

SITE INFORMATION

Report Type: Work Plan

General Site Information:

Site:	Parkway Delaware Unit Tract 1 Tank Battery
Company:	SM Energy Company
Section, Township and Range	Section 35, T19S, R29E Unit Letter - P
Lease Number:	
County:	Eddy County
GPS:	32.61531° N, 104.04324° W
Surface Owner:	Federal
Mineral Owner:	
Directions:	From the intersection of Hwy 360 and Buckeye Road 235, go west on Buckey and follow the road for approximately 3.2 miles. Road ends into Burton Flat Road. Travel north on Burton Flat for approximately 4.9 miles. Turn east onto caliche road and travel 1 mile to the site.

Release Data:

Date Released:	5/14/2009
Type Release:	Produced Water/Oil
Source of Contamination:	Hole in production heater treater fire tube
Fluid Released:	275 bbls
Fluids Recovered:	260 bbls

Official Communication:

Name:	Chad McNeely	Aaron Hale
Company:	SM Energy Company	Tetra Tech
Address:	3300 N A St # 7-200	1910 N. Big Spring
P.O. Box		
City:	Midland, Texas	Midland, Texas
Phone number:	(432) 688-3124	(432) 682-4559
Fax:		
Email:	cmcneely@sm-energy.com	aaron.hale@tetrattech.com

Ranking Criteria

Depth to Groundwater:	Ranking Score	Site Data
<50 ft	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:	0	

Acceptable Soil RRAL (mg/kg)		
Benzene	Total BTEX	TPH
10	50	5,000

RECEIVED

MAY 10 2011

NMOCD ARTESIA



TETRA TECH

April 26, 2011

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

**Re: Work Plan for the SM Energy Company
Parkway Delaware Unit Tract 1 Tank Battery
Heater Treater Fire Tube Line Release
Unit P, Section 35, Township 19 South, Range 29 East
Eddy County, New Mexico**

Mr. Bratcher:

Tetra Tech, Inc. (Tetra Tech) was contacted by SM Energy Company (SM Energy) to assess a heater treater fire tube line release at the Parkway Delaware Unit Tract 1 Tank Battery (PDU Tract 1 TB) located in Unit P, Section 35, Township 19 South, Range 29 East, Eddy County, New Mexico (Site). The spill site coordinates are N 32.61531°, W 104.04324°. 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 May 14, 2009. Approximately 25 barrels of produced water and 250 barrels of crude oil were released from a hole in the heater treater fire tube line. Approximately 20 barrels of produced water and 240 barrels of crude oil were recovered. All fluids were contained within the facility dikes. The heater treater was emptied and the fire tube line was repaired. The initial C-141 is enclosed in Appendix A.

Hydrology

The New Mexico Office of the State Engineers (OSE) Website listed two water wells within 2 miles of the site. The closest well (identified by the OSE as CP 00739) had a depth to water at 110 feet below ground surface (bgs) in 1988. The second closest well (identified by the OSE as CP 00703) had a depth to water at 115 feet bgs in 1986. These wells are shown on Figure 3.

The Geology and Ground-Water Resources of Eddy County, New Mexico (Report 3) showed the closest well to be in Section 3 of Township 20 South and Range 29 East. This well is approximately 1 mile south of the site and is reported to be completed in either the Rustler Formation or the Dockum Group. Depth to water for this

Tetra Tech

1910 North Big Spring, Midland, TX 79705

Tel 432.682.4559

Fax 432.682.3946

www.tetratech.com



well is not available. The New Mexico Oil Conservation Division (OCD) regional groundwater gradient map for Eddy County shows the depth to groundwater in this section at approximately 90 feet.

According to the Geology and Ground-Water Resources of Eddy County, New Mexico (Report 3), the Rustler Formation is present in most of the area east of the Pecos River. The Rustler Formation consists of anhydrite, gypsum, interbedded sandy clays and shales, and irregular beds of dolomite.

On May 25, 2010, Tetra Tech advanced 3 soil borings (SB-1, SB-2 and SB-3) to assess the current BTEX, TPH and chloride concentrations at varying depths at the Site. During the soil boring program, groundwater was not encountered.

Regulatory

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

Soil Assessment and Results

On May 28, 2009, Tetra Tech personnel collected soils samples up to 4.5 feet bgs, utilizing a hand auger at five locations within the spill area (identified as AH-1, AH-2, AH-3, AH-4 and AH-5). The spill area was estimated to cover approximately 12,600 square feet. Soil sampling stopped in each location when auger refusal occurred. Soil samples were submitted for laboratory analysis of TPH by EPA method 8015 modified, BTEX by EPA Method 8021B and chloride by EPA method 300.0. The laboratory analytical data indicated that the soil samples had BTEX and TPH concentrations above their RRALs as well as chloride concentrations in excess of 1,000 mg/Kg.

On May 25, 2010, Tetra Tech personnel remobilized to the site with a drilling rig to advance soil borings in the areas previously assessed with a hand auger. SB-1, SB-2 and SB-3 were advanced to 40 feet bgs, 30 feet bgs and 45 feet bgs, respectively. Soil samples from the borings were submitted for laboratory analysis to evaluate the BTEX, TPH and chloride concentrations. The bottom sample in each boring did not exhibit chloride concentrations above the laboratory reporting limits.

Analytical results indicate the maximum extent of chloride impact greater than 1,000 mg/Kg extending to 1 foot (SB-1), 5 feet (SB-2) and 20 feet (SB-3). All sample locations had chloride concentrations that decreased with depth. TPH concentrations exceeded the RRALs in the vicinity of AH-2 and AH-4. In addition, Total BTEX concentrations in the vicinity of AH-4 and AH-5 exceeded the RRAL. Copies of laboratory analysis and chain-of-custody documentation are included in Appendix B.



TETRA TECH

The results of the sampling are summarized in Table 1. The borehole locations are shown on Figure 4.

Work Plan

This spill was contained within the recently installed dikes at the site. The proposed excavation plan is intended to minimize disruption to the facility while removing hydrocarbon and chloride impacted soils. Due to limited access, mechanical excavation will not be utilized at this site. The area around AH-1 and SB-3 will be hand excavated to a depth not likely to exceed 1 to 2 feet bgs and then backfilled with clean soils. The remainder of the spill area within the dike will also be excavated to a depth not likely to exceed 1 to 2 feet bgs. Microblaze will be applied to this area prior to backfilling with clean soils. Soils excavated from all areas will be transported under manifest to Lea Land, Inc.'s Landfill in Eddy County. The excavation details are shown on Figure 5.

*Modified
see email
7/13/11*

Although the analytical data indicates BTEX, TPH and chloride concentrations may extend deeper than 1 to 2 feet bgs, deeper excavation is not possible at this time due to the excessive number of pipes and electrical conduit as well as the tanks and production equipment. If necessary, additional remedial activities will occur at some point in the future when this tank battery is abandoned although, based on the available analytical data, the residual hydrocarbon and chloride concentrations should not have a large potential for future impacts.

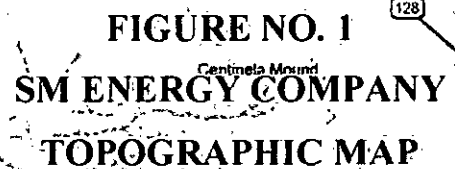
Once the remedial activities are performed a closure report with a final C-141 will be submitted for the soils at the site. If you require any additional information or have any questions or comments concerning this work plan, please call at (432) 682-4559.

Respectfully submitted,
TETRA TECH, INC.

Aaron M. Hale
Senior Project Manager

cc: Chad McNeely – SM Energy Company
Don Riggs – SM Energy Company
Mark Bondy – SM Energy Company
BLM – Jim Amos

FIGURES

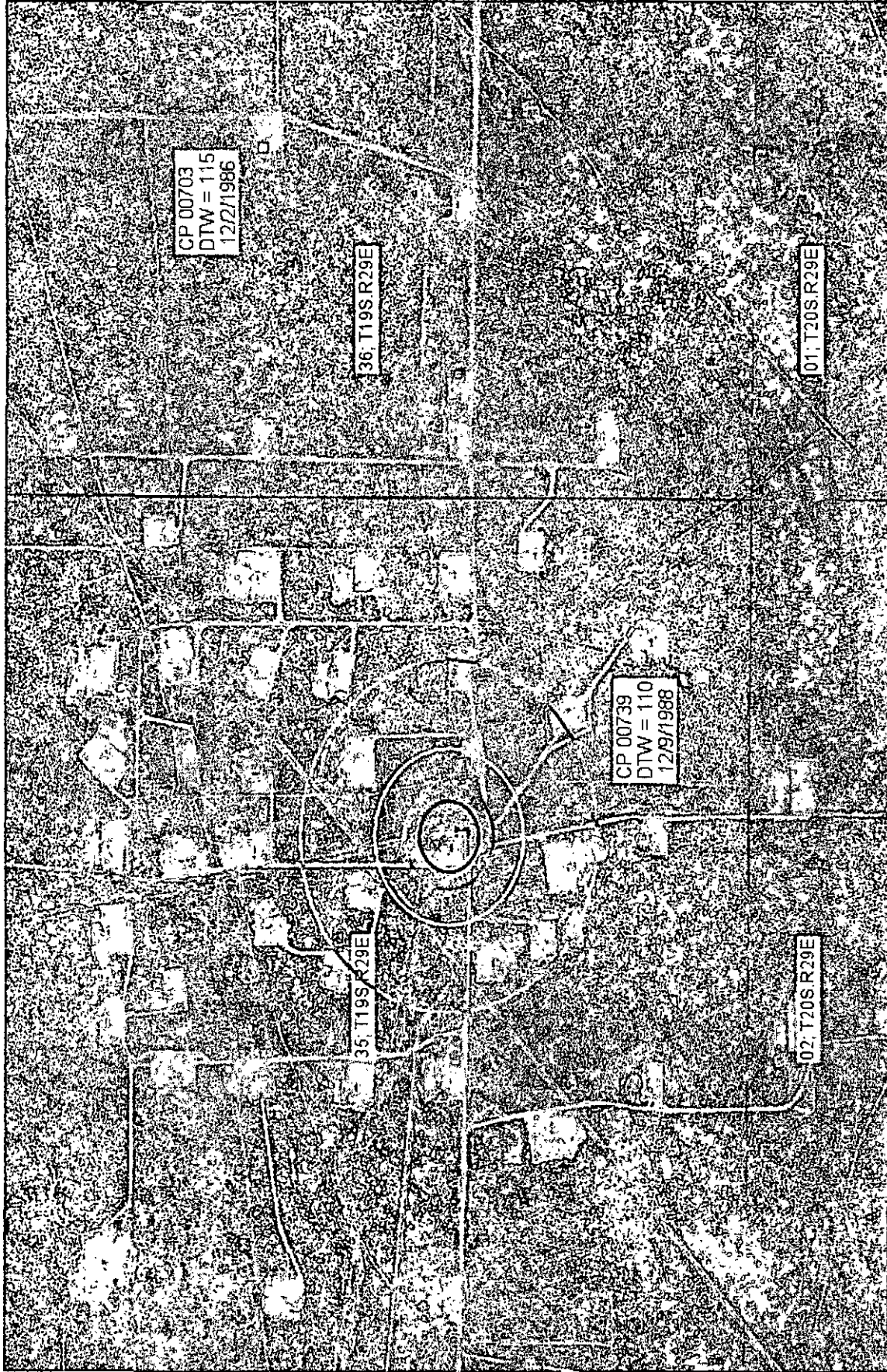


www.delorme.com

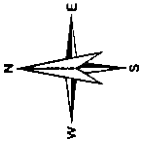
TN
★
MN (7.9°E)

1" = 6.31 mi

Data Zoom 9-0



Distance (ft): 0 200 300 500 1000



Petroleum Recovery
Research Center

Water Well Location Map

Figure: 3

SM Energy Company/PDU Tract 1 Tank Battery

Nov 22, 2010

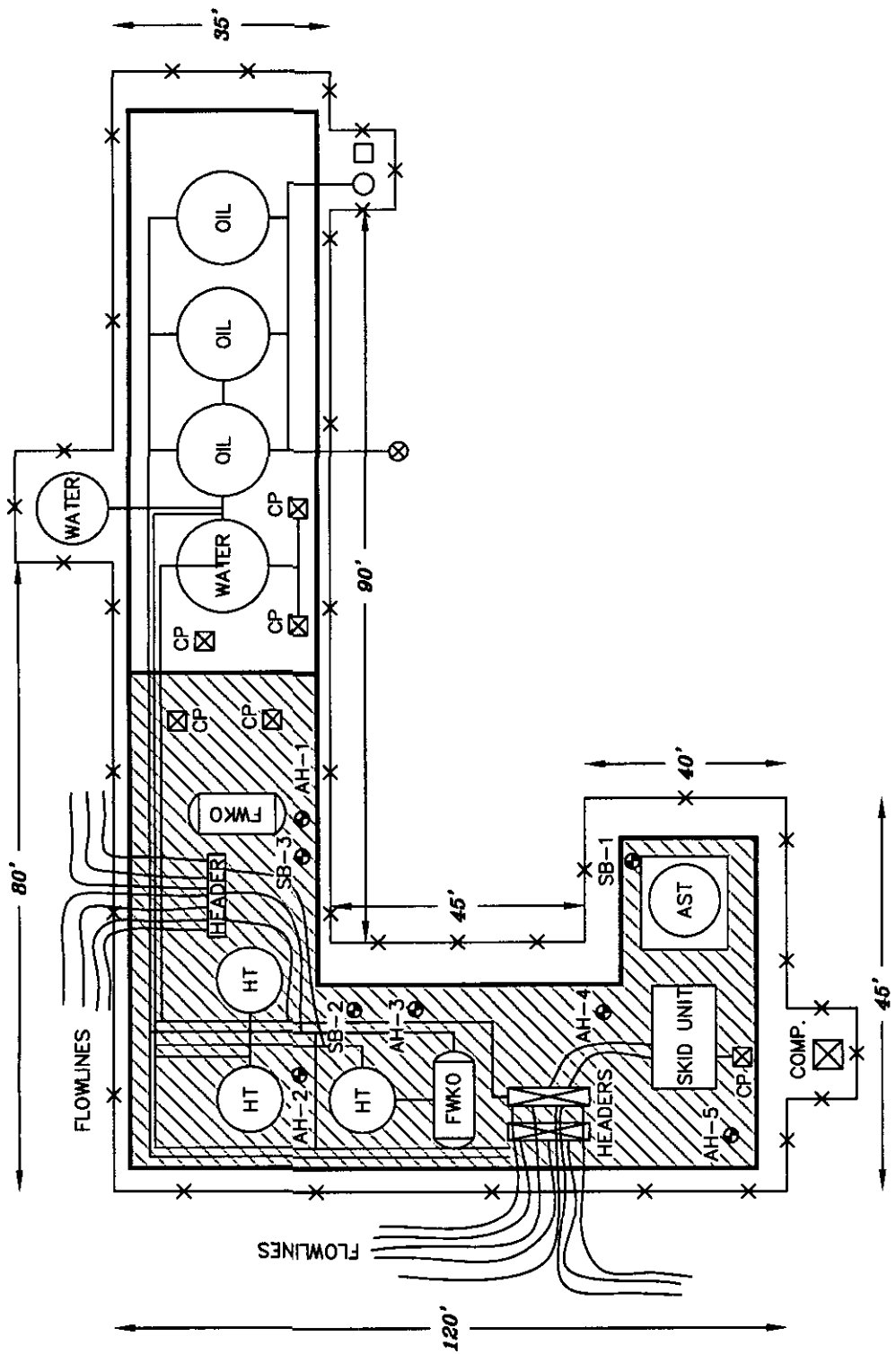


FIGURE NO. 4

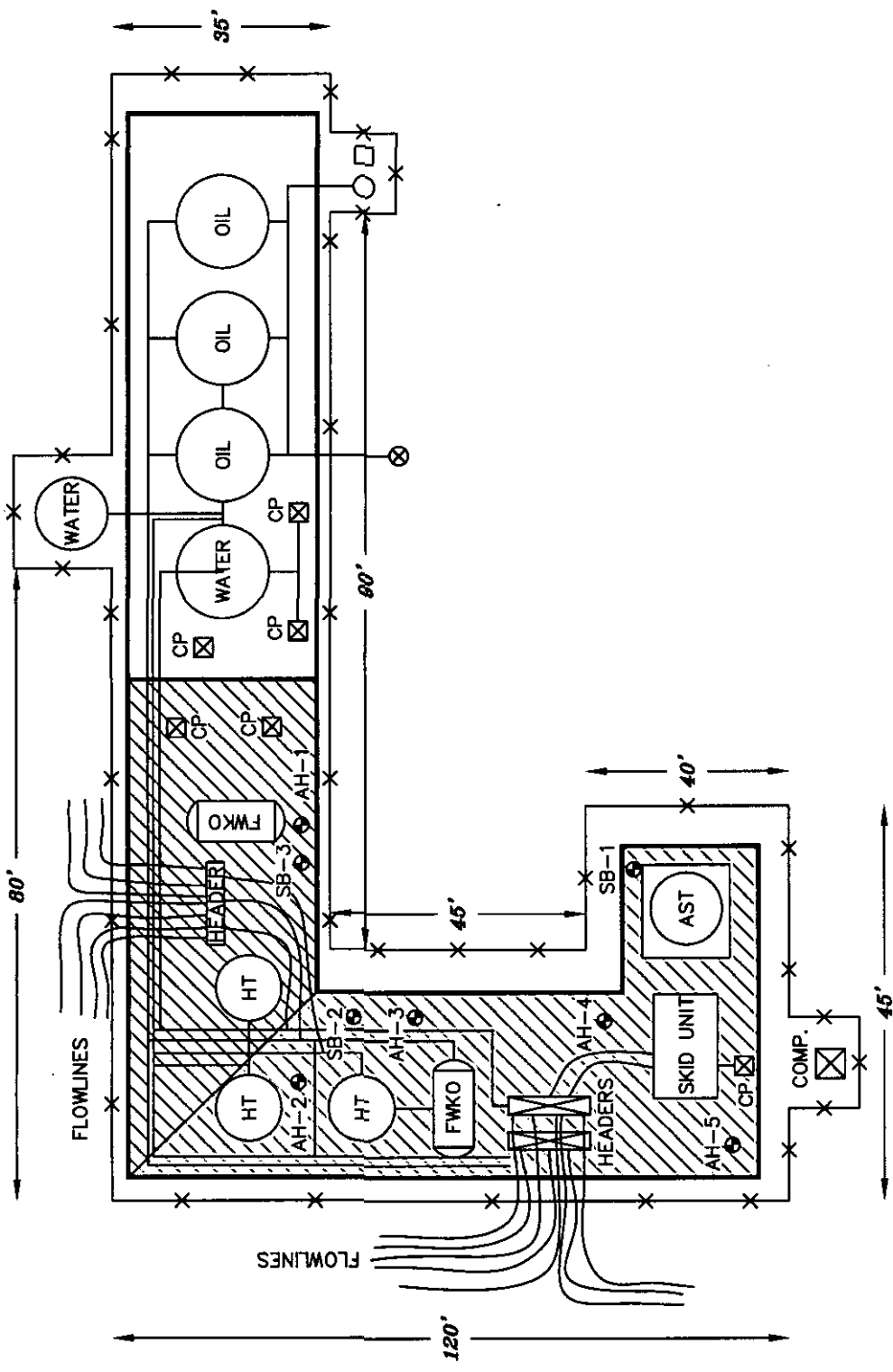
EDDY COUNTY, NEW MEXICO
SM ENERGY COMPANY
PDU TRACT 1 TB
TETRA TECH, INC. MIDLAND, TEXAS

DATE: 4/21/09
DRAWN BY: JJ
FILE: H:\ST. MARY\400000

- SPILL AREA
- AUGER HOLE
- SOIL BORING LOCATIONS

WELL

NOT TO SCALE



- SPILL AREA
- EXCAVATE 2.0' DEEP
- EXCAVATE 2.0' W/ MICROBLAZE
- AUGER HOLE
- SOIL BORING LOCATIONS

FIGURE NO. 5
EDDY COUNTY, NEW MEXICO
SM ENERGY COMPANY
PDU TRACT 1 TB
TETRA TECH, INC. MIDLAND, TEXAS

DATE:	4/21/09
DRAWN BY:	JJ
FILE:	SM-PA-000203

NOT TO SCALE

TABLES

[illegible]

SM Energy Company
Parkware Deleware Unit Tract #1 Tank Battery
Eddy County, New Mexico

Sample ID	Date Sampled	Sample 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	DRO	GRO	Total						
AH-4	5/28/2009	0-1	X		11,800	5,490	17,290	4.96	68.2	41.5	144	259	238
	5/28/2009	1-1.5	X		9,330	4,250	13,580	-	-	-	-	-	200
AH-5	5/28/2009	0-1	X		1,410	1,810	3,220	<0.0500	14	12	47	73	845
	5/28/2009	1-1.5	X		2,110	362	2,472	-	-	-	-	-	449
SB-1	5/25/2010	1'	X		458	1,060	1,518	0.454	5.28	4.80	18.6	29.1	1,150
	5/25/2010	3'	X		-	-	-	-	-	-	-	-	675
	5/25/2010	5'	X		-	-	-	-	-	-	-	-	<200
	5/25/2010	7'	X		-	-	-	-	-	-	-	-	<200
	5/25/2010	10'	X		-	-	-	-	-	-	-	-	<200
	5/25/2010	15'	X		-	-	-	-	-	-	-	-	<200
	5/25/2010	20'	X		-	-	-	-	-	-	-	-	<200
	5/25/2010	25'	X		-	-	-	-	-	-	-	-	545
	5/25/2010	30'	X		-	-	-	-	-	-	-	-	<200
	5/25/2010	40'	X		-	-	-	-	-	-	-	-	<200

(-) Not Analyzed

APPENDIX A

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

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	St. Mary Land & Exploration Co.	Contact	Donna Huddleston
Address	3300 N. A Street, Bldg. 7, Ste. 200 Midland, TX	Telephone No.	(432)688-1789
Facility Name	Parkway Delaware Tract 1 Battery	Facility Type	Battery

Surface Owner	BLM	Mineral Owner	BLM	Lease No.	
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LOCATION OF RELEASE

Unit Letter	Section	Township	Range	Feet from the	North/South Line	Feet from the	East/West Line	County
P	35	19S	29E					Eddy County, NM

Latitude _____ Longitude _____

NATURE OF RELEASE

Type of Release	Prod Water/Oil	Volume of Release	275 bbls	Volume Recovered	260 bbls
Source of Release	Heater treater fire tube	Date and Hour of Occurrence	5/14/09	Date and Hour of Discovery	5/14/09
Was Immediate Notice Given?	☒ Yes ☐ No ☐ Not Required	If YES, To Whom?	Mike Bratcher W/OCD & Jim Amos W/ BLM		
By Whom?	Bill Hearne	Date and Hour	5/14/09 12:30PM		
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.*

Hole in 8' x 20' production heater treater fire tube. Spilled estimated 25 bbls. wtr./ 250 bbls. oil. All standing fluid contained in recently installed dike. Recovered 20 bbls. wtr./ 240 bbls. oil. Net loss: 5 wtr./ 10 bbls. oil. Picked up all standing fluid contained in dike area of battery. Emptied remaining fluid from vessel, removed failed fire tube, and sent to welding shop for repairs and coating. Will coat 8' x 20' treater while open. Return vessel to operation when repairs are completed

Describe Area Affected and Cleanup Action Taken.*

Closest well to battery is PDU 509. (API #30-015-30030). Spill Area: 200' x 400' = 12,600 sq. ft. Pasture. Note: Mist/ Spray area SW of battery 200' x 40' = 8000 sq. ft. Dike Area: 120' x 35' = 4200 sq. ft.

Picked up all standing fluid contained in dike area of battery. Dig out contaminated soil and remediate with fresh soil.

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	<i>Donna Huddleston</i>		
Printed Name: Donna Huddleston	Approved by District Supervisor:		
Title: Production Tech	Approval Date:	Expiration Date:	
E-mail Address: dhuddleston@stmaryland.com	Conditions of Approval:		Attached ☐
Date: 05/18/2009	Phone: (432)688-1789		

Attach Additional Sheets If Necessary

APPENDIX B

Summary Report

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

Report Date: June 11, 2009

Work Order: 9052928



Project Name: St. Mary/PDU Tract #1 TB
Project Number: 114-6400203

Sample	Description	Matrix	Date Taken	Time Taken	Date Received
197378	AH-1 0-1'	soil	2009-05-28	00:00	2009-05-29
197379	AH-1 1'-1.5'	soil	2009-05-28	00:00	2009-05-29
197380	AH-1 2'-2.5'	soil	2009-05-28	00:00	2009-05-29
197381	AH-1 3'-3.5'	soil	2009-05-28	00:00	2009-05-29
197382	AH-2 0-1'	soil	2009-05-28	00:00	2009-05-29
197383	AH-2 1'-1.5'	soil	2009-05-28	00:00	2009-05-29
197384	AH-2 2'-2.5'	soil	2009-05-28	00:00	2009-05-29
197385	AH-2 3'-3.5'	soil	2009-05-28	00:00	2009-05-29
197386	AH-2 4'-4.5'	soil	2009-05-28	00:00	2009-05-29
197387	AH-3 0-1'	soil	2009-05-28	00:00	2009-05-29
197388	AH-3 1'-1.5'	soil	2009-05-28	00:00	2009-05-29
197389	AH-3 2'-2.5'	soil	2009-05-28	00:00	2009-05-29
197390	AH-3 3'-3.5'	soil	2009-05-28	00:00	2009-05-29
197391	AH-3 4'-4.5'	soil	2009-05-28	00:00	2009-05-29
197392	AH-4 0-1'	soil	2009-05-28	00:00	2009-05-29
197393	AH-4 1'-1.5'	soil	2009-05-28	00:00	2009-05-29
197394	AH-5 0-1'	soil	2009-05-28	00:00	2009-05-29
197395	AH-5 1'-1.5'	soil	2009-05-28	00:00	2009-05-29

Sample - Field Code	BTEX				TPH DRO	TPH GRO
	Benzene (mg/Kg)	Toluene (mg/Kg)	Ethylbenzene (mg/Kg)	Xylene (mg/Kg)	DRO (mg/Kg)	GRO (mg/Kg)
197378 - AH-1 0-1'					1030	73.3
197379 - AH-1 1'-1.5'					<50.0	50.0
197382 - AH-2 0-1'	2.49	6.81	3.26	11.1	13000	1130
197383 - AH-2 1'-1.5'					311	74.3
197387 - AH-3 0-1'					2770	970
197388 - AH-3 1'-1.5'					116	126
197392 - AH-4 0-1'	4.96	68.2	41.5	144	11800	5490
197393 - AH-4 1'-1.5'					9330	4250

continued ...

... continued

Sample - Field Code	BTEX				TPH DRO	TPH GRO
	Benzene (mg/Kg)	Toluene (mg/Kg)	Ethylbenzene (mg/Kg)	Xylene (mg/Kg)	DRO (mg/Kg)	GRO (mg/Kg)
197394 - AH-5 0-1'	<0.0500	14.0	12.0	47.4	1410	1810
197395 - AH-5 1'-1.5'					2110	362

Sample: 197378 - AH-1 0-1'

Param	Flag	Result	Units	RL
Chloride		6750	mg/Kg	4.00

Sample: 197379 - AH-1 1'-1.5'

Param	Flag	Result	Units	RL
Chloride		8760	mg/Kg	4.00

Sample: 197380 - AH-1 2'-2.5'

Param	Flag	Result	Units	RL
Chloride		9070	mg/Kg	4.00

Sample: 197381 - AH-1 3'-3.5'

Param	Flag	Result	Units	RL
Chloride		7730	mg/Kg	4.00

Sample: 197382 - AH-2 0-1'

Param	Flag	Result	Units	RL
Chloride		3580	mg/Kg	4.00

Sample: 197383 - AH-2 1'-1.5'

Param	Flag	Result	Units	RL
Chloride		1340	mg/Kg	4.00

Sample: 197384 - AH-2 2'-2.5'

Report Date: June 11, 2009
114-6400203

Work Order: 9052928
St. Mary/PDU Tract #1 TB

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Param	Flag	Result	Units	RL
Chloride		1200	mg/Kg	4.00

Sample: 197385 - AH-2 3'-3.5'

Param	Flag	Result	Units	RL
Chloride		1480	mg/Kg	4.00

Sample: 197386 - AH-2 4'-4.5'

Param	Flag	Result	Units	RL
Chloride		1360	mg/Kg	4.00

Sample: 197387 - AH-3 0-1'

Param	Flag	Result	Units	RL
Chloride		486	mg/Kg	4.00

Sample: 197388 - AH-3 1'-1.5'

Param	Flag	Result	Units	RL
Chloride		374	mg/Kg	4.00

Sample: 197389 - AH-3 2'-2.5'

Param	Flag	Result	Units	RL
Chloride		276	mg/Kg	4.00

Sample: 197390 - AH-3 3'-3.5'

Param	Flag	Result	Units	RL
Chloride		314	mg/Kg	4.00

Sample: 197391 - AH-3 4'-4.5'

Param	Flag	Result	Units	RL
Chloride		303	mg/Kg	4.00

Report Date: June 11, 2009
114-6400203

Work Order: 9052928
St. Mary/PDU Tract #1 TB

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Sample: 197392 - AH-4 0-1'

Param	Flag	Result	Units	RL
Chloride		238	mg/Kg	4.00

Sample: 197393 - AH-4 1'-1.5'

Param	Flag	Result	Units	RL
Chloride		200	mg/Kg	4.00

Sample: 197394 - AH-5 0-1'

Param	Flag	Result	Units	RL
Chloride		845	mg/Kg	4.00

Sample: 197395 - AH-5 1'-1.5'

Param	Flag	Result	Units	RL
Chloride		449	mg/Kg	4.00



6701 Aberdeen Avenue, Suite 9 Lubbock, Texas 79424 800•378•1296 806•794•1296 FAX 806•794•1298
200 East Sunset Road, Suite E El Paso, Texas 79922 888•588•3443 915•585•3443 FAX 915•585•4944
5002 Basin Street, Suite A1 Midland, Texas 79703 432•689•6301 FAX 432•689•6313
6015 Harris Parkway, Suite 110 Ft. Worth, Texas 76132 817•201•5260
E-Mail: lab@traceanalysis.com

Certifications

WBENC: 237019

HUB: 1752439743100-86536
NCTRCA WFWB38444Y0909

DBE: VN 20657

NELAP Certifications

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

El Paso: T104704221-08-TX
LELAP-02002

Midland: T104704392-08-TX

Analytical and Quality Control Report

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

Report Date: June 11, 2009

Work Order: 9052928



Project Name: St. Mary/PDU Tract #1 TB
Project Number: 114-6400203

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
197378	AH-1 0-1'	soil	2009-05-28	00:00	2009-05-29
197379	AH-1 1'-1.5'	soil	2009-05-28	00:00	2009-05-29
197380	AH-1 2'-2.5'	soil	2009-05-28	00:00	2009-05-29
197381	AH-1 3'-3.5'	soil	2009-05-28	00:00	2009-05-29
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197385	AH-2 3'-3.5'	soil	2009-05-28	00:00	2009-05-29
197386	AH-2 4'-4.5'	soil	2009-05-28	00:00	2009-05-29
197387	AH-3 0-1'	soil	2009-05-28	00:00	2009-05-29
197388	AH-3 1'-1.5'	soil	2009-05-28	00:00	2009-05-29

Sample	Description	Matrix	Date Taken	Time Taken	Date Received
197389	AH-3 2'-2.5'	soil	2009-05-28	00:00	2009-05-29
197390	AH-3 3'-3.5'	soil	2009-05-28	00:00	2009-05-29
197391	AH-3 4'-4.5'	soil	2009-05-28	00:00	2009-05-29
197392	AH-4 0-1'	soil	2009-05-28	00:00	2009-05-29
197393	AH-4 1'-1.5'	soil	2009-05-28	00:00	2009-05-29
197394	AH-5 0-1'	soil	2009-05-28	00:00	2009-05-29
197395	AH-5 1'-1.5'	soil	2009-05-28	00:00	2009-05-29

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



Dr. Blair Leftwich, Director

Standard Flags

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

Case Narrative

Samples for project St. Mary/PDU Tract #1 TB were received by TraceAnalysis, Inc. on 2009-05-29 and assigned to work order 9052928. Samples for work order 9052928 were received intact at a temperature of 7.8 deg. 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	51377	2009-06-08 at 10:09	60203	2009-06-08 at 10:09
BTEX	S 8021B	51454	2009-06-10 at 09:21	60299	2009-06-10 at 09:21
Chloride (Titration)	SM 4500-Cl B	51186	2009-06-01 at 10:21	60012	2009-06-02 at 10:17
Chloride (Titration)	SM 4500-Cl B	51187	2009-06-01 at 10:21	60013	2009-06-02 at 10:17
TPH DRO	Mod. 8015B	51212	2009-06-01 at 14:30	60003	2009-06-01 at 12:05
TPH GRO	S 8015B	51213	2009-06-01 at 10:33	59966	2009-06-01 at 10:33
TPH GRO	S 8015B	51248	2009-06-02 at 15:03	60032	2009-06-02 at 15:03

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 9052928 since the sample was chosen at random. Therefore, the validity of the analytical data reported has been determined by the laboratory control sample (LCS) and the method blank (MB). These quality control measures are performed with each preparation batch to ensure data integrity.

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

Analytical Report

Sample: 197378 - AH-1 0-1'

Laboratory: Midland
Analysis: Chloride (Titration)
QC Batch: 60012
Prep Batch: 51186

Analytical Method: SM 4500-Cl B
Date Analyzed: 2009-06-02
Sample Preparation: 2009-06-01

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

Parameter	Flag	RL Result	Units	Dilution	RL
Chloride		6750	mg/Kg	50	4.00

Sample: 197378 - AH-1 0-1'

Laboratory: Midland
Analysis: TPH DRO
QC Batch: 60003
Prep Batch: 51212

Analytical Method: Mod. 8015B
Date Analyzed: 2009-06-01
Sample Preparation: 2009-06-01

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

Parameter	Flag	RL Result	Units	Dilution	RL
DRO		1030	mg/Kg	1	50.0

Surrogate	Flag	Result	Units	Dilution	Spike Amount	Percent Recovery	Recovery Limits
n-Triacontane		156	mg/Kg	1	100	156	13.2 - 219.3

Sample: 197378 - AH-1 0-1'

Laboratory: Midland
Analysis: TPH GRO
QC Batch: 59966
Prep Batch: 51213

Analytical Method: S 8015B
Date Analyzed: 2009-06-01
Sample Preparation: 2009-06-01

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

Parameter	Flag	RL Result	Units	Dilution	RL
GRO		73.3	mg/Kg	1	1.00

Surrogate	Flag	Result	Units	Dilution	Spike Amount	Percent Recovery	Recovery Limits
Trifluorotoluene (TFT)		1.86	mg/Kg	1	2.00	93	68.5 - 119.4
4-Bromofluorobenzene (4-BFB)	¹	4.37	mg/Kg	1	2.00	218	52 - 117

¹ High surrogate recovery due to peak interference.

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Sample: 197379 - AH-1 1'-1.5'

Laboratory:	Midland	Analytical Method:	SM 4500-Cl B	Prep Method:	N/A
Analysis:	Chloride (Titration)	Date Analyzed:	2009-06-02	Analyzed By:	AR
QC Batch:	60012	Sample Preparation:	2009-06-01	Prepared By:	AR
Prep Batch:	51186				

Parameter	Flag	RL Result	Units	Dilution	RL
Chloride		8760	mg/Kg	50	4.00

Sample: 197379 - AH-1 1'-1.5'

Laboratory:	Midland	Analytical Method:	Mod. 8015B	Prep Method:	N/A
Analysis:	TPH DRO	Date Analyzed:	2009-06-01	Analyzed By:	AG
QC Batch:	60003	Sample Preparation:	2009-06-01	Prepared By:	AG
Prep Batch:	51212				

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

Surrogate	Flag	Result	Units	Dilution	Spike Amount	Percent Recovery	Recovery Limits
n-Triacontane		73.9	mg/Kg	1	100	74	13.2 - 219.3

Sample: 197379 - AH-1 1'-1.5'

Laboratory:	Midland	Analytical Method:	S 8015B	Prep Method:	S 5035
Analysis:	TPH GRO	Date Analyzed:	2009-06-01	Analyzed By:	ME
QC Batch:	59966	Sample Preparation:	2009-06-01	Prepared By:	ME
Prep Batch:	51213				

Parameter	Flag	RL Result	Units	Dilution	RL
GRO		50.0	mg/Kg	1	1.00

Surrogate	Flag	Result	Units	Dilution	Spike Amount	Percent Recovery	Recovery Limits
Trifluorotoluene (TFT)		1.88	mg/Kg	1	2.00	94	68.5 - 119.4
4-Bromofluorobenzene (4-BFB)		1.30	mg/Kg	1	2.00	65	52 - 117

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Sample: 197380 - AH-1 2'-2.5'

Laboratory: Midland
Analysis: Chloride (Titration) Analytical Method: SM 4500-Cl B Prep Method: N/A
QC Batch: 60012 Date Analyzed: 2009-06-02 Analyzed By: AR
Prep Batch: 51186 Sample Preparation: 2009-06-01 Prepared By: AR

Parameter	Flag	RL Result	Units	Dilution	RL
Chloride		9070	mg/Kg	50	4.00

Sample: 197381 - AH-1 3'-3.5'

Laboratory: Midland
Analysis: Chloride (Titration) Analytical Method: SM 4500-Cl B Prep Method: N/A
QC Batch: 60012 Date Analyzed: 2009-06-02 Analyzed By: AR
Prep Batch: 51186 Sample Preparation: 2009-06-01 Prepared By: AR

Parameter	Flag	RL Result	Units	Dilution	RL
Chloride		7730	mg/Kg	50	4.00

Sample: 197382 - AH-2 0-1'

Laboratory: Midland
Analysis: BTEX Analytical Method: S 8021B Prep Method: S 5035
QC Batch: 60203 Date Analyzed: 2009-06-08 Analyzed By: ME
Prep Batch: 51377 Sample Preparation: 2009-06-08 Prepared By: ME

Parameter	Flag	RL Result	Units	Dilution	RL
Benzene		2.49	mg/Kg	5	0.0100
Toluene		6.81	mg/Kg	5	0.0100
Ethylbenzene		3.26	mg/Kg	5	0.0100
Xylene		11.1	mg/Kg	5	0.0100

Surrogate	Flag	Result	Units	Dilution	Spike Amount	Percent Recovery	Recovery Limits
Trifluorotoluene (TFT)		9.17	mg/Kg	5	10.0	92	49 - 129.7
4-Bromofluorobenzene (4-BFB)		9.95	mg/Kg	5	10.0	100	45.2 - 144.3

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Sample: 197382 - AH-2 0-1'

Laboratory: Midland
Analysis: Chloride (Titration)
QC Batch: 60012
Prep Batch: 51186

Analytical Method: SM 4500-Cl B
Date Analyzed: 2009-06-02
Sample Preparation: 2009-06-01

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

Parameter	Flag	RL Result	Units	Dilution	RL
Chloride		3580	mg/Kg	50	4.00

Sample: 197382 - AH-2 0-1'

Laboratory: Midland
Analysis: TPH DRO
QC Batch: 60003
Prep Batch: 51212

Analytical Method: Mod. 8015B
Date Analyzed: 2009-06-01
Sample Preparation: 2009-06-01

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

Parameter	Flag	RL Result	Units	Dilution	RL
DRO		13000	mg/Kg	5	50.0

Surrogate	Flag	Result	Units	Dilution	Spike Amount	Percent Recovery	Recovery Limits
n-Triacontane	²	2130	mg/Kg	5	100	2130	13.2 - 219.3

Sample: 197382 - AH-2 0-1'

Laboratory: Midland
Analysis: TPH GRO
QC Batch: 59966
Prep Batch: 51213

Analytical Method: S 8015B
Date Analyzed: 2009-06-01
Sample Preparation: 2009-06-01

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

Parameter	Flag	RL Result	Units	Dilution	RL
GRO		1130	mg/Kg	10	1.00

Surrogate	Flag	Result	Units	Dilution	Spike Amount	Percent Recovery	Recovery Limits
Trifluorotoluene (TFT)		19.6	mg/Kg	10	20.0	98	68.5 - 119.4
4-Bromofluorobenzene (4-BFB)	³	29.0	mg/Kg	10	20.0	145	52 - 117

²High surrogate recovery due to peak interference.

³High surrogate recovery due to peak interference.

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Sample: 197383 - AH-2 1'-1.5'

Laboratory:	Midland	Analytical Method:	SM 4500-Cl B	Prep Method:	N/A
Analysis:	Chloride (Titration)	Date Analyzed:	2009-06-02	Analyzed By:	AR
QC Batch:	60012	Sample Preparation:	2009-06-01	Prepared By:	AR
Prep Batch:	51186				

Parameter	Flag	RL Result	Units	Dilution	RL
Chloride		1340	mg/Kg	50	4.00

Sample: 197383 - AH-2 1'-1.5'

Laboratory:	Midland	Analytical Method:	Mod. 8015B	Prep Method:	N/A
Analysis:	TPH DRO	Date Analyzed:	2009-06-01	Analyzed By:	AG
QC Batch:	60003	Sample Preparation:	2009-06-01	Prepared By:	AG
Prep Batch:	51212				

Parameter	Flag	RL Result	Units	Dilution	RL
DRO		311	mg/Kg	1	50.0

Surrogate	Flag	Result	Units	Dilution	Spike Amount	Percent Recovery	Recovery Limits
n-Triacontane		187	mg/Kg	1	100	187	13.2 - 219.3

Sample: 197383 - AH-2 1'-1.5'

Laboratory:	Midland	Analytical Method:	S 8015B	Prep Method:	S 5035
Analysis:	TPH GRO	Date Analyzed:	2009-06-01	Analyzed By:	ME
QC Batch:	59966	Sample Preparation:	2009-06-01	Prepared By:	ME
Prep Batch:	51213				

Parameter	Flag	RL Result	Units	Dilution	RL
GRO		74.3	mg/Kg	1	1.00

Surrogate	Flag	Result	Units	Dilution	Spike Amount	Percent Recovery	Recovery Limits
Trifluorotoluene (TFT)		1.89	mg/Kg	1	2.00	94	68.5 - 119.4
4-Bromofluorobenzene (4-BFB)	⁴	4.15	mg/Kg	1	2.00	208	52 - 117

⁴High surrogate recovery due to peak interference.

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Sample: 197384 - AH-2 2'-2.5'

Laboratory:	Midland		
Analysis:	Chloride (Titration)	Analytical Method:	SM 4500-Cl B
QC Batch:	60012	Date Analyzed:	2009-06-02
Prep Batch:	51186	Sample Preparation:	2009-06-01
		Prep Method:	N/A
		Analyzed By:	AR
		Prepared By:	AR

Parameter	Flag	RL Result	Units	Dilution	RL
Chloride		1200	mg/Kg	50	4.00

Sample: 197385 - AH-2 3'-3.5'

Laboratory:	Midland		
Analysis:	Chloride (Titration)	Analytical Method:	SM 4500-Cl B
QC Batch:	60012	Date Analyzed:	2009-06-02
Prep Batch:	51186	Sample Preparation:	2009-06-01
		Prep Method:	N/A
		Analyzed By:	AR
		Prepared By:	AR

Parameter	Flag	RL Result	Units	Dilution	RL
Chloride		1480	mg/Kg	50	4.00

Sample: 197386 - AH-2 4'-4.5'

Laboratory:	Midland		
Analysis:	Chloride (Titration)	Analytical Method:	SM 4500-Cl B
QC Batch:	60012	Date Analyzed:	2009-06-02
Prep Batch:	51186	Sample Preparation:	2009-06-01
		Prep Method:	N/A
		Analyzed By:	AR
		Prepared By:	AR

Parameter	Flag	RL Result	Units	Dilution	RL
Chloride		1360	mg/Kg	50	4.00

Sample: 197387 - AH-3 0-1'

Laboratory:	Midland		
Analysis:	Chloride (Titration)	Analytical Method:	SM 4500-Cl B
QC Batch:	60012	Date Analyzed:	2009-06-02
Prep Batch:	51186	Sample Preparation:	2009-06-01
		Prep Method:	N/A
		Analyzed By:	AR
		Prepared By:	AR

Parameter	Flag	RL Result	Units	Dilution	RL
Chloride		486	mg/Kg	50	4.00

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Sample: 197387 - AH-3 0-1'

Laboratory:	Midland	Analytical Method:	Mod. 8015B	Prep Method:	N/A
Analysis:	TPH DRO	Date Analyzed:	2009-06-01	Analyzed By:	AG
QC Batch:	60003	Sample Preparation:	2009-06-01	Prepared By:	AG
Prep Batch:	51212				

Parameter	Flag	RL Result	Units	Dilution	RL
DRO		2770	mg/Kg	1	50.0

Surrogate	Flag	Result	Units	Dilution	Spike Amount	Percent Recovery	Recovery Limits
n-Triacontane	⁵	368	mg/Kg	1	100	368	13.2 - 219.3

Sample: 197387 - AH-3 0-1'

Laboratory:	Midland	Analytical Method:	S 8015B	Prep Method:	S 5035
Analysis:	TPH GRO	Date Analyzed:	2009-06-02	Analyzed By:	ME
QC Batch:	60032	Sample Preparation:	2009-06-02	Prepared By:	ME
Prep Batch:	51248				

Parameter	Flag	RL Result	Units	Dilution	RL
GRO		970	mg/Kg	10	1.00

Surrogate	Flag	Result	Units	Dilution	Spike Amount	Percent Recovery	Recovery Limits
Trifluorotoluene (TFT)		19.7	mg/Kg	10	20.0	98	68.5 - 119.4
4-Bromofluorobenzene (4-BFB)	⁶	49.0	mg/Kg	10	20.0	245	52 - 117

Sample: 197388 - AH-3 1'-1.5'

Laboratory:	Midland	Analytical Method:	SM 4500-Cl B	Prep Method:	N/A
Analysis:	Chloride (Titration)	Date Analyzed:	2009-06-02	Analyzed By:	AR
QC Batch:	60013	Sample Preparation:	2009-06-01	Prepared By:	AR
Prep Batch:	51187				

Parameter	Flag	RL Result	Units	Dilution	RL
Chloride		374	mg/Kg	50	4.00

⁵High surrogate recovery due to peak interference.

⁶High surrogate recovery due to peak interference.

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Sample: 197388 - AH-3 1'-1.5'

Laboratory: Midland
Analysis: TPH DRO
QC Batch: 60003
Prep Batch: 51212

Analytical Method: Mod. 8015B
Date Analyzed: 2009-06-01
Sample Preparation: 2009-06-01

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

Parameter	Flag	RL Result	Units	Dilution	RL
DRO	B	116	mg/Kg	1	50.0

Surrogate	Flag	Result	Units	Dilution	Spike Amount	Percent Recovery	Recovery Limits
n-Triacontane		140	mg/Kg	1	100	140	13.2 - 219.3

Sample: 197388 - AH-3 1'-1.5'

Laboratory: Midland
Analysis: TPH GRO
QC Batch: 59966
Prep Batch: 51213

Analytical Method: S 8015B
Date Analyzed: 2009-06-01
Sample Preparation: 2009-06-01

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

Parameter	Flag	RL Result	Units	Dilution	RL
GRO		126	mg/Kg	1	1.00

Surrogate	Flag	Result	Units	Dilution	Spike Amount	Percent Recovery	Recovery Limits
Trifluorotoluene (TFT)		1.97	mg/Kg	1	2.00	98	68.5 - 119.4
4-Bromofluorobenzene (4-BFB)	7	3.66	mg/Kg	1	2.00	183	52 - 117

Sample: 197389 - AH-3 2'-2.5'

Laboratory: Midland
Analysis: Chloride (Titration)
QC Batch: 60013
Prep Batch: 51187

Analytical Method: SM 4500-Cl B
Date Analyzed: 2009-06-02
Sample Preparation: 2009-06-01

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

Parameter	Flag	RL Result	Units	Dilution	RL
Chloride		276	mg/Kg	50	4.00

⁷High surrogate recovery due to peak interference.

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Sample: 197390 - AH-3 3'-3.5'

Laboratory:	Midland	Analytical Method:	SM 4500-Cl B	Prep Method:	N/A
Analysis:	Chloride (Titration)	Date Analyzed:	2009-06-02	Analyzed By:	AR
QC Batch:	60013	Sample Preparation:	2009-06-01	Prepared By:	AR
Prep Batch:	51187				

Parameter	Flag	RL Result	Units	Dilution	RL
Chloride		314	mg/Kg	50	4.00

Sample: 197391 - AH-3 4'-4.5'

Laboratory:	Midland	Analytical Method:	SM 4500-Cl B	Prep Method:	N/A
Analysis:	Chloride (Titration)	Date Analyzed:	2009-06-02	Analyzed By:	AR
QC Batch:	60013	Sample Preparation:	2009-06-01	Prepared By:	AR
Prep Batch:	51187				

Parameter	Flag	RL Result	Units	Dilution	RL
Chloride		303	mg/Kg	50	4.00

Sample: 197392 - AH-4 0-1'

Laboratory:	Midland	Analytical Method:	S 8021B	Prep Method:	S 5035
Analysis:	BTEX	Date Analyzed:	2009-06-08	Analyzed By:	ME
QC Batch:	60203	Sample Preparation:	2009-06-08	Prepared By:	ME
Prep Batch:	51377				

Parameter	Flag	RL Result	Units	Dilution	RL
Benzene		4.96	mg/Kg	5	0.0100
Toluene	8	68.2	mg/Kg	5	0.0100
Ethylbenzene	9	41.5	mg/Kg	5	0.0100
Xylene	10	144	mg/Kg	5	0.0100

Surrogate	Flag	Result	Units	Dilution	Spike Amount	Percent Recovery	Recovery Limits
Trifluorotoluene (TFT)		9.58	mg/Kg	5	10.0	96	49 - 129.7
4-Bromofluorobenzene (4-BFB)	11	19.0	mg/Kg	5	10.0	190	45.2 - 144.3

⁸Estimated concentration value greater than standard range.

⁹Estimated concentration value greater than standard range.

¹⁰Estimated concentration value greater than standard range.

¹¹High surrogate recovery due to peak interference.

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Sample: 197392 - AH-4 0-1'

Laboratory:	Midland	Analytical Method:	SM 4500-Cl B	Prep Method:	N/A
Analysis:	Chloride (Titration)	Date Analyzed:	2009-06-02	Analyzed By:	AR
QC Batch:	60013	Sample Preparation:	2009-06-01	Prepared By:	AR
Prep Batch:	51187				

Parameter	Flag	RL Result	Units	Dilution	RL
Chloride		238	mg/Kg	50	4.00

Sample: 197392 - AH-4 0-1'

Laboratory:	Midland	Analytical Method:	Mod. 8015B	Prep Method:	N/A
Analysis:	TPH DRO	Date Analyzed:	2009-06-01	Analyzed By:	AG
QC Batch:	60003	Sample Preparation:	2009-06-01	Prepared By:	AG
Prep Batch:	51212				

Parameter	Flag	RL Result	Units	Dilution	RL
DRO		11800	mg/Kg	5	50.0

Surrogate	Flag	Result	Units	Dilution	Spike Amount	Percent Recovery	Recovery Limits
n-Triacontane	¹²	1310	mg/Kg	5	100	1310	13.2 - 219.3

Sample: 197392 - AH-4 0-1'

Laboratory:	Midland	Analytical Method:	S 8015B	Prep Method:	S 5035
Analysis:	TPH GRO	Date Analyzed:	2009-06-02	Analyzed By:	ME
QC Batch:	60032	Sample Preparation:	2009-06-02	Prepared By:	ME
Prep Batch:	51248				

Parameter	Flag	RL Result	Units	Dilution	RL
GRO		5490	mg/Kg	20	1.00

Surrogate	Flag	Result	Units	Dilution	Spike Amount	Percent Recovery	Recovery Limits
Trifluorotoluene (TFT)		43.5	mg/Kg	20	40.0	109	68.5 - 119.4
4-Bromofluorobenzene (4-BFB)	¹³	253	mg/Kg	20	40.0	632	52 - 117

¹²High surrogate recovery due to peak interference.

¹³High surrogate recovery due to peak interference.

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Sample: 197393 - AH-4 1'-1.5'

Laboratory:	Midland	Analytical Method:	SM 4500-Cl B	Prep Method:	N/A
Analysis:	Chloride (Titration)	Date Analyzed:	2009-06-02	Analyzed By:	AR
QC Batch:	60013	Sample Preparation:	2009-06-01	Prepared By:	AR
Prep Batch:	51187				

Parameter	Flag	RL Result	Units	Dilution	RL
Chloride		200	mg/Kg	50	4.00

Sample: 197393 - AH-4 1'-1.5'

Laboratory:	Midland	Analytical Method:	Mod. 8015B	Prep Method:	N/A
Analysis:	TPH DRO	Date Analyzed:	2009-06-01	Analyzed By:	AG
QC Batch:	60003	Sample Preparation:	2009-06-01	Prepared By:	AG
Prep Batch:	51212				

Parameter	Flag	RL Result	Units	Dilution	RL
DRO		9330	mg/Kg	5	50.0

Surrogate	Flag	Result	Units	Dilution	Spike Amount	Percent Recovery	Recovery Limits
n-Triacontane	¹⁴	1050	mg/Kg	5	100	1050	13.2 - 219.3

Sample: 197393 - AH-4 1'-1.5'

Laboratory:	Midland	Analytical Method:	S 8015B	Prep Method:	S 5035
Analysis:	TPH GRO	Date Analyzed:	2009-06-02	Analyzed By:	ME
QC Batch:	60032	Sample Preparation:	2009-06-02	Prepared By:	ME
Prep Batch:	51248				

Parameter	Flag	RL Result	Units	Dilution	RL
GRO		4250	mg/Kg	20	1.00

Surrogate	Flag	Result	Units	Dilution	Spike Amount	Percent Recovery	Recovery Limits
Trifluorotoluene (TFT)		41.7	mg/Kg	20	40.0	104	68.5 - 119.4
4-Bromofluorobenzene (4-BFB)	¹⁵	185	mg/Kg	20	40.0	462	52 - 117

¹⁴High surrogate recovery due to peak interference.

¹⁵High surrogate recovery due to peak interference.

Sample: 197394 - AH-5 0-1'

Laboratory: Midland
Analysis: BTEX
QC Batch: 60299
Prep Batch: 51454

Analytical Method: S 8021B
Date Analyzed: 2009-06-10
Sample Preparation: 2009-06-10

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

Parameter	Flag	RL Result	Units	Dilution	RL
Benzene		<0.0500	mg/Kg	5	0.0100
Toluene		14.0	mg/Kg	5	0.0100
Ethylbenzene		12.0	mg/Kg	5	0.0100
Xylene		47.4	mg/Kg	5	0.0100

Surrogate	Flag	Result	Units	Dilution	Spike Amount	Percent Recovery	Recovery Limits
Trifluorotoluene (TFT)		9.72	mg/Kg	5	10.0	97	49 - 129.7
4-Bromofluorobenzene (4-BFB)		14.2	mg/Kg	5	10.0	142	45.2 - 144.3

Sample: 197394 - AH-5 0-1'

Laboratory: Midland
Analysis: Chloride (Titration)
QC Batch: 60013
Prep Batch: 51187

Analytical Method: SM 4500-Cl B
Date Analyzed: 2009-06-02
Sample Preparation: 2009-06-01

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

Parameter	Flag	RL Result	Units	Dilution	RL
Chloride		845	mg/Kg	50	4.00

Sample: 197394 - AH-5 0-1'

Laboratory: Midland
Analysis: TPH DRO
QC Batch: 60003
Prep Batch: 51212

Analytical Method: Mod. 8015B
Date Analyzed: 2009-06-01
Sample Preparation: 2009-06-01

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

Parameter	Flag	RL Result	Units	Dilution	RL
DRO		1410	mg/Kg	1	50.0

Surrogate	Flag	Result	Units	Dilution	Spike Amount	Percent Recovery	Recovery Limits
n-Triacontane	¹⁶	231	mg/Kg	1	100	231	13.2 - 219.3

¹⁶High surrogate recovery due to peak interference.

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Sample: 197394 - AH-5 0-1'

Laboratory: Midland
Analysis: TPH GRO
QC Batch: 60032
Prep Batch: 51248

Analytical Method: S 8015B
Date Analyzed: 2009-06-02
Sample Preparation: 2009-06-02

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

Parameter	Flag	RL Result	Units	Dilution	RL
GRO		1810	mg/Kg	10	1.00

Surrogate	Flag	Result	Units	Dilution	Spike Amount	Percent Recovery	Recovery Limits
Trifluorotoluene (TFT)		20.5	mg/Kg	10	20.0	102	68.5 - 119.4
4-Bromofluorobenzene (4-BFB)	17	80.3	mg/Kg	10	20.0	402	52 - 117

Sample: 197395 - AH-5 1'-1.5'

Laboratory: Midland
Analysis: Chloride (Titration)
QC Batch: 60013
Prep Batch: 51187

Analytical Method: SM 4500-Cl B
Date Analyzed: 2009-06-02
Sample Preparation: 2009-06-01

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

Parameter	Flag	RL Result	Units	Dilution	RL
Chloride		449	mg/Kg	50	4.00

Sample: 197395 - AH-5 1'-1.5'

Laboratory: Midland
Analysis: TPH DRO
QC Batch: 60003
Prep Batch: 51212

Analytical Method: Mod. 8015B
Date Analyzed: 2009-06-01
Sample Preparation: 2009-06-01

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

Parameter	Flag	RL Result	Units	Dilution	RL
DRO		2110	mg/Kg	1	50.0

Surrogate	Flag	Result	Units	Dilution	Spike Amount	Percent Recovery	Recovery Limits
n-Triacontane	18	312	mg/Kg	1	100	312	13.2 - 219.3

¹⁷High surrogate recovery due to peak interference.

¹⁸High surrogate recovery due to peak interference.

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Sample: 197395 - AH-5 1'-1.5'

Laboratory: Midland
Analysis: TPH GRO
QC Batch: 60032
Prep Batch: 51248

Analytical Method: S 8015B
Date Analyzed: 2009-06-02
Sample Preparation: 2009-06-02

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

Parameter	Flag	RL Result	Units	Dilution	RL
GRO		362	mg/Kg	5	1.00

Surrogate	Flag	Result	Units	Dilution	Spike Amount	Percent Recovery	Recovery Limits
Trifluorotoluene (TFT)		9.75	mg/Kg	5	10.0	98	68.5 - 119.4
4-Bromofluorobenzene (4-BFB)	¹⁹	16.5	mg/Kg	5	10.0	165	52 - 117

Method Blank (1) QC Batch: 59966

QC Batch: 59966
Prep Batch: 51213

Date Analyzed: 2009-06-01
QC Preparation: 2009-06-01

Analyzed By: ME
Prepared By: ME

Parameter	Flag	MDL Result	Units	RL
GRO		<0.482	mg/Kg	1

Surrogate	Flag	Result	Units	Dilution	Spike Amount	Percent Recovery	Recovery Limits
Trifluorotoluene (TFT)		1.88	mg/Kg	1	2.00	94	71.9 - 115
4-Bromofluorobenzene (4-BFB)		1.20	mg/Kg	1	2.00	60	45.7 - 118.9

Method Blank (1) QC Batch: 60003

QC Batch: 60003
Prep Batch: 51212

Date Analyzed: 2009-06-01
QC Preparation: 2009-06-01

Analyzed By: AG
Prepared By: AG

Parameter	Flag	MDL Result	Units	RL
DRO		20.2	mg/Kg	50

Surrogate	Flag	Result	Units	Dilution	Spike Amount	Percent Recovery	Recovery Limits
n-Triacontane		66.6	mg/Kg	1	100	67	13 - 178.5

¹⁹High surrogate recovery due to peak interference.

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Method Blank (1) QC Batch: 60012

QC Batch: 60012
Prep Batch: 51186

Date Analyzed: 2009-06-02
QC Preparation: 2009-06-01

Analyzed By: AR
Prepared By: AR

Parameter	Flag	MDL Result	Units	RL
Chloride		<2.18	mg/Kg	4

Method Blank (1) QC Batch: 60013

QC Batch: 60013
Prep Batch: 51187

Date Analyzed: 2009-06-02
QC Preparation: 2009-06-01

Analyzed By: AR
Prepared By: AR

Parameter	Flag	MDL Result	Units	RL
Chloride		<2.18	mg/Kg	4

Method Blank (1) QC Batch: 60032

QC Batch: 60032
Prep Batch: 51248

Date Analyzed: 2009-06-02
QC Preparation: 2009-06-02

Analyzed By: ME
Prepared By: ME

Parameter	Flag	MDL Result	Units	RL
GRO		<0.482	mg/Kg	1

Surrogate	Flag	Result	Units	Dilution	Spike Amount	Percent Recovery	Recovery Limits
Trifluorotoluene (TFT)		1.97	mg/Kg	1	2.00	98	71.9 - 115
4-Bromofluorobenzene (4-BFB)		1.45	mg/Kg	1	2.00	72	45.7 - 118.9

Method Blank (1) QC Batch: 60203

QC Batch: 60203
Prep Batch: 51377

Date Analyzed: 2009-06-08
QC Preparation: 2009-06-08

Analyzed By: ME
Prepared By: ME

Parameter	Flag	MDL Result	Units	RL
Benzene		<0.00100	mg/Kg	0.01
Toluene		<0.00100	mg/Kg	0.01
Ethylbenzene		<0.00110	mg/Kg	0.01
Xylene		<0.00360	mg/Kg	0.01

Surrogate	Flag	Result	Units	Dilution	Spike Amount	Percent Recovery	Recovery Limits
Trifluorotoluene (TFT)		1.87	mg/Kg	1	2.00	94	65.6 - 130.6
4-Bromofluorobenzene (4-BFB)		1.66	mg/Kg	1	2.00	83	51.9 - 128.1

Method Blank (1) QC Batch: 60299

QC Batch: 60299 Date Analyzed: 2009-06-10 Analyzed By: ME
Prep Batch: 51454 QC Preparation: 2009-06-10 Prepared By: ME

Parameter	Flag	MDL Result	Units	RL
Benzene		<0.00100	mg/Kg	0.01
Toluene		<0.00100	mg/Kg	0.01
Ethylbenzene		<0.00110	mg/Kg	0.01
Xylene		<0.00360	mg/Kg	0.01

Surrogate	Flag	Result	Units	Dilution	Spike Amount	Percent Recovery	Recovery Limits
Trifluorotoluene (TFT)		1.94	mg/Kg	1	2.00	97	65.6 - 130.6
4-Bromofluorobenzene (4-BFB)		1.84	mg/Kg	1	2.00	92	51.9 - 128.1

Laboratory Control Spike (LCS-1)

QC Batch: 59966 Date Analyzed: 2009-06-01 Analyzed By: ME
Prep Batch: 51213 QC Preparation: 2009-06-01 Prepared By: ME

Param	LCS Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit
GRO	²⁰ 12.6	mg/Kg	1	20.0	<0.482	63	60.5 - 100.1

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

Param	LCSD Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit	RPD	RPD Limit
GRO	13.2	mg/Kg	1	20.0	<0.482	66	60.5 - 100.1	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
Trifluorotoluene (TFT)	1.97	1.90	mg/Kg	1	2.00	98	95	78.8 - 104.7
4-Bromofluorobenzene (4-BFB)	1.36	1.37	mg/Kg	1	2.00	68	68	66.1 - 107.3

²⁰SPECIAL - MS/MSD was run but not reported due to out of range. •

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Laboratory Control Spike (LCS-1)

QC Batch: 60003
Prep Batch: 51212

Date Analyzed: 2009-06-01
QC Preparation: 2009-06-01

Analyzed By: AG
Prepared By: AG

Param	LCS Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit
DRO	211	mg/Kg	1	250	20.2	76	57.4 - 133.4

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

Param	LCSD Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit	RPD	RPD Limit
DRO	204	mg/Kg	1	250	20.2	74	57.4 - 133.4	3	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-Triacontane	77.3	75.2	mg/Kg	1	100	77	75	48.5 - 146.7

Laboratory Control Spike (LCS-1)

QC Batch: 60012
Prep Batch: 51186

Date Analyzed: 2009-06-02
QC Preparation: 2009-06-01

Analyzed By: AR
Prepared By: AR

Param	LCS Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit
Chloride	98.0	mg/Kg	1	100	<2.18	98	85 - 115

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

Param	LCSD Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit	RPD	RPD Limit
Chloride	99.8	mg/Kg	1	100	<2.18	100	85 - 115	2	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: 60013
Prep Batch: 51187

Date Analyzed: 2009-06-02
QC Preparation: 2009-06-01

Analyzed By: AR
Prepared By: AR

Param	LCS Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit
Chloride	99.5	mg/Kg	1	100	<2.18	100	85 - 115

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

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Param	LCSD Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit	RPD	RPD Limit
Chloride	101	mg/Kg	1	100	<2.18	101	85 - 115	2	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: 60032
Prep Batch: 51248

Date Analyzed: 2009-06-02
QC Preparation: 2009-06-02

Analyzed By: ME
Prepared By: ME

Param	LCS Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit
GRO	13.4	mg/Kg	1	20.0	<0.482	67	60.5 - 100.1

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

Param	LCSD Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit	RPD	RPD Limit
GRO	14.4	mg/Kg	1	20.0	<0.482	72	60.5 - 100.1	7	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)	2.02	2.00	mg/Kg	1	2.00	101	100	78.8 - 104.7
4-Bromofluorobenzene (4-BFB)	1.61	1.54	mg/Kg	1	2.00	80	77	66.1 - 107.3

Laboratory Control Spike (LCS-1)

QC Batch: 60203
Prep Batch: 51377

Date Analyzed: 2009-06-08
QC Preparation: 2009-06-08

Analyzed By: ME
Prepared By: ME

Param	LCS Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit
Benzene	1.79	mg/Kg	1	2.00	<0.00100	90	72.7 - 129.8
Toluene	1.82	mg/Kg	1	2.00	<0.00100	91	71.6 - 129.6
Ethylbenzene	1.79	mg/Kg	1	2.00	<0.00110	90	70.8 - 129.7
Xylene	5.38	mg/Kg	1	6.00	<0.00360	90	70.9 - 129.4

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

Param	LCSD Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit	RPD	RPD Limit
Benzene	1.86	mg/Kg	1	2.00	<0.00100	93	72.7 - 129.8	4	20
Toluene	1.90	mg/Kg	1	2.00	<0.00100	95	71.6 - 129.6	4	20
Ethylbenzene	1.94	mg/Kg	1	2.00	<0.00110	97	70.8 - 129.7	8	20
Xylene	5.96	mg/Kg	1	6.00	<0.00360	99	70.9 - 129.4	10	20

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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)	1.88	1.88	mg/Kg	1	2.00	94	94	65.9 - 132
4-Bromofluorobenzene (4-BFB)	1.62	1.75	mg/Kg	1	2.00	81	88	55.2 - 128.9

Laboratory Control Spike (LCS-1)

QC Batch: 60299
Prep Batch: 51454

Date Analyzed: 2009-06-10
QC Preparation: 2009-06-10

Analyzed By: ME
Prepared By: ME

Param	LCS Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit
Benzene	2.04	mg/Kg	1	2.00	<0.00100	102	72.7 - 129.8
Toluene	2.09	mg/Kg	1	2.00	<0.00100	104	71.6 - 129.6
Ethylbenzene	2.04	mg/Kg	1	2.00	<0.00110	102	70.8 - 129.7
Xylene	6.29	mg/Kg	1	6.00	<0.00360	105	70.9 - 129.4

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

Param	LCSD Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit	RPD	RPD Limit
Benzene	2.16	mg/Kg	1	2.00	<0.00100	108	72.7 - 129.8	6	20
Toluene	2.25	mg/Kg	1	2.00	<0.00100	112	71.6 - 129.6	7	20
Ethylbenzene	2.31	mg/Kg	1	2.00	<0.00110	116	70.8 - 129.7	12	20
Xylene	7.13	mg/Kg	1	6.00	<0.00360	119	70.9 - 129.4	12	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)	1.92	1.96	mg/Kg	1	2.00	96	98	65.9 - 132
4-Bromofluorobenzene (4-BFB)	1.99	2.16	mg/Kg	1	2.00	100	108	55.2 - 128.9

Matrix Spike (MS-1) Spiked Sample: 197293

QC Batch: 60003
Prep Batch: 51212

Date Analyzed: 2009-06-01
QC Preparation: 2009-06-01

Analyzed By: AG
Prepared By: AG

Param	MS Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit
DRO	199	mg/Kg	1	250	32.4	67	35.2 - 167.1

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

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Param	MSD Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit	RPD	RPD Limit
DRO	204	mg/Kg	1	250	32.4	69	35.2 - 167.1	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
n-Triacontane	65.1	68.9	mg/Kg	1	100	65	69	34.5 - 178.4

Matrix Spike (MS-1) Spiked Sample: 197387

QC Batch: 60012
Prep Batch: 51186

Date Analyzed: 2009-06-02
QC Preparation: 2009-06-01

Analyzed By: AR
Prepared By: AR

Param	MS Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit
Chloride	5300	mg/Kg	50	5000	486	96	85 - 115

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

Param	MSD Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit	RPD	RPD Limit
Chloride	5360	mg/Kg	50	5000	486	97	85 - 115	1	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: 197395

QC Batch: 60013
Prep Batch: 51187

Date Analyzed: 2009-06-02
QC Preparation: 2009-06-01

Analyzed By: AR
Prepared By: AR

Param	MS Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit
Chloride	5510	mg/Kg	50	5000	449	101	85 - 115

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

Param	MSD Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit	RPD	RPD Limit
Chloride	5560	mg/Kg	50	5000	449	102	85 - 115	1	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: 197395

QC Batch: 60032
Prep Batch: 51248

Date Analyzed: 2009-06-02
QC Preparation: 2009-06-02

Analyzed By: ME
Prepared By: ME

Param	MS Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit
GRO	391	mg/Kg	5	100	361.95	29	12.8 - 175.2

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

Param	MSD Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit	RPD	RPD Limit
GRO	478	mg/Kg	5	100	361.95	116	12.8 - 175.2	20	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)	10.0	10.1	mg/Kg	5	10	100	101	60.8 - 132.1
4-Bromofluorobenzene (4-BFB)	²¹ 15.8	19.4	mg/Kg	5	10	158	194	31.3 - 161.7

Matrix Spike (MS-1) Spiked Sample: 198073

QC Batch: 60203
Prep Batch: 51377

Date Analyzed: 2009-06-08
QC Preparation: 2009-06-08

Analyzed By: ME
Prepared By: ME

Param	MS Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit
Benzene	2.07	mg/Kg	1	2.00	<0.00100	104	58.6 - 165.2
Toluene	2.04	mg/Kg	1	2.00	0.0585	99	64.2 - 153.8
Ethylbenzene	2.08	mg/Kg	1	2.00	0.0901	99	61.6 - 159.4
Xylene	6.28	mg/Kg	1	6.00	0.1727	102	64.4 - 155.3

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

Param	MSD Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit	RPD	RPD Limit
Benzene	²² <0.00100	mg/Kg	1	2.00	<0.00100	0	58.6 - 165.2	200	20
Toluene	²³ <0.00100	mg/Kg	1	2.00	0.0585	0	64.2 - 153.8	200	20
Ethylbenzene	²⁴ 0.129	mg/Kg	1	2.00	0.0901	2	61.6 - 159.4	177	20
Xylene	²⁵ 0.287	mg/Kg	1	6.00	0.1727	2	64.4 - 155.3	182	20

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

Surrogate	MS Result	MSD Result	Units	Dil.	Spike Amount	MS Rec.	MSD Rec.	Rec. Limit
Trifluorotoluene (TFT)	1.87	1.94	mg/Kg	1	2	94	97	76 - 127.9
4-Bromofluorobenzene (4-BFB)	1.76	1.66	mg/Kg	1	2	88	83	72 - 127.8

²¹ High surrogate recovery due to peak interference.

²² SPECIAL - MSD was not spiked •

²³ SPECIAL - MSD was not spiked •

²⁴ SPECIAL - MSD was not spiked •

²⁵ SPECIAL - MSD was not spiked •

Matrix Spike (MS-1) Spiked Sample: 197394

QC Batch: 60299
Prep Batch: 51454

Date Analyzed: 2009-06-10
QC Preparation: 2009-06-10

Analyzed By: ME
Prepared By: ME

Param	MS Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit
Benzene	12.1	mg/Kg	5	10.0	<0.00500	121	58.6 - 165.2
Toluene	21.8	mg/Kg	5	10.0	14.0265	78	64.2 - 153.8
Ethylbenzene	20.5	mg/Kg	5	10.0	12.0165	85	61.6 - 159.4
Xylene	72.4	mg/Kg	5	30.0	47.4302	83	64.4 - 155.3

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

Param	MSD Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit	RPD	RPD Limit
Benzene	12.6	mg/Kg	5	10.0	<0.00500	126	58.6 - 165.2	4	20
Toluene	23.6	mg/Kg	5	10.0	14.0265	96	64.2 - 153.8	8	20
Ethylbenzene	22.6	mg/Kg	5	10.0	12.0165	106	61.6 - 159.4	10	20
Xylene	78.7	mg/Kg	5	30.0	47.4302	104	64.4 - 155.3	8	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)	9.89	9.89	mg/Kg	5	10	99	99	76 - 127.9
4-Bromofluorobenzene (4-BFB)	13.1	14.0	mg/Kg	5	10	131	140	72 - 127.8

Standard (CCV-1)

QC Batch: 59966

Date Analyzed: 2009-06-01

Analyzed By: ME

Param	Flag	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
GRO		mg/Kg	1.00	0.934	93	80 - 120	2009-06-01

Standard (CCV-2)

QC Batch: 59966

Date Analyzed: 2009-06-01

Analyzed By: ME

Param	Flag	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
GRO		mg/Kg	1.00	0.894	89	80 - 120	2009-06-01

²⁶High surrogate recovery due to peak interference.

²⁷High surrogate recovery due to peak interference.

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Standard (CCV-1)

QC Batch: 60003

Date Analyzed: 2009-06-01

Analyzed By: AG

Param	Flag	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
DRO		mg/Kg	250	242	97	80 - 120	2009-06-01

Standard (CCV-2)

QC Batch: 60003

Date Analyzed: 2009-06-01

Analyzed By: AG

Param	Flag	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
DRO		mg/Kg	250	234	94	80 - 120	2009-06-01

Standard (CCV-3)

QC Batch: 60003

Date Analyzed: 2009-06-01

Analyzed By: AG

Param	Flag	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
DRO		mg/Kg	250	257	103	80 - 120	2009-06-01

Standard (ICV-1)

QC Batch: 60012

Date Analyzed: 2009-06-02

Analyzed By: AR

Param	Flag	Units	ICVs True Conc.	ICVs Found Conc.	ICVs Percent Recovery	Percent Recovery Limits	Date Analyzed
Chloride		mg/Kg	100	103	103	85 - 115	2009-06-02

Standard (CCV-1)

QC Batch: 60012

Date Analyzed: 2009-06-02

Analyzed By: AR

Param	Flag	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
Chloride		mg/Kg	100	97.0	97	85 - 115	2009-06-02

Report Date: June 11, 2009
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St. Mary/PDU Tract #1 TB

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Standard (ICV-1)

QC Batch: 60013

Date Analyzed: 2009-06-02

Analyzed By: AR

Param	Flag	Units	ICVs True Conc.	ICVs Found Conc.	ICVs Percent Recovery	Percent Recovery Limits	Date Analyzed
Chloride		mg/Kg	100	100	100	85 - 115	2009-06-02

Standard (CCV-1)

QC Batch: 60013

Date Analyzed: 2009-06-02

Analyzed By: AR

Param	Flag	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
Chloride		mg/Kg	100	99.6	100	85 - 115	2009-06-02

Standard (CCV-1)

QC Batch: 60032

Date Analyzed: 2009-06-02

Analyzed By: ME

Param	Flag	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
GRO		mg/Kg	1.00	0.899	90	80 - 120	2009-06-02

Standard (CCV-2)

QC Batch: 60032

Date Analyzed: 2009-06-02

Analyzed By: ME

Param	Flag	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
GRO		mg/Kg	1.00	1.16	116	80 - 120	2009-06-02

Standard (CCV-2)

QC Batch: 60203

Date Analyzed: 2009-06-08

Analyzed By: ME

Param	Flag	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
Benzene		mg/Kg	0.100	0.106	106	80 - 120	2009-06-08
Toluene		mg/Kg	0.100	0.106	106	80 - 120	2009-06-08

continued ...

Report Date: June 11, 2009
114-6400203

Work Order: 9052928
St. Mary/PDU Tract #1 TB

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standard continued ...

Param	Flag	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
Ethylbenzene		mg/Kg	0.100	0.102	102	80 - 120	2009-06-08
Xylene		mg/Kg	0.300	0.311	104	80 - 120	2009-06-08

Standard (CCV-3)

QC Batch: 60203

Date Analyzed: 2009-06-08

Analyzed By: ME

Param	Flag	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
Benzene		mg/Kg	0.100	0.102	102	80 - 120	2009-06-08
Toluene		mg/Kg	0.100	0.102	102	80 - 120	2009-06-08
Ethylbenzene		mg/Kg	0.100	0.0988	99	80 - 120	2009-06-08
Xylene		mg/Kg	0.300	0.305	102	80 - 120	2009-06-08

Standard (CCV-1)

QC Batch: 60299

Date Analyzed: 2009-06-10

Analyzed By: ME

Param	Flag	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
Benzene		mg/Kg	0.100	0.102	102	80 - 120	2009-06-10
Toluene		mg/Kg	0.100	0.104	104	80 - 120	2009-06-10
Ethylbenzene		mg/Kg	0.100	0.110	110	80 - 120	2009-06-10
Xylene		mg/Kg	0.300	0.338	113	80 - 120	2009-06-10

Standard (CCV-2)

QC Batch: 60299

Date Analyzed: 2009-06-10

Analyzed By: ME

Param	Flag	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
Benzene		mg/Kg	0.100	0.100	100	80 - 120	2009-06-10
Toluene		mg/Kg	0.100	0.106	106	80 - 120	2009-06-10
Ethylbenzene		mg/Kg	0.100	0.115	115	80 - 120	2009-06-10
Xylene		mg/Kg	0.300	0.356	119	80 - 120	2009-06-10

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: 1 OF: 2

ANALYSIS REQUEST
(Circle or Specify Method No.)

CLIENT NAME:						SITE MANAGER:					
PROJECT NO.:						PROJECT NAME:					
LAB I.D. NUMBER		DATE		TIME		MATRIX		COMP		GRAB	
SAMPLE IDENTIFICATION											
NUMBER OF CONTAINERS											
FILTERED (Y/N)											
PRESERVATIVE METHOD											
378						S	X	AH-1	0-1'		
379								AH-1	1'-1.5"		
380								AH-1	2'-2.5"		
381								AH-1	3'-3.5"		
382								AH-2	0-1'		
383								AH-2	1'-1.5"		
384								AH-2	2'-2.5"		
385								AH-2	3'-3.5"		
386								AH-2	4'-4.5"		
387								AH-3	0-1'		

RELINQUISHED BY: (Signature) _____ Date: _____ Time: _____

RECEIVED BY: (Signature) _____ Date: _____ Time: _____

RELINQUISHED BY: (Signature) _____ Date: _____ Time: _____

RECEIVED BY: (Signature) _____ Date: _____ Time: _____

RELINQUISHED BY: (Signature) _____ Date: _____ Time: _____

RECEIVED BY: (Signature) _____ Date: _____ Time: _____

RECEIVING LABORATORY: _____

ADDRESS: _____ CITY: _____ STATE: _____ ZIP: _____

CONTACT: _____ PHONE: _____ DATE: _____

SAMPLE CONDITION WHEN RECEIVED: _____

REMARKS: i.f TPA ordered 1,000 mls/kg run deeper sample.

Summary Report

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

Report Date: June 7, 2010

Work Order: 10052812



Project Name: St. Mary/PDU Tract #1 TB
Project Number: 114-6400203

Sample	Description	Matrix	Date Taken	Time Taken	Date Received
233081	SB-1 1'	soil	2010-05-25	00:00	2010-05-27
233082	SB-1 3'	soil	2010-05-25	00:00	2010-05-27
233083	SB-1 5'	soil	2010-05-25	00:00	2010-05-27
233084	SB-1 7'	soil	2010-05-25	00:00	2010-05-27
233085	SB-1 10'	soil	2010-05-25	00:00	2010-05-27
233086	SB-1 15'	soil	2010-05-25	00:00	2010-05-27
233087	SB-1 20'	soil	2010-05-25	00:00	2010-05-27
233088	SB-1 25'	soil	2010-05-25	00:00	2010-05-27
233089	SB-1 30'	soil	2010-05-25	00:00	2010-05-27
233090	SB-1 40'	soil	2010-05-25	00:00	2010-05-27
233091	SB-2 1'	soil	2010-05-25	00:00	2010-05-27
233092	SB-2 3'	soil	2010-05-25	00:00	2010-05-27
233093	SB-2 5'	soil	2010-05-25	00:00	2010-05-27
233094	SB-2 7'	soil	2010-05-25	00:00	2010-05-27
233095	SB-2 10'	soil	2010-05-25	00:00	2010-05-27
233096	SB-2 15'	soil	2010-05-25	00:00	2010-05-27
233097	SB-2 20'	soil	2010-05-25	00:00	2010-05-27
233098	SB-2 30'	soil	2010-05-25	00:00	2010-05-27
233099	SB-3 1'	soil	2010-05-25	00:00	2010-05-27
233100	SB-3 3'	soil	2010-05-25	00:00	2010-05-27
233101	SB-3 5'	soil	2010-05-25	00:00	2010-05-27
233102	SB-3 7'	soil	2010-05-25	00:00	2010-05-27
233103	SB-3 10'	soil	2010-05-25	00:00	2010-05-27
233104	SB-3 15'	soil	2010-05-25	00:00	2010-05-27
233105	SB-3 20'	soil	2010-05-25	00:00	2010-05-27
233106	SB-3 25'	soil	2010-05-25	00:00	2010-05-27
233107	SB-3 30'	soil	2010-05-25	00:00	2010-05-27
233108	SB-3 40'	soil	2010-05-25	00:00	2010-05-27
233109	SB-3 45'	soil	2010-05-25	00:00	2010-05-27

Sample - Field Code	BTX				TPH DRO - NEW	TPH GRO
	Benzene (mg/Kg)	Toluene (mg/Kg)	Ethylbenzene (mg/Kg)	Xylene (mg/Kg)	DRO (mg/Kg)	GRO (mg/Kg)
233081 - SB-1 1'	0.454	5.28	4.80	18.6	458	1060
233082 - SB-1 3'	0.0622	0.747	0.900	3.51	144	264

Sample: 233081 - SB-1 1'

Param	Flag	Result	Units	RL
Chloride		1150	mg/Kg	4.00

Sample: 233082 - SB-1 3'

Param	Flag	Result	Units	RL
Chloride		675	mg/Kg	4.00

Sample: 233083 - SB-1 5'

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

Sample: 233084 - SB-1 7'

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

Sample: 233085 - SB-1 10'

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

Sample: 233086 - SB-1 15'

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

Sample: 233087 - SB-1 20'

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

Sample: 233088 - SB-1 25'

Param	Flag	Result	Units	RL
Chloride		545	mg/Kg	4.00

Sample: 233089 - SB-1 30'

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

Sample: 233090 - SB-1 40'

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

Sample: 233091 - SB-2 1'

Param	Flag	Result	Units	RL
Chloride		1070	mg/Kg	4.00

Sample: 233092 - SB-2 3'

Param	Flag	Result	Units	RL
Chloride		514	mg/Kg	4.00

Sample: 233093 - SB-2 5'

Param	Flag	Result	Units	RL
Chloride		1430	mg/Kg	4.00

Sample: 233094 - SB-2 7'

Param	Flag	Result	Units	RL
Chloride		414	mg/Kg	4.00

Sample: 233095 - SB-2 10'

Param	Flag	Result	Units	RL
Chloride		205	mg/Kg	4.00

Sample: 233096 - SB-2 15'

Param	Flag	Result	Units	RL
Chloride		341	mg/Kg	4.00

Sample: 233097 - SB-2 20'

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

Sample: 233098 - SB-2 30'

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

Sample: 233099 - SB-3 1'

Param	Flag	Result	Units	RL
Chloride		3740	mg/Kg	4.00

Sample: 233100 - SB-3 3'

Param	Flag	Result	Units	RL
Chloride		3250	mg/Kg	4.00

Sample: 233101 - SB-3 5'

Param	Flag	Result	Units	RL
Chloride		6500	mg/Kg	4.00

Sample: 233102 - SB-3 7'

Param	Flag	Result	Units	RL
Chloride		1010	mg/Kg	4.00

Sample: 233103 - SB-3 10'

Param	Flag	Result	Units	RL
Chloride		6460	mg/Kg	4.00

Sample: 233104 - SB-3 15'

Param	Flag	Result	Units	RL
Chloride		1680	mg/Kg	4.00

Sample: 233105 - SB-3 20'

Param	Flag	Result	Units	RL
Chloride		1080	mg/Kg	4.00

Sample: 233106 - SB-3 25'

Param	Flag	Result	Units	RL
Chloride		808	mg/Kg	4.00

Sample: 233107 - SB-3 30'

Param	Flag	Result	Units	RL
Chloride		974	mg/Kg	4.00

Sample: 233108 - SB-3 40'

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

Sample: 233109 - SB-3 45'

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



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6015 Harris Parkway, Suite 110 Ft. Worth, Texas 76132 817•201•5260
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Certifications

WBENC: 237019

HUB: 1752439743100-86536
NCTRCA WFWB38444Y0909

DBE: VN 20657

NELAP Certifications

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

El Paso: T104704221-08-TX
LELAP-02002

Midland: T104704392-08-TX

Analytical and Quality Control Report

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

Report Date: June 7, 2010

Work Order: 10052812



Project Name: St. Mary/PDU Tract #1 TB
Project Number: 114-6400203

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
233081	SB-1 1'	soil	2010-05-25	00:00	2010-05-27
233082	SB-1 3'	soil	2010-05-25	00:00	2010-05-27
233083	SB-1 5'	soil	2010-05-25	00:00	2010-05-27
233084	SB-1 7'	soil	2010-05-25	00:00	2010-05-27
233085	SB-1 10'	soil	2010-05-25	00:00	2010-05-27
233086	SB-1 15'	soil	2010-05-25	00:00	2010-05-27
233087	SB-1 20'	soil	2010-05-25	00:00	2010-05-27
233088	SB-1 25'	soil	2010-05-25	00:00	2010-05-27
233089	SB-1 30'	soil	2010-05-25	00:00	2010-05-27
233090	SB-1 40'	soil	2010-05-25	00:00	2010-05-27
233091	SB-2 1'	soil	2010-05-25	00:00	2010-05-27

Sample	Description	Matrix	Date Taken	Time Taken	Date Received
233092	SB-2 3'	soil	2010-05-25	00:00	2010-05-27
233093	SB-2 5'	soil	2010-05-25	00:00	2010-05-27
233094	SB-2 7'	soil	2010-05-25	00:00	2010-05-27
233095	SB-2 10'	soil	2010-05-25	00:00	2010-05-27
233096	SB-2 15'	soil	2010-05-25	00:00	2010-05-27
233097	SB-2 20'	soil	2010-05-25	00:00	2010-05-27
233098	SB-2 30'	soil	2010-05-25	00:00	2010-05-27
233099	SB-3 1'	soil	2010-05-25	00:00	2010-05-27
233100	SB-3 3'	soil	2010-05-25	00:00	2010-05-27
233101	SB-3 5'	soil	2010-05-25	00:00	2010-05-27
233102	SB-3 7'	soil	2010-05-25	00:00	2010-05-27
233103	SB-3 10'	soil	2010-05-25	00:00	2010-05-27
233104	SB-3 15'	soil	2010-05-25	00:00	2010-05-27
233105	SB-3 20'	soil	2010-05-25	00:00	2010-05-27
233106	SB-3 25'	soil	2010-05-25	00:00	2010-05-27
233107	SB-3 30'	soil	2010-05-25	00:00	2010-05-27
233108	SB-3 40'	soil	2010-05-25	00:00	2010-05-27
233109	SB-3 45'	soil	2010-05-25	00:00	2010-05-27

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 24 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

Standard Flags

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

Case Narrative

Samples for project St. Mary/PDU Tract #1 TB were received by TraceAnalysis, Inc. on 2010-05-27 and assigned to work order 10052812. Samples for work order 10052812 were received intact at a temperature of 3.1 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	60437	2010-06-02 at 14:15	70573	2010-06-02 at 16:31
Chloride (Titration)	SM 4500-Cl B	60409	2010-06-01 at 12:03	70556	2010-06-02 at 13:04
Chloride (Titration)	SM 4500-Cl B	60410	2010-06-01 at 12:04	70557	2010-06-02 at 13:04
Chloride (Titration)	SM 4500-Cl B	60411	2010-06-01 at 12:04	70558	2010-06-02 at 13:05
Chloride (Titration)	SM 4500-Cl B	60412	2010-06-01 at 12:05	70559	2010-06-02 at 13:06
TPH DRO - NEW	S 8015 D	60419	2010-06-01 at 13:52	70544	2010-06-01 at 13:52
TPH GRO	S 8015 D	60437	2010-06-02 at 14:15	70574	2010-06-02 at 16:59

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 10052812 since the sample was chosen at random. Therefore, the validity of the analytical data reported has been determined by the laboratory control sample (LCS) and the method blank (MB). These quality control measures are performed with each preparation batch to ensure data integrity.

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

Analytical Report

Sample: 233081 - SB-1 1'

Laboratory: Midland

Analysis: BTEX

QC Batch: 70573

Prep Batch: 60437

Analytical Method: S 8021B

Date Analyzed: 2010-06-02

Sample Preparation: 2010-06-02

Prep Method: S 5035

Analyzed By: AG

Prepared By: AG

Parameter	Flag	RL Result	Units	Dilution	RL
Benzene		0.454	mg/Kg	5	0.0100
Toluene		5.28	mg/Kg	5	0.0100
Ethylbenzene		4.80	mg/Kg	5	0.0100
Xylene		18.6	mg/Kg	5	0.0100

Surrogate	Flag	Result	Units	Dilution	Spike Amount	Percent Recovery	Recovery Limits
Trifluorotoluene (TFT)		5.10	mg/Kg	5	5.00	102	60.4 - 141.2
4-Bromofluorobenzene (4-BFB)	¹	9.49	mg/Kg	5	5.00	190	43.1 - 158.4

Sample: 233081 - SB-1 1'

Laboratory: Midland

Analysis: Chloride (Titration)

QC Batch: 70556

Prep Batch: 60409

Analytical Method: SM 4500-Cl B

Date Analyzed: 2010-06-02

Sample Preparation: 2010-06-01

Prep Method: N/A

Analyzed By: AR

Prepared By: AR

Parameter	Flag	RL Result	Units	Dilution	RL
Chloride		1150	mg/Kg	100	4.00

Sample: 233081 - SB-1 1'

Laboratory: Midland

Analysis: TPH DRO - NEW

QC Batch: 70544

Prep Batch: 60419

Analytical Method: S 8015 D

Date Analyzed: 2010-06-01

Sample Preparation: 2010-06-01

Prep Method: N/A

Analyzed By: kg

Prepared By: kg

Parameter	Flag	RL Result	Units	Dilution	RL
DRO		458	mg/Kg	1	50.0

¹High surrogate recovery due to peak interference.

Surrogate	Flag	Result	Units	Dilution	Spike Amount	Percent Recovery	Recovery Limits
n-Tricosane	2	157	mg/Kg	1	100	157	70 - 130

Sample: 233081 - SB-1 1'

Laboratory: Midland
 Analysis: TPH GRO Analytical Method: S 8015 D Prep Method: S 5035
 QC Batch: 70574 Date Analyzed: 2010-06-02 Analyzed By: AG
 Prep Batch: 60437 Sample Preparation: 2010-06-02 Prepared By: AG

Parameter	Flag	RL Result	Units	Dilution	RL
GRO		1060	mg/Kg	5	1.00

Surrogate	Flag	Result	Units	Dilution	Spike Amount	Percent Recovery	Recovery Limits
Trifluorotoluene (TFT)		5.57	mg/Kg	5	5.00	111	50.3 - 155
4-Bromofluorobenzene (4-BFB)	3	8.63	mg/Kg	5	5.00	173	51.7 - 131.1

Sample: 233082 - SB-1 3'

Laboratory: Midland
 Analysis: BTEX Analytical Method: S 8021B Prep Method: S 5035
 QC Batch: 70573 Date Analyzed: 2010-06-02 Analyzed By: AG
 Prep Batch: 60437 Sample Preparation: 2010-06-02 Prepared By: AG

Parameter	Flag	RL Result	Units	Dilution	RL
Benzene		0.0622	mg/Kg	5	0.0100
Toluene		0.747	mg/Kg	5	0.0100
Ethylbenzene		0.900	mg/Kg	5	0.0100
Xylene		3.51	mg/Kg	5	0.0100

Surrogate	Flag	Result	Units	Dilution	Spike Amount	Percent Recovery	Recovery Limits
Trifluorotoluene (TFT)		4.75	mg/Kg	5	5.00	95	60.4 - 141.2
4-Bromofluorobenzene (4-BFB)		5.68	mg/Kg	5	5.00	114	43.1 - 158.4

Sample: 233082 - SB-1 3'

Laboratory: Midland
 Analysis: Chloride (Titration) Analytical Method: SM 4500-Cl B Prep Method: N/A
 QC Batch: 70556 Date Analyzed: 2010-06-02 Analyzed By: AR
 Prep Batch: 60409 Sample Preparation: 2010-06-01 Prepared By: AR

²High surrogate recovery due to peak interference.

³High surrogate recovery due to peak interference.

Report Date: June 7, 2010
114-6400203

Work Order: 10052812
St. Mary/PDU Tract #1 TB

Page Number: 6 of 24

Parameter	Flag	RL Result	Units	Dilution	RL
Chloride		675	mg/Kg	50	4.00

Sample: 233082 - SB-1 3'

Laboratory: Midland
Analysis: TPH DRO - NEW
QC Batch: 70544
Prep Batch: 60419

Analytical Method: S 8015 D
Date Analyzed: 2010-06-01
Sample Preparation: 2010-06-01

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

Parameter	Flag	RL Result	Units	Dilution	RL
DRO		144	mg/Kg	1	50.0

Surrogate	Flag	Result	Units	Dilution	Spike Amount	Percent Recovery	Recovery Limits
n-Tricosane		122	mg/Kg	1	100	122	70 - 130

Sample: 233082 - SB-1 3'

Laboratory: Midland
Analysis: TPH GRO
QC Batch: 70574
Prep Batch: 60437

Analytical Method: S 8015 D
Date Analyzed: 2010-06-02
Sample Preparation: 2010-06-02

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

Parameter	Flag	RL Result	Units	Dilution	RL
GRO		264	mg/Kg	5	1.00

Surrogate	Flag	Result	Units	Dilution	Spike Amount	Percent Recovery	Recovery Limits
Trifluorotoluene (TFT)		5.27	mg/Kg	5	5.00	105	50.3 - 155
4-Bromofluorobenzene (4-BFB)		6.00	mg/Kg	5	5.00	120	51.7 - 131.1

Sample: 233083 - SB-1 5'

Laboratory: Midland
Analysis: Chloride (Titration)
QC Batch: 70556
Prep Batch: 60409

Analytical Method: SM 4500-Cl B
Date Analyzed: 2010-06-02
Sample Preparation: 2010-06-01

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

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Parameter	Flag	RL Result	Units	Dilution	RL
Chloride		<200	mg/Kg	50	4.00

Sample: 233084 - SB-1 7'

Laboratory: Midland
Analysis: Chloride (Titration) Analytical Method: SM 4500-Cl B Prep Method: N/A
QC Batch: 70556 Date Analyzed: 2010-06-02 Analyzed By: AR
Prep Batch: 60409 Sample Preparation: 2010-06-01 Prepared By: AR

Parameter	Flag	RL Result	Units	Dilution	RL
Chloride		<200	mg/Kg	50	4.00

Sample: 233085 - SB-1 10'

Laboratory: Midland
Analysis: Chloride (Titration) Analytical Method: SM 4500-Cl B Prep Method: N/A
QC Batch: 70556 Date Analyzed: 2010-06-02 Analyzed By: AR
Prep Batch: 60409 Sample Preparation: 2010-06-01 Prepared By: AR

Parameter	Flag	RL Result	Units	Dilution	RL
Chloride		<200	mg/Kg	50	4.00

Sample: 233086 - SB-1 15'

Laboratory: Midland
Analysis: Chloride (Titration) Analytical Method: SM 4500-Cl B Prep Method: N/A
QC Batch: 70556 Date Analyzed: 2010-06-02 Analyzed By: AR
Prep Batch: 60409 Sample Preparation: 2010-06-01 Prepared By: AR

Parameter	Flag	RL Result	Units	Dilution	RL
Chloride		<200	mg/Kg	50	4.00

Sample: 233087 - SB-1 20'

Laboratory: Midland
Analysis: Chloride (Titration) Analytical Method: SM 4500-Cl B Prep Method: N/A
QC Batch: 70556 Date Analyzed: 2010-06-02 Analyzed By: AR
Prep Batch: 60409 Sample Preparation: 2010-06-01 Prepared By: AR

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Parameter	Flag	RL Result	Units	Dilution	RL
Chloride		<200	mg/Kg	50	4.00

Sample: 233088 - SB-1 25'

Laboratory: Midland
Analysis: Chloride (Titration) Analytical Method: SM 4500-Cl B Prep Method: N/A
QC Batch: 70556 Date Analyzed: 2010-06-02 Analyzed By: AR
Prep Batch: 60409 Sample Preparation: 2010-06-01 Prepared By: AR

Parameter	Flag	RL Result	Units	Dilution	RL
Chloride		545	mg/Kg	50	4.00

Sample: 233089 - SB-1 30'

Laboratory: Midland
Analysis: Chloride (Titration) Analytical Method: SM 4500-Cl B Prep Method: N/A
QC Batch: 70557 Date Analyzed: 2010-06-02 Analyzed By: AR
Prep Batch: 60410 Sample Preparation: 2010-06-01 Prepared By: AR

Parameter	Flag	RL Result	Units	Dilution	RL
Chloride		<200	mg/Kg	50	4.00

Sample: 233090 - SB-1 40'

Laboratory: Midland
Analysis: Chloride (Titration) Analytical Method: SM 4500-Cl B Prep Method: N/A
QC Batch: 70557 Date Analyzed: 2010-06-02 Analyzed By: AR
Prep Batch: 60410 Sample Preparation: 2010-06-01 Prepared By: AR

Parameter	Flag	RL Result	Units	Dilution	RL
Chloride		<200	mg/Kg	50	4.00

Sample: 233091 - SB-2 1'

Laboratory: Midland
Analysis: Chloride (Titration) Analytical Method: SM 4500-Cl B Prep Method: N/A
QC Batch: 70557 Date Analyzed: 2010-06-02 Analyzed By: AR
Prep Batch: 60410 Sample Preparation: 2010-06-01 Prepared By: AR

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Parameter	Flag	RL Result	Units	Dilution	RL
Chloride		1070	mg/Kg	100	4.00

Sample: 233092 - SB-2 3'

Laboratory: Midland
Analysis: Chloride (Titration) Analytical Method: SM 4500-Cl B Prep Method: N/A
QC Batch: 70557 Date Analyzed: 2010-06-02 Analyzed By: AR
Prep Batch: 60410 Sample Preparation: 2010-06-01 Prepared By: AR

Parameter	Flag	RL Result	Units	Dilution	RL
Chloride		514	mg/Kg	50	4.00

Sample: 233093 - SB-2 5'

Laboratory: Midland
Analysis: Chloride (Titration) Analytical Method: SM 4500-Cl B Prep Method: N/A
QC Batch: 70557 Date Analyzed: 2010-06-02 Analyzed By: AR
Prep Batch: 60410 Sample Preparation: 2010-06-01 Prepared By: AR

Parameter	Flag	RL Result	Units	Dilution	RL
Chloride		1430	mg/Kg	100	4.00

Sample: 233094 - SB-2 7'

Laboratory: Midland
Analysis: Chloride (Titration) Analytical Method: SM 4500-Cl B Prep Method: N/A
QC Batch: 70557 Date Analyzed: 2010-06-02 Analyzed By: AR
Prep Batch: 60410 Sample Preparation: 2010-06-01 Prepared By: AR

Parameter	Flag	RL Result	Units	Dilution	RL
Chloride		414	mg/Kg	50	4.00

Sample: 233095 - SB-2 10'

Laboratory: Midland
Analysis: Chloride (Titration) Analytical Method: SM 4500-Cl B Prep Method: N/A
QC Batch: 70557 Date Analyzed: 2010-06-02 Analyzed By: AR
Prep Batch: 60410 Sample Preparation: 2010-06-01 Prepared By: AR

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Parameter	Flag	RL Result	Units	Dilution	RL
Chloride		205	mg/Kg	50	4.00

Sample: 233096 - SB-2 15'

Laboratory: Midland
Analysis: Chloride (Titration) Analytical Method: SM 4500-Cl B Prep Method: N/A
QC Batch: 70557 Date Analyzed: 2010-06-02 Analyzed By: AR
Prep Batch: 60410 Sample Preparation: 2010-06-01 Prepared By: AR

Parameter	Flag	RL Result	Units	Dilution	RL
Chloride		341	mg/Kg	50	4.00

Sample: 233097 - SB-2 20'

Laboratory: Midland
Analysis: Chloride (Titration) Analytical Method: SM 4500-Cl B Prep Method: N/A
QC Batch: 70557 Date Analyzed: 2010-06-02 Analyzed By: AR
Prep Batch: 60410 Sample Preparation: 2010-06-01 Prepared By: AR

Parameter	Flag	RL Result	Units	Dilution	RL
Chloride		<200	mg/Kg	50	4.00

Sample: 233098 - SB-2 30'

Laboratory: Midland
Analysis: Chloride (Titration) Analytical Method: SM 4500-Cl B Prep Method: N/A
QC Batch: 70557 Date Analyzed: 2010-06-02 Analyzed By: AR
Prep Batch: 60410 Sample Preparation: 2010-06-01 Prepared By: AR

Parameter	Flag	RL Result	Units	Dilution	RL
Chloride		<200	mg/Kg	50	4.00

Sample: 233099 - SB-3 1'

Laboratory: Midland
Analysis: Chloride (Titration) Analytical Method: SM 4500-Cl B Prep Method: N/A
QC Batch: 70558 Date Analyzed: 2010-06-02 Analyzed By: AR
Prep Batch: 60411 Sample Preparation: 2010-06-01 Prepared By: AR

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Parameter	Flag	RL Result	Units	Dilution	RL
Chloride		3740	mg/Kg	100	4.00

Sample: 233100 - SB-3 3'

Laboratory: Midland
Analysis: Chloride (Titration) Analytical Method: SM 4500-Cl B Prep Method: N/A
QC Batch: 70558 Date Analyzed: 2010-06-02 Analyzed By: AR
Prep Batch: 60411 Sample Preparation: 2010-06-01 Prepared By: AR

Parameter	Flag	RL Result	Units	Dilution	RL
Chloride		3250	mg/Kg	100	4.00

Sample: 233101 - SB-3 5'

Laboratory: Midland
Analysis: Chloride (Titration) Analytical Method: SM 4500-Cl B Prep Method: N/A
QC Batch: 70558 Date Analyzed: 2010-06-02 Analyzed By: AR
Prep Batch: 60411 Sample Preparation: 2010-06-01 Prepared By: AR

Parameter	Flag	RL Result	Units	Dilution	RL
Chloride		6500	mg/Kg	100	4.00

Sample: 233102 - SB-3 7'

Laboratory: Midland
Analysis: Chloride (Titration) Analytical Method: SM 4500-Cl B Prep Method: N/A
QC Batch: 70558 Date Analyzed: 2010-06-02 Analyzed By: AR
Prep Batch: 60411 Sample Preparation: 2010-06-01 Prepared By: AR

Parameter	Flag	RL Result	Units	Dilution	RL
Chloride		1010	mg/Kg	50	4.00

Sample: 233103 - SB-3 10'

Laboratory: Midland
Analysis: Chloride (Titration) Analytical Method: SM 4500-Cl B Prep Method: N/A
QC Batch: 70558 Date Analyzed: 2010-06-02 Analyzed By: AR
Prep Batch: 60411 Sample Preparation: 2010-06-01 Prepared By: AR

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Parameter	Flag	RL Result	Units	Dilution	RL
Chloride		6460	mg/Kg	100	4.00

Sample: 233104 - SB-3 15'

Laboratory: Midland
Analysis: Chloride (Titration) Analytical Method: SM 4500-Cl B Prep Method: N/A
QC Batch: 70558 Date Analyzed: 2010-06-02 Analyzed By: AR
Prep Batch: 60411 Sample Preparation: 2010-06-01 Prepared By: AR

Parameter	Flag	RL Result	Units	Dilution	RL
Chloride		1680	mg/Kg	100	4.00

Sample: 233105 - SB-3 20'

Laboratory: Midland
Analysis: Chloride (Titration) Analytical Method: SM 4500-Cl B Prep Method: N/A
QC Batch: 70558 Date Analyzed: 2010-06-02 Analyzed By: AR
Prep Batch: 60411 Sample Preparation: 2010-06-01 Prepared By: AR

Parameter	Flag	RL Result	Units	Dilution	RL
Chloride		1080	mg/Kg	100	4.00

Sample: 233106 - SB-3 25'

Laboratory: Midland
Analysis: Chloride (Titration) Analytical Method: SM 4500-Cl B Prep Method: N/A
QC Batch: 70558 Date Analyzed: 2010-06-02 Analyzed By: AR
Prep Batch: 60411 Sample Preparation: 2010-06-01 Prepared By: AR

Parameter	Flag	RL Result	Units	Dilution	RL
Chloride		808	mg/Kg	100	4.00

Sample: 233107 - SB-3 30'

Laboratory: Midland
Analysis: Chloride (Titration) Analytical Method: SM 4500-Cl B Prep Method: N/A
QC Batch: 70558 Date Analyzed: 2010-06-02 Analyzed By: AR
Prep Batch: 60411 Sample Preparation: 2010-06-01 Prepared By: AR

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Parameter	Flag	RL Result	Units	Dilution	RL
Chloride		974	mg/Kg	100	4.00

Sample: 233108 - SB-3 40'

Laboratory: Midland
Analysis: Chloride (Titration) Analytical Method: SM 4500-Cl B Prep Method: N/A
QC Batch: 70558 Date Analyzed: 2010-06-02 Analyzed By: AR
Prep Batch: 60411 Sample Preparation: 2010-06-01 Prepared By: AR

Parameter	Flag	RL Result	Units	Dilution	RL
Chloride		<200	mg/Kg	50	4.00

Sample: 233109 - SB-3 45'

Laboratory: Midland
Analysis: Chloride (Titration) Analytical Method: SM 4500-Cl B Prep Method: N/A
QC Batch: 70559 Date Analyzed: 2010-06-02 Analyzed By: AR
Prep Batch: 60412 Sample Preparation: 2010-06-01 Prepared By: AR

Parameter	Flag	RL Result	Units	Dilution	RL
Chloride		<200	mg/Kg	50	4.00

Method Blank (1) QC Batch: 70544

QC Batch: 70544 Date Analyzed: 2010-06-01 Analyzed By: kg
Prep Batch: 60419 QC Preparation: 2010-06-01 Prepared By: kg

Parameter	Flag	MDL Result	Units	RL
DRO		<5.86	mg/Kg	50

Surrogate	Flag	Result	Units	Dilution	Spike Amount	Percent Recovery	Recovery Limits
n-Tricosane		95.4	mg/Kg	1	100	95	70 - 130

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Method Blank (1) QC Batch: 70556

QC Batch: 70556 Date Analyzed: 2010-06-02 Analyzed By: AR
Prep Batch: 60409 QC Preparation: 2010-06-01 Prepared By: AR

Parameter	Flag	MDL Result	Units	RL
Chloride		<2.18	mg/Kg	4

Method Blank (1) QC Batch: 70557

QC Batch: 70557 Date Analyzed: 2010-06-02 Analyzed By: AR
Prep Batch: 60410 QC Preparation: 2010-06-01 Prepared By: AR

Parameter	Flag	MDL Result	Units	RL
Chloride		<2.18	mg/Kg	4

Method Blank (1) QC Batch: 70558

QC Batch: 70558 Date Analyzed: 2010-06-02 Analyzed By: AR
Prep Batch: 60411 QC Preparation: 2010-06-01 Prepared By: AR

Parameter	Flag	MDL Result	Units	RL
Chloride		<2.18	mg/Kg	4

Method Blank (1) QC Batch: 70559

QC Batch: 70559 Date Analyzed: 2010-06-02 Analyzed By: AR
Prep Batch: 60412 QC Preparation: 2010-06-01 Prepared By: AR

Parameter	Flag	MDL Result	Units	RL
Chloride		<2.18	mg/Kg	4

Method Blank (1) QC Batch: 70573

QC Batch: 70573 Date Analyzed: 2010-06-02 Analyzed By: AG
Prep Batch: 60437 QC Preparation: 2010-06-02 Prepared By: AG

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Parameter	Flag	MDL Result	Units	RL
Benzene		<0.00410	mg/Kg	0.01
Toluene		<0.00310	mg/Kg	0.01
Ethylbenzene		<0.00240	mg/Kg	0.01
Xylene		<0.00650	mg/Kg	0.01

Surrogate	Flag	Result	Units	Dilution	Spike Amount	Percent Recovery	Recovery Limits
Trifluorotoluene (TFT)		1.83	mg/Kg	1	2.00	92	64.9 - 142.7
4-Bromofluorobenzene (4-BFB)		1.50	mg/Kg	1	2.00	75	43.9 - 141.9

Method Blank (1) QC Batch: 70574

QC Batch: 70574
Prep Batch: 60437

Date Analyzed: 2010-06-02
QC Preparation: 2010-06-02

Analyzed By: AG
Prepared By: AG

Parameter	Flag	MDL Result	Units	RL
GRO		<0.396	mg/Kg	1

Surrogate	Flag	Result	Units	Dilution	Spike Amount	Percent Recovery	Recovery Limits
Trifluorotoluene (TFT)		2.06	mg/Kg	1	2.00	103	66.2 - 145
4-Bromofluorobenzene (4-BFB)		1.60	mg/Kg	1	2.00	80	62 - 120.5

Laboratory Control Spike (LCS-1)

QC Batch: 70544
Prep Batch: 60419

Date Analyzed: 2010-06-01
QC Preparation: 2010-06-01

Analyzed By: kg
Prepared By: kg

Param	LCS Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit
DRO	265	mg/Kg	1	250	<5.86	106	57.4 - 133.4

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

Param	LCSD Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit	RPD	RPD Limit
DRO	277	mg/Kg	1	250	<5.86	111	57.4 - 133.4	4	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	98.0	99.8	mg/Kg	1	100	98	100	70 - 130

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Laboratory Control Spike (LCS-1)

QC Batch: 70556
Prep Batch: 60409

Date Analyzed: 2010-06-02
QC Preparation: 2010-06-01

Analyzed By: AR
Prepared By: AR

Param	LCS Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit
Chloride	98.6	mg/Kg	1	100	<2.18	99	85 - 115

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

Param	LCSD Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit	RPD	RPD Limit
Chloride	100	mg/Kg	1	100	<2.18	100	85 - 115	1	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: 70557
Prep Batch: 60410

Date Analyzed: 2010-06-02
QC Preparation: 2010-06-01

Analyzed By: AR
Prepared By: AR

Param	LCS Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit
Chloride	98.1	mg/Kg	1	100	<2.18	98	85 - 115

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

Param	LCSD Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit	RPD	RPD Limit
Chloride	100	mg/Kg	1	100	<2.18	100	85 - 115	2	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: 70558
Prep Batch: 60411

Date Analyzed: 2010-06-02
QC Preparation: 2010-06-01

Analyzed By: AR
Prepared By: AR

Param	LCS Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit
Chloride	99.1	mg/Kg	1	100	<2.18	99	85 - 115

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

Param	LCSD Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit	RPD	RPD Limit
Chloride	101	mg/Kg	1	100	<2.18	101	85 - 115	2	20

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

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Laboratory Control Spike (LCS-1)

QC Batch: 70559
Prep Batch: 60412

Date Analyzed: 2010-06-02
QC Preparation: 2010-06-01

Analyzed By: AR
Prepared By: AR

Param	LCS Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit
Chloride	98.6	mg/Kg	1	100	<2.18	99	85 - 115

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

Param	LCSD Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit	RPD	RPD Limit
Chloride	100	mg/Kg	1	100	<2.18	100	85 - 115	1	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: 70573
Prep Batch: 60437

Date Analyzed: 2010-06-02
QC Preparation: 2010-06-02

Analyzed By: AG
Prepared By: AG

Param	LCS Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit
Benzene	1.83	mg/Kg	1	2.00	<0.00410	92	75.4 - 115.7
Toluene	1.84	mg/Kg	1	2.00	<0.00310	92	78.4 - 113.6
Ethylbenzene	1.80	mg/Kg	1	2.00	<0.00240	90	76 - 114.2
Xylene	5.44	mg/Kg	1	6.00	<0.00650	91	76.9 - 113.6

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

Param	LCSD Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit	RPD	RPD Limit
Benzene	1.90	mg/Kg	1	2.00	<0.00410	95	75.4 - 115.7	4	20
Toluene	1.91	mg/Kg	1	2.00	<0.00310	96	78.4 - 113.6	4	20
Ethylbenzene	1.87	mg/Kg	1	2.00	<0.00240	94	76 - 114.2	4	20
Xylene	5.64	mg/Kg	1	6.00	<0.00650	94	76.9 - 113.6	4	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	1.82	mg/Kg	1	2.00	93	91	65 - 142.9
4-Bromofluorobenzene (4-BFB)	1.76	1.76	mg/Kg	1	2.00	88	88	43.8 - 144.9

Laboratory Control Spike (LCS-1)

QC Batch: 70574
Prep Batch: 60437

Date Analyzed: 2010-06-02
QC Preparation: 2010-06-02

Analyzed By: AG
Prepared By: AG

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Param	LCS Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit
GRO	15.4	mg/Kg	1	20.0	<0.396	77	52.5 - 114.3

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

Param	LCSD Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit	RPD	RPD Limit
GRO	16.0	mg/Kg	1	20.0	<0.396	80	52.5 - 114.3	4	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)	2.08	1.89	mg/Kg	1	2.00	104	94	66.2 - 148.7
4-Bromofluorobenzene (4-BFB)	1.83	1.66	mg/Kg	1	2.00	92	83	64.1 - 127.4

Matrix Spike (MS-1) Spiked Sample: 233169

QC Batch: 70544
Prep Batch: 60419

Date Analyzed: 2010-06-01
QC Preparation: 2010-06-01

Analyzed By: kg
Prepared By: kg

Param	MS Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit
DRO	334	mg/Kg	1	250	37.7	118	35.2 - 167.1

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

Param	MSD Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit	RPD	RPD Limit
DRO	298	mg/Kg	1	250	37.7	104	35.2 - 167.1	11	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	115	112	mg/Kg	1	100	115	112	70 - 130

Matrix Spike (MS-1) Spiked Sample: 233088

QC Batch: 70556
Prep Batch: 60409

Date Analyzed: 2010-06-02
QC Preparation: 2010-06-01

Analyzed By: AR
Prepared By: AR

Param	MS Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit
Chloride	9670	mg/Kg	100	10000	545	91	85 - 115

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

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Param	MSD Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit	RPD	RPD Limit
Chloride	9830	mg/Kg	100	10000	545	93	85 - 115	2	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: 233098

QC Batch: 70557
Prep Batch: 60410

Date Analyzed: 2010-06-02
QC Preparation: 2010-06-01

Analyzed By: AR
Prepared By: AR

Param	MS Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit
Chloride	10200	mg/Kg	100	10000	<218	100	85 - 115

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

Param	MSD Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit	RPD	RPD Limit
Chloride	10400	mg/Kg	100	10000	<218	102	85 - 115	2	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: 233108

QC Batch: 70558
Prep Batch: 60411

Date Analyzed: 2010-06-02
QC Preparation: 2010-06-01

Analyzed By: AR
Prepared By: AR

Param	MS Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit
Chloride	10400	mg/Kg	100	10000	<218	104	85 - 115

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

Param	MSD Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit	RPD	RPD Limit
Chloride	10600	mg/Kg	100	10000	<218	106	85 - 115	2	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: 233121

QC Batch: 70559
Prep Batch: 60412

Date Analyzed: 2010-06-02
QC Preparation: 2010-06-01

Analyzed By: AR
Prepared By: AR

continued ...

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matrix spikes continued ...

Param	MS Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit
Param	MS Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit
Chloride	16400	mg/Kg	100	10000	6000	104	85 - 115

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

Param	MSD Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit	RPD	RPD Limit
Chloride	16500	mg/Kg	100	10000	6000	105	85 - 115	1	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: 233018

QC Batch: 70573
Prep Batch: 60437

Date Analyzed: 2010-06-02
QC Preparation: 2010-06-02

Analyzed By: AG
Prepared By: AG

Param	MS Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit
Benzene	1.82	mg/Kg	1	2.00	<0.00410	91	57.7 - 140.7
Toluene	1.88	mg/Kg	1	2.00	<0.00310	94	53.4 - 146.6
Ethylbenzene	1.90	mg/Kg	1	2.00	<0.00240	95	62.1 - 141.6
Xylene	5.72	mg/Kg	1	6.00	<0.00650	95	61.2 - 142.7

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

Param	MSD Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit	RPD	RPD Limit
Benzene	1.86	mg/Kg	1	2.00	<0.00410	93	57.7 - 140.7	2	20
Toluene	1.92	mg/Kg	1	2.00	<0.00310	96	53.4 - 146.6	2	20
Ethylbenzene	1.94	mg/Kg	1	2.00	<0.00240	97	62.1 - 141.6	2	20
Xylene	5.82	mg/Kg	1	6.00	<0.00650	97	61.2 - 142.7	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)	1.48	1.54	mg/Kg	1	2	74	77	61.7 - 139.6
4-Bromofluorobenzene (4-BFB)	1.44	1.48	mg/Kg	1	2	72	74	49.6 - 146.7

Matrix Spike (MS-1) Spiked Sample: 233165

QC Batch: 70574
Prep Batch: 60437

Date Analyzed: 2010-06-02
QC Preparation: 2010-06-02

Analyzed By: AG
Prepared By: AG

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Param	MS Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit
GRO	25.1	mg/Kg	1	20.0	5.5866	98	10 - 198.3

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

Param	MSD Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit	RPD	RPD Limit
GRO	26.8	mg/Kg	1	20.0	5.5866	106	10 - 198.3	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
Trifluorotoluene (TFT)	2.28	2.37	mg/Kg	1	2	114	118	65.5 - 143
4-Bromofluorobenzene (4-BFB)	2.42	2.38	mg/Kg	1	2	121	119	58.6 - 140

Standard (CCV-1)

QC Batch: 70544

Date Analyzed: 2010-06-01

Analyzed By: kg

Param	Flag	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
DRO		mg/Kg	250	291	116	80 - 120	2010-06-01

Standard (CCV-2)

QC Batch: 70544

Date Analyzed: 2010-06-01

Analyzed By: kg

Param	Flag	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
DRO		mg/Kg	250	290	116	80 - 120	2010-06-01

Standard (ICV-1)

QC Batch: 70556

Date Analyzed: 2010-06-02

Analyzed By: AR

Param	Flag	Units	ICVs True Conc.	ICVs Found Conc.	ICVs Percent Recovery	Percent Recovery Limits	Date Analyzed
Chloride		mg/Kg	100	101	101	85 - 115	2010-06-02

Standard (CCV-1)

QC Batch: 70556

Date Analyzed: 2010-06-02

Analyzed By: AR

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Param	Flag	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
Chloride		mg/Kg	100	99.0	99	85 - 115	2010-06-02

Standard (ICV-1)

QC Batch: 70557

Date Analyzed: 2010-06-02

Analyzed By: AR

Param	Flag	Units	ICVs True Conc.	ICVs Found Conc.	ICVs Percent Recovery	Percent Recovery Limits	Date Analyzed
Chloride		mg/Kg	100	100	100	85 - 115	2010-06-02

Standard (CCV-1)

QC Batch: 70557

Date Analyzed: 2010-06-02

Analyzed By: AR

Param	Flag	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
Chloride		mg/Kg	100	99.9	100	85 - 115	2010-06-02

Standard (ICV-1)

QC Batch: 70558

Date Analyzed: 2010-06-02

Analyzed By: AR

Param	Flag	Units	ICVs True Conc.	ICVs Found Conc.	ICVs Percent Recovery	Percent Recovery Limits	Date Analyzed
Chloride		mg/Kg	100	98.7	99	85 - 115	2010-06-02

Standard (CCV-1)

QC Batch: 70558

Date Analyzed: 2010-06-02

Analyzed By: AR

Param	Flag	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
Chloride		mg/Kg	100	101	101	85 - 115	2010-06-02

Standard (ICV-1)

QC Batch: 70559

Date Analyzed: 2010-06-02

Analyzed By: AR

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Param	Flag	Units	ICVs True Conc.	ICVs Found Conc.	ICVs Percent Recovery	Percent Recovery Limits	Date Analyzed
Chloride		mg/Kg	100	99.6	100	85 - 115	2010-06-02

Standard (CCV-1)

QC Batch: 70559

Date Analyzed: 2010-06-02

Analyzed By: AR

Param	Flag	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
Chloride		mg/Kg	100	100	100	85 - 115	2010-06-02

Standard (CCV-1)

QC Batch: 70573

Date Analyzed: 2010-06-02

Analyzed By: AG

Param	Flag	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
Benzene		mg/Kg	0.100	0.0918	92	80 - 120	2010-06-02
Toluene		mg/Kg	0.100	0.0925	92	80 - 120	2010-06-02
Ethylbenzene		mg/Kg	0.100	0.0910	91	80 - 120	2010-06-02
Xylene		mg/Kg	0.300	0.274	91	80 - 120	2010-06-02

Standard (CCV-2)

QC Batch: 70573

Date Analyzed: 2010-06-02

Analyzed By: AG

Param	Flag	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
Benzene		mg/Kg	0.100	0.0906	91	80 - 120	2010-06-02
Toluene		mg/Kg	0.100	0.0911	91	80 - 120	2010-06-02
Ethylbenzene		mg/Kg	0.100	0.0879	88	80 - 120	2010-06-02
Xylene		mg/Kg	0.300	0.264	88	80 - 120	2010-06-02

Standard (CCV-1)

QC Batch: 70574

Date Analyzed: 2010-06-02

Analyzed By: AG

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Param	Flag	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
GRO		mg/Kg	1.00	0.949	95	80 - 120	2010-06-02

Standard (CCV-2)

QC Batch: 70574

Date Analyzed: 2010-06-02

Analyzed By: AG

Param	Flag	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
GRO		mg/Kg	1.00	1.01	101	80 - 120	2010-06-02

