorotoluene (TFT)	Qsr	Qsr	0.00	mg/Kg	200	2.00	0	70 - 130
4-Bromofluorobenzene (4-BFB)	Qsr	Qsr	91.9	mg/Kg	200	2.00	4595	70 - 130

Sample: 343711 - BH-2 10'

Laboratory: Midland
Analysis: Chloride (Titration) Analytical Method: SM 4500-Cl B Prep Method: N/A
QC Batch: 106064 Date Analyzed: 2013-10-18 Analyzed By: AR
Prep Batch: 89770 Sample Preparation: 2013-10-17 Prepared By: AR

Parameter	Flag	Cert	RL Result	Units	Dilution	RL
Chloride			159	mg/Kg	5	4.00

Sample: 343711 - BH-2 10'

Laboratory: Midland
Analysis: TPH DRO - NEW Analytical Method: S 8015 D Prep Method: N/A
QC Batch: 106033 Date Analyzed: 2013-10-17 Analyzed By: KC
Prep Batch: 89809 Sample Preparation: 2013-10-16 Prepared By: KC

Parameter	Flag	Cert	RL Result	Units	Dilution	RL
DRO		1	21300	mg/Kg	5	50.0

Surrogate	Flag	Cert	Result	Units	Dilution	Spike Amount	Percent Recovery	Recovery Limits
n-Tricosane	Qsr	Qsr	2010	mg/Kg	5	100	2010	76.3 - 192.6

Sample: 343711 - BH-2 10'

Laboratory: Midland
Analysis: TPH GRO Analytical Method: S 8015 D Prep Method: S 5035
QC Batch: 106089 Date Analyzed: 2013-10-18 Analyzed By: AK
Prep Batch: 89797 Sample Preparation: 2013-10-17 Prepared By: AK

Parameter	Flag	Cert	RL Result	Units	Dilution	RL
GRO		1	11400	mg/Kg	200	4.00

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Surrogate	Flag	Cert	Result	Units	Dilution	Spike Amount	Percent Recovery	Recovery Limits
Trifluorotoluene (TFT)			2.08	mg/Kg	200	2.00	104	70 - 130
4-Bromofluorobenzene (4-BFB)	Q _{SR}	Q _{SR}	105	mg/Kg	200	2.00	5250	70 - 130

Sample: 343712 - BH-2 14-15'

Laboratory: Midland
Analysis: BTEX
QC Batch: 105978
Prep Batch: 89730

Analytical Method: S 8021B
Date Analyzed: 2013-10-16
Sample Preparation: 2013-10-15

Prep Method: S 5035
Analyzed By: AK
Prepared By: AK

Parameter	Flag	Cert	RL Result	Units	Dilution	RL
Benzene	U	1	<0.0200	mg/Kg	1	0.0200
Toluene		1	0.104	mg/Kg	1	0.0200
Ethylbenzene		1	0.350	mg/Kg	1	0.0200
Xylene		1	0.579	mg/Kg	1	0.0200

Surrogate	Flag	Cert	Result	Units	Dilution	Spike Amount	Percent Recovery	Recovery Limits
Trifluorotoluene (TFT)			1.72	mg/Kg	1	2.00	86	70 - 130
4-Bromofluorobenzene (4-BFB)			2.12	mg/Kg	1	2.00	106	70 - 130

Sample: 343712 - BH-2 14-15'

Laboratory: Midland
Analysis: Chloride (Titration)
QC Batch: 106064
Prep Batch: 89770

Analytical Method: SM 4500-Cl B
Date Analyzed: 2013-10-18
Sample Preparation: 2013-10-17

Prep Method: N/A
Analyzed By: AR
Prepared By: AR

Parameter	Flag	Cert	RL Result	Units	Dilution	RL
Chloride			220	mg/Kg	5	4.00

Sample: 343712 - BH-2 14-15'

Laboratory: Midland
Analysis: TPH DRO - NEW
QC Batch: 106033
Prep Batch: 89809

Analytical Method: S 8015 D
Date Analyzed: 2013-10-17
Sample Preparation: 2013-10-16

Prep Method: N/A
Analyzed By: KC
Prepared By: KC

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Parameter	Flag	Cert	RL Result	Units	Dilution	RL
DRO		1	90.2	mg/Kg	1	50.0

Surrogate	Flag	Cert	Result	Units	Dilution	Spike Amount	Percent Recovery	Recovery Limits
n-Tricosane			109	mg/Kg	1	100	109	76.3 - 192.6

Sample: 343712 - BH-2 14-15'

Laboratory: Midland
Analysis: TPH GRO
QC Batch: 106089
Prep Batch: 89797

Analytical Method: S 8015 D
Date Analyzed: 2013-10-18
Sample Preparation: 2013-10-17

Prep Method: S 5035
Analyzed By: AK
Prepared By: AK

Parameter	Flag	Cert	RL Result	Units	Dilution	RL
GRO		1	8.82	mg/Kg	1	4.00

Surrogate	Flag	Cert	Result	Units	Dilution	Spike Amount	Percent Recovery	Recovery Limits
Trifluorotoluene (TFT)			2.60	mg/Kg	1	2.00	130	70 - 130
4-Bromofluorobenzene (4-BFB)	Q _{NT}	Q _{NT}	2.83	mg/Kg	1	2.00	142	70 - 130

Sample: 343713 - BH-2 19-20'

Laboratory: Midland
Analysis: Chloride (Titration)
QC Batch: 106064
Prep Batch: 89770

Analytical Method: SM 4500-Cl B
Date Analyzed: 2013-10-18
Sample Preparation: 2013-10-17

Prep Method: N/A
Analyzed By: AR
Prepared By: AR

Parameter	Flag	Cert	RL Result	Units	Dilution	RL
Chloride			136	mg/Kg	5	4.00

Sample: 343713 - BH-2 19-20'

Laboratory: Midland
Analysis: TPH DRO - NEW
QC Batch: 106110
Prep Batch: 89880

Analytical Method: S 8015 D
Date Analyzed: 2013-10-21
Sample Preparation: 2013-10-21

Prep Method: N/A
Analyzed By: KC
Prepared By: KC

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Parameter	Flag	Cert	RL Result	Units	Dilution	RL
DRO		1	<50.0	mg/Kg	1	50.0

Surrogate	Flag	Cert	Result	Units	Dilution	Spike Amount	Percent Recovery	Recovery Limits
n-Tricosane			108	mg/Kg	1	100	108	70 - 130

Sample: 343713 - BH-2 19-20'

Laboratory: Midland
Analysis: TPH GRO
QC Batch: 106089
Prep Batch: 89797

Analytical Method: S 8015 D
Date Analyzed: 2013-10-18
Sample Preparation: 2013-10-17

Prep Method: S 5035
Analyzed By: AK
Prepared By: AK

Parameter	Flag	Cert	RL Result	Units	Dilution	RL
GRO	U	1	<4.00	mg/Kg	1	4.00

Surrogate	Flag	Cert	Result	Units	Dilution	Spike Amount	Percent Recovery	Recovery Limits
Trifluorotoluene (TFT)			2.34	mg/Kg	1	2.00	117	70 - 130
4-Bromofluorobenzene (4-BFB)			2.60	mg/Kg	1	2.00	130	70 - 130

Sample: 343714 - BH-2 24-25'

Laboratory: Midland
Analysis: Chloride (Titration)
QC Batch: 106064
Prep Batch: 89770

Analytical Method: SM 4500-Cl B
Date Analyzed: 2013-10-18
Sample Preparation: 2013-10-17

Prep Method: N/A
Analyzed By: AR
Prepared By: AR

Parameter	Flag	Cert	RL Result	Units	Dilution	RL
Chloride			202	mg/Kg	5	4.00

Sample: 343715 - BH-2 29-30'

Laboratory: Midland
Analysis: Chloride (Titration)
QC Batch: 106066
Prep Batch: 89770

Analytical Method: SM 4500-Cl B
Date Analyzed: 2013-10-18
Sample Preparation: 2013-10-17

Prep Method: N/A
Analyzed By: AR
Prepared By: AR

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Parameter	Flag	Cert	RL Result	Units	Dilution	RL
Chloride			151	mg/Kg	5	4.00

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Method Blanks

Method Blank (1) QC Batch: 105978

QC Batch: 105978
Prep Batch: 89730

Date Analyzed: 2013-10-16
QC Preparation: 2013-10-15

Analyzed By: AK
Prepared By: AK

Parameter	Flag	Cert	MDL Result	Units	RL
Benzene		1	<0.00810	mg/Kg	0.02
Toluene		1	<0.00750	mg/Kg	0.02
Ethylbenzene		1	<0.00730	mg/Kg	0.02
Xylene		1	<0.00700	mg/Kg	0.02

Surrogate	Flag	Cert	Result	Units	Dilution	Spike Amount	Percent Recovery	Recovery Limits
Trifluorotoluene (TFT)			2.06	mg/Kg	1	2.00	103	70 - 130
4-Bromofluorobenzene (4-BFB)			1.95	mg/Kg	1	2.00	98	70 - 130

Method Blank (1) QC Batch: 105992

QC Batch: 105992
Prep Batch: 89770

Date Analyzed: 2013-10-16
QC Preparation: 2013-10-15

Analyzed By: AR
Prepared By: AR

Parameter	Flag	Cert	MDL Result	Units	RL
Chloride			<3.85	mg/Kg	4

Method Blank (1) QC Batch: 105994

QC Batch: 105994
Prep Batch: 89771

Date Analyzed: 2013-10-16
QC Preparation: 2013-10-15

Analyzed By: KC
Prepared By: KC

Parameter	Flag	Cert	MDL Result	Units	RL
DRO		1	10.4	mg/Kg	50

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Surrogate	Flag	Cert	Result	Units	Dilution	Spike Amount	Percent Recovery	Recovery Limits
n-Tricosane			95.2	mg/Kg	1	100	95	64.1 - 164.4

Method Blank (1) QC Batch: 106024

QC Batch: 106024
Prep Batch: 89764

Date Analyzed: 2013-10-17
QC Preparation: 2013-10-16

Analyzed By: AK
Prepared By: AK

Parameter	Flag	Cert	MDL Result	Units	RL
Benzene		1	<0.00810	mg/Kg	0.02
Toluene		1	<0.00750	mg/Kg	0.02
Ethylbenzene		1	<0.00730	mg/Kg	0.02
Xylene		1	<0.00700	mg/Kg	0.02

Surrogate	Flag	Cert	Result	Units	Dilution	Spike Amount	Percent Recovery	Recovery Limits
Trifluorotoluene (TFT)			1.86	mg/Kg	1	2.00	93	70 - 130
4-Bromofluorobenzene (4-BFB)			1.71	mg/Kg	1	2.00	86	70 - 130

Method Blank (1) QC Batch: 106033

QC Batch: 106033
Prep Batch: 89809

Date Analyzed: 2013-10-17
QC Preparation: 2013-10-16

Analyzed By: KC
Prepared By: KC

Parameter	Flag	Cert	MDL Result	Units	RL
DRO		1	<10.2	mg/Kg	50

Surrogate	Flag	Cert	Result	Units	Dilution	Spike Amount	Percent Recovery	Recovery Limits
n-Tricosane			99.7	mg/Kg	1	100	100	64.1 - 164.4

Method Blank (1) QC Batch: 106064

QC Batch: 106064
Prep Batch: 89770

Date Analyzed: 2013-10-18
QC Preparation: 2013-10-15

Analyzed By: AR
Prepared By: AR

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Parameter	Flag	Cert	MDL Result	Units	RL
Chloride			<3.85	mg/Kg	4

Method Blank (1) QC Batch: 106066

QC Batch: 106066
Prep Batch: 89770

Date Analyzed: 2013-10-18
QC Preparation: 2013-10-15

Analyzed By: AR
Prepared By: AR

Parameter	Flag	Cert	MDL Result	Units	RL
Chloride			<3.85	mg/Kg	4

Method Blank (1) QC Batch: 106089

QC Batch: 106089
Prep Batch: 89797

Date Analyzed: 2013-10-18
QC Preparation: 2013-10-17

Analyzed By: AK
Prepared By: AK

Parameter	Flag	Cert	MDL Result	Units	RL
GRO		1	<2.32	mg/Kg	4

Surrogate	Flag	Cert	Result	Units	Dilution	Spike Amount	Percent Recovery	Recovery Limits
Trifluorotoluene (TFT)			2.43	mg/Kg	1	2.00	122	70 - 130
4-Bromofluorobenzene (4-BFB)			2.43	mg/Kg	1	2.00	122	70 - 130

Method Blank (1) QC Batch: 106110

QC Batch: 106110
Prep Batch: 89880

Date Analyzed: 2013-10-21
QC Preparation: 2013-10-21

Analyzed By: KC
Prepared By: KC

Parameter	Flag	Cert	MDL Result	Units	RL
DRO		1	<6.88	mg/Kg	50

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Surrogate	Flag	Cert	Result	Units	Dilution	Spike Amount	Percent Recovery	Recovery Limits
n-Tricosane			102	mg/Kg	1	100	102	88.3 - 126.1

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Laboratory Control Spikes

Laboratory Control Spike (LCS-1)

QC Batch: 105978
Prep Batch: 89730

Date Analyzed: 2013-10-16
QC Preparation: 2013-10-15

Analyzed By: AK
Prepared By: AK

Param	F	C	LCS Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit
Benzene		1	1.58	mg/Kg	1	2.00	<0.00810	79	70 - 130
Toluene		1	1.62	mg/Kg	1	2.00	<0.00750	81	70 - 130
Ethylbenzene		1	1.70	mg/Kg	1	2.00	<0.00730	85	70 - 130
Xylene		1	5.14	mg/Kg	1	6.00	<0.00700	86	70 - 130

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

Param	F	C	LCSD Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit	RPD	RPD Limit
Benzene		1	1.57	mg/Kg	1	2.00	<0.00810	78	70 - 130	1	20
Toluene		1	1.64	mg/Kg	1	2.00	<0.00750	82	70 - 130	1	20
Ethylbenzene		1	1.74	mg/Kg	1	2.00	<0.00730	87	70 - 130	2	20
Xylene		1	5.27	mg/Kg	1	6.00	<0.00700	88	70 - 130	2	20

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

Surrogate	LCS Result	LCSD Result	Units	Dil.	Spike Amount	LCS Rec.	LCSD Rec.	Rec. Limit
Trifluorotoluene (TFT)	1.86	1.86	mg/Kg	1	2.00	93	93	70 - 130
4-Bromofluorobenzene (4-BFB)	1.73	1.81	mg/Kg	1	2.00	86	90	70 - 130

Laboratory Control Spike (LCS-1)

QC Batch: 105992
Prep Batch: 89770

Date Analyzed: 2013-10-16
QC Preparation: 2013-10-15

Analyzed By: AR
Prepared By: AR

Param	F	C	LCS Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit
Chloride			2450	mg/Kg	1	2500	<3.85	98	89.7 - 115.9

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

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Param	F	C	LCSD Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit	RPD	RPD Limit
Param	F	C	LCSD Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit	RPD	RPD Limit
Chloride			2570	mg/Kg	1	2500	<3.85	103	89.7 - 115.9	5	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: 105994
Prep Batch: 89771

Date Analyzed: 2013-10-16
QC Preparation: 2013-10-15

Analyzed By: KC
Prepared By: KC

Param	F	C	LCS Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit
DRO		1	267	mg/Kg	1	250	10.4	103	53.8 - 129

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

Param	F	C	LCSD Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit	RPD	RPD Limit
DRO		1	280	mg/Kg	1	250	10.4	108	53.8 - 129	5	20

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

Surrogate	LCS Result	LCSD Result	Units	Dil.	Spike Amount	LCS Rec.	LCSD Rec.	Rec. Limit
n-Tricosane	107	107	mg/Kg	1	100	107	107	61.3 - 170.4

Laboratory Control Spike (LCS-1)

QC Batch: 106024
Prep Batch: 89764

Date Analyzed: 2013-10-17
QC Preparation: 2013-10-16

Analyzed By: AK
Prepared By: AK

Param	F	C	LCS Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit
Benzene		1	1.50	mg/Kg	1	2.00	<0.00810	75	70 - 130
Toluene		1	1.59	mg/Kg	1	2.00	<0.00750	80	70 - 130
Ethylbenzene		1	1.72	mg/Kg	1	2.00	<0.00730	86	70 - 130
Xylene		1	5.19	mg/Kg	1	6.00	<0.00700	86	70 - 130

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

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Param	F	C	LCSD Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit	RPD	RPD Limit
Benzene		1	1.47	mg/Kg	1	2.00	<0.00810	74	70 - 130	2	20
Toluene		1	1.60	mg/Kg	1	2.00	<0.00750	80	70 - 130	1	20
Ethylbenzene		1	1.69	mg/Kg	1	2.00	<0.00730	84	70 - 130	2	20
Xylene		1	5.10	mg/Kg	1	6.00	<0.00700	85	70 - 130	2	20

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

Surrogate	LCS Result	LCSD Result	Units	Dil.	Spike Amount	LCS Rec.	LCSD Rec.	Rec. Limit
Trifluorotoluene (TFT)	1.82	1.81	mg/Kg	1	2.00	91	90	70 - 130
4-Bromofluorobenzene (4-BFB)	1.78	1.71	mg/Kg	1	2.00	89	86	70 - 130

Laboratory Control Spike (LCS-1)

QC Batch: 106033
Prep Batch: 89809

Date Analyzed: 2013-10-17
QC Preparation: 2013-10-16

Analyzed By: KC
Prepared By: KC

Param	F	C	LCS Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit
DRO		1	276	mg/Kg	1	250	<10.2	110	53.8 - 129

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

Param	F	C	LCSD Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit	RPD	RPD Limit
DRO		1	282	mg/Kg	1	250	<10.2	113	53.8 - 129	2	20

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

Surrogate	LCS Result	LCSD Result	Units	Dil.	Spike Amount	LCS Rec.	LCSD Rec.	Rec. Limit
n-Tricosane	111	112	mg/Kg	1	100	111	112	61.3 - 170.4

Laboratory Control Spike (LCS-1)

QC Batch: 106064
Prep Batch: 89770

Date Analyzed: 2013-10-18
QC Preparation: 2013-10-15

Analyzed By: AR
Prepared By: AR

Param	F	C	LCS Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit
Chloride			2430	mg/Kg	1	2500	<3.85	97	89.7 - 115.9

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

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Param	F	C	LCS Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit	RPD	RPD Limit
Chloride			2580	mg/Kg	1	2500	<3.85	103	89.7 - 115.9	6	20

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

Laboratory Control Spike (LCS-1)

QC Batch: 106066
Prep Batch: 89770

Date Analyzed: 2013-10-18
QC Preparation: 2013-10-15

Analyzed By: AR
Prepared By: AR

Param	F	C	LCS Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit
Chloride			2600	mg/Kg	1	2500	<3.85	104	89.7 - 115.9

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

Param	F	C	LCS Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit	RPD	RPD Limit
Chloride			2510	mg/Kg	1	2500	<3.85	100	89.7 - 115.9	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: 106089
Prep Batch: 89797

Date Analyzed: 2013-10-18
QC Preparation: 2013-10-17

Analyzed By: AK
Prepared By: AK

Param	F	C	LCS Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit
GRO			19.1	mg/Kg	1	20.0	<2.32	96	70 - 130

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

Param	F	C	LCS Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit	RPD	RPD Limit
GRO			16.2	mg/Kg	1	20.0	<2.32	81	70 - 130	16	20

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

Surrogate	LCS Result	LCS Result	Units	Dil.	Spike Amount	LCS Rec.	LCS Rec.	Rec. Limit
Trifluorotoluene (TFT)	2.39	2.13	mg/Kg	1	2.00	120	106	70 - 130
4-Bromofluorobenzene (4-BFB)	2.02	2.49	mg/Kg	1	2.00	101	124	70 - 130

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Laboratory Control Spike (LCS-1)

QC Batch: 106110
Prep Batch: 89880

Date Analyzed: 2013-10-21
QC Preparation: 2013-10-21

Analyzed By: KC
Prepared By: KC

Param	F	C	LCS Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit
DRO		1	234	mg/Kg	1	250	<6.88	94	79.4 - 120.1

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

Param	F	C	LCSD Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit	RPD	RPD Limit
DRO		1	236	mg/Kg	1	250	<6.88	94	79.4 - 120.1	1	20

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

Surrogate	LCS Result	LCSD Result	Units	Dil.	Spike Amount	LCS Rec.	LCSD Rec.	Rec. Limit
n-Tricosane	104	103	mg/Kg	1	100	104	103	92.9 - 137.7

Matrix Spike (MS-1) Spiked Sample: 343717

QC Batch: 105978
Prep Batch: 89730

Date Analyzed: 2013-10-16
QC Preparation: 2013-10-15

Analyzed By: AK
Prepared By: AK

Param	F	C	MS Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit
Benzene		1	1.62	mg/Kg	1	2.00	<0.00810	81	70 - 130
Toluene		1	1.65	mg/Kg	1	2.00	<0.00750	82	70 - 130
Ethylbenzene		1	1.74	mg/Kg	1	2.00	<0.00730	87	70 - 130
Xylene		1	5.28	mg/Kg	1	6.00	<0.00700	88	70 - 130

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

Param	F	C	MSD Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit	RPD	RPD Limit
Benzene		1	1.62	mg/Kg	1	2.00	<0.00810	81	70 - 130	0	20
Toluene		1	1.68	mg/Kg	1	2.00	<0.00750	84	70 - 130	2	20
Ethylbenzene		1	1.79	mg/Kg	1	2.00	<0.00730	90	70 - 130	3	20
Xylene		1	5.41	mg/Kg	1	6.00	<0.00700	90	70 - 130	2	20

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

Surrogate	MS Result	MSD Result	Units	Dil.	Spike Amount	MS Rec.	MSD Rec.	Rec. Limit
Trifluorotoluene (TFT)	1.89	1.92	mg/Kg	1	2	94	96	70 - 130

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Surrogate	MS Result	MSD Result	Units	Dil.	Spike Amount	MS Rec.	MSD Rec.	Rec. Limit
4-Bromofluorobenzene (4-BFB)	1.84	1.85	mg/Kg	1	2	92	92	70 - 130

Matrix Spike (MS-1) Spiked Sample: 343700

QC Batch: 105992
Prep Batch: 89770

Date Analyzed: 2013-10-16
QC Preparation: 2013-10-15

Analyzed By: AR
Prepared By: AR

Param	F	C	MS Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit
Chloride			2370	mg/Kg	5	2500	<19.2	95	78.9 - 121

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

Param	F	C	MSD Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit	RPD	RPD Limit
Chloride			2480	mg/Kg	5	2500	<19.2	99	78.9 - 121	4	20

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

Matrix Spike (MS-1) Spiked Sample: 343545

QC Batch: 105994
Prep Batch: 89771

Date Analyzed: 2013-10-16
QC Preparation: 2013-10-15

Analyzed By: KC
Prepared By: KC

Param	F	C	MS Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit
DRO		1	304	mg/Kg	1	250	52.6	100	29 - 168.5

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

Param	F	C	MSD Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit	RPD	RPD Limit
DRO		1	284	mg/Kg	1	250	52.6	92	29 - 168.5	7	20

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

Surrogate	MS Result	MSD Result	Units	Dil.	Spike Amount	MS Rec.	MSD Rec.	Rec. Limit
n-Tricosane	116	112	mg/Kg	1	100	116	112	59.5 - 168.9

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Matrix Spike (MS-1) Spiked Sample: 343781

QC Batch: 106024
Prep Batch: 89764

Date Analyzed: 2013-10-17
QC Preparation: 2013-10-16

Analyzed By: AK
Prepared By: AK

Param	F	C	MS Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit
Benzene	Qs	Qs	1	1.35	mg/Kg	1	2.00	<0.00810	68 70 - 130
Toluene			1	1.49	mg/Kg	1	2.00	<0.00750	74 70 - 130
Ethylbenzene			1	1.59	mg/Kg	1	2.00	<0.00730	80 70 - 130
Xylene			1	4.81	mg/Kg	1	6.00	<0.00700	80 70 - 130

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

Param	F	C	MSD Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit	RPD	RPD Limit
Benzene		1	1.46	mg/Kg	1	2.00	<0.00810	73	70 - 130	8	20
Toluene		1	1.56	mg/Kg	1	2.00	<0.00750	78	70 - 130	5	20
Ethylbenzene		1	1.66	mg/Kg	1	2.00	<0.00730	83	70 - 130	4	20
Xylene		1	5.07	mg/Kg	1	6.00	<0.00700	84	70 - 130	5	20

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

Surrogate	MS Result	MSD Result	Units	Dil.	Spike Amount	MS Rec.	MSD Rec.	Rec. Limit
Trifluorotoluene (TFT)	1.68	1.79	mg/Kg	1	2	84	90	70 - 130
4-Bromofluorobenzene (4-BFB)	1.61	1.74	mg/Kg	1	2	80	87	70 - 130

Matrix Spike (MS-1) Spiked Sample: 343702

QC Batch: 106033
Prep Batch: 89809

Date Analyzed: 2013-10-17
QC Preparation: 2013-10-16

Analyzed By: KC
Prepared By: KC

Param	F	C	MS Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit
DRO		1	323	mg/Kg	1	250	19	122	29 - 168.5

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

Param	F	C	MSD Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit	RPD	RPD Limit
DRO		1	328	mg/Kg	1	250	19	131	29 - 168.5	2	20

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

continued ...

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matrix spikes continued ...

Surrogate	MS Result	MSD Result	Units	Dil.	Spike Amount	MS Rec.	MSD Rec.	Rec. Limit
Surrogate	MS Result	MSD Result	Units	Dil.	Spike Amount	MS Rec.	MSD Rec.	Rec. Limit
n-Tricosane	117	117	mg/Kg	1	100	117	117	59.5 - 168.9

Matrix Spike (MS-1) Spiked Sample: 343714

QC Batch: 106064
Prep Batch: 89770

Date Analyzed: 2013-10-18
QC Preparation: 2013-10-15

Analyzed By: AR
Prepared By: AR

Param	F	C	MS Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit
Chloride			2640	mg/Kg	5	2500	202	98	78.9 - 121

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

Param	F	C	MSD Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit	RPD	RPD Limit
Chloride			2530	mg/Kg	5	2500	202	93	78.9 - 121	4	20

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

Matrix Spike (MS-1) Spiked Sample: 343724

QC Batch: 106066
Prep Batch: 89770

Date Analyzed: 2013-10-18
QC Preparation: 2013-10-15

Analyzed By: AR
Prepared By: AR

Param	F	C	MS Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit
Chloride			2400	mg/Kg	5	2500	<19.2	96	78.9 - 121

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

Param	F	C	MSD Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit	RPD	RPD Limit
Chloride			2510	mg/Kg	5	2500	<19.2	100	78.9 - 121	4	20

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

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Matrix Spike (MS-1) Spiked Sample: 343717

QC Batch: 106089
Prep Batch: 89797

Date Analyzed: 2013-10-18
QC Preparation: 2013-10-17

Analyzed By: AK
Prepared By: AK

Param	F	C	MS Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit
GRO		1	17.4	mg/Kg	1	20.0	<2.32	87	70 - 130

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

Param	F	C	MSD Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit	RPD	RPD Limit
GRO		1	17.7	mg/Kg	1	20.0	<2.32	88	70 - 130	2	20

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

Surrogate	MS Result	MSD Result	Units	Dil.	Spike Amount	MS Rec.	MSD Rec.	Rec. Limit
Trifluorotoluene (TFT)	2.42	2.36	mg/Kg	1	2	121	118	70 - 130
4-Bromofluorobenzene (4-BFB)	2.59	2.50	mg/Kg	1	2	130	125	70 - 130

Matrix Spike (MS-1) Spiked Sample: 343625

QC Batch: 106110
Prep Batch: 89880

Date Analyzed: 2013-10-21
QC Preparation: 2013-10-21

Analyzed By: KC
Prepared By: KC

Param	F	C	MS Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit
DRO		1	210	mg/Kg	1	250	42.5	67	64.8 - 149.9

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

Param	F	C	MSD Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit	RPD	RPD Limit
DRO		1	204	mg/Kg	1	250	42.5	65	64.8 - 149.9	3	20

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

Surrogate	MS Result	MSD Result	Units	Dil.	Spike Amount	MS Rec.	MSD Rec.	Rec. Limit
n-Tricosane	94.2	96.2	mg/Kg	1	100	94	96	85.4 - 147.7

Calibration Standards

Standard (CCV-1)

QC Batch: 105978

Date Analyzed: 2013-10-16

Analyzed By: AK

Param	Flag	Cert	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
Benzene		1	mg/kg	0.100	0.0890	89	80 - 120	2013-10-16
Toluene		1	mg/kg	0.100	0.0884	88	80 - 120	2013-10-16
Ethylbenzene		1	mg/kg	0.100	0.0900	90	80 - 120	2013-10-16
Xylene		1	mg/kg	0.300	0.271	90	80 - 120	2013-10-16

Standard (CCV-2)

QC Batch: 105978

Date Analyzed: 2013-10-16

Analyzed By: AK

Param	Flag	Cert	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
Benzene		1	mg/kg	0.100	0.0821	82	80 - 120	2013-10-16
Toluene		1	mg/kg	0.100	0.0881	88	80 - 120	2013-10-16
Ethylbenzene		1	mg/kg	0.100	0.0871	87	80 - 120	2013-10-16
Xylene		1	mg/kg	0.300	0.260	87	80 - 120	2013-10-16

Standard (CCV-3)

QC Batch: 105978

Date Analyzed: 2013-10-16

Analyzed By: AK

Param	Flag	Cert	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
Benzene		1	mg/kg	0.100	0.0831	83	80 - 120	2013-10-16
Toluene		1	mg/kg	0.100	0.0867	87	80 - 120	2013-10-16
Ethylbenzene		1	mg/kg	0.100	0.0873	87	80 - 120	2013-10-16
Xylene		1	mg/kg	0.300	0.262	87	80 - 120	2013-10-16

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Standard (CCV-1)

QC Batch: 105992

Date Analyzed: 2013-10-16

Analyzed By: AR

Param	Flag	Cert	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
Chloride			mg/Kg	100	98.9	99	85 - 115	2013-10-16

Standard (CCV-2)

QC Batch: 105992

Date Analyzed: 2013-10-16

Analyzed By: AR

Param	Flag	Cert	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
Chloride			mg/Kg	100	101	101	85 - 115	2013-10-16

Standard (CCV-1)

QC Batch: 105994

Date Analyzed: 2013-10-16

Analyzed By: KC

Param	Flag	Cert	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
DRO		1	mg/Kg	250	268	107	80 - 120	2013-10-16

Standard (CCV-2)

QC Batch: 105994

Date Analyzed: 2013-10-16

Analyzed By: KC

Param	Flag	Cert	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
DRO		1	mg/Kg	250	276	110	80 - 120	2013-10-16

Standard (CCV-3)

QC Batch: 105994

Date Analyzed: 2013-10-16

Analyzed By: KC

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Param	Flag	Cert	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
DRO		1	mg/Kg	250	277	111	80 - 120	2013-10-16

Standard (CCV-4)

QC Batch: 105994

Date Analyzed: 2013-10-16

Analyzed By: KC

Param	Flag	Cert	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
DRO		1	mg/Kg	250	285	114	80 - 120	2013-10-16

Standard (CCV-1)

QC Batch: 106024

Date Analyzed: 2013-10-17

Analyzed By: AK

Param	Flag	Cert	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
Benzene		1	mg/kg	0.100	0.0822	82	80 - 120	2013-10-17
Toluene		1	mg/kg	0.100	0.0864	86	80 - 120	2013-10-17
Ethylbenzene		1	mg/kg	0.100	0.0876	88	80 - 120	2013-10-17
Xylene		1	mg/kg	0.300	0.265	88	80 - 120	2013-10-17

Standard (CCV-2)

QC Batch: 106024

Date Analyzed: 2013-10-17

Analyzed By: AK

Param	Flag	Cert	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
Benzene		1	mg/kg	0.100	0.0864	86	80 - 120	2013-10-17
Toluene		1	mg/kg	0.100	0.0862	86	80 - 120	2013-10-17
Ethylbenzene		1	mg/kg	0.100	0.0853	85	80 - 120	2013-10-17
Xylene		1	mg/kg	0.300	0.256	85	80 - 120	2013-10-17

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Standard (CCV-3)

QC Batch: 106024

Date Analyzed: 2013-10-17

Analyzed By: AK

Param	Flag	Cert	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
Benzene		1	mg/kg	0.100	0.0850	85	80 - 120	2013-10-17
Toluene		1	mg/kg	0.100	0.0841	84	80 - 120	2013-10-17
Ethylbenzene		1	mg/kg	0.100	0.0830	83	80 - 120	2013-10-17
Xylene		1	mg/kg	0.300	0.251	84	80 - 120	2013-10-17

Standard (CCV-1)

QC Batch: 106033

Date Analyzed: 2013-10-17

Analyzed By: KC

Param	Flag	Cert	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
DRO		1	mg/Kg	250	273	109	80 - 120	2013-10-17

Standard (CCV-2)

QC Batch: 106033

Date Analyzed: 2013-10-17

Analyzed By: KC

Param	Flag	Cert	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
DRO		1	mg/Kg	250	281	112	80 - 120	2013-10-17

Standard (CCV-3)

QC Batch: 106033

Date Analyzed: 2013-10-17

Analyzed By: KC

Param	Flag	Cert	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
DRO		1	mg/Kg	250	274	110	80 - 120	2013-10-17

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Standard (CCV-1)

QC Batch: 106064

Date Analyzed: 2013-10-18

Analyzed By: AR

Param	Flag	Cert	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
Chloride			mg/Kg	100	99.5	100	85 - 115	2013-10-18

Standard (CCV-2)

QC Batch: 106064

Date Analyzed: 2013-10-18

Analyzed By: AR

Param	Flag	Cert	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
Chloride			mg/Kg	100	101	101	85 - 115	2013-10-18

Standard (CCV-1)

QC Batch: 106066

Date Analyzed: 2013-10-18

Analyzed By: AR

Param	Flag	Cert	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
Chloride			mg/Kg	100	101	101	85 - 115	2013-10-18

Standard (CCV-2)

QC Batch: 106066

Date Analyzed: 2013-10-18

Analyzed By: AR

Param	Flag	Cert	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
Chloride			mg/Kg	100	99.1	99	85 - 115	2013-10-18

Standard (CCV-1)

QC Batch: 106089

Date Analyzed: 2013-10-18

Analyzed By: AK

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Param	Flag	Cert	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
GRO		1	mg/Kg	1.00	1.02	102	80 - 120	2013-10-18

Standard (CCV-2)

QC Batch: 106089

Date Analyzed: 2013-10-18

Analyzed By: AK

Param	Flag	Cert	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
GRO		1	mg/Kg	1.00	0.906	91	80 - 120	2013-10-18

Standard (CCV-3)

QC Batch: 106089

Date Analyzed: 2013-10-18

Analyzed By: AK

Param	Flag	Cert	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
GRO		1	mg/Kg	1.00	0.911	91	80 - 120	2013-10-18

Standard (CCV-1)

QC Batch: 106110

Date Analyzed: 2013-10-21

Analyzed By: KC

Param	Flag	Cert	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
DRO		1	mg/Kg	250	238	95	80 - 120	2013-10-21

Standard (CCV-2)

QC Batch: 106110

Date Analyzed: 2013-10-21

Analyzed By: KC

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Param	Flag	Cert	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
DRO		1	mg/Kg	250	232	93	80 - 120	2013-10-21

Appendix

Report Definitions

Name	Definition
MDL	Method Detection Limit
MQL	Minimum Quantitation Limit
SDL	Sample Detection Limit

Laboratory Certifications

C	Certifying Authority	Certification Number	Laboratory Location
-	NCTRCA	WFWB384444Y0909	TraceAnalysis
-	DBE	VN 20657	TraceAnalysis
-	HUB	1752439743100-86536	TraceAnalysis
-	WBE	237019	TraceAnalysis
1	NELAP	T104704392-12-4	Midland

Standard Flags

F	Description
B	Analyte detected in the corresponding method blank above the method detection limit
H	Analyzed out of hold time
J	Estimated concentration
Jb	The analyte is positively identified and the value is approximated between the SDL and MQL. Sample contains less then ten times the concentration found in the method blank. The result should be considered non-detect to the SDL.
Je	Estimated concentration exceeding calibration range.
MI1	Split peak or shoulder peak
MI2	Instrument software did not integrate
MI3	Instrument software misidentified the peak
MI4	Instrument software integrated improperly
MI5	Baseline correction
Qc	Calibration check outside of laboratory limits.
Qr	RPD outside of laboratory limits
Qs	Spike recovery outside of laboratory limits.
Qsr	Surrogate recovery outside of laboratory limits.
U	The analyte is not detected above the SDL

Attachments

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

Analysis Request of Chain of Custody Record

ANALYSIS REQUEST
(Circle or Specify Method No.)

TETRA TECH
1910 N. Big Spring St.
Midland, Texas 79705
(432) 682-4559 • Fax (432) 682-3946

CLIENT NAME:		SITE MANAGER:		PROJECT NAME:		PROJECT NO.:		SAMPLE IDENTIFICATION		NUMBER OF CONTAINERS		PRESERVATIVE METHOD		ANALYSIS		RESULTS	
LAB I.D. NUMBER	DATE	TIME	MATRIX	COMP	GRAB	1	2	3	4	5	6	7	8	9	10	11	12
112MC05894	2013	10/10	S	X	BH-2	0-1											
108709			S	X	"	3											
109710			S	X	"	5											
110711			S	X	"	7											
111712			S	X	"	10											
112713			S	X	"	14-15											
113714			S	X	"	19-20											
114715			S	X	"	24-25											
115716			S	X	"	29-30											
RELINQUISHED BY: (Signature)		Date:		Time:		RECEIVED BY: (Signature)		Date:		Time:		RELINQUISHED BY: (Signature)		Date:		Time:	
RELINQUISHED BY: (Signature)		Date:		Time:		RECEIVED BY: (Signature)		Date:		Time:		RELINQUISHED BY: (Signature)		Date:		Time:	
RELINQUISHED BY: (Signature)		Date:		Time:		RECEIVED BY: (Signature)		Date:		Time:		RELINQUISHED BY: (Signature)		Date:		Time:	
RECEIVING LABORATORY:		ADDRESS:		CITY:		STATE:		ZIP:		PHONE:		DATE:		TIME:		RESULTS BY:	

	REMARKS:
--	--------------------------

COMPLETE CONDITION WHEN RECEIVED:

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

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

January 08, 2014

IKE TAVAREZ

TETRA TECH

1910 N. BIG SPRING STREET

MIDLAND, TX 79705

RE: JON BOB #1

Enclosed are the results of analyses for samples received by the laboratory on 01/02/14 13:37.

Cardinal Laboratories is accredited through Texas NELAP under certificate number T104704398-13-5. Accreditation applies to drinking water, non-potable water and solid and chemical materials. All accredited analytes are denoted by an asterisk (*). For a complete list of accredited analytes and matrices visit the TCEQ website at www.tceq.texas.gov/field/qa/lab_accred_certif.html.

Cardinal Laboratories is accredited through the State of Colorado Department of Public Health and Environment for:

Method EPA 552.2	Haloacetic Acids (HAA-5)
Method EPA 524.2	Total Trihalomethanes (TTHM)
Method EPA 524.4	Regulated VOCs (V1, V2, V3)

Accreditation applies to public drinking water matrices.

This report meets NELAP requirements and is made up of a cover page, analytical results, and a copy of the original chain-of-custody. If you have any questions concerning this report, please feel free to contact me.

Sincerely,



Celey D. Keene

Lab Director/Quality Manager

Analytical Results For:

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

 Received: 01/02/2014
 Reported: 01/08/2014
 Project Name: JON BOB #1
 Project Number: 112MC05894
 Project Location: COG

 Sampling Date: 01/02/2014
 Sampling Type: Soil
 Sampling Condition: Cool & Intact
 Sample Received By: Amanda Ponce

Sample ID: AH-1 BOTTOM HOLE 5.5' EB (H400010-01)

BTEX 8021B	mg/kg	Analyzed By: MS							
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Benzene*	171	10.0	01/03/2014	ND	1.88	93.9	2.00	2.36	
Toluene*	550	10.0	01/03/2014	ND	1.86	92.8	2.00	1.31	
Ethylbenzene*	237	10.0	01/03/2014	ND	1.82	91.1	2.00	0.763	
Total Xylenes*	312	30.0	01/03/2014	ND	5.40	90.0	6.00	0.486	
Total BTEX	1270	60.0	01/03/2014	ND					

Surrogate: 4-Bromofluorobenzene (PIL) 105 % 89.4-126

TPH 8015M	mg/kg		Analyzed By: ms					S-06	
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
GRO C6-C10	9270	100	01/03/2014	ND	200	100	200	6.88	
DRO >C10-C28	13400	100	01/03/2014	ND	208	104	200	0.0860	
EXT DRO >C28-C35	2090	100	01/03/2014	ND					

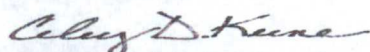
Surrogate: 1-Chlorooctane 225 % 65.2-140

Surrogate: 1-Chlorooctadecane 88.8 % 63.6-154

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Celey D. Keene, Lab Director/Quality Manager

Analytical Results For:

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

 Received: 01/02/2014
 Reported: 01/08/2014
 Project Name: JON BOB #1
 Project Number: 112MC05894
 Project Location: COG

 Sampling Date: 01/02/2014
 Sampling Type: Soil
 Sampling Condition: Cool & Intact
 Sample Received By: Amanda Ponce

Sample ID: NORTH SIDEWALL (H400010-02)

BTEX 8021B		mg/kg		Analyzed By: MS					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Benzene*	126	5.00	01/03/2014	ND	1.88	93.9	2.00	2.36	
Toluene*	471	5.00	01/03/2014	ND	1.86	92.8	2.00	1.31	
Ethylbenzene*	202	5.00	01/03/2014	ND	1.82	91.1	2.00	0.763	
Total Xylenes*	264	15.0	01/03/2014	ND	5.40	90.0	6.00	0.486	
Total BTEX	1060	30.0	01/03/2014	ND					

Surrogate: 4-Bromofluorobenzene (PII) 106 % 89.4-126

TPH 8015M		mg/kg		Analyzed By: ms				S-06	
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
GRO C6-C10	6900	100	01/03/2014	ND	200	100	200	6.88	
DRO >C10-C28	9180	100	01/03/2014	ND	208	104	200	0.0860	
EXT DRO >C28-C35	1430	100	01/03/2014	ND					

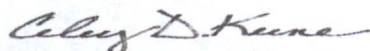
Surrogate: 1-Chlorooctane 319 % 65.2-140

Surrogate: 1-Chlorooctadecane 483 % 63.6-154

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Analytical Results For:

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

Received: 01/02/2014
Reported: 01/08/2014
Project Name: JON BOB #1
Project Number: 112MC05894
Project Location: COG

Sampling Date: 01/02/2014
Sampling Type: Soil
Sampling Condition: Cool & Intact
Sample Received By: Amanda Ponce

Sample ID: SOUTH SIDEWALL (H400010-03)

BTEX 80218		mg/kg		Analyzed By: MS					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Benzene*	120	10.0	01/03/2014	ND	1.88	93.9	2.00	2.36	
Toluene*	478	10.0	01/03/2014	ND	1.86	92.8	2.00	1.31	
Ethylbenzene*	221	10.0	01/03/2014	ND	1.82	91.1	2.00	0.763	
Total Xylenes*	292	30.0	01/03/2014	ND	5.40	90.0	6.00	0.486	
Total BTEX	1110	60.0	01/03/2014	ND					

Surrogate: 4-Bromofluorobenzene (PIL) 104 % 89.4-126

TPH 8015M		mg/kg		Analyzed By: ms						S-06
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier	
GRO C6-C10	7750	50.0	01/03/2014	ND	213	107	200	1.63		
DRO >C10-C28	10800	50.0	01/03/2014	ND	212	106	200	3.24		
EXT DRO >C28-C35	1490	50.0	01/03/2014	ND						

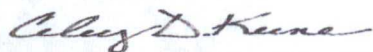
Surrogate: 1-Chlorooctane 190 % 65.2-140

Surrogate: 1-Chlorooctadecane 209 % 63.6-154

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Analytical Results For:

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

Received: 01/02/2014
Reported: 01/08/2014
Project Name: JON BOB #1
Project Number: 112MC05894
Project Location: COG

Sampling Date: 01/02/2014
Sampling Type: Soil
Sampling Condition: Cool & Intact
Sample Received By: Amanda Ponce

Sample ID: WEST SIDEWALL (H400010-04)

BTEX 8021B		mg/kg		Analyzed By: MS						
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier	
Benzene*	85.0	5.00	01/07/2014	ND	1.85	92.7	2.00	2.58		
Toluene*	329	5.00	01/07/2014	ND	1.81	90.6	2.00	2.38		
Ethylbenzene*	162	5.00	01/07/2014	ND	1.77	88.6	2.00	2.57		
Total Xylenes*	209	15.0	01/07/2014	ND	5.13	85.4	6.00	2.62		
Total BTEX	786	30.0	01/07/2014	ND						

Surrogate: 4-Bromofluorobenzene (PIL) 109 % 89.4-126

TPH 8015M		mg/kg		Analyzed By: ms				S-06	
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
GRO C6-C10	4820	50.0	01/03/2014	ND	213	107	200	1.63	
DRO >C10-C28	6550	50.0	01/03/2014	ND	212	106	200	3.24	
EXT DRO >C28-C35	995	50.0	01/03/2014	ND					

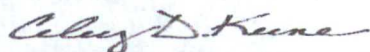
Surrogate: 1-Chlorooctane 250 % 65.2-140

Surrogate: 1-Chlorooctadecane 167 % 63.6-154

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Analytical Results For:

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

 Received: 01/02/2014
 Reported: 01/08/2014
 Project Name: JON BOB #1
 Project Number: 112MC05894
 Project Location: COG

 Sampling Date: 01/02/2014
 Sampling Type: Soil
 Sampling Condition: Cool & Intact
 Sample Received By: Amanda Ponce

Sample ID: EAST SIDEWALL (H400010-05)

BTX 8021B		mg/kg		Analyzed By: MS					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Benzene*	34.6	10.0	01/07/2014	ND	1.85	92.7	2.00	2.58	
Toluene*	116	10.0	01/07/2014	ND	1.81	90.6	2.00	2.38	
Ethylbenzene*	141	10.0	01/07/2014	ND	1.77	88.6	2.00	2.57	
Total Xylenes*	250	30.0	01/07/2014	ND	5.13	85.4	6.00	2.62	
Total BTX	542	60.0	01/07/2014	ND					

Surrogate: 4-Bromofluorobenzene (PIL) 104 % 89.4-126

TPH 8015M		mg/kg		Analyzed By: ms						S-06
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier	
GRO C6-C10	6620	100	01/03/2014	ND	213	107	200	1.63		
DRO >C10-C28	10500	100	01/03/2014	ND	212	106	200	3.24		
EXT DRO >C28-C35	1600	100	01/03/2014	ND						

Surrogate: 1-Chlorooctane 193 % 63.2-140

Surrogate: 1-Chlorooctadecane 204 % 63.6-154

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Analytical Results For:

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

Received: 01/02/2014
Reported: 01/08/2014
Project Name: JON BOB #1
Project Number: 112MC05894
Project Location: COG

Sampling Date: 01/02/2014
Sampling Type: Soil
Sampling Condition: Cool & Intact
Sample Received By: Amanda Ponce

Sample ID: AH-2 BOTTOM HOLE 4.5' EB (H400010-06)

BTEX 8021B	mg/kg	Analyzed By: MS							
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Benzene*	0.366	0.050	01/07/2014	ND	1.85	92.7	2.00	2.58	
Toluene*	0.543	0.050	01/07/2014	ND	1.81	90.6	2.00	2.38	
Ethylbenzene*	0.241	0.050	01/07/2014	ND	1.77	88.6	2.00	2.57	
Total Xylenes*	0.367	0.150	01/07/2014	ND	5.13	85.4	6.00	2.62	
Total BTEX	1.52	0.300	01/07/2014	ND					

Surrogate: 4-Bromofluorobenzene (PIL) 102 % 89.4-126

TPH 8015M	mg/kg	Analyzed By: ms							
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
GRO C6-C10	20.4	10.0	01/03/2014	ND	213	107	200	1.63	
DRO >C10-C28	<10.0	10.0	01/03/2014	ND	212	106	200	3.24	
EXT DRO >C28-C35	<10.0	10.0	01/03/2014	ND					

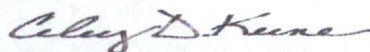
Surrogate: 1-Chlorooctane 95.4 % 65.2-140

Surrogate: 1-Chlorooctadecane 93.5 % 63.6-154

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Analytical Results For:

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

 Received: 01/02/2014
 Reported: 01/08/2014
 Project Name: JON BOB #1
 Project Number: 112MC05894
 Project Location: COG

 Sampling Date: 01/02/2014
 Sampling Type: Soil
 Sampling Condition: Cool & Intact
 Sample Received By: Amanda Ponce

Sample ID: SOUTH SIDEWALL (H400010-07)

BTEX 8021B		mg/kg	Analyzed By: MS						
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Benzene*	0.054	0.050	01/07/2014	ND	1.85	92.7	2.00	2.58	
Toluene*	0.080	0.050	01/07/2014	ND	1.81	90.6	2.00	2.38	
Ethylbenzene*	<0.050	0.050	01/07/2014	ND	1.77	88.6	2.00	2.57	
Total Xylenes*	<0.150	0.150	01/07/2014	ND	5.13	85.4	6.00	2.62	
Total BTEX	<0.300	0.300	01/07/2014	ND					

Surrogate: 4-Bromofluorobenzene (PIL) 104 % 89.4-126

TPH 8015M		mg/kg		Analyzed By: ms					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
GRO C6-C10	16.8	10.0	01/03/2014	ND	213	107	200	1.63	
DRO >C10-C28	<10.0	10.0	01/03/2014	ND	212	106	200	3.24	
EXT DRO >C28-C35	<10.0	10.0	01/03/2014	ND					

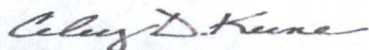
Surrogate: 1-Chlorooctane 96.6 % 65.2-140

Surrogate: 1-Chlorooctadecane 92.1 % 63.6-154

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Celey D. Keene, Lab Director/Quality Manager

Analytical Results For:

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

Received: 01/02/2014
Reported: 01/08/2014
Project Name: JON BOB #1
Project Number: 112MC05894
Project Location: COG

Sampling Date: 01/02/2014
Sampling Type: Soil
Sampling Condition: Cool & Intact
Sample Received By: Amanda Ponce

Sample ID: EAST SIDEWALL (H400010-08)

BTEX 8021B		mg/kg		Analyzed By: MS						
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier	
Benzene*	<0.050	0.050	01/07/2014	ND	1.85	92.7	2.00	2.58		
Toluene*	0.077	0.050	01/07/2014	ND	1.81	90.6	2.00	2.38		
Ethylbenzene*	<0.050	0.050	01/07/2014	ND	1.77	88.6	2.00	2.57		
Total Xylenes*	<0.150	0.150	01/07/2014	ND	5.13	85.4	6.00	2.62		
Total BTEX	<0.300	0.300	01/07/2014	ND						

Surrogate: 4-Bromofluorobenzene (PIE) 102 % 89.4-126

TPH 8015M		mg/kg		Analyzed By: ms					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
GRO C6-C10	<10.0	10.0	01/03/2014	ND	213	107	200	1.63	
DRO >C10-C28	<10.0	10.0	01/03/2014	ND	212	106	200	3.24	
EXT DRO >C28-C35	<10.0	10.0	01/03/2014	ND					

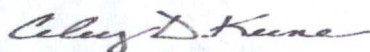
Surrogate: 1-Chlorooctane 79.9 % 65.2-140

Surrogate: 1-Chlorooctadecane 85.2 % 63.6-154

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Celey D. Keene, Lab Director/Quality Manager

Analytical Results For:

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

Received: 01/02/2014
Reported: 01/08/2014
Project Name: JON BOB #1
Project Number: 112MC05894
Project Location: COG

Sampling Date: 01/02/2014
Sampling Type: Soil
Sampling Condition: Cool & Intact
Sample Received By: Amanda Ponce

Sample ID: WEST SIDEWALL (H400010-09)

BTX 8021B		mg/kg		Analyzed By: MS					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Benzene*	<0.050	0.050	01/07/2014	ND	1.85	92.7	2.00	2.58	
Toluene*	0.088	0.050	01/07/2014	ND	1.81	90.6	2.00	2.38	
Ethylbenzene*	0.086	0.050	01/07/2014	ND	1.77	88.6	2.00	2.57	
Total Xylenes*	0.203	0.150	01/07/2014	ND	5.13	85.4	6.00	2.62	
Total BTX	0.417	0.300	01/07/2014	ND					

Surrogate: 4-Bromofluorobenzene (PIL) 104 % 89.4-126

TPH 8015M		mg/kg		Analyzed By: ms					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
GRO C6-C10	<10.0	10.0	01/03/2014	ND	213	107	200	1.63	
DRO >C10-C28	33.6	10.0	01/03/2014	ND	212	106	200	3.24	
EXT DRO >C28-C35	<10.0	10.0	01/03/2014	ND					

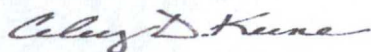
Surrogate: 1-Chlorooctane 94.5 % 65.2-140

Surrogate: 1-Chlorooctadecane 96.0 % 63.6-154

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Celey D. Keene, Lab Director/Quality Manager

Analytical Results For:

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

 Received: 01/02/2014
 Reported: 01/08/2014
 Project Name: JON BOB #1
 Project Number: 112MC05894
 Project Location: COG

 Sampling Date: 01/02/2014
 Sampling Type: Soil
 Sampling Condition: Cool & Intact
 Sample Received By: Amanda Ponce

Sample ID: AH-3 BOTTOM HOLE 4.5' EB (H400010-10)

BTEX 8021B	mg/kg	Analyzed By: MS							
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Benzene*	45.5	10.0	01/07/2014	ND	1.85	92.7	2.00	2.58	
Toluene*	354	10.0	01/07/2014	ND	1.81	90.6	2.00	2.38	
Ethylbenzene*	218	10.0	01/07/2014	ND	1.77	88.6	2.00	2.57	
Total Xylenes*	304	30.0	01/07/2014	ND	5.13	85.4	6.00	2.62	
Total BTEX	922	60.0	01/07/2014	ND					

Surrogate: 4-Bromofluorobenzene (PIL) 108 % 89.4-126

TPH 8015M	mg/kg		Analyzed By: ms					S-06	
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
GRO C6-C10	7400	100	01/04/2014	ND	213	107	200	1.63	
DRO >C10-C28	13700	100	01/04/2014	ND	212	106	200	3.24	
EXT DRO >C28-C35	2150	100	01/04/2014	ND					

Surrogate: 1-Chlorooctane 210 % 65.2-140

Surrogate: 1-Chlorooctadecane 239 % 63.6-154

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Celey D. Keene, Lab Director/Quality Manager

Analytical Results For:

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

Received: 01/02/2014
Reported: 01/08/2014
Project Name: JON BOB #1
Project Number: 112MC05894
Project Location: COG

Sampling Date: 01/02/2014
Sampling Type: Soil
Sampling Condition: Cool & Intact
Sample Received By: Amanda Ponce

Sample ID: NORTH SIDEWALL (H400010-11)

BTX 8021B		mg/kg	Analyzed By: MS							
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier	
Benzene*	80.5	10.0	01/07/2014	ND	1.85	92.7	2.00	2.58		
Toluene*	610	10.0	01/07/2014	ND	1.81	90.6	2.00	2.38		
Ethylbenzene*	356	10.0	01/07/2014	ND	1.77	88.6	2.00	2.57		
Total Xylenes*	492	30.0	01/07/2014	ND	5.13	85.4	6.00	2.62		
Total BTX	1540	60.0	01/07/2014	ND						

Surrogate: 4-Bromofluorobenzene (PIE) 110 % 89.4-126

TPH 8015M		mg/kg	Analyzed By: ms					S-06	
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
GRO C6-C10	8840	100	01/04/2014	ND	213	107	200	1.63	
DRO >C10-C28	16500	100	01/04/2014	ND	212	106	200	3.24	
EXT DRO >C28-C35	2150	100	01/04/2014	ND					

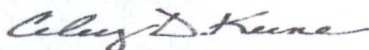
Surrogate: 1-Chlorooctane 236 % 65.2-140

Surrogate: 1-Chlorooctadecane 198 % 63.6-154

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Celey D. Keene, Lab Director/Quality Manager

Analytical Results For:

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

Received: 01/02/2014
Reported: 01/08/2014
Project Name: JON BOB #1
Project Number: 112MC05894
Project Location: COG

Sampling Date: 01/02/2014
Sampling Type: Soil
Sampling Condition: Cool & Intact
Sample Received By: Amanda Ponce

Sample ID: EAST SIDEWALL (H400010-12)

BTEX 8021B	mg/kg	Analyzed By: MS							
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Benzene*	78.9	10.0	01/07/2014	ND	1.85	92.7	2.00	2.58	
Toluene*	509	10.0	01/07/2014	ND	1.81	90.6	2.00	2.38	
Ethylbenzene*	281	10.0	01/07/2014	ND	1.77	88.6	2.00	2.57	
Total Xylenes*	371	30.0	01/07/2014	ND	5.13	85.4	6.00	2.62	
Total BTEX	1240	60.0	01/07/2014	ND					

Surrogate: 4-Bromofluorobenzene (PIE) 109 % 89.4-126

TPH 8015M	mg/kg	Analyzed By: ms							S-06
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
GRO C6-C10	7200	100	01/04/2014	ND	213	107	200	1.63	
DRO >C10-C28	12700	100	01/04/2014	ND	212	106	200	3.24	
EXT DRO >C28-C35	1910	100	01/04/2014	ND					

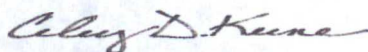
Surrogate: 1-Chlorooctane 211 % 65.2-140

Surrogate: 1-Chlorooctadecane 223 % 63.6-154

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Celey D. Keene, Lab Director/Quality Manager

Analytical Results For:

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

Received: 01/02/2014
Reported: 01/08/2014
Project Name: JON BOB #1
Project Number: 112MC05894
Project Location: COG

Sampling Date: 01/02/2014
Sampling Type: Soil
Sampling Condition: Cool & Intact
Sample Received By: Amanda Ponce

Sample ID: WEST SIDEWALL (H400010-13)

BTEX 8021B		mg/kg	Analyzed By: MS						
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Benzene*	168	10.0	01/07/2014	ND	1.85	92.7	2.00	2.58	
Toluene*	883	10.0	01/07/2014	ND	1.81	90.6	2.00	2.38	
Ethylbenzene*	418	10.0	01/07/2014	ND	1.77	88.6	2.00	2.57	
Total Xylenes*	620	30.0	01/07/2014	ND	5.13	85.4	6.00	2.62	
Total BTEX	2090	60.0	01/07/2014	ND					

Surrogate: 4-Bromofluorobenzene (PIL) 111 % 89.4-126

TPH 8015M		mg/kg	Analyzed By: ms					S-06	
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
GRO C6-C10	14100	100	01/04/2014	ND	213	107	200	1.63	
DRO >C10-C28	23000	100	01/04/2014	ND	212	106	200	3.24	
EXT DRO >C28-C35	3270	100	01/04/2014	ND					

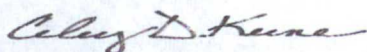
Surrogate: 1-Chlorooctane 275 % 65.2-140

Surrogate: 1-Chlorooctadecane 207 % 63.6-154

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Celey D. Keene, Lab Director/Quality Manager

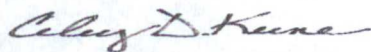
Notes and Definitions

S-06	The recovery of this surrogate is outside control limits due to sample dilution required from high analyte concentration and/or matrix interference's.
QM-4X	The spike recovery was outside of QC acceptance limits for the MS and/or MSD due to analyte concentration at 4 times or greater the spike concentration. The QC batch was accepted based on LCS and/or LCSD recoveries within the acceptance limits.
ND	Analyte NOT DETECTED at or above the reporting limit
RPD	Relative Percent Difference
**	Samples not received at proper temperature of 6°C or below.
***	Insufficient time to reach temperature.
-	Chloride by SM4500Cl-B does not require samples be received at or below 6°C Samples reported on an as received basis (wet) unless otherwise noted on report

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Celestine D. Keene, Lab Director/Quality Manager

Analysis Request of Chain of Custody Record



TETRA TECH

1910 N. Big Spring St.
Midland, Texas 79705
(432) 682-4559 • Fax (432) 682-3946

PAGE:

ANALYSIS REQUEST
(Circle or Specify Method No.)

CLIENT NAME:

CDG

SITE MANAGER:

THE TAVARZ

PROJECT NO.:

112MC05894

PROJECT NAME:

San Bob #1

LAB I.D. NUMBER	DATE	TIME	MATRIX	COMP.	GRAB
11840000	1-3-14	12:30 PM			

SAMPLE IDENTIFICATION

NUMBER OF CONTAINERS

FILTERED (Y/N)

HCL

HNO3

ICE

NONE

PRESERVATIVE METHOD

BTEX 8021B

TPH 8015 MOD. TX1005 (Ext. to C35)

PAH 8270

RCRA Metals Ag As Ba Cd Cr Pb Hg Se

TCLP Metals Ag As Ba Cd Vr Pd Hg Se

TCLP Volatiles

TCLP Semi Volatiles

RCI

GC.MS Vol. 8240/8260/624

GC.MS Semi. Vol. 8270/625

PCB's 8080/608

Pest. 808/608

Chloride

Gamma Spec.

Alpha Beta (Air)

PLM (Asbestos)

Major Anions/Cations, pH, TDS

1	1-3-14	12:30 PM				AL-1 Bottom hole 5.5' E/B
2						North side wall
3						South side wall
4						East side wall
5						West side wall
6						AL-2 Bottom hole 4.8' E/B
7						South side wall
8						East side wall
9						West side wall
10						AL-3 Bottom hole 4.5' E/B
11						North side wall
12						East side wall
13						West side wall

RELINQUISHED BY: (Signature)

RELINQUISHED BY: (Signature)

RELINQUISHED BY: (Signature)

RECEIVING LABORATORY:

ADDRESS:

CITY:

STATE:

ZIP:

PHONE:

REMARKS:

1.8-C#54

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