

SITE INFORMATION

Report Type: Closure Report

General Site Information:

Site:	Brigham H #3 (well site)	
Company:	COG Operating LLC	
Section, Township and Range	Unit L Sec. 21 T-17S R-30E	
Lease Number:	API-30-015-30677	
County:	Eddy County	
GPS:	32.82012° N	103.98273° W
Surface Owner:	Federal	
Mineral Owner:		
Directions:	From the intersection of 82 and CR-219 in Loco Hills, travel north on 219 0.1 mi, turn left 0.2 mi, turn left to location	

Release Data:

Date Released:	2/1/2011
Type Release:	Produced fluid
Source of Contamination:	Flowline
Fluid Released:	20 bbls
Fluids Recovered:	18 bbls

Official Communication:

Name:	Pat Ellis	Ike Tavaréz
Company:	COG Operating, LLC	Tetra Tech
Address:	550 W. Texas Ave. Ste. 1300	1910 N. Big Spring
P.O. Box		
City:	Midland Texas, 79701	Midland, Texas
Phone number:	(432) 686-3023	(432) 682-4559
Fax:	(432) 684-7137	
Email:	pellis@conchoresources.com	ike.tavaréz@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

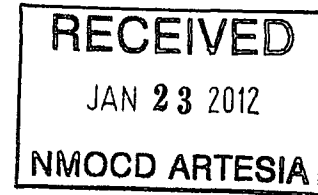
Acceptable Soil RRAL (mg/kg)

Benzene	Total BTEX	TPH
10	50	5,000



TETRA TECH

December 8, 2011



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

Re: Closure Report for the COG Operating LLC., Brigham H #3 Well Site, Unit L, Section 21, Township 17 South, Range 30 East, Eddy County, New Mexico.

Mr. Bratcher:

Tetra Tech, Inc. (Tetra Tech) was contacted by COG Operating LLC. (COG) to assess a spill from the Brigham H #3 well site, Unit L, Section 21, Township 17 South, Range 30 East, Eddy County, New Mexico (Site). The spill site coordinates are N 32.82012°, W 103.98273°. 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 February 1, 2011, and released approximately twenty (20) barrels of produced fluid from a hole in a flow line. Approximately eighteen (18) barrels of fluid was recovered. To alleviate the problem, COG personnel replaced the flow line section. The spill initiated east of the Brigham H #3 well location, in the adjacent pasture area. The spill migrated approximately 120' east, with a width ranging from 10.0' to 20.0'. A secondary finger ran south approximately 30.0' with a width of 2.0'. The initial C-141 form is enclosed in Appendix A.

Groundwater

No water wells were listed within Section 21. Based on the site location and NMOCD groundwater map, the average depth to groundwater in this area is approximately 275' to 300' below surface. The well map is shown in Appendix B.

Tetra Tech

1910 North Big Spring, Midland, TX 79705

Tel 432.682.4559

Fax 432.682.5946

www.tetrattech.com



Regulatory

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

Soil Assessment and Analytical Results

On March 3, 2011, Tetra Tech personnel inspected and sampled the spill area. Four (4) auger holes (AH-1 through AH-4) were installed using a stainless steel hand auger to assess the impacted soils. Select samples were analyzed for TPH analysis by EPA method 8015 modified, BTEX by EPA Method 8021B and chloride by EPA method 300.0. Copies of laboratory analysis and chain-of-custody documentation are included in Appendix C. The results of the sampling are summarized in Table 1. The auger hole locations are shown on Figure 3.

Referring to Table 1, the area of AH-2 was vertically defined and showed TPH and BTEX concentrations below the RRAL at 2-2.5' below surface. The remaining auger holes (AH-1, AH-3 and AH-4) were not vertically defined, with TPH and BTEX concentrations above the RRAL. In addition, elevated chloride concentrations were also detected in the areas of AH-1, AH-3 and AH-4 and not vertically defined.

In order to delineate the TPH, BTEX, and chloride impact, soil borings were installed utilizing an air rotary drilling rig. On May 29, 2011, Tetra Tech personnel supervised the installation of soil borings (SB-1 and SB-2). Due to safety concerns with overhead power lines, SB-1 was installed between AH-4 and AH-3. The soil borings were installed to a total depth of 40.0' below surface. Referring to Table 1, the soil borings declined below the RRAL for TPH and BTEX at 7.0' below surface. The elevated chloride concentrations showed a significant decline with depth. The soil boring locations are shown on Figure 3.



TETRA TECH

Closure Activities

Based on the approved work plan, Tetra Tech personnel supervised the excavation of the site on September 2011. The final excavation depths of the soil remediation were met or exceeded, as stated in the approved work plan. A total of 1,200 cubic yards of soil were excavated and hauled to proper disposal. The excavation depths are highlighted in Table 1 and shown on Figure 4.

Once the excavation was completed, confirmation samples (CS-1 through CS-14) were collected from the excavation bottoms and sidewalls. The locations of the confirmation samples are shown on Figure 4. The confirmation results are shown in Table 2. Based on the results, the excavation was backfilled with clean soil to grade and seeded.

Based upon the approved remediation performed at this site, COG requests closure of this site. The C-141 (Final) is included in Appendix A. If you have any question or comments concerning the assessment or the activities performed at the Site, please call me at (432) 682-4559.

Respectfully submitted,
TETRA TECH



Ike Tavaraz, PG
Senior Project Manager

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

FIGURES

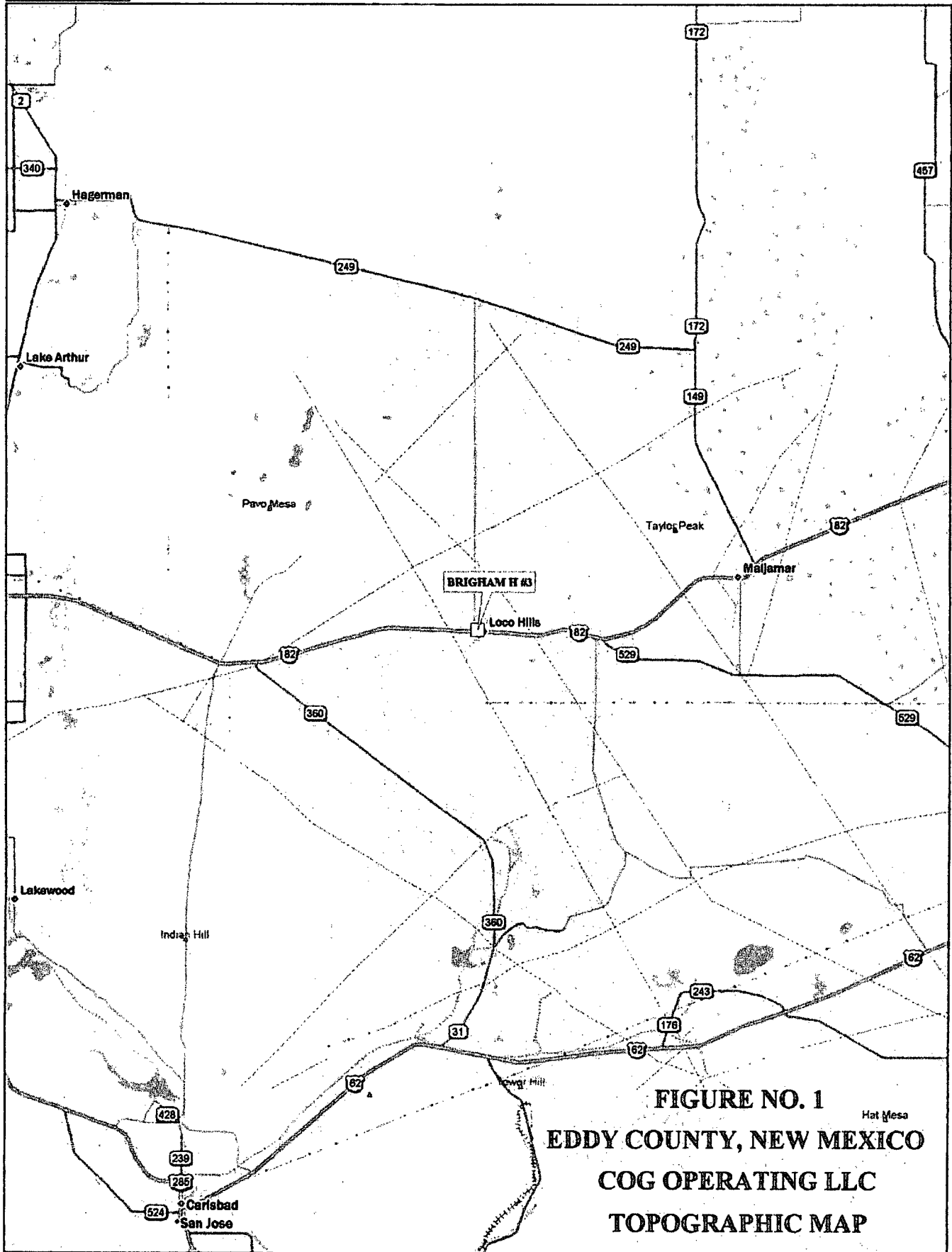
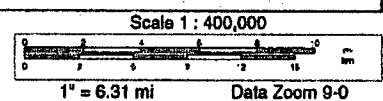


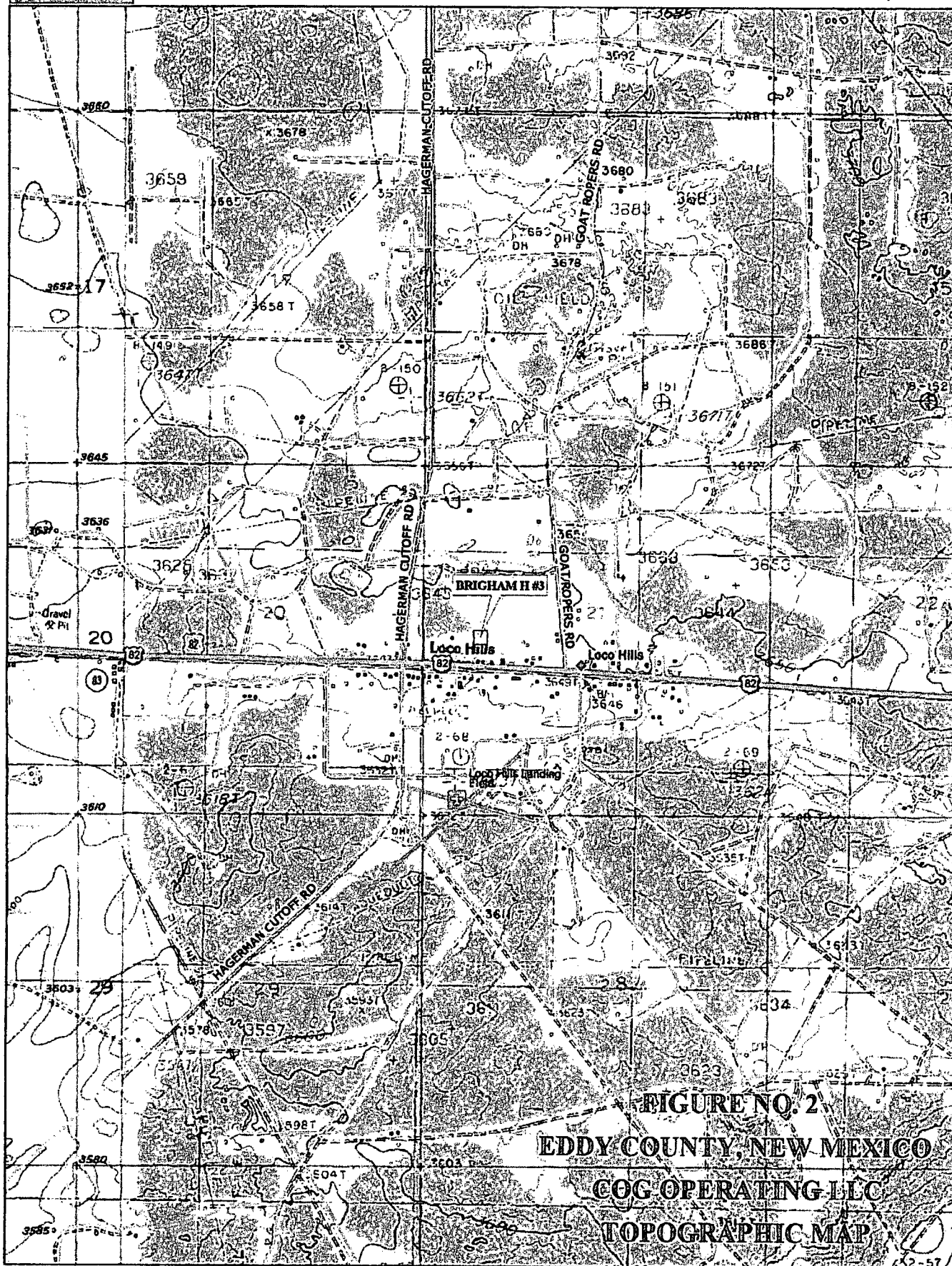
FIGURE NO. 1
EDDY COUNTY, NEW MEXICO
COG OPERATING LLC
TOPOGRAPHIC MAP

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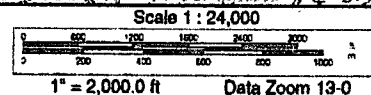


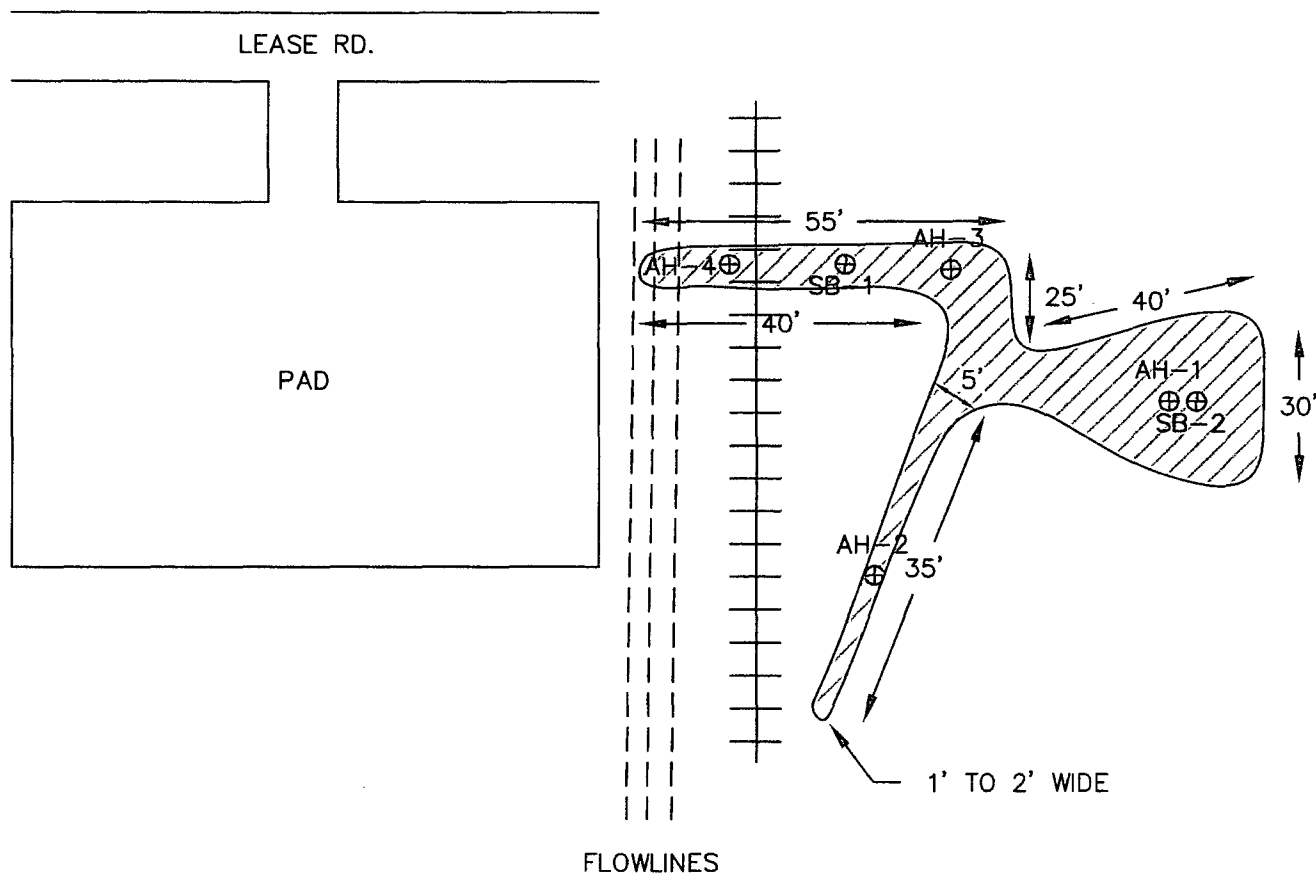


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-  SPILL AREA
-  AUGER HOLE SAMPLE LOCATIONS
-  SOIL BORE SAMPLE LOCATIONS
-  OVERHEAD POWERLINES

NOT TO SCALE

FIGURE NO. 3

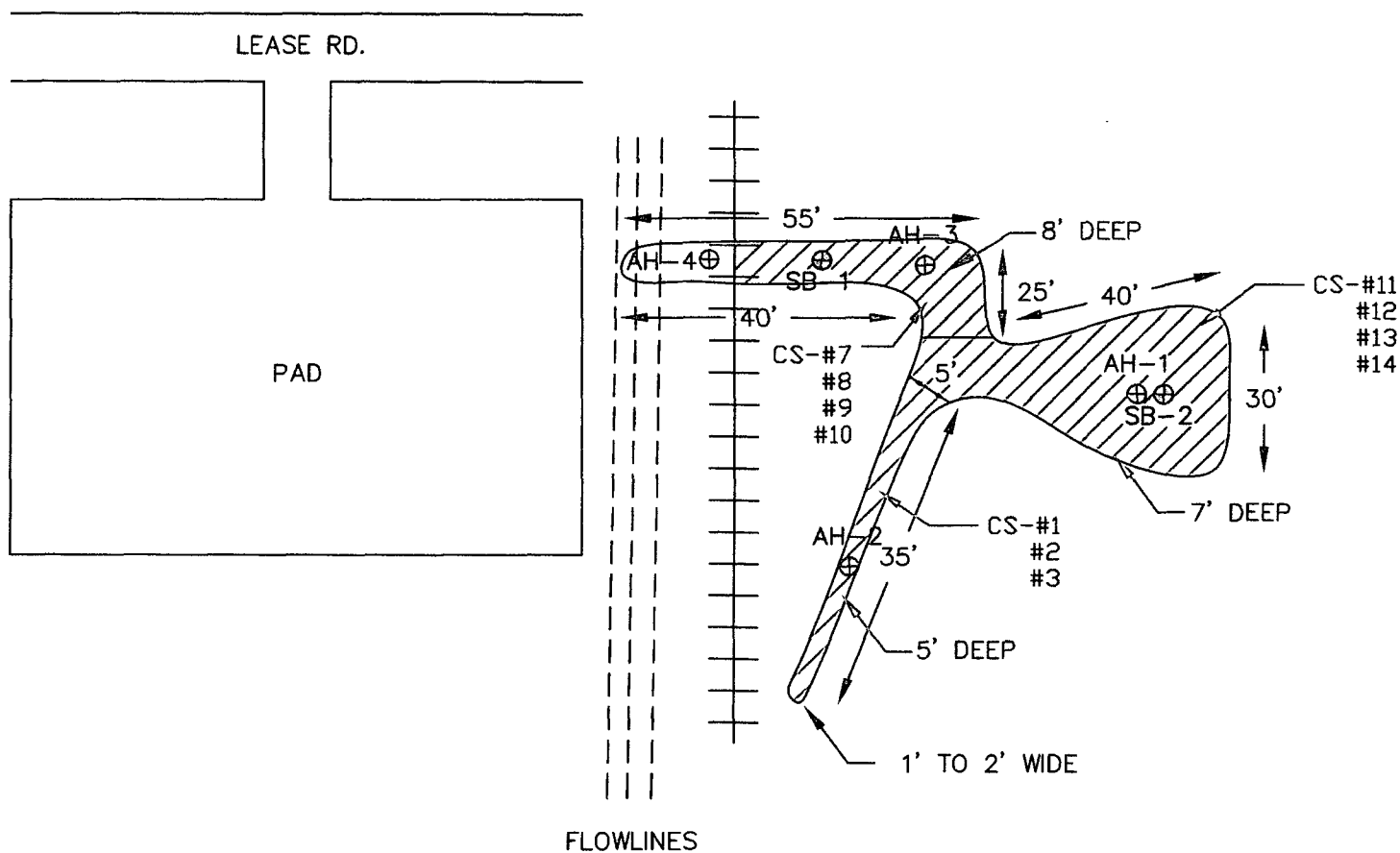
EDDY COUNTY, NEW MEXICO

COG OPERATING LLC

BRIGHAM H #3

TETRA TECH, INC.
MIDLAND, TEXAS

DATE:
6/9/2011
DWN. BY:
IM
FILE:
H:\COG\6400828
BRIGHAM H #3



- ▨ EXCAVATED DEPTHS & (CS) CONFIRMATION SAMPLE AREA
- ⊕ AUGER HOLE SAMPLE LOCATIONS
- ⊙ SOIL BORE SAMPLE LOCATIONS
- ++ OVERHEAD POWERLINES

NOT TO SCALE

FIGURE NO. 4

EDDY COUNTY, NEW MEXICO

COG OPERATING LLC

BRIGHAM H #3

TETRA TECH, INC.
MIDLAND, TEXAS

DATE:
12/15/2011
OWN. BY:
IM
FILE:
H:\COG\6400826
BRIGHAM H #3

TABLES

Table 1
COG Operating LLC.
BRIGHAM H #3
Eddy County, New Mexico

[illegible]

Table 1
COG Operating LLC.
BRIGHAM H #3
Eddy County, New Mexico

Sample ID	Sample Date	Sample Depth (ft)	BEB	Soil Status		TPH (mg/kg)			Benzene (mg/kg)	Toluene (mg/kg)	Ethylbenzene (mg/kg)	Xylene (mg/kg)	Total BTEX	Chloride (mg/kg)
				In-Situ	Removed	GRO	DRO	Total						
AH-3	3/3/2011	0-1'			X	5,220	16,500	21,720	22.1	132	96.3	159	409.4	1,590
	"	1-1.5'			X	3,840	16,200	20,040	4.73	61.8	60.5	105	232.0	4,760
	"	2-2.5'			X	3,430	12,200	15,630	6.06	61.7	58.9	102	228.7	5,040
	"	3-3.5'			X	11,500	59,100	70,600	66.2	51.1	257	424	1,258.2	8,820
SB-1	5/29/2011	0-1'	0.5'		X	3,060	7,870	10,930	6.66	40.1	43.4	85.2	175.4	<200
	"	3'			X	2,550	8,060	10,610						355
	"	5'			X	2,760	2,670	5,430						16,800
	"	7'			X	156	164	320	<0.200	<0.200	1.64	4.72	6.4	15,600
	"	10'		X		-	-	-	-	-	-	-	-	3,170
	"	15'		X		-	-	-	-	-	-	-	-	953
	"	20'		X		-	-	-	-	-	-	-	-	261
	"	25'		X		-	-	-	-	-	-	-	-	222
	"	30'		X		-	-	-	-	-	-	-	-	227
	"	40'		X		-	-	-	-	-	-	-	-	238
AH-4	3/3/2011	0-1'			X	5,350	18,700	24,050	32.2	163	106	157	458.2	2,610
	"	1-1.5'			X	5,880	15,600	21,480	17.8	130	83.9	133	364.7	5,250
	"	2-2.5'			X	5,870	14,800	20,670	24.0	155	107	172	458.0	7,530
		3-3.5'			X	4,600	11,000	15,600	22.1	140	82.6	130	374.7	10,300
		8-0'			X									

(--) Not Analyzed

BEB Below Excavation Bottom



Excavation Depths

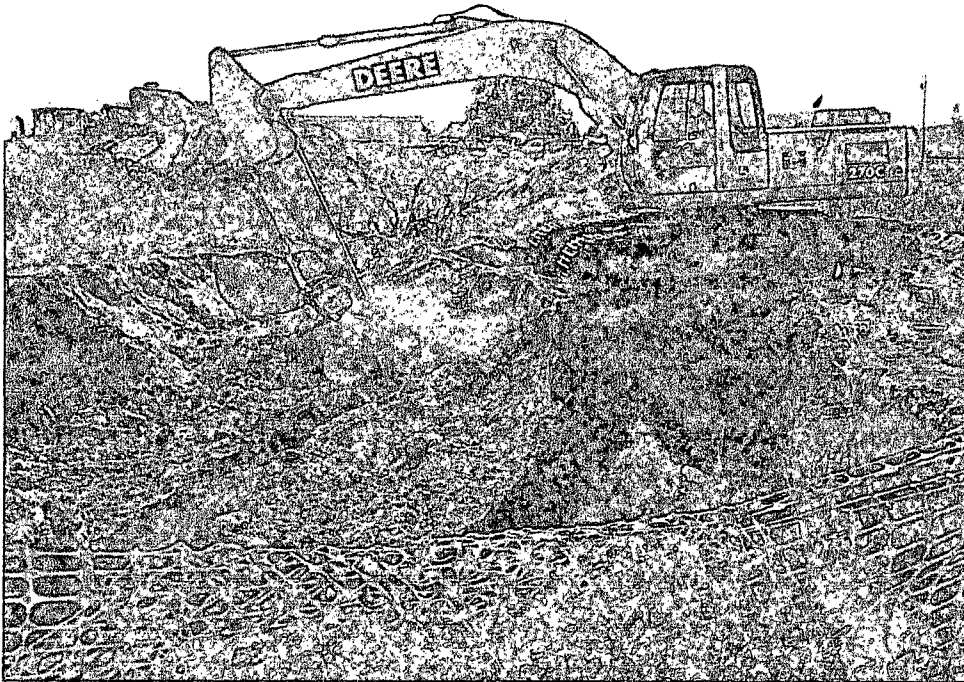
Table 2
COG Operating LLC.
BRIGHAM H #3
Eddy County, New Mexico

Sample ID		Sample Date	Sample Depth (ft)	Depth (BEB)	Soil Status		TPH (mg/kg)			Benzene (mg/kg)	Toluene (mg/kg)	Ethlybenzene (mg/kg)	Xylene (mg/kg)	Total BTEX	Chloride (mg/kg)
					In-Situ	Removed	GRO	DRO	Total						
Area of AH-4															
CS-1	Bottom Hole	9/6/2011	8'		X		<2.00	<50.0	<50.0	<0.0200	<0.0200	<0.0200	<0.0200	<0.0200	474
CS-2	Side Wall	9/6/2011	-		X		<2.00	<50.0	<50.0	<0.0200	<0.0200	<0.0200	<0.0200	<0.0200	<200
CS-3	Side Wall	9/6/2011	-		X		<2.00	<50.0	<50.0	<0.0200	<0.0200	<0.0200	<0.0200	<0.0200	<200
Area of AH-2															
CS-4	Bottom Hole	9/6/2011	5'		X		<2.00	<50.0	<50.0	<0.0200	<0.0200	<0.0200	<0.0200	<0.0200	<200
CS-5	Side Wall	9/6/2011	-		X		<2.00	<50.0	<50.0	<0.0200	<0.0200	<0.0200	<0.0200	<0.0200	<200
CS-6	Side Wall	9/6/2011	-		X		<2.00	<50.0	<50.0	<0.0200	<0.0200	<0.0200	<0.0200	<0.0200	<200
Area of AH-3															
CS-7	Side Wall	9/6/2011	-		X		<2.00	<50.0	<50.0	<0.0200	<0.0200	<0.0200	<0.0200	<0.0200	<200
CS-8	Bottom Hole	9/6/2011	7'		X		<2.00	<50.0	<50.0	<0.0200	<0.0200	<0.0200	<0.0200	<0.0200	468
CS-9	Side Wall	9/6/2011	-		X		<2.00	<50.0	<50.0	<0.0200	<0.0200	<0.0200	<0.0200	<0.0200	<200
CS-10	Side Wall	9/6/2011	-		X		<2.00	<50.0	<50.0	<0.0200	<0.0200	<0.0200	<0.0200	<0.0200	<200
Area of AH-1															
CS-11	Side Wall	9/6/2011	-		X		<2.00	<50.0	<50.0	<0.0200	<0.0200	<0.0200	<0.0200	<0.0200	<200
CS-12	Bottom Hole	9/6/2011	7'		X		<2.00	<50.0	<50.0	<0.0200	<0.0200	<0.0200	<0.0200	<0.0200	<200
CS-13	Side Wall	9/6/2011	-		X		<2.00	<50.0	<50.0	<0.0200	<0.0200	<0.0200	<0.0200	<0.0200	<200
CS-14	Side Wall	9/6/2011	-		X		<2.00	<50.0	<50.0	<0.0200	<0.0200	<0.0200	<0.0200	<0.0200	<200

(--) Not Analyzed
BEB Below Excavation Bottom

PHOTOGRAPHS

COG - Brigham H #3 Well Site
Eddy County, NM



1. View of Soil Excavation



2. View of Soil Excavation

COG - Brigham H #3 Well Site

Eddy County, NM



3. View of Backfilled Excavation



4. View of Backfilled Excavation

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	COG OPERATING LLC	Contact	Pat Ellis
Address	550 W. Texas, Suite 100, Midland, TX 79701	Telephone No.	432-230-0077
Facility Name	Brigham H #3	Facility Type	Well
Surface Owner	Federal	Mineral Owner	
		Lease No. (API#) 30-015-30677	

LOCATION OF RELEASE

Unit Letter	Section	Township	Range	Feet from the	North/South Line	Feet from the	East/West Line	County
L	21	17S	30E					Eddy

Latitude 32 49.208 Longitude 103 58.965

NATURE OF RELEASE

Type of Release	Produced fluid	Volume of Release	20bbls	Volume Recovered	18bbls
Source of Release	Flowline	Date and Hour of Occurrence	02/01/2011	Date and Hour of Discovery	02/01/2011 4:00 p.m.
Was Immediate Notice Given?	☐ Yes ☒ No ☒ Not Required	If YES, To Whom?			
By Whom?		Date and Hour			
Was a Watercourse Reached?	☐ Yes ☒ No	If YES, Volume Impacting the Watercourse.			

If a Watercourse was Impacted, Describe Fully.*

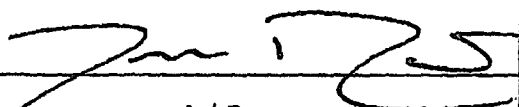
Describe Cause of Problem and Remedial Action Taken.*

Hot oiler was pumping down a flowline that had a small hole in it. The hot oiler truck immediately stopped and the flowline was patched. Since then the patched joint of flowline has been replaced with a new joint.

Describe Area Affected and Cleanup Action Taken.*

Initially 20bbls of produced fluid was released from the flowline and we were able to recover 18bbls with a vacuum truck. The fluid traveled 10' x 50' to a low area in pasture measuring 20' x 20'. All standing fluid was recovered with the vacuum truck. Tetra Tech will sample the spill site area to delineate any possible contamination from the release and we will present a remediation work plan to the NMOCD/BLM prior to any significant remediation work.

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

Signature:				OIL CONSERVATION DIVISION	
Printed Name:	Josh Russo			Approved by District Supervisor:	
Title:	HSE Coordinator			Approval Date:	Expiration Date:
E-mail Address:	jrusso@conchoresources.com			Conditions of Approval:	Attached ☐
Date:	02/11/2011			Phone:	432-212-2399

* Attach Additional Sheets If Necessary

District I
1625 N. French Dr., Hobbs, NM 88240
District II
1301 W. Grand Avenue, Artesia, NM 88210
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1000 Rio Brazos Road, Aztec, NM 87410
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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

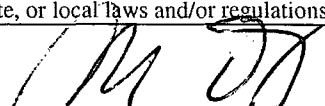
Name of Company COG Operating LLC	Contact Pat Ellis	
Address 550 W. Texas, Suite 1300 Midland, Texas 79701	Telephone No. (432) 230-0077	
Facility Name Brigham H #3	Facility Type Well	
Surface Owner Federal	Mineral Owner	Lease No. 30-015-30677

LOCATION OF RELEASE

Unit Letter L	Section 21	Township 17-S	Range 30-E	Feet from the	North/South Line	Feet from the	East/West Line	County Eddy
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Latitude N 32 49.208° Longitude W 103 58.965°

NATURE OF RELEASE

Type of Release: Produced fluid	Volume of Release 20 bbls	Volume Recovered 18 bbls
Source of Release Flowline	Date and Hour of Occurrence 2/01/2011	Date and Hour of Discovery 02/01/2011 4:00 p.m.
Was Immediate Notice Given? ☐ Yes ☒ No ☒ Not Required	If YES, To Whom?	
By Whom? Josh Russo	Date and Hour	
Was a Watercourse Reached? ☐ Yes ☒ No	If YES, Volume Impacting the Watercourse. N/A	
If a Watercourse was Impacted, Describe Fully.* N/A		
Describe Cause of Problem and Remedial Action Taken.* Hot oiler was pumping down a flowline that had a small hole in it. The hot oiler immediately stopped and the flowline was patched. Since then the patched joint of flowline has been replaced with a new joint.		
Describe Area Affected and Cleanup Action Taken.* Tetra Tech inspected site and collected samples to define spills extent. Soil that exceeded the RRAL for BTEX and TPH as well as soil with elevated chloride concentrations was removed and hauled away to Controlled Recovery, Inc., Hobbs, NM. Site was then brought up to surface grade with clean backfill material. Tetra Tech prepared closure report and submitted to NMOCD for review.		
I hereby certify that the information given above is true and complete to the best of my knowledge and understand that pursuant to NMOCD rules and regulations all operators are required to report and/or file certain release notifications and perform corrective actions for releases which may endanger public health or the environment. The acceptance of a C-141 report by the NMOCD marked as "Final Report" does not relieve the operator of liability should their operations have failed to adequately investigate and remediate contamination that pose a threat to ground water, surface water, human health or the environment. In addition, NMOCD acceptance of a C-141 report does not relieve the operator of responsibility for compliance with any other federal, state, or local laws and/or regulations.		
Signature: 	OIL CONSERVATION DIVISION	
Printed Name: Ike Tavarez (Agent for COG)	Approved by District Supervisor:	
Title: Project Manager	Approval Date:	Expiration Date:
E-mail Address: ike.tavarez@tetrattech.com	Conditions of Approval:	Attached ☐
Date: 12-15-11 Phone: (432) 682-4559		

* Attach Additional Sheets If Necessary

APPENDIX B

Water Well Data
Average Depth to Groundwater (ft)
COG - Brigham H #3
Eddy County, New Mexico

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

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

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

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

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

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

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

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

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

-  New Mexico State Engineers Well Reports
-  USGS Well Reports
-  Geology and Groundwater Conditions in Southern Eddy, County, NM
-  NMOCD - Groundwater Data
-  Site Location - Brigham H #3

APPENDIX C

Summary Report

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

Report Date: 11, 3

Work Order: 11030724

Project Location: Eddy County, NM
Project Name: Brigham H #3
Project Number: 114-6400826

Sample	Description	Matrix	Date Taken	Time Taken	Date Received
259750	AH-1 0-1'	soil	2011-03-03	00:00	2011-03-04
259751	AH-1 1-1.5'	soil	2011-03-03	00:00	2011-03-04
259752	AH-1 2-2.5'	soil	2011-03-03	00:00	2011-03-04
259753	AH-1 3-3.5'	soil	2011-03-03	00:00	2011-03-04
259754	AH-2 0-1'	soil	2011-03-03	00:00	2011-03-04
259755	AH-2 1-1.5'	soil	2011-03-03	00:00	2011-03-04
259756	AH-2 2-2.5'	soil	2011-03-03	00:00	2011-03-04
259757	AH-2 3-3.5'	soil	2011-03-03	00:00	2011-03-04
259758	AH-3 0-1'	soil	2011-03-03	00:00	2011-03-04
259759	AH-3 1-1.5'	soil	2011-03-03	00:00	2011-03-04
259760	AH-3 2-2.5'	soil	2011-03-03	00:00	2011-03-04
259761	AH-3 3-3.5'	soil	2011-03-03	00:00	2011-03-04
259762	AH-4 0-1'	soil	2011-03-03	00:00	2011-03-04
259763	AH-4 1-1.5'	soil	2011-03-03	00:00	2011-03-04
259764	AH-4 2-2.5'	soil	2011-03-03	00:00	2011-03-04
259765	AH-4 3-3.5'	soil	2011-03-03	00:00	2011-03-04

Sample - Field Code	BTEX				TPH DRO - NEW	TPH GRO
	Benzene (mg/Kg)	Toluene (mg/Kg)	Ethylbenzene (mg/Kg)	Xylene (mg/Kg)	DRO (mg/Kg)	GRO (mg/Kg)
259750 - AH-1 0-1'	5.23	24.9	30.5	55.2	24200	1870
259751 - AH-1 1-1.5'	5.85	58.5	78.2	135	22900	3890
259752 - AH-1 2-2.5'	10.8	84.5	76.6	124	18800	4110
259753 - AH-1 3-3.5'	39.9	348	220	351	21900	10400
259754 - AH-2 0-1'	4.07	12.4	19.9	40.2	20500	1590
259755 - AH-2 1-1.5'	4.49	33.8	58.3	97.3	29700	4600
259756 - AH-2 2-2.5'	<0.0200	<0.0200	<0.0200	<0.0200	185	10.2
259757 - AH-2 3-3.5'	<0.0200	<0.0200	<0.0200	<0.0200	<50.0	<2.00
259758 - AH-3 0-1'	22.1	132	96.3	159	16500	5220

continued ...

... continued

Sample - Field Code	BTEX				TPH DRO - NEW	TPH GRO
	Benzene (mg/Kg)	Toluene (mg/Kg)	Ethylbenzene (mg/Kg)	Xylene (mg/Kg)	DRO (mg/Kg)	GRO (mg/Kg)
259759 - AH-3 1-1.5'	4.73	81.8	60.5	105	16200	3840
259760 - AH-3 2-2.5'	6.06	61.7	58.9	102	12200	3430
259761 - AH-3 3-3.5'	66.2	511	257	424	59100	11500
259762 - AH-4 0-1'	32.2	163	106	157	18700	5350
259763 - AH-4 1-1.5'	17.8	130	83.9	133	15800	5880
259764 - AH-4 2-2.5'	24.0	155	107	172	14800	5870
259765 - AH-4 3-3.5'	22.1	140	82.6	130	11000	4600

Sample: 259750 - AH-1 0-1'

Param	Flag	Result	Units	RL
Chloride		756	mg/Kg	4.00

Sample: 259751 - AH-1 1-1.5'

Param	Flag	Result	Units	RL
Chloride		1080	mg/Kg	4.00

Sample: 259752 - AH-1 2-2.5'

Param	Flag	Result	Units	RL
Chloride		5110	mg/Kg	4.00

Sample: 259753 - AH-1 3-3.5'

Param	Flag	Result	Units	RL
Chloride		12800	mg/Kg	4.00

Sample: 259754 - AH-2 0-1'

Param	Flag	Result	Units	RL
Chloride		578	mg/Kg	4.00

Sample: 259755 - AH-2 1-1.5'

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

Sample: 259756 - AH-2 2-2.5'

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

Sample: 259757 - AH-2 3-3.5'

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

Sample: 259758 - AH-3 0-1'

Param	Flag	Result	Units	RL
Chloride		1590	mg/Kg	4.00

Sample: 259759 - AH-3 1-1.5'

Param	Flag	Result	Units	RL
Chloride		4760	mg/Kg	4.00

Sample: 259760 - AH-3 2-2.5'

Param	Flag	Result	Units	RL
Chloride		5040	mg/Kg	4.00

Sample: 259761 - AH-3 3-3.5'

Param	Flag	Result	Units	RL
Chloride		8820	mg/Kg	4.00

Sample: 259762 - AH-4 0-1'

Param	Flag	Result	Units	RL
Chloride		2610	mg/Kg	4.00

Sample: 259763 - AH-4 1-1.5'

Param	Flag	Result	Units	RL
Chloride		5250	mg/Kg	4.00

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Sample: 259764 - AH-4 2-2.5'

Param	Flag	Result	Units	RL
Chloride		7530	mg/Kg	4.00

Sample: 259765 - AH-4 3-3.5'

Param	Flag	Result	Units	RL
Chloride		10300	mg/Kg	4.00



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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

DBE: VN 20657

NCTRCA WFWB38444Y0909

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

Victoria Inman
Tetra Tech
1910 N. Big Spring Street
Midland, TX, 79705

Report Date: 11, 3

Work Order: 11030724



Project Location: Eddy County, NM
Project Name: Brigham H #3
Project Number: 114-6400826

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
259750	AH-1 0-1'	soil	2011-03-03	00:00	2011-03-04
259751	AH-1 1-1.5'	soil	2011-03-03	00:00	2011-03-04
259752	AH-1 2-2.5'	soil	2011-03-03	00:00	2011-03-04
259753	AH-1 3-3.5'	soil	2011-03-03	00:00	2011-03-04
259754	AH-2 0-1'	soil	2011-03-03	00:00	2011-03-04
259755	AH-2 1-1.5'	soil	2011-03-03	00:00	2011-03-04
259756	AH-2 2-2.5'	soil	2011-03-03	00:00	2011-03-04
259757	AH-2 3-3.5'	soil	2011-03-03	00:00	2011-03-04
259758	AH-3 0-1'	soil	2011-03-03	00:00	2011-03-04
259759	AH-3 1-1.5'	soil	2011-03-03	00:00	2011-03-04

Sample	Description	Matrix	Date Taken	Time Taken	Date Received
259760	AH-3 2-2.5'	soil	2011-03-03	00:00	2011-03-04
259761	AH-3 3-3.5'	soil	2011-03-03	00:00	2011-03-04
259762	AH-4 0-1'	soil	2011-03-03	00:00	2011-03-04
259763	AH-4 1-1.5'	soil	2011-03-03	00:00	2011-03-04
259764	AH-4 2-2.5'	soil	2011-03-03	00:00	2011-03-04
259765	AH-4 3-3.5'	soil	2011-03-03	00:00	2011-03-04

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

This report consists of a total of 44 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 Brigham H #3 were received by TraceAnalysis, Inc. on 2011-03-04 and assigned to work order 11030724. Samples for work order 11030724 were received intact at a temperature of 4.0 C.

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

Test	Method	Prep Batch	Prep Date	QC Batch	Analysis Date
BTEX	S 8021B	67108	2011-03-09 at 13:56	79090	2011-03-09 at 23:39
BTEX	S 8021B	67358	2011-03-15 at 10:58	79388	2011-03-15 at 10:38
Chloride (Titration)	SM 4500-Cl B	67261	2011-03-09 at 09:27	79403	2011-03-09 at 09:34
Chloride (Titration)	SM 4500-Cl B	67261	2011-03-09 at 09:27	79404	2011-03-09 at 09:35
Chloride (Titration)	SM 4500-Cl B	67261	2011-03-09 at 09:27	79405	2011-03-09 at 09:35
TPH DRO - NEW	S 8015 D	67239	2011-03-08 at 09:57	79253	2011-03-08 at 09:57
TPH DRO - NEW	S 8015 D	67363	2011-03-15 at 10:57	79402	2011-03-15 at 10:57
TPH DRO - NEW	S 8015 D	67516	2011-03-18 at 11:05	79567	2011-03-18 at 11:05
TPH GRO	S 8015 D	67108	2011-03-09 at 13:56	79091	2011-03-09 at 23:39
TPH GRO	S 8015 D	67358	2011-03-15 at 10:58	79389	2011-03-15 at 10:58

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 11030724 since the sample was chosen at random. Therefore, the validity of the analytical data reported has been determined by the laboratory control sample (LCS) and the method blank (MB). These quality control measures are performed with each preparation batch to ensure data integrity.

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

Report Date: 11, 3
114-6400826

Work Order: 11030724
Brigham H #3

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Eddy County, NM

Analytical Report

Sample: 259750 - AH-1 0-1'

Laboratory: Midland

Analysis: BTEX

QC Batch: 79090

Prep Batch: 67108

Analytical Method: S 8021B

Date Analyzed: 2011-03-09

Sample Preparation: 2011-03-09

Prep Method: S 5035

Analyzed By: ME

Prepared By: ME

Parameter	Flag	RL Result	Units	Dilution	RL
Benzene		5.23	mg/Kg	50	0.0200
Toluene		24.9	mg/Kg	50	0.0200
Ethylbenzene		30.5	mg/Kg	50	0.0200
Xylene		55.2	mg/Kg	50	0.0200

Surrogate	Flag	Result	Units	Dilution	Spike Amount	Percent Recovery	Recovery Limits
Trifluorotoluene (TFT)		57.4	mg/Kg	50	50.0	115	52.8 - 137
4-Bromofluorobenzene (4-BFB)		61.9	mg/Kg	50	50.0	124	38.4 - 157

Sample: 259750 - AH-1 0-1'

Laboratory: Midland

Analysis: Chloride (Titration)

QC Batch: 79403

Prep Batch: 67261

Analytical Method: SM 4500-Cl B

Date Analyzed: 2011-03-09

Sample Preparation: 2011-03-09

Prep Method: N/A

Analyzed By: AR

Prepared By: AR

Parameter	Flag	RL Result	Units	Dilution	RL
Chloride		756	mg/Kg	50	4.00

Sample: 259750 - AH-1 0-1'

Laboratory: Midland

Analysis: TPH DRO - NEW

QC Batch: 79253

Prep Batch: 67239

Analytical Method: S 8015 D

Date Analyzed: 2011-03-08

Sample Preparation: 2011-03-08

Prep Method: N/A

Analyzed By: kg

Prepared By: kg

Parameter	Flag	RL Result	Units	Dilution	RL
DRO		24200	mg/Kg	10	50.0

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Surrogate	Flag	Result	Units	Dilution	Spike Amount	Percent Recovery	Recovery Limits
n-Tricosane	1	1880	mg/Kg	10	100	1880	70 - 130

Sample: 259750 - AH-1 0-1'

Laboratory: Midland
Analysis: TPH GRO
QC Batch: 79091
Prep Batch: 67108

Analytical Method: S 8015 D
Date Analyzed: 2011-03-09
Sample Preparation: 2011-03-09

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

Parameter	Flag	RL Result	Units	Dilution	RL
GRO		1870	mg/Kg	50	2.00

Surrogate	Flag	Result	Units	Dilution	Spike Amount	Percent Recovery	Recovery Limits
Trifluorotoluene (TFT)		57.0	mg/Kg	50	50.0	114	48.5 - 152
4-Bromofluorobenzene (4-BFB)		63.0	mg/Kg	50	50.0	126	42 - 159

Sample: 259751 - AH-1 1-1.5'

Laboratory: Midland
Analysis: BTEX
QC Batch: 79388
Prep Batch: 67358

Analytical Method: S 8021B
Date Analyzed: 2011-03-15
Sample Preparation: 2011-03-15

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

Parameter	Flag	RL Result	Units	Dilution	RL
Benzene		5.85	mg/Kg	50	0.0200
Toluene		58.5	mg/Kg	50	0.0200
Ethylbenzene		78.2	mg/Kg	50	0.0200
Xylene		135	mg/Kg	50	0.0200

Surrogate	Flag	Result	Units	Dilution	Spike Amount	Percent Recovery	Recovery Limits
Trifluorotoluene (TFT)		57.3	mg/Kg	50	50.0	115	52.8 - 137
4-Bromofluorobenzene (4-BFB)	2	79.6	mg/Kg	50	50.0	159	38.4 - 157

Sample: 259751 - AH-1 1-1.5'

Laboratory: Midland
Analysis: Chloride (Titration)
QC Batch: 79403
Prep Batch: 67261

Analytical Method: SM 4500-Cl B
Date Analyzed: 2011-03-09
Sample Preparation: 2011-03-09

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

¹High surrogate recovery due to peak interference.

²High surrogate recovery due to peak interference.

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Parameter	Flag	RL Result	Units	Dilution	RL
Chloride		1080	mg/Kg	50	4.00

Sample: 259751 - AH-1 1-1.5'

Laboratory: Midland
Analysis: TPH DRO - NEW Analytical Method: S 8015 D Prep Method: N/A
QC Batch: 79402 Date Analyzed: 2011-03-15 Analyzed By: kg
Prep Batch: 67363 Sample Preparation: 2011-03-15 Prepared By: kg

Parameter	Flag	RL Result	Units	Dilution	RL
DRO		22900	mg/Kg	10	50.0

Surrogate	Flag	Result	Units	Dilution	Spike Amount	Percent Recovery	Recovery Limits
n-Tricosane	3	1580	mg/Kg	10	100	1580	70 - 130

Sample: 259751 - AH-1 1-1.5'

Laboratory: Midland
Analysis: TPH GRO Analytical Method: S 8015 D Prep Method: S 5035
QC Batch: 79389 Date Analyzed: 2011-03-15 Analyzed By: ME
Prep Batch: 67358 Sample Preparation: 2011-03-15 Prepared By: ME

Parameter	Flag	RL Result	Units	Dilution	RL
GRO		3890	mg/Kg	50	2.00

Surrogate	Flag	Result	Units	Dilution	Spike Amount	Percent Recovery	Recovery Limits
Trifluorotoluene (TFT)		59.7	mg/Kg	50	50.0	119	48.5 - 152
4-Bromofluorobenzene (4-BFB)		73.8	mg/Kg	50	50.0	148	42 - 159

Sample: 259752 - AH-1 2-2.5'

Laboratory: Midland
Analysis: BTEX Analytical Method: S 8021B Prep Method: S 5035
QC Batch: 79388 Date Analyzed: 2011-03-15 Analyzed By: ME
Prep Batch: 67358 Sample Preparation: 2011-03-15 Prepared By: ME

³High surrogate recovery due to peak interference.

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Parameter	Flag	RL Result	Units	Dilution	RL
Benzene		10.8	mg/Kg	50	0.0200
Toluene		84.5	mg/Kg	50	0.0200
Ethylbenzene		76.6	mg/Kg	50	0.0200
Xylene		124	mg/Kg	50	0.0200

Surrogate	Flag	Result	Units	Dilution	Spike Amount	Percent Recovery	Recovery Limits
Trifluorotoluene (TFT)		54.8	mg/Kg	50	50.0	110	52.8 - 137
4-Bromofluorobenzene (4-BFB)		78.4	mg/Kg	50	50.0	157	38.4 - 157

Sample: 259752 - AH-1 2-2.5'

Laboratory: Midland
Analysis: Chloride (Titration) Analytical Method: SM 4500-Cl B Prep Method: N/A
QC Batch: 79404 Date Analyzed: 2011-03-09 Analyzed By: AR
Prep Batch: 67261 Sample Preparation: 2011-03-09 Prepared By: AR

Parameter	Flag	RL Result	Units	Dilution	RL
Chloride		5110	mg/Kg	100	4.00

Sample: 259752 - AH-1 2-2.5'

Laboratory: Midland
Analysis: TPH DRO - NEW Analytical Method: S 8015 D Prep Method: N/A
QC Batch: 79402 Date Analyzed: 2011-03-15 Analyzed By: kg
Prep Batch: 67363 Sample Preparation: 2011-03-15 Prepared By: kg

Parameter	Flag	RL Result	Units	Dilution	RL
DRO		18800	mg/Kg	5	50.0

Surrogate	Flag	Result	Units	Dilution	Spike Amount	Percent Recovery	Recovery Limits
n-Tricosane	⁴	761	mg/Kg	5	100	761	70 - 130

Sample: 259752 - AH-1 2-2.5'

Laboratory: Midland
Analysis: TPH GRO Analytical Method: S 8015 D Prep Method: S 5035
QC Batch: 79389 Date Analyzed: 2011-03-15 Analyzed By: ME
Prep Batch: 67358 Sample Preparation: 2011-03-15 Prepared By: ME

⁴High surrogate recovery due to peak interference.

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Parameter	Flag	RL Result	Units	Dilution	RL
GRO		4110	mg/Kg	50	2.00

Surrogate	Flag	Result	Units	Dilution	Spike Amount	Percent Recovery	Recovery Limits
Trifluorotoluene (TFT)		57.9	mg/Kg	50	50.0	116	48.5 - 152
4-Bromofluorobenzene (4-BFB)		78.4	mg/Kg	50	50.0	157	42 - 159

Sample: 259753 - AH-1 3-3.5'

Laboratory: Midland

Analysis: BTEX

QC Batch: 79388

Prep Batch: 67358

Analytical Method: S 8021B

Date Analyzed: 2011-03-15

Sample Preparation: 2011-03-15

Prep Method: S 5035

Analyzed By: ME

Prepared By: ME

Parameter	Flag	RL Result	Units	Dilution	RL
Benzene		39.9	mg/Kg	20	0.0200
Toluene	5	348	mg/Kg	20	0.0200
Ethylbenzene	6	220	mg/Kg	20	0.0200
Xylene	7	351	mg/Kg	20	0.0200

Surrogate	Flag	Result	Units	Dilution	Spike Amount	Percent Recovery	Recovery Limits
Trifluorotoluene (TFT)		23.2	mg/Kg	20	20.0	116	52.8 - 137
4-Bromofluorobenzene (4-BFB)	8	78.8	mg/Kg	20	20.0	394	38.4 - 157

Sample: 259753 - AH-1 3-3.5'

Laboratory: Midland

Analysis: Chloride (Titration)

QC Batch: 79404

Prep Batch: 67261

Analytical Method: SM 4500-Cl B

Date Analyzed: 2011-03-09

Sample Preparation: 2011-03-09

Prep Method: N/A

Analyzed By: AR

Prepared By: AR

Parameter	Flag	RL Result	Units	Dilution	RL
Chloride		12800	mg/Kg	100	4.00

Sample: 259753 - AH-1 3-3.5'

Laboratory: Midland

Analysis: TPH DRO - NEW

QC Batch: 79567

Prep Batch: 67516

Analytical Method: S 8015 D

Date Analyzed: 2011-03-18

Sample Preparation: 2011-03-18

Prep Method: N/A

Analyzed By: kg

Prepared By: kg

⁵Estimated concentration value greater than standard range.

⁶Estimated concentration value greater than standard range.

⁷Estimated concentration value greater than standard range.

⁸High surrogate recovery due to peak interference.

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Parameter	Flag	RL Result	Units	Dilution	RL
DRO		21900	mg/Kg	10	50.0

Surrogate	Flag	Result	Units	Dilution	Spike Amount	Percent Recovery	Recovery Limits
n-Tricosane	⁹	1500	mg/Kg	10	100	1500	70 - 130

Sample: 259753 - AH-1 3-3.5'

Laboratory: Midland
Analysis: TPH GRO
QC Batch: 79389
Prep Batch: 67358

Analytical Method: S 8015 D
Date Analyzed: 2011-03-15
Sample Preparation: 2011-03-15

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

Parameter	Flag	RL Result	Units	Dilution	RL
GRO		10400	mg/Kg	20	2.00

Surrogate	Flag	Result	Units	Dilution	Spike Amount	Percent Recovery	Recovery Limits
Trifluorotoluene (TFT)		24.1	mg/Kg	20	20.0	120	48.5 - 152
4-Bromofluorobenzene (4-BFB)	¹⁰	244	mg/Kg	20	20.0	1220	42 - 159

Sample: 259754 - AH-2 0-1'

Laboratory: Midland
Analysis: BTEX
QC Batch: 79090
Prep Batch: 67108

Analytical Method: S 8021B
Date Analyzed: 2011-03-09
Sample Preparation: 2011-03-09

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

Parameter	Flag	RL Result	Units	Dilution	RL
Benzene		4.07	mg/Kg	50	0.0200
Toluene		12.4	mg/Kg	50	0.0200
Ethylbenzene		19.9	mg/Kg	50	0.0200
Xylene		40.2	mg/Kg	50	0.0200

Surrogate	Flag	Result	Units	Dilution	Spike Amount	Percent Recovery	Recovery Limits
Trifluorotoluene (TFT)		58.0	mg/Kg	50	50.0	116	52.8 - 137
4-Bromofluorobenzene (4-BFB)		61.8	mg/Kg	50	50.0	124	38.4 - 157

⁹High surrogate recovery due to peak interference.

¹⁰High surrogate recovery due to peak interference.

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Sample: 259754 - AH-2 0-1'

Laboratory:	Midland	Analytical Method:	SM 4500-Cl B	Prep Method:	N/A
Analysis:	Chloride (Titration)	Date Analyzed:	2011-03-09	Analyzed By:	AR
QC Batch:	79404	Sample Preparation:	2011-03-09	Prepared By:	AR
Prep Batch:	67261				

Parameter	Flag	RL Result	Units	Dilution	RL
Chloride		578	mg/Kg	50	4.00

Sample: 259754 - AH-2 0-1'

Laboratory:	Midland	Analytical Method:	S 8015 D	Prep Method:	N/A
Analysis:	TPH DRO - NEW	Date Analyzed:	2011-03-08	Analyzed By:	kg
QC Batch:	79253	Sample Preparation:	2011-03-08	Prepared By:	kg
Prep Batch:	67239				

Parameter	Flag	RL Result	Units	Dilution	RL
DRO		20500	mg/Kg	10	50.0

Surrogate	Flag	Result	Units	Dilution	Spike Amount	Percent Recovery	Recovery Limits
n-Tricosane	¹¹	1850	mg/Kg	10	100	1850	70 - 130

Sample: 259754 - AH-2 0-1'

Laboratory:	Midland	Analytical Method:	S 8015 D	Prep Method:	S 5035
Analysis:	TPH GRO	Date Analyzed:	2011-03-09	Analyzed By:	ME
QC Batch:	79091	Sample Preparation:	2011-03-09	Prepared By:	ME
Prep Batch:	67108				

Parameter	Flag	RL Result	Units	Dilution	RL
GRO		1590	mg/Kg	50	2.00

Surrogate	Flag	Result	Units	Dilution	Spike Amount	Percent Recovery	Recovery Limits
Trifluorotoluene (TFT)		57.7	mg/Kg	50	50.0	115	48.5 - 152
4-Bromofluorobenzene (4-BFB)		65.2	mg/Kg	50	50.0	130	42 - 159

¹¹High surrogate recovery due to peak interference.

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Sample: 259755 - AH-2 1-1.5'

Laboratory: Midland

Analysis: BTEX

QC Batch: 79388

Prep Batch: 67358

Analytical Method: S 8021B

Date Analyzed: 2011-03-15

Sample Preparation: 2011-03-15

Prep Method: S 5035

Analyzed By: ME

Prepared By: ME

Parameter	Flag	RL Result	Units	Dilution	RL
Benzene		4.49	mg/Kg	50	0.0200
Toluene		33.8	mg/Kg	50	0.0200
Ethylbenzene		58.3	mg/Kg	50	0.0200
Xylene		97.3	mg/Kg	50	0.0200

Surrogate	Flag	Result	Units	Dilution	Spike Amount	Percent Recovery	Recovery Limits
Trifluorotoluene (TFT)		52.3	mg/Kg	50	50.0	105	52.8 - 137
4-Bromofluorobenzene (4-BFB)		77.1	mg/Kg	50	50.0	154	38.4 - 157

Sample: 259755 - AH-2 1-1.5'

Laboratory: Midland

Analysis: Chloride (Titration)

QC Batch: 79404

Prep Batch: 67261

Analytical Method: SM 4500-Cl B

Date Analyzed: 2011-03-09

Sample Preparation: 2011-03-09

Prep Method: N/A

Analyzed By: AR

Prepared By: AR

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

Sample: 259755 - AH-2 1-1.5'

Laboratory: Midland

Analysis: TPH DRO - NEW

QC Batch: 79402

Prep Batch: 67363

Analytical Method: S 8015 D

Date Analyzed: 2011-03-15

Sample Preparation: 2011-03-15

Prep Method: N/A

Analyzed By: kg

Prepared By: kg

Parameter	Flag	RL Result	Units	Dilution	RL
DRO		29700	mg/Kg	10	50.0

Surrogate	Flag	Result	Units	Dilution	Spike Amount	Percent Recovery	Recovery Limits
n-Tricosane	¹²	1510	mg/Kg	10	100	1510	70 - 130

¹²High surrogate recovery due to peak interference.

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Sample: 259755 - AH-2 1-1.5'

Laboratory: Midland
Analysis: TPH GRO
QC Batch: 79389
Prep Batch: 67358

Analytical Method: S 8015 D
Date Analyzed: 2011-03-15
Sample Preparation: 2011-03-15

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

Parameter	Flag	RL Result	Units	Dilution	RL
GRO		4600	mg/Kg	50	2.00

Surrogate	Flag	Result	Units	Dilution	Spike Amount	Percent Recovery	Recovery Limits
Trifluorotoluene (TFT)		54.5	mg/Kg	50	50.0	109	48.5 - 152
4-Bromofluorobenzene (4-BFB)	¹³	80.4	mg/Kg	50	50.0	161	42 - 159

Sample: 259756 - AH-2 2-2.5'

Laboratory: Midland
Analysis: BTEX
QC Batch: 79388
Prep Batch: 67358

Analytical Method: S 8021B
Date Analyzed: 2011-03-15
Sample Preparation: 2011-03-15

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

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

Surrogate	Flag	Result	Units	Dilution	Spike Amount	Percent Recovery	Recovery Limits
Trifluorotoluene (TFT)		2.24	mg/Kg	1	2.00	112	52.8 - 137
4-Bromofluorobenzene (4-BFB)		2.27	mg/Kg	1	2.00	114	38.4 - 157

Sample: 259756 - AH-2 2-2.5'

Laboratory: Midland
Analysis: Chloride (Titration)
QC Batch: 79404
Prep Batch: 67261

Analytical Method: SM 4500-Cl B
Date Analyzed: 2011-03-09
Sample Preparation: 2011-03-09

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

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

¹³High surrogate recovery due to peak interference.

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Sample: 259756 - AH-2 2-2.5'

Laboratory:	Midland		
Analysis:	TPH DRO - NEW	Analytical Method:	S 8015 D
QC Batch:	79402	Date Analyzed:	2011-03-15
Prep Batch:	67363	Sample Preparation:	2011-03-15
		Prep Method:	N/A
		Analyzed By:	kg
		Prepared By:	kg

Parameter	Flag	RL Result	Units	Dilution	RL
DRO		185	mg/Kg	1	50.0

Surrogate	Flag	Result	Units	Dilution	Spike Amount	Percent Recovery	Recovery Limits
n-Tricosane	¹⁴	231	mg/Kg	1	100	231	70 - 130

Sample: 259756 - AH-2 2-2.5'

Laboratory:	Midland		
Analysis:	TPH GRO	Analytical Method:	S 8015 D
QC Batch:	79389	Date Analyzed:	2011-03-15
Prep Batch:	67358	Sample Preparation:	2011-03-15
		Prep Method:	S 5035
		Analyzed By:	ME
		Prepared By:	ME

Parameter	Flag	RL Result	Units	Dilution	RL
GRO		10.2	mg/Kg	1	2.00

Surrogate	Flag	Result	Units	Dilution	Spike Amount	Percent Recovery	Recovery Limits
Trifluorotoluene (TFT)		2.35	mg/Kg	1	2.00	118	48.5 - 152
4-Bromofluorobenzene (4-BFB)		2.16	mg/Kg	1	2.00	108	42 - 159

Sample: 259757 - AH-2 3-3.5'

Laboratory:	Midland		
Analysis:	BTEX	Analytical Method:	S 8021B
QC Batch:	79388	Date Analyzed:	2011-03-15
Prep Batch:	67358	Sample Preparation:	2011-03-15
		Prep Method:	S 5035
		Analyzed By:	ME
		Prepared By:	ME

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

¹⁴High surrogate recovery due to peak interference.

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Surrogate	Flag	Result	Units	Dilution	Spike Amount	Percent Recovery	Recovery Limits
Trifluorotoluene (TFT)		2.19	mg/Kg	1	2.00	110	52.8 - 137
4-Bromofluorobenzene (4-BFB)		2.29	mg/Kg	1	2.00	114	38.4 - 157

Sample: 259757 - AH-2 3-3.5'

Laboratory: Midland
Analysis: Chloride (Titration) Analytical Method: SM 4500-Cl B Prep Method: N/A
QC Batch: 79404 Date Analyzed: 2011-03-09 Analyzed By: AR
Prep Batch: 67261 Sample Preparation: 2011-03-09 Prepared By: AR

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

Sample: 259757 - AH-2 3-3.5'

Laboratory: Midland
Analysis: TPH DRO - NEW Analytical Method: S 8015 D Prep Method: N/A
QC Batch: 79402 Date Analyzed: 2011-03-15 Analyzed By: kg
Prep Batch: 67363 Sample Preparation: 2011-03-15 Prepared By: kg

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-Tricosane		102	mg/Kg	1	100	102	70 - 130

Sample: 259757 - AH-2 3-3.5'

Laboratory: Midland
Analysis: TPH GRO Analytical Method: S 8015 D Prep Method: S 5035
QC Batch: 79389 Date Analyzed: 2011-03-15 Analyzed By: ME
Prep Batch: 67358 Sample Preparation: 2011-03-15 Prepared By: ME

Parameter	Flag	RL Result	Units	Dilution	RL
GRO		<2.00	mg/Kg	1	2.00

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Surrogate	Flag	Result	Units	Dilution	Spike Amount	Percent Recovery	Recovery Limits
Trifluorotoluene (TFT)		2.30	mg/Kg	1	2.00	115	48.5 - 152
4-Bromofluorobenzene (4-BFB)		2.16	mg/Kg	1	2.00	108	42 - 159

Sample: 259758 - AH-3 0-1'

Laboratory: Midland

Analysis: BTEX

QC Batch: 79090

Prep Batch: 67108

Analytical Method: S 8021B

Date Analyzed: 2011-03-09

Sample Preparation: 2011-03-09

Prep Method: S 5035

Analyzed By: ME

Prepared By: ME

Parameter	Flag	RL Result	Units	Dilution	RL
Benzene		22.1	mg/Kg	20	0.0200
Toluene	15	132	mg/Kg	20	0.0200
Ethylbenzene	16	96.3	mg/Kg	20	0.0200
Xylene		159	mg/Kg	20	0.0200

Surrogate	Flag	Result	Units	Dilution	Spike Amount	Percent Recovery	Recovery Limits
Trifluorotoluene (TFT)		23.3	mg/Kg	20	20.0	116	52.8 - 137
4-Bromofluorobenzene (4-BFB)	17	50.7	mg/Kg	20	20.0	254	38.4 - 157

Sample: 259758 - AH-3 0-1'

Laboratory: Midland

Analysis: Chloride (Titration)

QC Batch: 79404

Prep Batch: 67261

Analytical Method: SM 4500-Cl B

Date Analyzed: 2011-03-09

Sample Preparation: 2011-03-09

Prep Method: N/A

Analyzed By: AR

Prepared By: AR

Parameter	Flag	RL Result	Units	Dilution	RL
Chloride		1590	mg/Kg	100	4.00

Sample: 259758 - AH-3 0-1'

Laboratory: Midland

Analysis: TPH DRO - NEW

QC Batch: 79253

Prep Batch: 67239

Analytical Method: S 8015 D

Date Analyzed: 2011-03-08

Sample Preparation: 2011-03-08

Prep Method: N/A

Analyzed By: kg

Prepared By: kg

¹⁵Estimated concentration value greater than standard range.

¹⁶Estimated concentration value greater than standard range.

¹⁷High surrogate recovery due to peak interference.

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Parameter	Flag	RL Result	Units	Dilution	RL
DRO		16500	mg/Kg	10	50.0

Surrogate	Flag	Result	Units	Dilution	Spike Amount	Percent Recovery	Recovery Limits
n-Tricosane	¹⁸	1220	mg/Kg	10	100	1220	70 - 130

Sample: 259758 - AH-3 0-1'

Laboratory: Midland
Analysis: TPH GRO
QC Batch: 79091
Prep Batch: 67108

Analytical Method: S 8015 D
Date Analyzed: 2011-03-09
Sample Preparation: 2011-03-09

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

Parameter	Flag	RL Result	Units	Dilution	RL
GRO		5220	mg/Kg	20	2.00

Surrogate	Flag	Result	Units	Dilution	Spike Amount	Percent Recovery	Recovery Limits
Trifluorotoluene (TFT)		23.5	mg/Kg	20	20.0	118	48.5 - 152
4-Bromofluorobenzene (4-BFB)	¹⁹	45.9	mg/Kg	20	20.0	230	42 - 159

Sample: 259759 - AH-3 1-1.5'

Laboratory: Midland
Analysis: BTEX
QC Batch: 79388
Prep Batch: 67358

Analytical Method: S 8021B
Date Analyzed: 2011-03-15
Sample Preparation: 2011-03-15

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

Parameter	Flag	RL Result	Units	Dilution	RL
Benzene		4.73	mg/Kg	20	0.0200
Toluene		61.8	mg/Kg	20	0.0200
Ethylbenzene		60.5	mg/Kg	20	0.0200
Xylene		105	mg/Kg	20	0.0200

Surrogate	Flag	Result	Units	Dilution	Spike Amount	Percent Recovery	Recovery Limits
Trifluorotoluene (TFT)		22.0	mg/Kg	20	20.0	110	52.8 - 137
4-Bromofluorobenzene (4-BFB)	²⁰	43.2	mg/Kg	20	20.0	216	38.4 - 157

¹⁸High surrogate recovery due to peak interference.

¹⁹High surrogate recovery due to peak interference.

²⁰High surrogate recovery due to peak interference.

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Sample: 259759 - AH-3 1-1.5'

Laboratory:	Midland	Analytical Method:	SM 4500-Cl B	Prep Method:	N/A
Analysis:	Chloride (Titration)	Date Analyzed:	2011-03-09	Analyzed By:	AR
QC Batch:	79404	Sample Preparation:	2011-03-09	Prepared By:	AR
Prep Batch:	67261				

Parameter	Flag	RL Result	Units	Dilution	RL
Chloride		4760	mg/Kg	100	4.00

Sample: 259759 - AH-3 1-1.5'

Laboratory:	Midland	Analytical Method:	S 8015 D	Prep Method:	N/A
Analysis:	TPH DRO - NEW	Date Analyzed:	2011-03-15	Analyzed By:	kg
QC Batch:	79402	Sample Preparation:	2011-03-15	Prepared By:	kg
Prep Batch:	67363				

Parameter	Flag	RL Result	Units	Dilution	RL
DRO		16200	mg/Kg	5	50.0

Surrogate	Flag	Result	Units	Dilution	Spike Amount	Percent Recovery	Recovery Limits
n-Tricosane	²¹	920	mg/Kg	5	100	920	70 - 130

Sample: 259759 - AH-3 1-1.5'

Laboratory:	Midland	Analytical Method:	S 8015 D	Prep Method:	S 5035
Analysis:	TPH GRO	Date Analyzed:	2011-03-15	Analyzed By:	ME
QC Batch:	79389	Sample Preparation:	2011-03-15	Prepared By:	ME
Prep Batch:	67358				

Parameter	Flag	RL Result	Units	Dilution	RL
GRO		3840	mg/Kg	20	2.00

Surrogate	Flag	Result	Units	Dilution	Spike Amount	Percent Recovery	Recovery Limits
Trifluorotoluene (TFT)		23.0	mg/Kg	20	20.0	115	48.5 - 152
4-Bromofluorobenzene (4-BFB)	²²	49.5	mg/Kg	20	20.0	248	42 - 159

²¹High surrogate recovery due to peak interference.

²²High surrogate recovery due to peak interference.

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Sample: 259760 - AH-3 2-2.5'

Laboratory: Midland

Analysis: BTEX

QC Batch: 79388

Prep Batch: 67358

Analytical Method: S 8021B

Date Analyzed: 2011-03-15

Sample Preparation: 2011-03-15

Prep Method: S 5035

Analyzed By: ME

Prepared By: ME

Parameter	Flag	RL Result	Units	Dilution	RL
Benzene		6.06	mg/Kg	20	0.0200
Toluene		61.7	mg/Kg	20	0.0200
Ethylbenzene		58.9	mg/Kg	20	0.0200
Xylene		102	mg/Kg	20	0.0200

Surrogate	Flag	Result	Units	Dilution	Spike Amount	Percent Recovery	Recovery Limits
Trifluorotoluene (TFT)		23.2	mg/Kg	20	20.0	116	52.8 - 137
4-Bromofluorobenzene (4-BFB)	²³	43.4	mg/Kg	20	20.0	217	38.4 - 157

Sample: 259760 - AH-3 2-2.5'

Laboratory: Midland

Analysis: Chloride (Titration)

QC Batch: 79404

Prep Batch: 67261

Analytical Method: SM 4500-Cl B

Date Analyzed: 2011-03-09

Sample Preparation: 2011-03-09

Prep Method: N/A

Analyzed By: AR

Prepared By: AR

Parameter	Flag	RL Result	Units	Dilution	RL
Chloride		5040	mg/Kg	100	4.00

Sample: 259760 - AH-3 2-2.5'

Laboratory: Midland

Analysis: TPH DRO - NEW

QC Batch: 79402

Prep Batch: 67363

Analytical Method: S 8015 D

Date Analyzed: 2011-03-15

Sample Preparation: 2011-03-15

Prep Method: N/A

Analyzed By: kg

Prepared By: kg

Parameter	Flag	RL Result	Units	Dilution	RL
DRO		12200	mg/Kg	5	50.0

continued ...

²³High surrogate recovery due to peak interference.

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Surrogate	Flag	Result	Units	Dilution	Spike Amount	Percent Recovery	Recovery Limits
Surrogate	Flag	Result	Units	Dilution	Spike Amount	Percent Recovery	Recovery Limits
n-Tricosane	²⁴	715	mg/Kg	5	100	715	70 - 130

Sample: 259760 - AH-3 2-2.5'

Laboratory: Midland
Analysis: TPH GRO
QC Batch: 79389
Prep Batch: 67358

Analytical Method: S 8015 D
Date Analyzed: 2011-03-15
Sample Preparation: 2011-03-15

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

Parameter	Flag	RL Result	Units	Dilution	RL
GRO		3430	mg/Kg	20	2.00

Surrogate	Flag	Result	Units	Dilution	Spike Amount	Percent Recovery	Recovery Limits
Trifluorotoluene (TFT)		24.5	mg/Kg	20	20.0	122	48.5 - 152
4-Bromofluorobenzene (4-BFB)	²⁵	40.9	mg/Kg	20	20.0	204	42 - 159

Sample: 259761 - AH-3 3-3.5'

Laboratory: Midland
Analysis: BTEX
QC Batch: 79388
Prep Batch: 67358

Analytical Method: S 8021B
Date Analyzed: 2011-03-15
Sample Preparation: 2011-03-15

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

Parameter	Flag	RL Result	Units	Dilution	RL
Benzene		66.2	mg/Kg	20	0.0200
Toluene	²⁶	511	mg/Kg	20	0.0200
Ethylbenzene	²⁷	257	mg/Kg	20	0.0200
Xylene	²⁸	424	mg/Kg	20	0.0200

Surrogate	Flag	Result	Units	Dilution	Spike Amount	Percent Recovery	Recovery Limits
Trifluorotoluene (TFT)		23.5	mg/Kg	20	20.0	118	52.8 - 137

continued ...

²⁴High surrogate recovery due to peak interference.

²⁵High surrogate recovery due to peak interference.

²⁶Estimated concentration value greater than standard range.

²⁷Estimated concentration value greater than standard range.

²⁸Estimated concentration value greater than standard range.

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sample continued ...

Surrogate	Flag	Result	Units	Dilution	Spike Amount	Percent Recovery	Recovery Limits
4-Bromofluorobenzene (4-BFB)	²⁹	81.1	mg/Kg	20	20.0	406	38.4 - 157

Sample: 259761 - AH-3 3-3.5'

Laboratory:	Midland	Analytical Method:	SM 4500-Cl B	Prep Method:	N/A
Analysis:	Chloride (Titration)	Date Analyzed:	2011-03-09	Analyzed By:	AR
QC Batch:	79404	Sample Preparation:	2011-03-09	Prepared By:	AR
Prep Batch:	67261				

Parameter	Flag	RL Result	Units	Dilution	RL
Chloride		8820	mg/Kg	100	4.00

Sample: 259761 - AH-3 3-3.5'

Laboratory:	Midland	Analytical Method:	S 8015 D	Prep Method:	N/A
Analysis:	TPH DRO - NEW	Date Analyzed:	2011-03-15	Analyzed By:	kg
QC Batch:	79402	Sample Preparation:	2011-03-15	Prepared By:	kg
Prep Batch:	67363				

Parameter	Flag	RL Result	Units	Dilution	RL
DRO		59100	mg/Kg	10	50.0

Surrogate	Flag	Result	Units	Dilution	Spike Amount	Percent Recovery	Recovery Limits
n-Tricosane	³⁰	2680	mg/Kg	10	100	2680	70 - 130

Sample: 259761 - AH-3 3-3.5'

Laboratory:	Midland	Analytical Method:	S 8015 D	Prep Method:	S 5035
Analysis:	TPH GRO	Date Analyzed:	2011-03-15	Analyzed By:	ME
QC Batch:	79389	Sample Preparation:	2011-03-15	Prepared By:	ME
Prep Batch:	67358				

Parameter	Flag	RL Result	Units	Dilution	RL
GRO		11500	mg/Kg	20	2.00

²⁹High surrogate recovery due to peak interference.

³⁰High surrogate recovery due to peak interference.

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Surrogate	Flag	Result	Units	Dilution	Spike Amount	Percent Recovery	Recovery Limits
Trifluorotoluene (TFT)		24.7	mg/Kg	20	20.0	124	48.5 - 152
4-Bromofluorobenzene (4-BFB)	³¹	113	mg/Kg	20	20.0	565	42 - 159

Sample: 259762 - AH-4 0-1'

Laboratory: Midland

Analysis: BTEX

QC Batch: 79090

Prep Batch: 67108

Analytical Method: S 8021B

Date Analyzed: 2011-03-09

Sample Preparation: 2011-03-09

Prep Method: S 5035

Analyzed By: ME

Prepared By: ME

Parameter	Flag	RL Result	Units	Dilution	RL
Benzene		32.2	mg/Kg	50	0.0200
Toluene		163	mg/Kg	50	0.0200
Ethylbenzene		106	mg/Kg	50	0.0200
Xylene		157	mg/Kg	50	0.0200

Surrogate	Flag	Result	Units	Dilution	Spike Amount	Percent Recovery	Recovery Limits
Trifluorotoluene (TFT)		57.3	mg/Kg	50	50.0	115	52.8 - 137
4-Bromofluorobenzene (4-BFB)	³²	81.2	mg/Kg	50	50.0	162	38.4 - 157

Sample: 259762 - AH-4 0-1'

Laboratory: Midland

Analysis: Chloride (Titration)

QC Batch: 79405

Prep Batch: 67261

Analytical Method: SM 4500-Cl B

Date Analyzed: 2011-03-09

Sample Preparation: 2011-03-09

Prep Method: N/A

Analyzed By: AR

Prepared By: AR

Parameter	Flag	RL Result	Units	Dilution	RL
Chloride		2610	mg/Kg	100	4.00

Sample: 259762 - AH-4 0-1'

Laboratory: Midland

Analysis: TPH DRO - NEW

QC Batch: 79253

Prep Batch: 67239

Analytical Method: S 8015 D

Date Analyzed: 2011-03-08

Sample Preparation: 2011-03-08

Prep Method: N/A

Analyzed By: kg

Prepared By: kg

³¹High surrogate recovery due to peak interference.

³²High surrogate recovery due to peak interference.

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Parameter	Flag	RL Result	Units	Dilution	RL
DRO		18700	mg/Kg	10	50.0

Surrogate	Flag	Result	Units	Dilution	Spike Amount	Percent Recovery	Recovery Limits
n-Tricosane	³³	1330	mg/Kg	10	100	1330	70 - 130

Sample: 259762 - AH-4 0-1'

Laboratory: Midland
Analysis: TPH GRO
QC Batch: 79091
Prep Batch: 67108

Analytical Method: S 8015 D
Date Analyzed: 2011-03-09
Sample Preparation: 2011-03-09

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

Parameter	Flag	RL Result	Units	Dilution	RL
GRO		5350	mg/Kg	50	2.00

Surrogate	Flag	Result	Units	Dilution	Spike Amount	Percent Recovery	Recovery Limits
Trifluorotoluene (TFT)		58.4	mg/Kg	50	50.0	117	48.5 - 152
4-Bromofluorobenzene (4-BFB)	³⁴	88.6	mg/Kg	50	50.0	177	42 - 159

Sample: 259763 - AH-4 1-1.5'

Laboratory: Midland
Analysis: BTEX
QC Batch: 79388
Prep Batch: 67358

Analytical Method: S 8021B
Date Analyzed: 2011-03-15
Sample Preparation: 2011-03-15

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

Parameter	Flag	RL Result	Units	Dilution	RL
Benzene		17.8	mg/Kg	50	0.0200
Toluene		130	mg/Kg	50	0.0200
Ethylbenzene		83.9	mg/Kg	50	0.0200
Xylene		133	mg/Kg	50	0.0200

Surrogate	Flag	Result	Units	Dilution	Spike Amount	Percent Recovery	Recovery Limits
Trifluorotoluene (TFT)		55.8	mg/Kg	50	50.0	112	52.8 - 137
4-Bromofluorobenzene (4-BFB)	³⁵	83.4	mg/Kg	50	50.0	167	38.4 - 157

³³High surrogate recovery due to peak interference.

³⁴High surrogate recovery due to peak interference.

³⁵High surrogate recovery due to peak interference.

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Sample: 259763 - AH-4 1-1.5'

Laboratory:	Midland	Analytical Method:	SM 4500-Cl B	Prep Method:	N/A
Analysis:	Chloride (Titration)	Date Analyzed:	2011-03-09	Analyzed By:	AR
QC Batch:	79405	Sample Preparation:	2011-03-09	Prepared By:	AR
Prep Batch:	67261				

Parameter	Flag	RL Result	Units	Dilution	RL
Chloride		5250	mg/Kg	100	4.00

Sample: 259763 - AH-4 1-1.5'

Laboratory:	Midland	Analytical Method:	S 8015 D	Prep Method:	N/A
Analysis:	TPH DRO - NEW	Date Analyzed:	2011-03-15	Analyzed By:	kg
QC Batch:	79402	Sample Preparation:	2011-03-15	Prepared By:	kg
Prep Batch:	67363				

Parameter	Flag	RL Result	Units	Dilution	RL
DRO		15600	mg/Kg	5	50.0

Surrogate	Flag	Result	Units	Dilution	Spike Amount	Percent Recovery	Recovery Limits
n-Tricosane	³⁶	716	mg/Kg	5	100	716	70 - 130

Sample: 259763 - AH-4 1-1.5'

Laboratory:	Midland	Analytical Method:	S 8015 D	Prep Method:	S 5035
Analysis:	TPH GRO	Date Analyzed:	2011-03-15	Analyzed By:	ME
QC Batch:	79389	Sample Preparation:	2011-03-15	Prepared By:	ME
Prep Batch:	67358				

Parameter	Flag	RL Result	Units	Dilution	RL
GRO		5880	mg/Kg	50	2.00

Surrogate	Flag	Result	Units	Dilution	Spike Amount	Percent Recovery	Recovery Limits
Trifluorotoluene (TFT)		58.2	mg/Kg	50	50.0	116	48.5 - 152
4-Bromofluorobenzene (4-BFB)	³⁷	87.2	mg/Kg	50	50.0	174	42 - 159

³⁶High surrogate recovery due to peak interference.

³⁷High surrogate recovery due to peak interference.

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Sample: 259764 - AH-4 2-2.5'

Laboratory: Midland

Analysis: BTEX

QC Batch: 79388

Prep Batch: 67358

Analytical Method: S 8021B

Date Analyzed: 2011-03-15

Sample Preparation: 2011-03-15

Prep Method: S 5035

Analyzed By: ME

Prepared By: ME

Parameter	Flag	RL Result	Units	Dilution	RL
Benzene		24.0	mg/Kg	50	0.0200
Toluene		155	mg/Kg	50	0.0200
Ethylbenzene		107	mg/Kg	50	0.0200
Xylene		172	mg/Kg	50	0.0200

Surrogate	Flag	Result	Units	Dilution	Spike Amount	Percent Recovery	Recovery Limits
Trifluorotoluene (TFT)	³⁸	69.2	mg/Kg	50	50.0	138	52.8 - 137
4-Bromofluorobenzene (4-BFB)	³⁹	102	mg/Kg	50	50.0	204	38.4 - 157

Sample: 259764 - AH-4 2-2.5'

Laboratory: Midland

Analysis: Chloride (Titration)

QC Batch: 79405

Prep Batch: 67261

Analytical Method: SM 4500-Cl B

Date Analyzed: 2011-03-09

Sample Preparation: 2011-03-09

Prep Method: N/A

Analyzed By: AR

Prepared By: AR

Parameter	Flag	RL Result	Units	Dilution	RL
Chloride		7530	mg/Kg	100	4.00

Sample: 259764 - AH-4 2-2.5'

Laboratory: Midland

Analysis: TPH DRO - NEW

QC Batch: 79402

Prep Batch: 67363

Analytical Method: S 8015 D

Date Analyzed: 2011-03-15

Sample Preparation: 2011-03-15

Prep Method: N/A

Analyzed By: kg

Prepared By: kg

Parameter	Flag	RL Result	Units	Dilution	RL
DRO		14800	mg/Kg	5	50.0

³⁸High surrogate recovery due to peak interference.

³⁹High surrogate recovery due to peak interference.

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Surrogate	Flag	Result	Units	Dilution	Spike Amount	Percent Recovery	Recovery Limits
n-Tricosane	⁴⁰	726	mg/Kg	5	100	726	70 - 130

Sample: 259764 - AH-4 2-2.5'

Laboratory: Midland

Analysis: TPH GRO

QC Batch: 79389

Prep Batch: 67358

Analytical Method: S 8015 D

Date Analyzed: 2011-03-15

Sample Preparation: 2011-03-15

Prep Method: S 5035

Analyzed By: ME

Prepared By: ME

Parameter	Flag	RL Result	Units	Dilution	RL
GRO		5870	mg/Kg	50	2.00

Surrogate	Flag	Result	Units	Dilution	Spike Amount	Percent Recovery	Recovery Limits
Trifluorotoluene (TFT)		75.0	mg/Kg	50	50.0	150	48.5 - 152
4-Bromofluorobenzene (4-BFB)	⁴¹	131	mg/Kg	50	50.0	262	42 - 159

Sample: 259765 - AH-4 3-3.5'

Laboratory: Midland

Analysis: BTEX

QC Batch: 79388

Prep Batch: 67358

Analytical Method: S 8021B

Date Analyzed: 2011-03-15

Sample Preparation: 2011-03-15

Prep Method: S 5035

Analyzed By: ME

Prepared By: ME

Parameter	Flag	RL Result	Units	Dilution	RL
Benzene		22.1	mg/Kg	20	0.0200
Toluene	⁴²	140	mg/Kg	20	0.0200
Ethylbenzene		82.6	mg/Kg	20	0.0200
Xylene		130	mg/Kg	20	0.0200

Surrogate	Flag	Result	Units	Dilution	Spike Amount	Percent Recovery	Recovery Limits
Trifluorotoluene (TFT)		20.4	mg/Kg	20	20.0	102	52.8 - 137
4-Bromofluorobenzene (4-BFB)	⁴³	41.6	mg/Kg	20	20.0	208	38.4 - 157

Sample: 259765 - AH-4 3-3.5'

Laboratory: Midland

Analysis: Chloride (Titration)

QC Batch: 79405

Prep Batch: 67261

Analytical Method: SM 4500-Cl B

Date Analyzed: 2011-03-09

Sample Preparation: 2011-03-09

Prep Method: N/A

Analyzed By: AR

Prepared By: AR

⁴⁰High surrogate recovery due to peak interference.

⁴¹High surrogate recovery due to peak interference.

⁴²Estimated concentration value greater than standard range.

⁴³High surrogate recovery due to peak interference.

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Parameter	Flag	RL Result	Units	Dilution	RL
Chloride		10300	mg/Kg	100	4.00

Sample: 259765 - AH-4 3-3.5'

Laboratory: Midland
Analysis: TPH DRO - NEW Analytical Method: S 8015 D Prep Method: N/A
QC Batch: 79402 Date Analyzed: 2011-03-15 Analyzed By: kg
Prep Batch: 67363 Sample Preparation: 2011-03-15 Prepared By: kg

Parameter	Flag	RL Result	Units	Dilution	RL
DRO		11000	mg/Kg	5	50.0

Surrogate	Flag	Result	Units	Dilution	Spike Amount	Percent Recovery	Recovery Limits
n-Tricosane	⁴⁴	636	mg/Kg	5	100	636	70 - 130

Sample: 259765 - AH-4 3-3.5'

Laboratory: Midland
Analysis: TPH GRO Analytical Method: S 8015 D Prep Method: S 5035
QC Batch: 79389 Date Analyzed: 2011-03-15 Analyzed By: ME
Prep Batch: 67358 Sample Preparation: 2011-03-15 Prepared By: ME

Parameter	Flag	RL Result	Units	Dilution	RL
GRO		4600	mg/Kg	20	2.00

Surrogate	Flag	Result	Units	Dilution	Spike Amount	Percent Recovery	Recovery Limits
Trifluorotoluene (TFT)		21.6	mg/Kg	20	20.0	108	48.5 - 152
4-Bromofluorobenzene (4-BFB)	⁴⁵	45.7	mg/Kg	20	20.0	228	42 - 159

Method Blank (1) QC Batch: 79090

QC Batch: 79090 Date Analyzed: 2011-03-09 Analyzed By: ME
Prep Batch: 67108 QC Preparation: 2011-03-09 Prepared By: ME

⁴⁴High surrogate recovery due to peak interference.

⁴⁵High surrogate recovery due to peak interference.

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Parameter	Flag	MDL Result	Units	RL
Benzene		<0.0118	mg/Kg	0.02
Toluene		<0.00600	mg/Kg	0.02
Ethylbenzene		<0.00850	mg/Kg	0.02
Xylene		<0.00613	mg/Kg	0.02

Surrogate	Flag	Result	Units	Dilution	Spike Amount	Percent Recovery	Recovery Limits
Trifluorotoluene (TFT)		1.76	mg/Kg	1	2.00	88	66.6 - 122
4-Bromofluorobenzene (4-BFB)		1.50	mg/Kg	1	2.00	75	55.4 - 124

Method Blank (1) QC Batch: 79091

QC Batch: 79091 Date Analyzed: 2011-03-09 Analyzed By: ME
Prep Batch: 67108 QC Preparation: 2011-03-09 Prepared By: ME

Parameter	Flag	MDL Result	Units	RL
GRO		<0.753	mg/Kg	2

Surrogate	Flag	Result	Units	Dilution	Spike Amount	Percent Recovery	Recovery Limits
Trifluorotoluene (TFT)		1.78	mg/Kg	1	2.00	89	67.6 - 150
4-Bromofluorobenzene (4-BFB)		1.38	mg/Kg	1	2.00	69	52.4 - 130

Method Blank (1) QC Batch: 79253

QC Batch: 79253 Date Analyzed: 2011-03-08 Analyzed By: kg
Prep Batch: 67239 QC Preparation: 2011-03-08 Prepared By: kg

Parameter	Flag	MDL Result	Units	RL
DRO		<15.7	mg/Kg	50

Surrogate	Flag	Result	Units	Dilution	Spike Amount	Percent Recovery	Recovery Limits
n-Tricosane		99.3	mg/Kg	1	100	99	70 - 130

Method Blank (1) QC Batch: 79388

QC Batch: 79388 Date Analyzed: 2011-03-15 Analyzed By: ME
Prep Batch: 67358 QC Preparation: 2011-03-15 Prepared By: ME

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Parameter	Flag	MDL Result	Units	RL
Benzene		<0.0118	mg/Kg	0.02
Toluene		<0.00600	mg/Kg	0.02
Ethylbenzene		<0.00850	mg/Kg	0.02
Xylene		<0.00613	mg/Kg	0.02

Surrogate	Flag	Result	Units	Dilution	Spike Amount	Percent Recovery	Recovery Limits
Trifluorotoluene (TFT)		1.88	mg/Kg	1	2.00	94	66.6 - 122
4-Bromofluorobenzene (4-BFB)		1.72	mg/Kg	1	2.00	86	55.4 - 124

Method Blank (1) QC Batch: 79389

QC Batch: 79389
Prep Batch: 67358

Date Analyzed: 2011-03-15
QC Preparation: 2011-03-15

Analyzed By: ME
Prepared By: ME

Parameter	Flag	MDL Result	Units	RL
GRO		<0.753	mg/Kg	2

Surrogate	Flag	Result	Units	Dilution	Spike Amount	Percent Recovery	Recovery Limits
Trifluorotoluene (TFT)		1.96	mg/Kg	1	2.00	98	67.6 - 150
4-Bromofluorobenzene (4-BFB)		1.65	mg/Kg	1	2.00	82	52.4 - 130

Method Blank (1) QC Batch: 79402

QC Batch: 79402
Prep Batch: 67363

Date Analyzed: 2011-03-15
QC Preparation: 2011-03-15

Analyzed By: kg
Prepared By: kg

Parameter	Flag	MDL Result	Units	RL
DRO		<15.7	mg/Kg	50

Surrogate	Flag	Result	Units	Dilution	Spike Amount	Percent Recovery	Recovery Limits
n-Tricosane		97.9	mg/Kg	1	100	98	70 - 130

Method Blank (1) QC Batch: 79403

QC Batch: 79403
Prep Batch: 67261

Date Analyzed: 2011-03-09
QC Preparation: 2011-03-09

Analyzed By: AR
Prepared By: AR

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

Method Blank (1) QC Batch: 79404

QC Batch: 79404 Date Analyzed: 2011-03-09 Analyzed By: AR
Prep Batch: 67261 QC Preparation: 2011-03-09 Prepared By: AR

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

Method Blank (1) QC Batch: 79405

QC Batch: 79405 Date Analyzed: 2011-03-09 Analyzed By: AR
Prep Batch: 67261 QC Preparation: 2011-03-09 Prepared By: AR

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

Method Blank (1) QC Batch: 79567

QC Batch: 79567 Date Analyzed: 2011-03-18 Analyzed By: kg
Prep Batch: 67516 QC Preparation: 2011-03-18 Prepared By: kg

Parameter	Flag	MDL Result	Units	RL
DRO		<15.7	mg/Kg	50

Surrogate	Flag	Result	Units	Dilution	Spike Amount	Percent Recovery	Recovery Limits
n-Tricosane		79.0	mg/Kg	1	100	79	70 - 130

Laboratory Control Spike (LCS-1)

QC Batch: 79090 Date Analyzed: 2011-03-09 Analyzed By: ME
Prep Batch: 67108 QC Preparation: 2011-03-09 Prepared By: ME

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Param	LCS Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit
Benzene	1.92	mg/Kg	1	2.00	<0.0118	96	81.9 - 108
Toluene	1.88	mg/Kg	1	2.00	<0.00600	94	81.9 - 107
Ethylbenzene	1.84	mg/Kg	1	2.00	<0.00850	92	78.4 - 107
Xylene	5.47	mg/Kg	1	6.00	<0.00613	91	79.1 - 107

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	<0.0118	95	81.9 - 108	1	20
Toluene	1.88	mg/Kg	1	2.00	<0.00600	94	81.9 - 107	0	20
Ethylbenzene	1.81	mg/Kg	1	2.00	<0.00850	90	78.4 - 107	2	20
Xylene	5.44	mg/Kg	1	6.00	<0.00613	91	79.1 - 107	0	20

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

Surrogate	LCS Result	LCSD Result	Units	Dil.	Spike Amount	LCS Rec.	LCSD Rec.	Rec. Limit
Trifluorotoluene (TFT)	1.82	1.80	mg/Kg	1	2.00	91	90	70.2 - 114
4-Bromofluorobenzene (4-BFB)	1.71	1.65	mg/Kg	1	2.00	86	82	69.8 - 121

Laboratory Control Spike (LCS-1)

QC Batch: 79091
Prep Batch: 67108

Date Analyzed: 2011-03-09
QC Preparation: 2011-03-09

Analyzed By: ME
Prepared By: ME

Param	LCS Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit
GRO	15.1	mg/Kg	1	20.0	<0.753	76	60.9 - 95.4

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
GRO	15.8	mg/Kg	1	20.0	<0.753	79	60.9 - 95.4	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
Trifluorotoluene (TFT)	2.01	2.14	mg/Kg	1	2.00	100	107	61.9 - 142
4-Bromofluorobenzene (4-BFB)	1.91	2.02	mg/Kg	1	2.00	96	101	68.2 - 132

Laboratory Control Spike (LCS-1)

QC Batch: 79253
Prep Batch: 67239

Date Analyzed: 2011-03-08
QC Preparation: 2011-03-08

Analyzed By: kg
Prepared By: kg

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Param	LCS Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit
DRO	231	mg/Kg	1	250	<15.7	92	47.5 - 144.1

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
DRO	237	mg/Kg	1	250	<15.7	95	47.5 - 144.1	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-Tricosane	114	123	mg/Kg	1	100	114	123	70 - 130

Laboratory Control Spike (LCS-1)

QC Batch: 79388
Prep Batch: 67358

Date Analyzed: 2011-03-15
QC Preparation: 2011-03-15

Analyzed By: ME
Prepared By: ME

Param	LCS Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit
Benzene	1.86	mg/Kg	1	2.00	<0.0118	93	81.9 - 108
Toluene	1.88	mg/Kg	1	2.00	<0.00600	94	81.9 - 107
Ethylbenzene	1.85	mg/Kg	1	2.00	<0.00850	92	78.4 - 107
Xylene	5.55	mg/Kg	1	6.00	<0.00613	92	79.1 - 107

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	1.92	mg/Kg	1	2.00	<0.0118	96	81.9 - 108	3	20
Toluene	1.94	mg/Kg	1	2.00	<0.00600	97	81.9 - 107	3	20
Ethylbenzene	1.91	mg/Kg	1	2.00	<0.00850	96	78.4 - 107	3	20
Xylene	5.79	mg/Kg	1	6.00	<0.00613	96	79.1 - 107	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)	1.76	1.90	mg/Kg	1	2.00	88	95	70.2 - 114
4-Bromofluorobenzene (4-BFB)	1.76	1.93	mg/Kg	1	2.00	88	96	69.8 - 121

Laboratory Control Spike (LCS-1)

QC Batch: 79389
Prep Batch: 67358

Date Analyzed: 2011-03-15
QC Preparation: 2011-03-15

Analyzed By: ME
Prepared By: ME

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Param	LCS Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit
GRO	14.2	mg/Kg	1	20.0	<0.753	71	60.9 - 95.4

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
GRO	13.8	mg/Kg	1	20.0	<0.753	69	60.9 - 95.4	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
Trifluorotoluene (TFT)	1.99	1.97	mg/Kg	1	2.00	100	98	61.9 - 142
4-Bromofluorobenzene (4-BFB)	1.82	1.82	mg/Kg	1	2.00	91	91	68.2 - 132

Laboratory Control Spike (LCS-1)

QC Batch: 79402
Prep Batch: 67363

Date Analyzed: 2011-03-15
QC Preparation: 2011-03-15

Analyzed By: kg
Prepared By: kg

Param	LCS Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit
DRO	242	mg/Kg	1	250	<15.7	97	47.5 - 144.1

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
DRO	259	mg/Kg	1	250	<15.7	104	47.5 - 144.1	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
n-Tricosane	99.0	99.6	mg/Kg	1	100	99	100	70 - 130

Laboratory Control Spike (LCS-1)

QC Batch: 79403
Prep Batch: 67261

Date Analyzed: 2011-03-09
QC Preparation: 2011-03-09

Analyzed By: AR
Prepared By: AR

Param	LCS Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit
Chloride	96.1	mg/Kg	1	100	<3.85	96	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	105	mg/Kg	1	100	<3.85	105	85 - 115	9	20

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

Laboratory Control Spike (LCS-1)

QC Batch: 79404
Prep Batch: 67261

Date Analyzed: 2011-03-09
QC Preparation: 2011-03-09

Analyzed By: AR
Prepared By: AR

Param	LCS Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit
Chloride	98.2	mg/Kg	1	100	<3.85	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	103	mg/Kg	1	100	<3.85	103	85 - 115	5	20

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

Laboratory Control Spike (LCS-1)

QC Batch: 79405
Prep Batch: 67261

Date Analyzed: 2011-03-09
QC Preparation: 2011-03-09

Analyzed By: AR
Prepared By: AR

Param	LCS Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit
Chloride	97.9	mg/Kg	1	100	<3.85	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	106	mg/Kg	1	100	<3.85	106	85 - 115	8	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: 79567
Prep Batch: 67516

Date Analyzed: 2011-03-18
QC Preparation: 2011-03-18

Analyzed By: kg
Prepared By: kg

continued ...

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control spikes continued ...

Param	LCS Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit
Param	LCS Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit
DRO	207	mg/Kg	1	250	<15.7	83	47.5 - 144.1

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
DRO	222	mg/Kg	1	250	<15.7	89	47.5 - 144.1	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
n-Tricosane	86.2	85.5	mg/Kg	1	100	86	86	70 - 130

Matrix Spike (MS-1) Spiked Sample: 259766

QC Batch: 79090
Prep Batch: 67108

Date Analyzed: 2011-03-09
QC Preparation: 2011-03-09

Analyzed By: ME
Prepared By: ME

Param	MS Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit
Benzene	1.89	mg/Kg	1	2.00	<0.0118	94	80.5 - 112
Toluene	1.93	mg/Kg	1	2.00	<0.00600	96	82.4 - 113
Ethylbenzene	2.00	mg/Kg	1	2.00	<0.00850	100	83.9 - 114
Xylene	5.97	mg/Kg	1	6.00	<0.00613	100	84 - 114

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	1.81	mg/Kg	1	2.00	<0.0118	90	80.5 - 112	4	20
Toluene	1.83	mg/Kg	1	2.00	<0.00600	92	82.4 - 113	5	20
Ethylbenzene	1.91	mg/Kg	1	2.00	<0.00850	96	83.9 - 114	5	20
Xylene	5.70	mg/Kg	1	6.00	<0.00613	95	84 - 114	5	20

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

Surrogate	MS Result	MSD Result	Units	Dil.	Spike Amount	MS Rec.	MSD Rec.	Rec. Limit
Trifluorotoluene (TFT)	⁴⁶ 2.44	⁴⁷ 2.45	mg/Kg	1	2	122	122	41.3 - 117
4-Bromofluorobenzene (4-BFB)	2.14	2.00	mg/Kg	1	2	107	100	35.5 - 129

⁴⁶High surrogate recovery due to peak interference.

⁴⁷High surrogate recovery due to peak interference.

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Matrix Spike (MS-1) Spiked Sample: 259740

QC Batch: 79091
Prep Batch: 67108

Date Analyzed: 2011-03-09
QC Preparation: 2011-03-09

Analyzed By: ME
Prepared By: ME

Param	MS Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit
GRO	12.5	mg/Kg	1	20.0	<0.753	62	61.8 - 114

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	13.5	mg/Kg	1	20.0	<0.753	68	61.8 - 114	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)	2.36	2.52	mg/Kg	1	2	118	126	50 - 162
4-Bromofluorobenzene (4-BFB)	2.00	2.11	mg/Kg	1	2	100	106	50 - 162

Matrix Spike (MS-1) Spiked Sample: 259825

QC Batch: 79253
Prep Batch: 67239

Date Analyzed: 2011-03-08
QC Preparation: 2011-03-08

Analyzed By: kg
Prepared By: kg

Param	MS Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit
DRO	213	mg/Kg	1	250	17.7	78	11.7 - 152.3

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
DRO	217	mg/Kg	1	250	17.7	80	11.7 - 152.3	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-Tricosane	100	96.0	mg/Kg	1	100	100	96	70 - 130

Matrix Spike (MS-1) Spiked Sample: 259974

QC Batch: 79388
Prep Batch: 67358

Date Analyzed: 2011-03-15
QC Preparation: 2011-03-15

Analyzed By: ME
Prepared By: ME

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Param	MS Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit
Benzene	1.92	mg/Kg	1	2.00	<0.0118	96	80.5 - 112
Toluene	2.00	mg/Kg	1	2.00	<0.00600	100	82.4 - 113
Ethylbenzene	2.09	mg/Kg	1	2.00	<0.00850	104	83.9 - 114
Xylene	6.30	mg/Kg	1	6.00	0.3919	98	84 - 114

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	1.90	mg/Kg	1	2.00	<0.0118	95	80.5 - 112	1	20
Toluene	2.01	mg/Kg	1	2.00	<0.00600	100	82.4 - 113	0	20
Ethylbenzene	2.09	mg/Kg	1	2.00	<0.00850	104	83.9 - 114	0	20
Xylene	6.30	mg/Kg	1	6.00	0.3919	98	84 - 114	0	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)	⁴⁸ 2.44	⁴⁹ 2.42	mg/Kg	1	2	122	121	41.3 - 117
4-Bromofluorobenzene (4-BFB)	2.48	2.46	mg/Kg	1	2	124	123	35.5 - 129

Matrix Spike (MS-1) Spiked Sample: 259889

QC Batch: 79389
Prep Batch: 67358

Date Analyzed: 2011-03-15
QC Preparation: 2011-03-15

Analyzed By: ME
Prepared By: ME

Param	MS Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit
GRO	14.4	mg/Kg	1	20.0	<0.753	72	61.8 - 114

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	15.1	mg/Kg	1	20.0	<0.753	76	61.8 - 114	5	20

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

Surrogate	MS Result	MSD Result	Units	Dil.	Spike Amount	MS Rec.	MSD Rec.	Rec. Limit
Trifluorotoluene (TFT)	2.56	2.54	mg/Kg	1	2	128	127	50 - 162
4-Bromofluorobenzene (4-BFB)	2.43	2.39	mg/Kg	1	2	122	120	50 - 162

⁴⁸High surrogate recovery due to peak interference.

⁴⁹High surrogate recovery due to peak interference.

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Matrix Spike (MS-1) Spiked Sample: 259756

QC Batch: 79402
Prep Batch: 67363

Date Analyzed: 2011-03-15
QC Preparation: 2011-03-15

Analyzed By: kg
Prepared By: kg

Param	MS Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit
DRO	388	mg/Kg	1	250	186	81	11.7 - 152.3

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
DRO	⁵⁰ 766	mg/Kg	1	250	186	232	11.7 - 152.3	66	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	⁵¹ 116	239	mg/Kg	1	100	116	239	70 - 130

Matrix Spike (MS-1) Spiked Sample: 259751

QC Batch: 79403
Prep Batch: 67261

Date Analyzed: 2011-03-09
QC Preparation: 2011-03-09

Analyzed By: AR
Prepared By: AR

Param	MS Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit
Chloride	11300	mg/Kg	100	10000	1080	102	80 - 120

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	11600	mg/Kg	100	10000	1080	105	80 - 120	3	20

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

Matrix Spike (MS-1) Spiked Sample: 259761

QC Batch: 79404
Prep Batch: 67261

Date Analyzed: 2011-03-09
QC Preparation: 2011-03-09

Analyzed By: AR
Prepared By: AR

continued ...

⁵⁰Matrix spike recovery out of control limits due to peak interference. Use LCS/LCSD to demonstrate analysis is under control.

⁵¹High surrogate recovery due to peak interference.

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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	18600	mg/Kg	100	10000	8820	98	80 - 120

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	19200	mg/Kg	100	10000	8820	104	80 - 120	3	20

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

Matrix Spike (MS-1) Spiked Sample: 259771

QC Batch: 79405
Prep Batch: 67261

Date Analyzed: 2011-03-09
QC Preparation: 2011-03-09

Analyzed By: AR
Prepared By: AR

Param	MS Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit
Chloride	10100	mg/Kg	100	10000	<385	99	80 - 120

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	<385	104	80 - 120	5	20

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

Matrix Spike (MS-1) Spiked Sample: 258879

QC Batch: 79567
Prep Batch: 67516

Date Analyzed: 2011-03-18
QC Preparation: 2011-03-18

Analyzed By: kg
Prepared By: kg

Param	MS Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit
DRO	273	mg/Kg	1	250	<15.7	109	11.7 - 152.3

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
DRO	240	mg/Kg	1	250	<15.7	96	11.7 - 152.3	13	20

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

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Surrogate	MS Result	MSD Result	Units	Dil.	Spike Amount	MS Rec.	MSD Rec.	Rec. Limit
n-Tricosane	96.8	89.4	mg/Kg	1	100	97	89	70 - 130

Standard (CCV-1)

QC Batch: 79090

Date Analyzed: 2011-03-09

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	0.101	101	80 - 120	2011-03-09
Toluene		mg/Kg	0.100	0.0998	100	80 - 120	2011-03-09
Ethylbenzene		mg/Kg	0.100	0.0966	97	80 - 120	2011-03-09
Xylene		mg/Kg	0.300	0.287	96	80 - 120	2011-03-09

Standard (CCV-2)

QC Batch: 79090

Date Analyzed: 2011-03-09

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	0.0956	96	80 - 120	2011-03-09
Toluene		mg/Kg	0.100	0.0947	95	80 - 120	2011-03-09
Ethylbenzene		mg/Kg	0.100	0.0919	92	80 - 120	2011-03-09
Xylene		mg/Kg	0.300	0.277	92	80 - 120	2011-03-09

Standard (CCV-1)

QC Batch: 79091

Date Analyzed: 2011-03-09

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	0.928	93	80 - 120	2011-03-09

Standard (CCV-2)

QC Batch: 79091

Date Analyzed: 2011-03-09

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	1.08	108	80 - 120	2011-03-09

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Standard (CCV-3)

QC Batch: 79253

Date Analyzed: 2011-03-08

Analyzed By: kg

Param	Flag	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
DRO		mg/Kg	250	236	94	80 - 120	2011-03-08

Standard (CCV-4)

QC Batch: 79253

Date Analyzed: 2011-03-08

Analyzed By: kg

Param	Flag	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
DRO		mg/Kg	250	210	84	80 - 120	2011-03-08

Standard (CCV-1)

QC Batch: 79388

Date Analyzed: 2011-03-15

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	0.0931	93	80 - 120	2011-03-15
Toluene		mg/Kg	0.100	0.0942	94	80 - 120	2011-03-15
Ethylbenzene		mg/Kg	0.100	0.0930	93	80 - 120	2011-03-15
Xylene		mg/Kg	0.300	0.278	93	80 - 120	2011-03-15

Standard (CCV-2)

QC Batch: 79388

Date Analyzed: 2011-03-15

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	0.0979	98	80 - 120	2011-03-15
Toluene		mg/Kg	0.100	0.102	102	80 - 120	2011-03-15
Ethylbenzene		mg/Kg	0.100	0.102	102	80 - 120	2011-03-15
Xylene		mg/Kg	0.300	0.304	101	80 - 120	2011-03-15

Standard (CCV-3)

QC Batch: 79388

Date Analyzed: 2011-03-15

Analyzed By: ME

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Param	Flag	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
Benzene		mg/Kg	0.100	0.0968	97	80 - 120	2011-03-15
Toluene		mg/Kg	0.100	0.0991	99	80 - 120	2011-03-15
Ethylbenzene		mg/Kg	0.100	0.0952	95	80 - 120	2011-03-15
Xylene		mg/Kg	0.300	0.289	96	80 - 120	2011-03-15

Standard (CCV-1)

QC Batch: 79389

Date Analyzed: 2011-03-15

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	0.925	92	80 - 120	2011-03-15

Standard (CCV-2)

QC Batch: 79389

Date Analyzed: 2011-03-15

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	1.19	119	80 - 120	2011-03-15

Standard (CCV-3)

QC Batch: 79389

Date Analyzed: 2011-03-15

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	1.10	110	80 - 120	2011-03-15

Standard (CCV-1)

QC Batch: 79402

Date Analyzed: 2011-03-15

Analyzed By: kg

Param	Flag	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
DRO		mg/Kg	250	264	106	80 - 120	2011-03-15

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Standard (CCV-2)

QC Batch: 79402

Date Analyzed: 2011-03-15

Analyzed By: kg

Param	Flag	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
DRO		mg/Kg	250	237	95	80 - 120	2011-03-15

Standard (CCV-3)

QC Batch: 79402

Date Analyzed: 2011-03-15

Analyzed By: kg

Param	Flag	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
DRO		mg/Kg	250	294	118	80 - 120	2011-03-15

Standard (CCV-4)

QC Batch: 79402

Date Analyzed: 2011-03-15

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	2011-03-15

Standard (ICV-1)

QC Batch: 79403

Date Analyzed: 2011-03-09

Analyzed By: AR

Param	Flag	Units	ICVs True Conc.	ICVs Found Conc.	ICVs Percent Recovery	Percent Recovery Limits	Date Analyzed
Chloride		mg/Kg	100	102	102	85 - 115	2011-03-09

Standard (CCV-1)

QC Batch: 79403

Date Analyzed: 2011-03-09

Analyzed By: AR

Param	Flag	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
Chloride		mg/Kg	100	97.6	98	85 - 115	2011-03-09

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Standard (ICV-1)

QC Batch: 79404

Date Analyzed: 2011-03-09

Analyzed By: AR

Param	Flag	Units	ICVs True Conc.	ICVs Found Conc.	ICVs Percent Recovery	Percent Recovery Limits	Date Analyzed
Chloride		mg/Kg	100	99.1	99	85 - 115	2011-03-09

Standard (CCV-1)

QC Batch: 79404

Date Analyzed: 2011-03-09

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	2011-03-09

Standard (ICV-1)

QC Batch: 79405

Date Analyzed: 2011-03-09

Analyzed By: AR

Param	Flag	Units	ICVs True Conc.	ICVs Found Conc.	ICVs Percent Recovery	Percent Recovery Limits	Date Analyzed
Chloride		mg/Kg	100	99.9	100	85 - 115	2011-03-09

Standard (CCV-1)

QC Batch: 79405

Date Analyzed: 2011-03-09

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	2011-03-09

Standard (CCV-2)

QC Batch: 79567

Date Analyzed: 2011-03-18

Analyzed By: kg

Param	Flag	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
DRO		mg/Kg	250	245	98	80 - 120	2011-03-18

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Standard (CCV-3)

QC Batch: 79567

Date Analyzed: 2011-03-18

Analyzed By: kg

Param	Flag	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
DRO		mg/Kg	250	270	108	80 - 120	2011-03-18

* WO#: 11030724

Analysis Request of Chain of Custody Record

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TETRA TECH
1910 N. Big Spring St.
Midland, Texas 79705
(432) 682-4559 • Fax (432) 682-3946

ANALYSIS REQUEST
(Circle or Specify Method No.)

CLIENT NAME:

CDL

SITE MANAGER:

Ike Tavares

PROJECT NO.:

114-6400826

PROJECT NAME:

Brigham H #3

LAB I.D.
NUMBER

DATE
2011

TIME

MATRIX
COMP.
GRAB

Eddy Co NM
SAMPLE IDENTIFICATION

NUMBER OF CONTAINERS
FILTERED (Y/N)

PRESERVATIVE
METHOD

259750

3/3

S

X

AH-1

0-1'

1

HCL

HNO3

ICE

NONE

BTEX 802-H

TPH 8015 MOD TX1005 (Ext. to C35)

PAH 8270

RCRA Metals Ag As Ba Cd Cr Pb Hg Se

TCLP Metals Ag As Ba Cd Cr Pb Hg Se

TCLP Volatiles

TCLP Semi Volatiles

RCI

GC/MS Vol. 8240/8260/824

GC/MS Semi. Vol. 8270/625

PCB's 8080/608

Pest. 808/608

Chloride

Gamma Spec.

Alpha Beta (Air)

PLM (Asbestos)

Major Anions/Cations, pH, TDS

RELINQUISHED BY: (Signature)

Date:

3-4-11

Time:

1615

RECEIVED BY: (Signature)

Date:

3/4/11

Time:

1615

SAMPLED BY: (Print & Initial)

TF

Date:

3-3-11

Time:

RELINQUISHED BY: (Signature)

Date:

Time:

RECEIVED BY: (Signature)

Date:

Time:

SAMPLE SHIPPED BY: (Circle)

FEDX BUS
HAND DELIVERED UPS

AIRBILL #:

OTHER:

RECEIVING LABORATORY:

Trace

RECEIVED BY: (Signature)

ADDRESS:

CITY: Midland

STATE: TX

ZIP:

CONTACT:

PHONE:

DATE:

TIME:

TETRA TECH CONTACT PERSON:

Ike Tavares

Results by:

RUSH Charges

Authorized:

Yes

No

SAMPLE CONDITION WHEN RECEIVED:

40°C intact

REMARKS:

TPH total TPH exceeds 5000 mg/kg run deeper samples

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

Xwo #: 11030724

Analysis Request of Chain of Custody Record

PAGE: 2 OF: 2

**TETRA TECH**
 1910 N. Big Spring St.
 Midland, Texas 79705
 (432) 682-4559 • Fax (432) 682-3946

 ANALYSIS REQUEST
 (Circle or Specify Method No.)

CLIENT NAME:

COG

SITE MANAGER:

Ike Tavaraz

PROJECT NO.:

114-6400826

PROJECT NAME:

Brigham H #3

LAB I.D.
NUMBERDATE
2011

TIME

MATRIX

COMP

GRAB

 Eddy Co NM
 SAMPLE IDENTIFICATION

NUMBER OF CONTAINERS

FILTERED (Y/N)

PRESERVATIVE
METHOD

HCL

HNO3

ICE

NONE

UTEX 8021B

TPH 8015 MOD TX1005 (Ext. to C35)

PAH 8270

RCRA Metals Ag As Ba Cd Cr Pb Hg Se

TCLP Metals Ag As Ba Cd Cr Pb Hg Se

TCLP Volatiles

TCLP Semi Volatiles

RCI

GC/MS Vol. 8240/8260/824

GC/MS Semi. Vol. 8270/825

PCB's 8080/608

Pest. 808/608

Chloride

Gamma Spec.

Alpha Beta (Air)

PLM (Asbestos)

Major Anions/Cations, pH, TDS

259760

3/3

S

X

AH-3

2-2.5'

1

X

761

AH-3

3-3.5'

762

AH-4

0-1'

XX

763

AH-4

1-1.5'

764

AH-4

2-2.5'

765

AH-4

3-3.5'

RELINQUISHED BY: (Signature)

Date:

3-4-11

Time:

1615

RECEIVED BY: (Signature)

Date:

3/4/11

Time:

1615

SAMPLED BY: (Print & Initial)

TF

Date:

3-3-11

Time:

RELINQUISHED BY: (Signature)

Date:

Time:

RECEIVED BY: (Signature)

Date:

Time:

SAMPLE SHIPPED BY: (Circle)

FEDEX

BUS

AIRBILL #:

HAND DELIVERED

UPS

OTHER:

RECEIVING LABORATORY:

Trace

RECEIVED BY: (Signature)

ADDRESS:

CITY: Midland

STATE: TX

ZIP:

CONTACT:

PHONE:

DATE:

TIME:

SAMPLE CONDITION WHEN RECEIVED:

REMARKS:

4.0' c intact

If total TPH exceeds 5,000 mg/kg run deeper samples

TETRA TECH CONTACT PERSON:

Ike Tavaraz

Results by:

RUSH Charges
Authorized:

Yes

No

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

Summary Report

Kim Dorey
Tetra Tech
1910 N. Big Spring Street
Midland, TX 79705

Report Date: May 25, 2011

Work Order: 11051101

Project Location: Eddy Co., NM
Project Name: Brigham H #3
Project Number: 114-6400826

Sample	Description	Matrix	Date Taken	Time Taken	Date Received
266048	SB-1 0-1' (6 in. BEB)	soil	2011-05-09	00:00	2011-05-10
266049	SB-1 3' (6 in. BEB)	soil	2011-05-09	00:00	2011-05-10
266050	SB-1 5' (6 in. BEB)	soil	2011-05-09	00:00	2011-05-10
266051	SB-1 7' (6 in. BEB)	soil	2011-05-09	00:00	2011-05-10
266052	SB-1 10' (6 in. BEB)	soil	2011-05-09	00:00	2011-05-10
266053	SB-1 15' (6 in. BEB)	soil	2011-05-09	00:00	2011-05-10
266054	SB-1 20' (6 in. BEB)	soil	2011-05-09	00:00	2011-05-10
266055	SB-1 25' (6 in. BEB)	soil	2011-05-09	00:00	2011-05-10
266056	SB-1 30' (6 in. BEB)	soil	2011-05-09	00:00	2011-05-10
266057	SB-1 40' (6 in. BEB)	soil	2011-05-09	00:00	2011-05-10
266058	SB-2 0-1' (6 in. BEB)	soil	2011-05-09	00:00	2011-05-10
266059	SB-2 3' (6 in. BEB)	soil	2011-05-09	00:00	2011-05-10
266060	SB-2 5' (6 in. BEB)	soil	2011-05-09	00:00	2011-05-10
266061	SB-2 7' (6 in. BEB)	soil	2011-05-09	00:00	2011-05-10
266062	SB-2 10' (6 in. BEB)	soil	2011-05-09	00:00	2011-05-10
266063	SB-2 15' (6 in. BEB)	soil	2011-05-09	00:00	2011-05-10
266064	SB-2 20' (6 in. BEB)	soil	2011-05-09	00:00	2011-05-10
266065	SB-2 25' (6 in. BEB)	soil	2011-05-09	00:00	2011-05-10
266066	SB-2 30' (6 in. BEB)	soil	2011-05-09	00:00	2011-05-10
266067	SB-2 40' (6 in. BEB)	soil	2011-05-09	00:00	2011-05-10

Sample - Field Code	BTEX				TPH DRO - NEW	TPH GRO
	Benzene (mg/Kg)	Toluene (mg/Kg)	Ethylbenzene (mg/Kg)	Xylene (mg/Kg)	DRO (mg/Kg)	GRO (mg/Kg)
266048 - SB-1 0-1' (6 in. BEB)	6.66	40.1	43.4	85.2	7870	3080
266049 - SB-1 3' (6 in. BEB)					8060	2550
266050 - SB-1 5' (6 in. BEB)	11.6	75.2	56.9	90.8	2670	2760
266051 - SB-1 7' (6 in. BEB)	<0.200	<0.200	1.64	4.72	164	156
266058 - SB-2 0-1' (6 in. BEB)					8300	1050

continued ...

TraceAnalysis, Inc. • 6701 Aberdeen Ave., Suite 9 • Lubbock, TX 79424-1515 • (806) 794-1296

This is only a summary. Please, refer to the complete report package for quality control data.

... continued

Sample - Field Code	BTEX				TPH DRO - NEW	TPH GRO
	Benzene (mg/Kg)	Toluene (mg/Kg)	Ethylbenzene (mg/Kg)	Xylene (mg/Kg)	DRO (mg/Kg)	GRO (mg/Kg)
266059 - SB-2 3' (6 in. BEB)	19.0	166	134	204	9870	5770
266060 - SB-2 5' (6 in. BEB)	30.3	194	121	179	6590	5210
266061 - SB-2 7' (6 in. BEB)	<0.0200	<0.0200	0.127	0.343	<50.0	<2.00
266062 - SB-2 10' (6 in. BEB)					61.1	9.94

Sample: 266048 - SB-1 0-1' (6 in. BEB)

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

Sample: 266049 - SB-1 3' (6 in. BEB)

Param	Flag	Result	Units	RL
Chloride		355	mg/Kg	4

Sample: 266050 - SB-1 5' (6 in. BEB)

Param	Flag	Result	Units	RL
Chloride		16800	mg/Kg	4

Sample: 266051 - SB-1 7' (6 in. BEB)

Param	Flag	Result	Units	RL
Chloride		15600	mg/Kg	4

Sample: 266052 - SB-1 10' (6 in. BEB)

Param	Flag	Result	Units	RL
Chloride		3170	mg/Kg	4

Sample: 266053 - SB-1 15' (6 in. BEB)

Param	Flag	Result	Units	RL
Chloride		953	mg/Kg	4

Sample: 266054 - SB-1 20' (6 in. BEB)

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 This is only a summary. Please, refer to the complete report package for quality control data.

Param	Flag	Result	Units	RL
Chloride		261	mg/Kg	4

Sample: 266055 - SB-1 25' (6 in. BEB)

Param	Flag	Result	Units	RL
Chloride		222	mg/Kg	4

Sample: 266056 - SB-1 30' (6 in. BEB)

Param	Flag	Result	Units	RL
Chloride		227	mg/Kg	4

Sample: 266057 - SB-1 40' (6 in. BEB)

Param	Flag	Result	Units	RL
Chloride		238	mg/Kg	4

Sample: 266058 - SB-2 0-1' (6 in. BEB)

Param	Flag	Result	Units	RL
Chloride		1380	mg/Kg	4

Sample: 266059 - SB-2 3' (6 in. BEB)

Param	Flag	Result	Units	RL
Chloride		12800	mg/Kg	4

Sample: 266060 - SB-2 5' (6 in. BEB)

Param	Flag	Result	Units	RL
Chloride		5640	mg/Kg	4

Sample: 266061 - SB-2 7' (6 in. BEB)

Param	Flag	Result	Units	RL
Chloride		236	mg/Kg	4

Sample: 266062 - SB-2 10' (6 in. BEB)

Param	Flag	Result	Units	RL
Chloride		334	mg/Kg	4

Sample: 266063 - SB-2 15' (6 in. BEB)

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

Sample: 266064 - SB-2 20' (6 in. BEB)

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

Sample: 266065 - SB-2 25' (6 in. BEB)

Param	Flag	Result	Units	RL
Chloride		288	mg/Kg	4

Sample: 266066 - SB-2 30' (6 in. BEB)

Param	Flag	Result	Units	RL
Chloride		219	mg/Kg	4

Sample: 266067 - SB-2 40' (6 in. BEB)

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



6701 Aberdeen Avenue, Suite 9 Lubbock, Texas 79424 800•378•1296 806•794•1296 FAX 806•794•1296
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
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E-Mail: lab@traceanalysis.com

Certifications

WBE HUB NCTRCA DBE NELAP DoD LELAP Kansas Oklahoma ISO 17025

Analytical and Quality Control Report

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

Report Date: May 25, 2011

Work Order: 11051101



Project Location: Eddy Co., NM
Project Name: Brigham H #3
Project Number: 114-6400826

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
266048	SB-1 0-1' (6 in. BEB)	soil	2011-05-09	00:00	2011-05-10
266049	SB-1 3' (6 in. BEB)	soil	2011-05-09	00:00	2011-05-10
266050	SB-1 5' (6 in. BEB)	soil	2011-05-09	00:00	2011-05-10
266051	SB-1 7' (6 in. BEB)	soil	2011-05-09	00:00	2011-05-10
266052	SB-1 10' (6 in. BEB)	soil	2011-05-09	00:00	2011-05-10
266053	SB-1 15' (6 in. BEB)	soil	2011-05-09	00:00	2011-05-10
266054	SB-1 20' (6 in. BEB)	soil	2011-05-09	00:00	2011-05-10
266055	SB-1 25' (6 in. BEB)	soil	2011-05-09	00:00	2011-05-10
266056	SB-1 30' (6 in. BEB)	soil	2011-05-09	00:00	2011-05-10
266057	SB-1 40' (6 in. BEB)	soil	2011-05-09	00:00	2011-05-10
266058	SB-2 0-1' (6 in. BEB)	soil	2011-05-09	00:00	2011-05-10
266059	SB-2 3' (6 in. BEB)	soil	2011-05-09	00:00	2011-05-10
266060	SB-2 5' (6 in. BEB)	soil	2011-05-09	00:00	2011-05-10
266061	SB-2 7' (6 in. BEB)	soil	2011-05-09	00:00	2011-05-10
266062	SB-2 10' (6 in. BEB)	soil	2011-05-09	00:00	2011-05-10
266063	SB-2 15' (6 in. BEB)	soil	2011-05-09	00:00	2011-05-10
266064	SB-2 20' (6 in. BEB)	soil	2011-05-09	00:00	2011-05-10
266065	SB-2 25' (6 in. BEB)	soil	2011-05-09	00:00	2011-05-10

Sample	Description	Matrix	Date Taken	Time Taken	Date Received
266066	SB-2 30' (6 in. BEB)	soil	2011-05-09	00:00	2011-05-10
266067	SB-2 40' (6 in. BEB)	soil	2011-05-09	00:00	2011-05-10

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



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

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Sample 266056 (SB-1 30' (6 in. BEB))	12
Sample 266057 (SB-1 40' (6 in. BEB))	12
Sample 266058 (SB-2 0-1' (6 in. BEB))	13
Sample 266059 (SB-2 3' (6 in. BEB))	14
Sample 266060 (SB-2 5' (6 in. BEB))	15
Sample 266061 (SB-2 7' (6 in. BEB))	16
Sample 266062 (SB-2 10' (6 in. BEB))	18
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Sample 266064 (SB-2 20' (6 in. BEB))	19
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QC Batch 81436 - LCS (1)	28
QC Batch 81487 - LCS (1)	28

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QC Batch 81337 - CCV (3)	39
QC Batch 81382 - CCV (2)	39
QC Batch 81382 - CCV (3)	39
QC Batch 81436 - CCV (1)	40
QC Batch 81436 - CCV (2)	40
QC Batch 81487 - CCV (1)	40
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Case Narrative

Samples for project Brigham H #3 were received by TraceAnalysis, Inc. on 2011-05-10 and assigned to work order 11051101. Samples for work order 11051101 were received intact at a temperature of 14.0 C.

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

Test	Method	Prep Batch	Prep Date	QC Batch	Analysis Date
BTEX	S 8021B	68938	2011-05-12 at 08:58	81213	2011-05-12 at 21:06
BTEX	S 8021B	69052	2011-05-17 at 12:30	81336	2011-05-17 at 12:55
BTEX	S 8021B	69197	2011-05-20 at 13:30	81487	2011-05-20 at 23:27
Chloride (Titration)	SM 4500-Cl B	68908	2011-05-12 at 10:54	81556	2011-05-24 at 12:42
Chloride (Titration)	SM 4500-Cl B	68908	2011-05-12 at 10:54	81557	2011-05-24 at 12:43
TPH DRO - NEW	S 8015 D	68968	2011-05-13 at 10:42	81246	2011-05-13 at 10:42
TPH DRO - NEW	S 8015 D	69091	2011-05-18 at 09:14	81382	2011-05-18 at 09:14
TPH DRO - NEW	S 8015 D	69148	2011-05-19 at 15:21	81436	2011-05-19 at 15:21
TPH GRO	S 8015 D	68938	2011-05-12 at 08:58	81214	2011-05-12 at 21:06
TPH GRO	S 8015 D	69052	2011-05-17 at 12:30	81337	2011-05-17 at 15:12
TPH GRO	S 8015 D	69197	2011-05-20 at 13:30	81488	2011-05-20 at 23:53

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 11051101 since the sample was chosen at random. Therefore, the validity of the analytical data reported has been determined by the laboratory control sample (LCS) and the method blank (MB). These quality control measures are performed with each preparation batch to ensure data integrity.

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

Report Date: May 25, 2011
114-6400826

Work Order: 11051101
Brigham H #3

Page Number: 6 of 44
Eddy Co., NM

Analytical Report

Sample: 266048 - SB-1 0-1' (6 in. BEB)

Laboratory: Midland

Analysis: BTEX

QC Batch: 81213

Prep Batch: 68938

Analytical Method: S 8021B

Date Analyzed: 2011-05-12

Sample Preparation: 2011-05-12

Prep Method: S 5035

Analyzed By: ME

Prepared By: ME

Parameter	Flag	Cert	RL Result	Units	Dilution	RL
Benzene		1	6.66	mg/Kg	50	0.0200
Toluene		1	40.1	mg/Kg	50	0.0200
Ethylbenzene		1	43.4	mg/Kg	50	0.0200
Xylene		1	85.2	mg/Kg	50	0.0200

Surrogate	Flag	Cert	Result	Units	Dilution	Spike Amount	Percent Recovery	Recovery Limits
Trifluorotoluene (TFT)			48.5	mg/Kg	50	50.0	97	52.8 - 137
4-Bromofluorobenzene (4-BFB)			69.3	mg/Kg	50	50.0	139	38.4 - 157

Sample: 266048 - SB-1 0-1' (6 in. BEB)

Laboratory: Midland

Analysis: Chloride (Titration)

QC Batch: 81556

Prep Batch: 68908

Analytical Method: SM 4500-C1 B

Date Analyzed: 2011-05-24

Sample Preparation: 2011-05-20

Prep Method: N/A

Analyzed By: AR

Prepared By: AR

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

Sample: 266048 - SB-1 0-1' (6 in. BEB)

Laboratory: Midland

Analysis: TPH DRO - NEW

QC Batch: 81246

Prep Batch: 68968

Analytical Method: S 8015 D

Date Analyzed: 2011-05-13

Sample Preparation: 2011-05-13

Prep Method: N/A

Analyzed By: kg

Prepared By: kg

Parameter	Flag	Cert	RL Result	Units	Dilution	RL
DRO		1	7870	mg/Kg	5	50.0

Report Date: May 25, 2011
114-6400826

Work Order: 11051101
Brigham H #3

Page Number: 7 of 44
Eddy Co., NM

Surrogate	Flag	Cert	Result	Units	Dilution	Spike Amount	Percent Recovery	Recovery Limits
n-Tricosane			1390	mg/Kg	5	100	1390	70 - 130

Sample: 266048 - SB-1 0-1' (6 in. BEB)

Laboratory: Midland
Analysis: TPH GRO
QC Batch: 81214
Prep Batch: 68938

Analytical Method: S 8015 D
Date Analyzed: 2011-05-12
Sample Preparation: 2011-05-12

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

Parameter	Flag	Cert	RL Result	Units	Dilution	RL
GRO		1	3060	mg/Kg	50	2.00

Surrogate	Flag	Cert	Result	Units	Dilution	Spike Amount	Percent Recovery	Recovery Limits
Trifluorotoluene (TFT)			54.1	mg/Kg	50	50.0	108	48.5 - 152
4-Bromofluorobenzene (4-BFB)			79.0	mg/Kg	50	50.0	158	42 - 159

Sample: 266049 - SB-1 3' (6 in. BEB)

Laboratory: Midland
Analysis: Chloride (Titration)
QC Batch: 81556
Prep Batch: 68908

Analytical Method: SM 4500-Cl B
Date Analyzed: 2011-05-24
Sample Preparation: 2011-05-20

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

Parameter	Flag	Cert	RL Result	Units	Dilution	RL
Chloride			355	mg/Kg	50	4.00

Sample: 266049 - SB-1 3' (6 in. BEB)

Laboratory: Midland
Analysis: TPH DRO - NEW
QC Batch: 81382
Prep Batch: 69091

Analytical Method: S 8015 D
Date Analyzed: 2011-05-18
Sample Preparation: 2011-05-18

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

Parameter	Flag	Cert	RL Result	Units	Dilution	RL
DRO		1	8060	mg/Kg	5	50.0

Report Date: May 25, 2011
114-6400826

Work Order: 11051101
Brigham H #3

Page Number: 8 of 44
Eddy Co., NM

Surrogate	Flag	Cert	Result	Units	Dilution	Spike Amount	Percent Recovery	Recovery Limits
n-Tricosane			1020	mg/Kg	5	100	1020	70 - 130

Sample: 266049 - SB-1 3' (6 in. BEB)

Laboratory: Midland
Analysis: TPH GRO
QC Batch: 81337
Prep Batch: 69052

Analytical Method: S 8015 D
Date Analyzed: 2011-05-17
Sample Preparation: 2011-05-17

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

Parameter	Flag	Cert	RL Result	Units	Dilution	RL
GRO		1	2550	mg/Kg	50	2.00

Surrogate	Flag	Cert	Result	Units	Dilution	Spike Amount	Percent Recovery	Recovery Limits
Trifluorotoluene (TFT)			63.4	mg/Kg	50	50.0	127	48.5 - 152
4-Bromofluorobenzene (4-BFB)			83.0	mg/Kg	50	50.0	166	42 - 159

Sample: 266050 - SB-1 5' (6 in. BEB)

Laboratory: Midland
Analysis: BTEX
QC Batch: 81336
Prep Batch: 69052

Analytical Method: S 8021B
Date Analyzed: 2011-05-17
Sample Preparation: 2011-05-17

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

Parameter	Flag	Cert	RL Result	Units	Dilution	RL
Benzene		1	11.6	mg/Kg	50	0.0200
Toluene		1	75.2	mg/Kg	50	0.0200
Ethylbenzene		1	56.9	mg/Kg	50	0.0200
Xylene		1	90.8	mg/Kg	50	0.0200

Surrogate	Flag	Cert	Result	Units	Dilution	Spike Amount	Percent Recovery	Recovery Limits
Trifluorotoluene (TFT)			54.7	mg/Kg	50	50.0	109	52.8 - 137
4-Bromofluorobenzene (4-BFB)			82.6	mg/Kg	50	50.0	165	38.4 - 157

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Sample: 266050 - SB-1 5' (6 in. BEB)

Laboratory:	Midland	Analytical Method:	SM 4500-Cl B	Prep Method:	N/A
Analysis:	Chloride (Titration)	Date Analyzed:	2011-05-24	Analyzed By:	AR
QC Batch:	81556	Sample Preparation:	2011-05-20	Prepared By:	AR
Prep Batch:	68908				

Parameter	Flag	Cert	RL Result	Units	Dilution	RL
Chloride			16800	mg/Kg	100	4.00

Sample: 266050 - SB-1 5' (6 in. BEB)

Laboratory:	Midland	Analytical Method:	S 8015 D	Prep Method:	N/A
Analysis:	TPH DRO - NEW	Date Analyzed:	2011-05-18	Analyzed By:	kg
QC Batch:	81382	Sample Preparation:	2011-05-18	Prepared By:	kg
Prep Batch:	69091				

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

Surrogate	Flag	Cert	Result	Units	Dilution	Spike Amount	Percent Recovery	Recovery Limits
n-Tricosane			401	mg/Kg	1	100	401	70 - 130

Sample: 266050 - SB-1 5' (6 in. BEB)

Laboratory:	Midland	Analytical Method:	S 8015 D	Prep Method:	S 5035
Analysis:	TPH GRO	Date Analyzed:	2011-05-17	Analyzed By:	ME
QC Batch:	81337	Sample Preparation:	2011-05-17	Prepared By:	ME
Prep Batch:	69052				

Parameter	Flag	Cert	RL Result	Units	Dilution	RL
GRO		1	2760	mg/Kg	50	2.00

Surrogate	Flag	Cert	Result	Units	Dilution	Spike Amount	Percent Recovery	Recovery Limits
Trifluorotoluene (TFT)			63.2	mg/Kg	50	50.0	126	48.5 - 152
4-Bromofluorobenzene (4-BFB)			88.5	mg/Kg	50	50.0	177	42 - 159

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Sample: 266051 - SB-1 7' (6 in. BEB)

Laboratory: Midland

Analysis: BTEX

QC Batch: 81487

Prep Batch: 69197

Analytical Method: S 8021B

Date Analyzed: 2011-05-20

Sample Preparation: 2011-05-20

Prep Method: S 5035

Analyzed By: AG

Prepared By: AG

Parameter	Flag	Cert	RL Result	Units	Dilution	RL
Benzene		1	<0.200	mg/Kg	10	0.0200
Toluene		1	<0.200	mg/Kg	10	0.0200
Ethylbenzene		1	1.64	mg/Kg	10	0.0200
Xylene		1	4.72	mg/Kg	10	0.0200

Surrogate	Flag	Cert	Result	Units	Dilution	Spike Amount	Percent Recovery	Recovery Limits
Trifluorotoluene (TFT)			12.1	mg/Kg	10	10.0	121	52.8 - 137
4-Bromofluorobenzene (4-BFB)			12.4	mg/Kg	10	10.0	124	38.4 - 157

Sample: 266051 - SB-1 7' (6 in. BEB)

Laboratory: Midland

Analysis: Chloride (Titration)

QC Batch: 81556

Prep Batch: 68908

Analytical Method: SM 4500-Cl B

Date Analyzed: 2011-05-24

Sample Preparation: 2011-05-20

Prep Method: N/A

Analyzed By: AR

Prepared By: AR

Parameter	Flag	Cert	RL Result	Units	Dilution	RL
Chloride			15600	mg/Kg	100	4.00

Sample: 266051 - SB-1 7' (6 in. BEB)

Laboratory: Midland

Analysis: TPH DRO - NEW

QC Batch: 81436

Prep Batch: 69148

Analytical Method: S 8015 D

Date Analyzed: 2011-05-19

Sample Preparation: 2011-05-19

Prep Method: N/A

Analyzed By: kg

Prepared By: kg

Parameter	Flag	Cert	RL Result	Units	Dilution	RL
DRO		1	164	mg/Kg	1	50.0

Surrogate	Flag	Cert	Result	Units	Dilution	Spike Amount	Percent Recovery	Recovery Limits
n-Tricosane			134	mg/Kg	1	100	134	70 - 130

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Sample: 266051 - SB-1 7' (6 in. BEB)

Laboratory:	Midland		
Analysis:	TPH GRO	Analytical Method:	S 8015 D
QC Batch:	81488	Date Analyzed:	2011-05-20
Prep Batch:	69197	Sample Preparation:	2011-05-20
		Prep Method:	S 5035
		Analyzed By:	AG
		Prepared By:	AG

Parameter	Flag	Cert	RL Result	Units	Dilution	RL
GRO		1	156	mg/Kg	10	2.00

Surrogate	Flag	Cert	Result	Units	Dilution	Spike Amount	Percent Recovery	Recovery Limits
Trifluorotoluene (TFT)			13.6	mg/Kg	10	10.0	136	48.5 - 152
4-Bromofluorobenzene (4-BFB)			13.5	mg/Kg	10	10.0	135	42 - 159

Sample: 266052 - SB-1 10' (6 in. BEB)

Laboratory:	Midland		
Analysis:	Chloride (Titration)	Analytical Method:	SM 4500-Cl B
QC Batch:	81556	Date Analyzed:	2011-05-24
Prep Batch:	68908	Sample Preparation:	2011-05-20
		Prep Method:	N/A
		Analyzed By:	AR
		Prepared By:	AR

Parameter	Flag	Cert	RL Result	Units	Dilution	RL
Chloride			3170	mg/Kg	100	4.00

Sample: 266053 - SB-1 15' (6 in. BEB)

Laboratory:	Midland		
Analysis:	Chloride (Titration)	Analytical Method:	SM 4500-Cl B
QC Batch:	81556	Date Analyzed:	2011-05-24
Prep Batch:	68908	Sample Preparation:	2011-05-20
		Prep Method:	N/A
		Analyzed By:	AR
		Prepared By:	AR

Parameter	Flag	Cert	RL Result	Units	Dilution	RL
Chloride			953	mg/Kg	100	4.00

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Sample: 266054 - SB-1 20' (6 in. BEB)

Laboratory:	Midland		
Analysis:	Chloride (Titration)	Analytical Method:	SM 4500-Cl B
QC Batch:	81556	Date Analyzed:	2011-05-24
Prep Batch:	68908	Sample Preparation:	2011-05-20
		Prep Method:	N/A
		Analyzed By:	AR
		Prepared By:	AR

Parameter	Flag	Cert	RL Result	Units	Dilution	RL
Chloride			261	mg/Kg	50	4.00

Sample: 266055 - SB-1 25' (6 in. BEB)

Laboratory:	Midland		
Analysis:	Chloride (Titration)	Analytical Method:	SM 4500-Cl B
QC Batch:	81556	Date Analyzed:	2011-05-24
Prep Batch:	68908	Sample Preparation:	2011-05-20
		Prep Method:	N/A
		Analyzed By:	AR
		Prepared By:	AR

Parameter	Flag	Cert	RL Result	Units	Dilution	RL
Chloride			222	mg/Kg	50	4.00

Sample: 266056 - SB-1 30' (6 in. BEB)

Laboratory:	Midland		
Analysis:	Chloride (Titration)	Analytical Method:	SM 4500-Cl B
QC Batch:	81556	Date Analyzed:	2011-05-24
Prep Batch:	68908	Sample Preparation:	2011-05-20
		Prep Method:	N/A
		Analyzed By:	AR
		Prepared By:	AR

Parameter	Flag	Cert	RL Result	Units	Dilution	RL
Chloride			227	mg/Kg	50	4.00

Sample: 266057 - SB-1 40' (6 in. BEB)

Laboratory:	Midland		
Analysis:	Chloride (Titration)	Analytical Method:	SM 4500-Cl B
QC Batch:	81556	Date Analyzed:	2011-05-24
Prep Batch:	68908	Sample Preparation:	2011-05-20
		Prep Method:	N/A
		Analyzed By:	AR
		Prepared By:	AR

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

Sample: 266058 - SB-2 0-1' (6 in. BEB)

Laboratory: Midland
Analysis: Chloride (Titration) Analytical Method: SM 4500-Cl B Prep Method: N/A
QC Batch: 81557 Date Analyzed: 2011-05-24 Analyzed By: AR
Prep Batch: 68908 Sample Preparation: 2011-05-20 Prepared By: AR

Parameter	Flag	Cert	RL Result	Units	Dilution	RL
Chloride			1380	mg/Kg	100	4.00

Sample: 266058 - SB-2 0-1' (6 in. BEB)

Laboratory: Midland
Analysis: TPH DRO - NEW Analytical Method: S 8015 D Prep Method: N/A
QC Batch: 81246 Date Analyzed: 2011-05-13 Analyzed By: kg
Prep Batch: 68968 Sample Preparation: 2011-05-13 Prepared By: kg

Parameter	Flag	Cert	RL Result	Units	Dilution	RL
DRO		1	8300	mg/Kg	5	50.0

Surrogate	Flag	Cert	Result	Units	Dilution	Spike Amount	Percent Recovery	Recovery Limits
n-Tricosane			1480	mg/Kg	5	100	1480	70 - 130

Sample: 266058 - SB-2 0-1' (6 in. BEB)

Laboratory: Midland
Analysis: TPH GRO Analytical Method: S 8015 D Prep Method: S 5035
QC Batch: 81214 Date Analyzed: 2011-05-12 Analyzed By: ME
Prep Batch: 68938 Sample Preparation: 2011-05-12 Prepared By: ME

Parameter	Flag	Cert	RL Result	Units	Dilution	RL
GRO		1	1050	mg/Kg	20	2.00

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Surrogate	Flag	Cert	Result	Units	Dilution	Spike Amount	Percent Recovery	Recovery Limits
Trifluorotoluene (TFT)			23.2	mg/Kg	20	20.0	116	48.5 - 152
4-Bromofluorobenzene (4-BFB)			35.6	mg/Kg	20	20.0	178	42 - 159

Sample: 266059 - SB-2 3' (6 in. BEB)

Laboratory: Midland

Analysis: BTEX

QC Batch: 81336

Prep Batch: 69052

Analytical Method: S 8021B

Date Analyzed: 2011-05-17

Sample Preparation: 2011-05-17

Prep Method: S 5035

Analyzed By: ME

Prepared By: ME

Parameter	Flag	Cert	RL Result	Units	Dilution	RL
Benzene		1	19.0	mg/Kg	50	0.0200
Toluene		1	166	mg/Kg	50	0.0200
Ethylbenzene		1	134	mg/Kg	50	0.0200
Xylene		1	204	mg/Kg	50	0.0200

Surrogate	Flag	Cert	Result	Units	Dilution	Spike Amount	Percent Recovery	Recovery Limits
Trifluorotoluene (TFT)			55.3	mg/Kg	50	50.0	111	52.8 - 137
4-Bromofluorobenzene (4-BFB)			107	mg/Kg	50	50.0	214	38.4 - 157

Sample: 266059 - SB-2 3' (6 in. BEB)

Laboratory: Midland

Analysis: Chloride (Titration)

QC Batch: 81557

Prep Batch: 68908

Analytical Method: SM 4500-Cl B

Date Analyzed: 2011-05-24

Sample Preparation: 2011-05-20

Prep Method: N/A

Analyzed By: AR

Prepared By: AR

Parameter	Flag	Cert	RL Result	Units	Dilution	RL
Chloride			12800	mg/Kg	100	4.00

Sample: 266059 - SB-2 3' (6 in. BEB)

Laboratory: Midland

Analysis: TPH DRO - NEW

QC Batch: 81382

Prep Batch: 69091

Analytical Method: S 8015 D

Date Analyzed: 2011-05-18

Sample Preparation: 2011-05-18

Prep Method: N/A

Analyzed By: kg

Prepared By: kg

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Parameter	Flag	Cert	RL Result	Units	Dilution	RL
DRO		1	9870	mg/Kg	5	50.0

Surrogate	Flag	Cert	Result	Units	Dilution	Spike Amount	Percent Recovery	Recovery Limits
n-Tricosane			1200	mg/Kg	5	100	1200	70 - 130

Sample: 266059 - SB-2 3' (6 in. BEB)

Laboratory: Midland

Analysis: TPH GRO

QC Batch: 81337

Prep Batch: 69052

Analytical Method: S 8015 D

Date Analyzed: 2011-05-17

Sample Preparation: 2011-05-17

Prep Method: S 5035

Analyzed By: ME

Prepared By: ME

Parameter	Flag	Cert	RL Result	Units	Dilution	RL
GRO		1	5770	mg/Kg	50	2.00

Surrogate	Flag	Cert	Result	Units	Dilution	Spike Amount	Percent Recovery	Recovery Limits
Trifluorotoluene (TFT)			63.4	mg/Kg	50	50.0	127	48.5 - 152
4-Bromofluorobenzene (4-BFB)			128	mg/Kg	50	50.0	256	42 - 159

Sample: 266060 - SB-2 5' (6 in. BEB)

Laboratory: Midland

Analysis: BTEX

QC Batch: 81336

Prep Batch: 69052

Analytical Method: S 8021B

Date Analyzed: 2011-05-17

Sample Preparation: 2011-05-17

Prep Method: S 5035

Analyzed By: ME

Prepared By: ME

Parameter	Flag	Cert	RL Result	Units	Dilution	RL
Benzene		1	30.3	mg/Kg	50	0.0200
Toluene		1	194	mg/Kg	50	0.0200
Ethylbenzene		1	121	mg/Kg	50	0.0200
Xylene		1	179	mg/Kg	50	0.0200

Surrogate	Flag	Cert	Result	Units	Dilution	Spike Amount	Percent Recovery	Recovery Limits
Trifluorotoluene (TFT)			55.4	mg/Kg	50	50.0	111	52.8 - 137
4-Bromofluorobenzene (4-BFB)			95.8	mg/Kg	50	50.0	192	38.4 - 157

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Sample: 266060 - SB-2 5' (6 in. BEB)

Laboratory: Midland
Analysis: Chloride (Titration) Analytical Method: SM 4500-Cl B Prep Method: N/A
QC Batch: 81557 Date Analyzed: 2011-05-24 Analyzed By: AR
Prep Batch: 68908 Sample Preparation: 2011-05-20 Prepared By: AR

Parameter	Flag	Cert	RL Result	Units	Dilution	RL
Chloride			5640	mg/Kg	100	4.00

Sample: 266060 - SB-2 5' (6 in. BEB)

Laboratory: Midland
Analysis: TPH DRO - NEW Analytical Method: S 8015 D Prep Method: N/A
QC Batch: 81382 Date Analyzed: 2011-05-18 Analyzed By: kg
Prep Batch: 69091 Sample Preparation: 2011-05-18 Prepared By: kg

Parameter	Flag	Cert	RL Result	Units	Dilution	RL
DRO		1	6590	mg/Kg	5	50.0

Surrogate	Flag	Cert	Result	Units	Dilution	Spike Amount	Percent Recovery	Recovery Limits
n-Tricosane			777	mg/Kg	5	100	777	70 - 130

Sample: 266060 - SB-2 5' (6 in. BEB)

Laboratory: Midland
Analysis: TPH GRO Analytical Method: S 8015 D Prep Method: S 5035
QC Batch: 81337 Date Analyzed: 2011-05-17 Analyzed By: ME
Prep Batch: 69052 Sample Preparation: 2011-05-17 Prepared By: ME

Parameter	Flag	Cert	RL Result	Units	Dilution	RL
GRO		1	5210	mg/Kg	50	2.00

Surrogate	Flag	Cert	Result	Units	Dilution	Spike Amount	Percent Recovery	Recovery Limits
Trifluorotoluene (TFT)			64.1	mg/Kg	50	50.0	128	48.5 - 152
4-Bromofluorobenzene (4-BFB)			115	mg/Kg	50	50.0	230	42 - 159

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Sample: 266061 - SB-2 7' (6 in. BEB)

Laboratory: Midland

Analysis: BTEX

QC Batch: 81487

Prep Batch: 69197

Analytical Method: S 8021B

Date Analyzed: 2011-05-20

Sample Preparation: 2011-05-20

Prep Method: S 5035

Analyzed By: AG

Prepared By: AG

Parameter	Flag	Cert	RL Result	Units	Dilution	RL
Benzene		1	<0.0200	mg/Kg	1	0.0200
Toluene		1	<0.0200	mg/Kg	1	0.0200
Ethylbenzene		1	0.127	mg/Kg	1	0.0200
Xylene		1	0.343	mg/Kg	1	0.0200

Surrogate	Flag	Cert	Result	Units	Dilution	Spike Amount	Percent Recovery	Recovery Limits
Trifluorotoluene (TFT)			2.14	mg/Kg	1	2.00	107	52.8 - 137
4-Bromofluorobenzene (4-BFB)			2.00	mg/Kg	1	2.00	100	38.4 - 157

Sample: 266061 - SB-2 7' (6 in. BEB)

Laboratory: Midland

Analysis: Chloride (Titration)

QC Batch: 81557

Prep Batch: 68908

Analytical Method: SM 4500-Cl B

Date Analyzed: 2011-05-24

Sample Preparation: 2011-05-20

Prep Method: N/A

Analyzed By: AR

Prepared By: AR

Parameter	Flag	Cert	RL Result	Units	Dilution	RL
Chloride			236	mg/Kg	50	4.00

Sample: 266061 - SB-2 7' (6 in. BEB)

Laboratory: Midland

Analysis: TPH DRO - NEW

QC Batch: 81382

Prep Batch: 69091

Analytical Method: S 8015 D

Date Analyzed: 2011-05-18

Sample Preparation: 2011-05-18

Prep Method: N/A

Analyzed By: kg

Prepared By: kg

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

Surrogate	Flag	Cert	Result	Units	Dilution	Spike Amount	Percent Recovery	Recovery Limits
n-Tricosane			94.1	mg/Kg	1	100	94	70 - 130

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Sample: 266061 - SB-2 7' (6 in. BEB)

Laboratory: Midland
Analysis: TPH GRO
QC Batch: 81488
Prep Batch: 69197

Analytical Method: S 8015 D
Date Analyzed: 2011-05-20
Sample Preparation: 2011-05-20

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

Parameter	Flag	Cert	RL Result	Units	Dilution	RL
GRO		1	<2.00	mg/Kg	1	2.00

Surrogate	Flag	Cert	Result	Units	Dilution	Spike Amount	Percent Recovery	Recovery Limits
Trifluorotoluene (TFT)			2.42	mg/Kg	1	2.00	121	48.5 - 152
4-Bromofluorobenzene (4-BFB)			2.25	mg/Kg	1	2.00	112	42 - 159

Sample: 266062 - SB-2 10' (6 in. BEB)

Laboratory: Midland
Analysis: Chloride (Titration)
QC Batch: 81557
Prep Batch: 68908

Analytical Method: SM 4500-Cl B
Date Analyzed: 2011-05-24
Sample Preparation: 2011-05-20

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

Parameter	Flag	Cert	RL Result	Units	Dilution	RL
Chloride			334	mg/Kg	50	4.00

Sample: 266062 - SB-2 10' (6 in. BEB)

Laboratory: Midland
Analysis: TPH DRO - NEW
QC Batch: 81382
Prep Batch: 69091

Analytical Method: S 8015 D
Date Analyzed: 2011-05-18
Sample Preparation: 2011-05-18

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

Parameter	Flag	Cert	RL Result	Units	Dilution	RL
DRO		1	61.1	mg/Kg	1	50.0

Surrogate	Flag	Cert	Result	Units	Dilution	Spike Amount	Percent Recovery	Recovery Limits
n-Tricosane			101	mg/Kg	1	100	101	70 - 130

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Sample: 266062 - SB-2 10' (6 in. BEB)

Laboratory:	Midland		
Analysis:	TPH GRO	Analytical Method:	S 8015 D
QC Batch:	81488	Date Analyzed:	2011-05-20
Prep Batch:	69197	Sample Preparation:	2011-05-20
		Prep Method:	S 5035
		Analyzed By:	AG
		Prepared By:	AG

Parameter	Flag	Cert	RL Result	Units	Dilution	RL
GRO		1	9.94	mg/Kg	1	2.00

Surrogate	Flag	Cert	Result	Units	Dilution	Spike Amount	Percent Recovery	Recovery Limits
Trifluorotoluene (TFT)			2.77	mg/Kg	1	2.00	138	48.5 - 152
4-Bromofluorobenzene (4-BFB)			2.41	mg/Kg	1	2.00	120	42 - 159

Sample: 266063 - SB-2 15' (6 in. BEB)

Laboratory:	Midland		
Analysis:	Chloride (Titration)	Analytical Method:	SM 4500-Cl B
QC Batch:	81557	Date Analyzed:	2011-05-24
Prep Batch:	68908	Sample Preparation:	2011-05-20
		Prep Method:	N/A
		Analyzed By:	AR
		Prepared By:	AR

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

Sample: 266064 - SB-2 20' (6 in. BEB)

Laboratory:	Midland		
Analysis:	Chloride (Titration)	Analytical Method:	SM 4500-Cl B
QC Batch:	81557	Date Analyzed:	2011-05-24
Prep Batch:	68908	Sample Preparation:	2011-05-20
		Prep Method:	N/A
		Analyzed By:	AR
		Prepared By:	AR

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

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Sample: 266065 - SB-2 25' (6 in. BEB)

Laboratory:	Midland		
Analysis:	Chloride (Titration)	Analytical Method:	SM 4500-Cl B
QC Batch:	81557	Date Analyzed:	2011-05-24
Prep Batch:	68908	Sample Preparation:	2011-05-20
		Prep Method:	N/A
		Analyzed By:	AR
		Prepared By:	AR

Parameter	Flag	Cert	RL Result	Units	Dilution	RL
Chloride			288	mg/Kg	50	4.00

Sample: 266066 - SB-2 30' (6 in. BEB)

Laboratory:	Midland		
Analysis:	Chloride (Titration)	Analytical Method:	SM 4500-Cl B
QC Batch:	81557	Date Analyzed:	2011-05-24
Prep Batch:	68908	Sample Preparation:	2011-05-20
		Prep Method:	N/A
		Analyzed By:	AR
		Prepared By:	AR

Parameter	Flag	Cert	RL Result	Units	Dilution	RL
Chloride			219	mg/Kg	50	4.00

Sample: 266067 - SB-2 40' (6 in. BEB)

Laboratory:	Midland		
Analysis:	Chloride (Titration)	Analytical Method:	SM 4500-Cl B
QC Batch:	81557	Date Analyzed:	2011-05-24
Prep Batch:	68908	Sample Preparation:	2011-05-20
		Prep Method:	N/A
		Analyzed By:	AR
		Prepared By:	AR

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

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Method Blanks

Method Blank (1) QC Batch: 81213

QC Batch: 81213
Prep Batch: 68938

Date Analyzed: 2011-05-12
QC Preparation: 2011-05-12

Analyzed By: ME
Prepared By: ME

Parameter	Flag	Cert	MDL Result	Units	RL
Benzene		1	<0.0118	mg/Kg	0.02
Toluene		1	<0.00600	mg/Kg	0.02
Ethylbenzene		1	<0.00850	mg/Kg	0.02
Xylene		1	<0.00613	mg/Kg	0.02

Surrogate	Flag	Cert	Result	Units	Dilution	Spike Amount	Percent Recovery	Recovery Limits
Trifluorotoluene (TFT)			1.71	mg/Kg	1	2.00	86	66.6 - 122
4-Bromofluorobenzene (4-BFB)			1.46	mg/Kg	1	2.00	73	55.4 - 124

Method Blank (1) QC Batch: 81214

QC Batch: 81214
Prep Batch: 68938

Date Analyzed: 2011-05-12
QC Preparation: 2011-05-12

Analyzed By: ME
Prepared By: ME

Parameter	Flag	Cert	MDL Result	Units	RL
GRO		1	<0.753	mg/Kg	2

Surrogate	Flag	Cert	Result	Units	Dilution	Spike Amount	Percent Recovery	Recovery Limits
Trifluorotoluene (TFT)			1.82	mg/Kg	1	2.00	91	67.6 - 150
4-Bromofluorobenzene (4-BFB)			1.51	mg/Kg	1	2.00	76	52.4 - 130

Method Blank (1) QC Batch: 81246

QC Batch: 81246
Prep Batch: 68968

Date Analyzed: 2011-05-13
QC Preparation: 2011-05-13

Analyzed By: kg
Prepared By: kg

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Parameter	Flag	Cert	MDL Result	Units	RL
DRO		1	<15.7	mg/Kg	50

Surrogate	Flag	Cert	Result	Units	Dilution	Spike Amount	Percent Recovery	Recovery Limits
n-Tricosane			105	mg/Kg	1	100	105	70 - 130

Method Blank (1) QC Batch: 81336

QC Batch: 81336
Prep Batch: 69052

Date Analyzed: 2011-05-17
QC Preparation: 2011-05-17

Analyzed By: ME
Prepared By: AG

Parameter	Flag	Cert	MDL Result	Units	RL
Benzene		1	<0.0118	mg/Kg	0.02
Toluene		1	<0.00600	mg/Kg	0.02
Ethylbenzene		1	<0.00850	mg/Kg	0.02
Xylene		1	<0.00613	mg/Kg	0.02

Surrogate	Flag	Cert	Result	Units	Dilution	Spike Amount	Percent Recovery	Recovery Limits
Trifluorotoluene (TFT)			1.90	mg/Kg	1	2.00	95	66.6 - 122
4-Bromofluorobenzene (4-BFB)			1.91	mg/Kg	1	2.00	96	55.4 - 124

Method Blank (1) QC Batch: 81337

QC Batch: 81337
Prep Batch: 69052

Date Analyzed: 2011-05-17
QC Preparation: 2011-05-17

Analyzed By: ME
Prepared By: AG

Parameter	Flag	Cert	MDL Result	Units	RL
GRO		1	<0.753	mg/Kg	2

Surrogate	Flag	Cert	Result	Units	Dilution	Spike Amount	Percent Recovery	Recovery Limits
Trifluorotoluene (TFT)			2.19	mg/Kg	1	2.00	110	67.6 - 150
4-Bromofluorobenzene (4-BFB)			2.02	mg/Kg	1	2.00	101	52.4 - 130

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Method Blank (1) QC Batch: 81382

QC Batch: 81382
Prep Batch: 69091

Date Analyzed: 2011-05-18
QC Preparation: 2011-05-18

Analyzed By: kg
Prepared By: kg

Parameter	Flag	Cert	MDL Result	Units	RL
DRO		1	<15.7	mg/Kg	50

Surrogate	Flag	Cert	Result	Units	Dilution	Spike Amount	Percent Recovery	Recovery Limits
n-Tricosane			107	mg/Kg	1	100	107	70 - 130

Method Blank (1) QC Batch: 81436

QC Batch: 81436
Prep Batch: 69148

Date Analyzed: 2011-05-19
QC Preparation: 2011-05-19

Analyzed By: kg
Prepared By: kg

Parameter	Flag	Cert	MDL Result	Units	RL
DRO		1	<15.7	mg/Kg	50

Surrogate	Flag	Cert	Result	Units	Dilution	Spike Amount	Percent Recovery	Recovery Limits
n-Tricosane			106	mg/Kg	1	100	106	70 - 130

Method Blank (1) QC Batch: 81487

QC Batch: 81487
Prep Batch: 69197

Date Analyzed: 2011-05-20
QC Preparation: 2011-05-20

Analyzed By: AG
Prepared By: AG

Parameter	Flag	Cert	MDL Result	Units	RL
Benzene		1	<0.0118	mg/Kg	0.02
Toluene		1	<0.00600	mg/Kg	0.02
Ethylbenzene		1	<0.00850	mg/Kg	0.02
Xylene		1	<0.00613	mg/Kg	0.02

Surrogate	Flag	Cert	Result	Units	Dilution	Spike Amount	Percent Recovery	Recovery Limits
Trifluorotoluene (TFT)			1.86	mg/Kg	1	2.00	93	66.6 - 122
4-Bromofluorobenzene (4-BFB)			1.66	mg/Kg	1	2.00	83	55.4 - 124

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Method Blank (1) QC Batch: 81488

QC Batch: 81488
Prep Batch: 69197

Date Analyzed: 2011-05-20
QC Preparation: 2011-05-20

Analyzed By: AG
Prepared By: AG

Parameter	Flag	Cert	MDL Result	Units	RL
GRO		1	<0.753	mg/Kg	2

Surrogate	Flag	Cert	Result	Units	Dilution	Spike Amount	Percent Recovery	Recovery Limits
Trifluorotoluene (TFT)			2.13	mg/Kg	1	2.00	106	67.6 - 150
4-Bromofluorobenzene (4-BFB)			1.74	mg/Kg	1	2.00	87	52.4 - 130

Method Blank (1) QC Batch: 81556

QC Batch: 81556
Prep Batch: 68908

Date Analyzed: 2011-05-24
QC Preparation: 2011-05-12

Analyzed By: AR
Prepared By: AR

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

Method Blank (1) QC Batch: 81557

QC Batch: 81557
Prep Batch: 68908

Date Analyzed: 2011-05-24
QC Preparation: 2011-05-12

Analyzed By: AR
Prepared By: AR

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

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Laboratory Control Spikes

Laboratory Control Spike (LCS-1)

QC Batch: 81213
Prep Batch: 68938

Date Analyzed: 2011-05-12
QC Preparation: 2011-05-12

Analyzed By: ME
Prepared By: ME

Param	F	C	LCS Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit
Benzene		1	2.04	mg/Kg	1	2.00	<0.0118	102	81.9 - 108
Toluene		1	2.18	mg/Kg	1	2.00	<0.00600	109	81.9 - 118
Ethylbenzene		1	1.88	mg/Kg	1	2.00	<0.00850	94	78.4 - 115
Xylene		1	5.62	mg/Kg	1	6.00	<0.00613	94	79.1 - 116

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

Param	F	C	LCS Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit	RPD	RPD Limit
Benzene		1	2.00	mg/Kg	1	2.00	<0.0118	100	81.9 - 108	2	20
Toluene		1	2.13	mg/Kg	1	2.00	<0.00600	106	81.9 - 118	2	20
Ethylbenzene		1	1.87	mg/Kg	1	2.00	<0.00850	94	78.4 - 115	0	20
Xylene		1	5.56	mg/Kg	1	6.00	<0.00613	93	79.1 - 116	1	20

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

Surrogate	LCS Result	LCS Result	Units	Dil.	Spike Amount	LCS Rec.	LCS Rec.	Rec. Limit
Trifluorotoluene (TFT)	1.60	1.57	mg/Kg	1	2.00	80	78	70.2 - 114
4-Bromofluorobenzene (4-BFB)	1.59	1.56	mg/Kg	1	2.00	80	78	69.8 - 121

Laboratory Control Spike (LCS-1)

QC Batch: 81214
Prep Batch: 68938

Date Analyzed: 2011-05-12
QC Preparation: 2011-05-12

Analyzed By: ME
Prepared By: ME

Param	F	C	LCS Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit
GRO		1	12.7	mg/Kg	1	20.0	<0.753	64	60.9 - 95.4

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

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Param	F	C	LCS Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit	RPD	RPD Limit
Param	F	C	LCS Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit	RPD	RPD Limit
GRO		1	12.3	mg/Kg	1	20.0	<0.753	62	60.9 - 95.4	3	20

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

Surrogate	LCS Result	LCS Result	Units	Dil.	Spike Amount	LCS Rec.	LCS Rec.	Rec. Limit
Trifluorotoluene (TFT)	1.99	1.95	mg/Kg	1	2.00	100	98	61.9 - 142
4-Bromofluorobenzene (4-BFB)	1.78	1.79	mg/Kg	1	2.00	89	90	68.2 - 132

Laboratory Control Spike (LCS-1)

QC Batch: 81246
Prep Batch: 68968

Date Analyzed: 2011-05-13
QC Preparation: 2011-05-13

Analyzed By: kg
Prepared By: kg

Param	F	C	LCS Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit
DRO		1	206	mg/Kg	1	250	<15.7	82	47.5 - 144.1

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

Param	F	C	LCS Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit	RPD	RPD Limit
DRO		1	200	mg/Kg	1	250	<15.7	80	47.5 - 144.1	3	20

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

Surrogate	LCS Result	LCS Result	Units	Dil.	Spike Amount	LCS Rec.	LCS Rec.	Rec. Limit
n-Tricosane	114	110	mg/Kg	1	100	114	110	70 - 130

Laboratory Control Spike (LCS-1)

QC Batch: 81336
Prep Batch: 69052

Date Analyzed: 2011-05-17
QC Preparation: 2011-05-17

Analyzed By: ME
Prepared By: AG

Param	F	C	LCS Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit
Benzene		1	1.78	mg/Kg	1	2.00	<0.0118	89	81.9 - 108

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control spikes continued ...

Param	F	C	LCS Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit
Toluene		1	2.01	mg/Kg	1	2.00	<0.00600	100	81.9 - 118
Ethylbenzene		1	1.77	mg/Kg	1	2.00	<0.00850	88	78.4 - 115
Xylene		1	5.28	mg/Kg	1	6.00	<0.00613	88	79.1 - 116

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

Param	F	C	LCS Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit	RPD	RPD Limit
Benzene		1	2.05	mg/Kg	1	2.00	<0.0118	102	81.9 - 108	14	20
Toluene		1	2.28	mg/Kg	1	2.00	<0.00600	114	81.9 - 118	13	20
Ethylbenzene		1	1.97	mg/Kg	1	2.00	<0.00850	98	78.4 - 115	11	20
Xylene		1	5.89	mg/Kg	1	6.00	<0.00613	98	79.1 - 116	11	20

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

Surrogate	LCS Result	LCS Result	Units	Dil.	Spike Amount	LCS Rec.	LCS Rec.	Rec. Limit
Trifluorotoluene (TFT)	1.72	1.77	mg/Kg	1	2.00	86	88	70.2 - 114
4-Bromofluorobenzene (4-BFB)	1.82	1.84	mg/Kg	1	2.00	91	92	69.8 - 121

Laboratory Control Spike (LCS-1)

QC Batch: 81337
Prep Batch: 69052

Date Analyzed: 2011-05-17
QC Preparation: 2011-05-17

Analyzed By: ME
Prepared By: AG

Param	F	C	LCS Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit
GRO		1	16.8	mg/Kg	1	20.0	<0.753	84	60.9 - 95.4

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

Param	F	C	LCS Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit	RPD	RPD Limit
GRO		1	17.6	mg/Kg	1	20.0	<0.753	88	60.9 - 95.4	5	20

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

Surrogate	LCS Result	LCS Result	Units	Dil.	Spike Amount	LCS Rec.	LCS Rec.	Rec. Limit
Trifluorotoluene (TFT)	2.04	2.19	mg/Kg	1	2.00	102	110	61.9 - 142
4-Bromofluorobenzene (4-BFB)	1.96	2.10	mg/Kg	1	2.00	98	105	68.2 - 132

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Laboratory Control Spike (LCS-1)

QC Batch: 81382
Prep Batch: 69091

Date Analyzed: 2011-05-18
QC Preparation: 2011-05-18

Analyzed By: kg
Prepared By: kg

Param	F	C	LCS Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit
DRO		1	238	mg/Kg	1	250	<15.7	95	47.5 - 144.1

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

Param	F	C	LCSD Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit	RPD	RPD Limit
DRO		1	221	mg/Kg	1	250	<15.7	88	47.5 - 144.1	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
n-Tricosane	111	112	mg/Kg	1	100	111	112	70 - 130

Laboratory Control Spike (LCS-1)

QC Batch: 81436
Prep Batch: 69148

Date Analyzed: 2011-05-19
QC Preparation: 2011-05-19

Analyzed By: kg
Prepared By: kg

Param	F	C	LCS Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit
DRO		1	227	mg/Kg	1	250	<15.7	91	47.5 - 144.1

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

Param	F	C	LCSD Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit	RPD	RPD Limit
DRO		1	225	mg/Kg	1	250	<15.7	90	47.5 - 144.1	1	20

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

Surrogate	LCS Result	LCSD Result	Units	Dil.	Spike Amount	LCS Rec.	LCSD Rec.	Rec. Limit
n-Tricosane	111	119	mg/Kg	1	100	111	119	70 - 130

Laboratory Control Spike (LCS-1)

QC Batch: 81487
Prep Batch: 69197

Date Analyzed: 2011-05-20
QC Preparation: 2011-05-20

Analyzed By: AG
Prepared By: AG

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Param	F	C	LCS Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit
Benzene		1	1.74	mg/Kg	1	2.00	<0.0118	87	81.9 - 108
Toluene		1	2.03	mg/Kg	1	2.00	<0.00600	102	81.9 - 118
Ethylbenzene		1	1.77	mg/Kg	1	2.00	<0.00850	88	78.4 - 115
Xylene		1	5.30	mg/Kg	1	6.00	<0.00613	88	79.1 - 116

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

Param	F	C	LCS Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit	RPD	RPD Limit
Benzene		1	1.82	mg/Kg	1	2.00	<0.0118	91	81.9 - 108	4	20
Toluene		1	2.15	mg/Kg	1	2.00	<0.00600	108	81.9 - 118	6	20
Ethylbenzene		1	1.89	mg/Kg	1	2.00	<0.00850	94	78.4 - 115	7	20
Xylene		1	5.63	mg/Kg	1	6.00	<0.00613	94	79.1 - 116	6	20

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

Surrogate	LCS Result	LCS Result	Units	Dil.	Spike Amount	LCS Rec.	LCS Rec.	Rec. Limit
Trifluorotoluene (TFT)	1.85	1.73	mg/Kg	1	2.00	92	86	70.2 - 114
4-Bromofluorobenzene (4-BFB)	1.80	1.69	mg/Kg	1	2.00	90	84	69.8 - 121

Laboratory Control Spike (LCS-1)

QC Batch: 81488
Prep Batch: 69197

Date Analyzed: 2011-05-20
QC Preparation: 2011-05-20

Analyzed By: AG
Prepared By: AG

Param	F	C	LCS Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit
GRO		1	15.0	mg/Kg	1	20.0	<0.753	75	60.9 - 95.4

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

Param	F	C	LCS Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit	RPD	RPD Limit
GRO		1	16.2	mg/Kg	1	20.0	<0.753	81	60.9 - 95.4	8	20

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

Surrogate	LCS Result	LCS Result	Units	Dil.	Spike Amount	LCS Rec.	LCS Rec.	Rec. Limit
Trifluorotoluene (TFT)	2.11	2.20	mg/Kg	1	2.00	106	110	61.9 - 142
4-Bromofluorobenzene (4-BFB)	1.86	1.96	mg/Kg	1	2.00	93	98	68.2 - 132

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Laboratory Control Spike (LCS-1)

QC Batch: 81556
Prep Batch: 68908

Date Analyzed: 2011-05-24
QC Preparation: 2011-05-12

Analyzed By: AR
Prepared By: AR

Param	F	C	LCS Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit
Chloride			97.9	mg/Kg	1	100	<3.85	98	85 - 115

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

Param	F	C	LCSD Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit	RPD	RPD Limit
Chloride			104	mg/Kg	1	100	<3.85	104	85 - 115	6	20

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

Laboratory Control Spike (LCS-1)

QC Batch: 81557
Prep Batch: 68908

Date Analyzed: 2011-05-24
QC Preparation: 2011-05-12

Analyzed By: AR
Prepared By: AR

Param	F	C	LCS Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit
Chloride			97.6	mg/Kg	1	100	<3.85	98	85 - 115

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

Param	F	C	LCSD Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit	RPD	RPD Limit
Chloride			103	mg/Kg	1	100	<3.85	103	85 - 115	5	20

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

Matrix Spike (MS-1) Spiked Sample: 266100

QC Batch: 81213
Prep Batch: 68938

Date Analyzed: 2011-05-12
QC Preparation: 2011-05-12

Analyzed By: ME
Prepared By: ME

Param	F	C	MS Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit
Benzene		1	10.3	mg/Kg	10	10.0	<0.118	103	80.5 - 112
Toluene		1	11.4	mg/Kg	10	10.0	0.8359	106	82.4 - 113
Ethylbenzene		1	9.94	mg/Kg	10	10.0	0.7886	92	83.9 - 114

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matrix spikes continued ...

Param	F	C	MS Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit
Xylene		1	30.5	mg/Kg	10	30.0	2.7118	93	84 - 114

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

Param	F	C	MSD Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit	RPD	RPD Limit
Benzene		1	10.1	mg/Kg	10	10.0	<0.118	101	80.5 - 112	2	20
Toluene		1	11.0	mg/Kg	10	10.0	0.8359	102	82.4 - 113	4	20
Ethylbenzene		1	9.63	mg/Kg	10	10.0	0.7886	88	83.9 - 114	3	20
Xylene		1	29.9	mg/Kg	10	30.0	2.7118	91	84 - 114	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)	11.2	10.2	mg/Kg	10	10	112	102	41.3 - 117
4-Bromofluorobenzene (4-BFB)	12.4	11.2	mg/Kg	10	10	124	112	35.5 - 129

Matrix Spike (MS-1) Spiked Sample: 266092

QC Batch: 81214
Prep Batch: 68938

Date Analyzed: 2011-05-12
QC Preparation: 2011-05-12

Analyzed By: ME
Prepared By: ME

Param	F	C	MS Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit
GRO		1	12.8	mg/Kg	1	20.0	<0.753	64	61.8 - 114

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

Param	F	C	MSD Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit	RPD	RPD Limit
GRO		1	12.4	mg/Kg	1	20.0	<0.753	62	61.8 - 114	3	20

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

Surrogate	MS Result	MSD Result	Units	Dil.	Spike Amount	MS Rec.	MSD Rec.	Rec. Limit
Trifluorotoluene (TFT)	2.22	2.20	mg/Kg	1	2	111	110	50 - 162
4-Bromofluorobenzene (4-BFB)	2.06	2.01	mg/Kg	1	2	103	100	50 - 162

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Matrix Spike (MS-1) Spiked Sample: 266092

QC Batch: 81246
Prep Batch: 68968

Date Analyzed: 2011-05-13
QC Preparation: 2011-05-13

Analyzed By: kg
Prepared By: kg

Param	F	C	MS Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit
DRO		1	184	mg/Kg	1	250	<15.7	74	11.7 - 152.3

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

Param	F	C	MSD Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit	RPD	RPD Limit
DRO		1	181	mg/Kg	1	250	<15.7	72	11.7 - 152.3	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-Tricosane	106	112	mg/Kg	1	100	106	112	70 - 130

Matrix Spike (MS-1) Spiked Sample: 266604

QC Batch: 81336
Prep Batch: 69052

Date Analyzed: 2011-05-17
QC Preparation: 2011-05-17

Analyzed By: ME
Prepared By: AG

Param	F	C	MS Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit
Benzene		1	1.97	mg/Kg	1	2.00	<0.0118	98	80.5 - 112
Toluene		1	2.25	mg/Kg	1	2.00	<0.00600	112	82.4 - 113
Ethylbenzene		1	1.98	mg/Kg	1	2.00	0.1103	93	83.9 - 114
Xylene		1	5.78	mg/Kg	1	6.00	0.3528	90	84 - 114

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

Param	F	C	MSD Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit	RPD	RPD Limit
Benzene		1	1.96	mg/Kg	1	2.00	<0.0118	98	80.5 - 112	0	20
Toluene		1	2.21	mg/Kg	1	2.00	<0.00600	110	82.4 - 113	2	20
Ethylbenzene		1	1.99	mg/Kg	1	2.00	0.1103	94	83.9 - 114	0	20
Xylene		1	5.83	mg/Kg	1	6.00	0.3528	91	84 - 114	1	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)	2.15	2.51	mg/Kg	1	2	108	126	41.3 - 117

continued ...

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matrix spikes continued ...

Surrogate	MS Result	MSD Result	Units	Dil.	Spike Amount	MS Rec.	MSD Rec.	Rec. Limit
4-Bromofluorobenzene (4-BFB)	2.50	2.80	mg/Kg	1	2	125	140	35.5 - 129

Matrix Spike (MS-1) Spiked Sample: 266558

QC Batch: 81337
Prep Batch: 69052

Date Analyzed: 2011-05-17
QC Preparation: 2011-05-17

Analyzed By: ME
Prepared By: AG

Param	F	C	MS Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit
GRO		1	22.2	mg/Kg	1	20.0	<0.753	111	61.8 - 114

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

Param	F	C	MSD Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit	RPD	RPD Limit
GRO		1	20.5	mg/Kg	1	20.0	<0.753	102	61.8 - 114	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)	2.69	2.63	mg/Kg	1	2	134	132	50 - 162
4-Bromofluorobenzene (4-BFB)	2.83	2.76	mg/Kg	1	2	142	138	50 - 162

Matrix Spike (MS-1) Spiked Sample: 266559

QC Batch: 81382
Prep Batch: 69091

Date Analyzed: 2011-05-18
QC Preparation: 2011-05-18

Analyzed By: kg
Prepared By: kg

Param	F	C	MS Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit
DRO		1	214	mg/Kg	1	250	<15.7	86	11.7 - 152.3

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

Param	F	C	MSD Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit	RPD	RPD Limit
DRO		1	207	mg/Kg	1	250	<15.7	83	11.7 - 152.3	3	20

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

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Surrogate	MS Result	MSD Result	Units	Dil.	Spike Amount	MS Rec.	MSD Rec.	Rec. Limit
n-Tricosane	105	103	mg/Kg	1	100	105	103	70 - 130

Matrix Spike (MS-1) Spiked Sample: 266051

QC Batch: 81436
Prep Batch: 69148

Date Analyzed: 2011-05-19
QC Preparation: 2011-05-19

Analyzed By: kg
Prepared By: kg

Param	F	C	MS Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit
DRO		1	447	mg/Kg	1	250	164	113	11.7 - 152.3

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

Param	F	C	MSD Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit	RPD	RPD Limit
DRO		1	444	mg/Kg	1	250	164	112	11.7 - 152.3	1	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	149	148	mg/Kg	1	100	149	148	70 - 130

Matrix Spike (MS-1) Spiked Sample: 266061

QC Batch: 81487
Prep Batch: 69197

Date Analyzed: 2011-05-20
QC Preparation: 2011-05-20

Analyzed By: AG
Prepared By: AG

Param	F	C	MS Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit
Benzene		1	1.83	mg/Kg	1	2.00	<0.0118	92	80.5 - 112
Toluene		1	2.30	mg/Kg	1	2.00	<0.00600	115	82.4 - 113
Ethylbenzene		1	2.15	mg/Kg	1	2.00	0.1268	101	83.9 - 114
Xylene		1	6.38	mg/Kg	1	6.00	0.343	101	84 - 114

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

Param	F	C	MSD Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit	RPD	RPD Limit
Benzene		1	1.79	mg/Kg	1	2.00	<0.0118	90	80.5 - 112	2	20
Toluene		1	2.21	mg/Kg	1	2.00	<0.00600	110	82.4 - 113	4	20
Ethylbenzene		1	2.08	mg/Kg	1	2.00	0.1268	98	83.9 - 114	3	20

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Param	F	C	MSD Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit	RPD	RPD Limit
Xylene		1	6.18	mg/Kg	1	6.00	0.343	97	84 - 114	3	20

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

Surrogate	MS Result	MSD Result	Units	Dil.	Spike Amount	MS Rec.	MSD Rec.	Rec. Limit
Trifluorotoluene (TFT)	2.45	2.44	mg/Kg	1	2	122	122	41.3 - 117
4-Bromofluorobenzene (4-BFB)	2.41	2.41	mg/Kg	1	2	120	120	35.5 - 129

Matrix Spike (MS-1) Spiked Sample: 266061

QC Batch: 81488
Prep Batch: 69197

Date Analyzed: 2011-05-20
QC Preparation: 2011-05-20

Analyzed By: AG
Prepared By: AG

Param	F	C	MS Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit
GRO		1	29.0	mg/Kg	1	20.0	1.26	139	61.8 - 114

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

Param	F	C	MSD Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit	RPD	RPD Limit
GRO		1	31.0	mg/Kg	1	20.0	1.26	149	61.8 - 114	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)	2.97	2.58	mg/Kg	1	2	148	129	50 - 162
4-Bromofluorobenzene (4-BFB)	2.91	2.37	mg/Kg	1	2	146	118	50 - 162

Matrix Spike (MS-1) Spiked Sample: 266057

QC Batch: 81556
Prep Batch: 68908

Date Analyzed: 2011-05-24
QC Preparation: 2011-05-12

Analyzed By: AR
Prepared By: AR

Param	F	C	MS Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit
Chloride			10000	mg/Kg	100	10000	<385	98	80 - 120

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

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Param	F	C	MSD Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit	RPD	RPD Limit
Chloride			10700	mg/Kg	100	10000	<385	105	80 - 120	7	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: 266067

QC Batch: 81557
Prep Batch: 68908

Date Analyzed: 2011-05-24
QC Preparation: 2011-05-12

Analyzed By: AR
Prepared By: AR

Param	F	C	MS Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit
Chloride			10400	mg/Kg	100	10000	<385	104	80 - 120

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

Param	F	C	MSD Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit	RPD	RPD Limit
Chloride			10900	mg/Kg	100	10000	<385	109	80 - 120	5	20

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

Calibration Standards

Standard (CCV-1)

QC Batch: 81213

Date Analyzed: 2011-05-12

Analyzed By: ME

Param	Flag	Cert	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
Benzene		1	mg/Kg	0.100	0.0983	98	80 - 120	2011-05-12
Toluene		1	mg/Kg	0.100	0.102	102	80 - 120	2011-05-12
Ethylbenzene		1	mg/Kg	0.100	0.0900	90	80 - 120	2011-05-12
Xylene		1	mg/Kg	0.300	0.268	89	80 - 120	2011-05-12

Standard (CCV-2)

QC Batch: 81213

Date Analyzed: 2011-05-12

Analyzed By: ME

Param	Flag	Cert	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
Benzene		1	mg/Kg	0.100	0.0982	98	80 - 120	2011-05-12
Toluene		1	mg/Kg	0.100	0.106	106	80 - 120	2011-05-12
Ethylbenzene		1	mg/Kg	0.100	0.0912	91	80 - 120	2011-05-12
Xylene		1	mg/Kg	0.300	0.273	91	80 - 120	2011-05-12

Standard (CCV-1)

QC Batch: 81214

Date Analyzed: 2011-05-12

Analyzed By: ME

Param	Flag	Cert	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
GRO		1	mg/Kg	1.00	0.845	84	80 - 120	2011-05-12

Standard (CCV-2)

QC Batch: 81214

Date Analyzed: 2011-05-12

Analyzed By: ME

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Param	Flag	Cert	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
GRO		1	mg/Kg	1.00	0.857	86	80 - 120	2011-05-12

Standard (CCV-3)

QC Batch: 81246

Date Analyzed: 2011-05-13

Analyzed By: kg

Param	Flag	Cert	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
DRO		1	mg/Kg	250	208	83	80 - 120	2011-05-13

Standard (CCV-4)

QC Batch: 81246

Date Analyzed: 2011-05-13

Analyzed By: kg

Param	Flag	Cert	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
DRO		1	mg/Kg	250	203	81	80 - 120	2011-05-13

Standard (CCV-2)

QC Batch: 81336

Date Analyzed: 2011-05-17

Analyzed By: ME

Param	Flag	Cert	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
Benzene		1	mg/Kg	0.100	0.0958	96	80 - 120	2011-05-17
Toluene		1	mg/Kg	0.100	0.106	106	80 - 120	2011-05-17
Ethylbenzene		1	mg/Kg	0.100	0.0910	91	80 - 120	2011-05-17
Xylene		1	mg/Kg	0.300	0.275	92	80 - 120	2011-05-17

Standard (CCV-3)

QC Batch: 81336

Date Analyzed: 2011-05-17

Analyzed By: ME

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Param	Flag	Cert	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
Benzene		1	mg/Kg	0.100	0.0915	92	80 - 120	2011-05-17
Toluene		1	mg/Kg	0.100	0.101	101	80 - 120	2011-05-17
Ethylbenzene		1	mg/Kg	0.100	0.0879	88	80 - 120	2011-05-17
Xylene		1	mg/Kg	0.300	0.262	87	80 - 120	2011-05-17

Standard (CCV-2)

QC Batch: 81337

Date Analyzed: 2011-05-17

Analyzed By: ME

Param	Flag	Cert	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
GRO		1	mg/Kg	1.00	1.11	111	80 - 120	2011-05-17

Standard (CCV-3)

QC Batch: 81337

Date Analyzed: 2011-05-17

Analyzed By: ME

Param	Flag	Cert	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
GRO		1	mg/Kg	1.00	1.16	116	80 - 120	2011-05-17

Standard (CCV-2)

QC Batch: 81382

Date Analyzed: 2011-05-18

Analyzed By: kg

Param	Flag	Cert	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
DRO		1	mg/Kg	250	266	106	80 - 120	2011-05-18

Standard (CCV-3)

QC Batch: 81382

Date Analyzed: 2011-05-18

Analyzed By: kg

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Param	Flag	Cert	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
DRO		1	mg/Kg	250	268	107	80 - 120	2011-05-18

Standard (CCV-1)

QC Batch: 81436

Date Analyzed: 2011-05-19

Analyzed By: kg

Param	Flag	Cert	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
DRO		1	mg/Kg	250	200	80	80 - 120	2011-05-19

Standard (CCV-2)

QC Batch: 81436

Date Analyzed: 2011-05-19

Analyzed By: kg

Param	Flag	Cert	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
DRO		1	mg/Kg	250	204	82	80 - 120	2011-05-19

Standard (CCV-1)

QC Batch: 81487

Date Analyzed: 2011-05-20

Analyzed By: AG

Param	Flag	Cert	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
Benzene		1	mg/Kg	0.100	0.0899	90	80 - 120	2011-05-20
Toluene		1	mg/Kg	0.100	0.104	104	80 - 120	2011-05-20
Ethylbenzene		1	mg/Kg	0.100	0.0920	92	80 - 120	2011-05-20
Xylene		1	mg/Kg	0.300	0.275	92	80 - 120	2011-05-20

Standard (CCV-2)

QC Batch: 81487

Date Analyzed: 2011-05-20

Analyzed By: AG

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Param	Flag	Cert	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
Benzene		1	mg/Kg	0.100	0.0937	94	80 - 120	2011-05-20
Toluene		1	mg/Kg	0.100	0.110	110	80 - 120	2011-05-20
Ethylbenzene		1	mg/Kg	0.100	0.0958	96	80 - 120	2011-05-20
Xylene		1	mg/Kg	0.300	0.284	95	80 - 120	2011-05-20

Standard (CCV-3)

QC Batch: 81487

Date Analyzed: 2011-05-20

Analyzed By: AG

Param	Flag	Cert	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
Benzene		1	mg/Kg	0.100	0.0967	97	80 - 120	2011-05-20
Toluene		1	mg/Kg	0.100	0.114	114	80 - 120	2011-05-20
Ethylbenzene		1	mg/Kg	0.100	0.100	100	80 - 120	2011-05-20
Xylene		1	mg/Kg	0.300	0.298	99	80 - 120	2011-05-20

Standard (CCV-1)

QC Batch: 81488

Date Analyzed: 2011-05-20

Analyzed By: AG

Param	Flag	Cert	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
GRO		1	mg/Kg	1.00	0.954	95	80 - 120	2011-05-20

Standard (CCV-2)

QC Batch: 81488

Date Analyzed: 2011-05-20

Analyzed By: AG

Param	Flag	Cert	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
GRO		1	mg/Kg	1.00	0.957	96	80 - 120	2011-05-20

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Standard (CCV-3)

QC Batch: 81488

Date Analyzed: 2011-05-20

Analyzed By: AG

Param	Flag	Cert	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
GRO		1	mg/Kg	1.00	0.968	97	80 - 120	2011-05-20

Standard (ICV-1)

QC Batch: 81556

Date Analyzed: 2011-05-24

Analyzed By: AR

Param	Flag	Cert	Units	ICVs True Conc.	ICVs Found Conc.	ICVs Percent Recovery	Percent Recovery Limits	Date Analyzed
Chloride			mg/Kg	100	105	105	85 - 115	2011-05-24

Standard (CCV-1)

QC Batch: 81556

Date Analyzed: 2011-05-24

Analyzed By: AR

Param	Flag	Cert	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
Chloride			mg/Kg	100	95.5	96	85 - 115	2011-05-24

Standard (ICV-1)

QC Batch: 81557

Date Analyzed: 2011-05-24

Analyzed By: AR

Param	Flag	Cert	Units	ICVs True Conc.	ICVs Found Conc.	ICVs Percent Recovery	Percent Recovery Limits	Date Analyzed
Chloride			mg/Kg	100	99.3	99	85 - 115	2011-05-24

Standard (CCV-1)

QC Batch: 81557

Date Analyzed: 2011-05-24

Analyzed By: AR

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Param	Flag	Cert	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
Chloride			mg/Kg	100	101	101	85 - 115	2011-05-24

Appendix

Laboratory Certifications

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

Standard Flags

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

Attachments

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

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Analysis Request of Chain of Custody Record

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

CLIENT NAME:

COG

SITE MANAGER:

Ike Taveraz

PROJECT NO.:

1146400826

PROJECT NAME:

COG / Brigham H #3

Eddy Co., NM

SAMPLE IDENTIFICATION

LAB I.D. NUMBER	DATE	TIME	MATRIX	COMP	GRAB	Edley Co., NM SAMPLE IDENTIFICATION	NUMBER OF	FILTERED (Y/N)	HCL	HNO3	ICE	NONE	BTX 8021B TPH 8015 MOD PAH 8270	ROFA Metals TCLP Metals TCLP Volatiles TCLP Semi V	RI	GC/MS Vol. 8 GC/MS Semi PCB's 8080/608 Pest. 808/608	Chloride Gamma Spec Alpha Beta (A PLM (Asbest Major Anions
210048	5/9		S	X		SB-1 0-1' (6" BEB)	1				X		X				X
210049						3' (6" BEB)	1				X						X
050						5' (6" BEB)	1				X						X
051						7' (6" BEB)	1				X						X
052						10' (6" BEB)	1				X						X
053						15' (6" BEB)	1				X						X
054						20' (6" BEB)	1				X						X
055						25' (6" BEB)	1				X						X
056						30' (6" BEB)	1				X						X
057						40' (6" BEB)	1				X						X

RELINQUISHED BY: (Signature)

Date: 5/9/11

Time: 16:40

RECEIVED BY: (Signature)

Date: 5/10/11

Time: 16:40

SAMPLED BY: (Print & Initial)

Kim

Date: 5/9/11

Time:

RELINQUISHED BY: (Signature)

Date:

Time:

RECEIVED BY: (Signature)

Date:

Time:

SAMPLE SHIPPED BY: (Circle)

FEDEX

HAND DELIVERED

BUS

UPS

AIRBILL #:

OTHER:

RELINQUISHED BY: (Signature)

Date:

Time:

RECEIVED BY: (Signature)

Date:

Time:

TETRA TECH CONTACT PERSON:

Results by:

RECEIVING LABORATORY:

TRACE

RECEIVED BY: (Signature)

ADDRESS:

CITY:

MIDLAND

STATE:

TX

ZIP:

CONTACT:

PHONE:

DATE:

TIME:

SAMPLE CONDITION WHEN RECEIVED:

14.0°C intact

REMARKS:

IP TPH > 5000 mg/kg - Run deeper samples

Ike Taveraz

RUSH Charges Authorized:

Yes

No

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

Run BTEX on (2) Two highest TPH

XWO#: 11051101

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: 2 OF: 2

 ANALYSIS REQUEST
 (Circle or Specify Method No.)

CLIENT NAME:

COG

SITE MANAGER:

Ike Tavares

PROJECT NO.:

114-6400826

PROJECT NAME:

COG/Brigham H #3

LAB I.D.
NUMBER

DATE

TIME

MATRIX
COMP
GRAB
 Eddy Co., NM
 SAMPLE IDENTIFICATION

 NUMBER OF CONTAINERS
 FILTERED (Y/N)
PRESERVATIVE
METHOD

HCL

HNO3

ICE

NONE

BTEX 80218

PAH 8270

PCRA Metals Ag As Ba Cd Cr Pb Hg Se

TCLP Metals Ag As Ba Cd Cr Pb Hg Se

TCLP Volatiles

TCLP Semi Volatiles

RCI

GC/MS Vol. 8240/8250/624

GC/MS Semi. Vol. 8270/825

PCB's 8080/608

Pest. 808/608

Chlorides

Gamma Spec.

Alpha Beta (Air)

PLM (Asbestos)

Major Anions/Cations, pH, TDS

210058

5/9

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SB-2 0-1' (6" BEB)

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Summary Report

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

Report Date: September 20, 2011

Work Order: 11091546



Project Location: Eddy Co., NM
Project Name: COG/Brigham H #3
Project Number: 114-6400826

Sample	Description	Matrix	Date Taken	Time Taken	Date Received
277377	CS-1 Bottom Hole 8'	soil	2011-09-06	07:05	2011-09-15
277378	CS-2 Side Wall	soil	2011-09-06	07:20	2011-09-15
277379	CS-3 Side Wall	soil	2011-09-06	07:25	2011-09-15
277380	CS-4 Bottom Hole 5'	soil	2011-09-06	07:30	2011-09-15
277381	CS-5 Side Wall	soil	2011-09-06	07:35	2011-09-15
277382	CS-6 Side Wall	soil	2011-09-06	07:40	2011-09-15
277383	CS-7 Side Wall	soil	2011-09-06	08:00	2011-09-15
277384	CS-8 Bottom Hole 7'	soil	2011-09-06	08:40	2011-09-15
277385	CS-9 Side Wall	soil	2011-09-06	08:50	2011-09-15
277386	CS-10 Side Wall	soil	2011-09-06	09:00	2011-09-15
277387	CS-11 Side Wall	soil	2011-09-06	09:20	2011-09-15
277388	CS-12 Bottom Hole 7'	soil	2011-09-06	09:30	2011-09-15
277389	CS-13 Side Wall	soil	2011-09-06	09:35	2011-09-15
277390	CS-14 Side Wall	soil	2011-09-06	11:00	2011-09-15

Sample - Field Code	BTEX				TPH DRO - NEW	TPH GRO
	Benzene (mg/Kg)	Toluene (mg/Kg)	Ethylbenzene (mg/Kg)	Xylene (mg/Kg)	DRO (mg/Kg)	GRO (mg/Kg)
277377 - CS-1 Bottom Hole 8'	<0.0200	<0.0200	<0.0200	<0.0200	<50.0	<2.00
277378 - CS-2 Side Wall	<0.0200	<0.0200	<0.0200	<0.0200	<50.0	<2.00
277379 - CS-3 Side Wall	<0.0200	<0.0200	<0.0200	<0.0200	<50.0	<2.00
277380 - CS-4 Bottom Hole 5'	<0.0200	<0.0200	<0.0200	<0.0200	<50.0	<2.00
277381 - CS-5 Side Wall	<0.0200	<0.0200	<0.0200	<0.0200	<50.0	<2.00
277382 - CS-6 Side Wall	<0.0200	<0.0200	<0.0200	<0.0200	<50.0	<2.00
277383 - CS-7 Side Wall	<0.0200	<0.0200	<0.0200	<0.0200	<50.0	<2.00
277384 - CS-8 Bottom Hole 7'	<0.0200	<0.0200	<0.0200	<0.0200	<50.0	<2.00
277385 - CS-9 Side Wall	<0.0200	<0.0200	<0.0200	<0.0200	<50.0	<2.00
277386 - CS-10 Side Wall	<0.0200	<0.0200	<0.0200	<0.0200	<50.0	<2.00
277387 - CS-11 Side Wall	<0.0200	<0.0200	<0.0200	<0.0200	<50.0	<2.00

continued ...

... continued

Sample - Field Code	BTEX				TPH DRO - NEW	TPH GRO
	Benzene (mg/Kg)	Toluene (mg/Kg)	Ethylbenzene (mg/Kg)	Xylene (mg/Kg)	DRO (mg/Kg)	GRO (mg/Kg)
277388 - CS-12 Bottom Hole 7'	<0.0200	<0.0200	<0.0200	<0.0200	<50.0	<2.00
277389 - CS-13 Side Wall	<0.0200	<0.0200	<0.0200	<0.0200	<50.0	<2.00
277390 - CS-14 Side Wall	<0.0200	<0.0200	<0.0200	<0.0200	<50.0	<2.00

Sample: 277377 - CS-1 Bottom Hole 8'

Param	Flag	Result	Units	RL
Chloride		474	mg/Kg	4

Sample: 277378 - CS-2 Side Wall

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

Sample: 277379 - CS-3 Side Wall

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

Sample: 277380 - CS-4 Bottom Hole 5'

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

Sample: 277381 - CS-5 Side Wall

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

Sample: 277382 - CS-6 Side Wall

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

Sample: 277383 - CS-7 Side Wall

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

Sample: 277384 - CS-8 Bottom Hole 7'

Param	Flag	Result	Units	RL
Chloride		468	mg/Kg	4

Sample: 277385 - CS-9 Side Wall

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

Sample: 277386 - CS-10 Side Wall

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

Sample: 277387 - CS-11 Side Wall

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

Sample: 277388 - CS-12 Bottom Hole 7'

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

Sample: 277389 - CS-13 Side Wall

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

Sample: 277390 - CS-14 Side Wall

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



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

WBE HUB NCTRCA DBE NELAP DoD LELAP Kansas Oklahoma ISO 17025

Analytical and Quality Control Report

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

Report Date: September 20, 2011

Work Order: 11091546



Project Location: Eddy Co., NM
Project Name: COG/Brigham H #3
Project Number: 114-6400826

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
277377	CS-1 Bottom Hole 8'	soil	2011-09-06	07:05	2011-09-15
277378	CS-2 Side Wall	soil	2011-09-06	07:20	2011-09-15
277379	CS-3 Side Wall	soil	2011-09-06	07:25	2011-09-15
277380	CS-4 Bottom Hole 5'	soil	2011-09-06	07:30	2011-09-15
277381	CS-5 Side Wall	soil	2011-09-06	07:35	2011-09-15
277382	CS-6 Side Wall	soil	2011-09-06	07:40	2011-09-15
277383	CS-7 Side Wall	soil	2011-09-06	08:00	2011-09-15
277384	CS-8 Bottom Hole 7'	soil	2011-09-06	08:40	2011-09-15
277385	CS-9 Side Wall	soil	2011-09-06	08:50	2011-09-15
277386	CS-10 Side Wall	soil	2011-09-06	09:00	2011-09-15
277387	CS-11 Side Wall	soil	2011-09-06	09:20	2011-09-15
277388	CS-12 Bottom Hole 7'	soil	2011-09-06	09:30	2011-09-15
277389	CS-13 Side Wall	soil	2011-09-06	09:35	2011-09-15
277390	CS-14 Side Wall	soil	2011-09-06	11:00	2011-09-15

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

A handwritten signature in black ink that reads "Michael Abel". The signature is written in a cursive style with a large, stylized 'M' and 'A'.

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

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QC Batch 84783 - MS (1)	36
QC Batch 84785 - MS (1)	36
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QC Batch 84786 - CCV (2)	42
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Case Narrative

Samples for project COG/Brigham H #3 were received by TraceAnalysis, Inc. on 2011-09-15 and assigned to work order 11091546. Samples for work order 11091546 were received intact at a temperature of 0.9 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	72007	2011-09-16 at 11:00	84782	2011-09-17 at 16:01
BTEX	S 8021B	72007	2011-09-16 at 11:00	84785	2011-09-18 at 09:36
Chloride (Titration)	SM 4500-Cl B	72038	2011-09-16 at 09:45	84838	2011-09-19 at 16:06
Chloride (Titration)	SM 4500-Cl B	72038	2011-09-16 at 09:45	84839	2011-09-19 at 16:07
Chloride (Titration)	SM 4500-Cl B	72038	2011-09-16 at 09:45	84840	2011-09-19 at 16:09
TPH DRO - NEW	S 8015 D	72014	2011-09-16 at 14:31	84797	2011-09-16 at 14:31
TPH DRO - NEW	S 8015 D	72023	2011-09-16 at 14:31	84804	2011-09-16 at 14:31
TPH GRO	S 8015 D	72007	2011-09-16 at 11:00	84783	2011-09-17 at 16:27
TPH GRO	S 8015 D	72007	2011-09-16 at 11:00	84786	2011-09-18 at 10:02

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 11091546 since the sample was chosen at random. Therefore, the validity of the analytical data reported has been determined by the laboratory control sample (LCS) and the method blank (MB). These quality control measures are performed with each preparation batch to ensure data integrity.

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

Report Date: September 20, 2011
114-6400826

Work Order: 11091546
COG/Brigham H #3

Page Number: 6 of 46
Eddy Co., NM

Analytical Report

Sample: 277377 - CS-1 Bottom Hole 8'

Laboratory: Midland

Analysis: BTEX

QC Batch: 84782

Prep Batch: 72007

Analytical Method: S 8021B

Date Analyzed: 2011-09-17

Sample Preparation: 2011-09-16

Prep Method: S 5035

Analyzed By: AG

Prepared By: AG

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

Surrogate	Flag	Cert	Result	Units	Dilution	Spike Amount	Percent Recovery	Recovery Limits
Trifluorotoluene (TFT)			2.42	mg/Kg	1	2.00	121	82.8 - 143.1
4-Bromofluorobenzene (4-BFB)			2.24	mg/Kg	1	2.00	112	70.6 - 179

Sample: 277377 - CS-1 Bottom Hole 8'

Laboratory: Midland

Analysis: Chloride (Titration)

QC Batch: 84838

Prep Batch: 72038

Analytical Method: SM 4500-Cl B

Date Analyzed: 2011-09-19

Sample Preparation: 2011-09-16

Prep Method: N/A

Analyzed By: AR

Prepared By: AR

Parameter	Flag	Cert	RL Result	Units	Dilution	RL
Chloride			474	mg/Kg	50	4.00

Sample: 277377 - CS-1 Bottom Hole 8'

Laboratory: Midland

Analysis: TPH DRO - NEW

QC Batch: 84797

Prep Batch: 72014

Analytical Method: S 8015 D

Date Analyzed: 2011-09-16

Sample Preparation: 2011-09-16

Prep Method: N/A

Analyzed By: kg

Prepared By: kg

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

Report Date: September 20, 2011
114-6400826

Work Order: 11091546
COG/Brigham H #3

Page Number: 7 of 46
Eddy Co., NM

Surrogate	Flag	Cert	Result	Units	Dilution	Spike Amount	Percent Recovery	Recovery Limits
n-Tricosane			115	mg/Kg	1	100	115	67.5 - 147.1

Sample: 277377 - CS-1 Bottom Hole 8'

Laboratory: Midland
Analysis: TPH GRO
QC Batch: 84783
Prep Batch: 72007

Analytical Method: S 8015 D
Date Analyzed: 2011-09-17
Sample Preparation: 2011-09-16

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

Parameter	Flag	Cert	RL Result	Units	Dilution	RL
GRO	u	1	<2.00	mg/Kg	1	2.00

Surrogate	Flag	Cert	Result	Units	Dilution	Spike Amount	Percent Recovery	Recovery Limits
Trifluorotoluene (TFT)			2.22	mg/Kg	1	2.00	111	30 - 134.6
4-Bromofluorobenzene (4-BFB)	j		1.71	mg/Kg	1	2.00	86	22.4 - 149

Sample: 277378 - CS-2 Side Wall

Laboratory: Midland
Analysis: BTEX
QC Batch: 84782
Prep Batch: 72007

Analytical Method: S 8021B
Date Analyzed: 2011-09-17
Sample Preparation: 2011-09-16

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

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

Surrogate	Flag	Cert	Result	Units	Dilution	Spike Amount	Percent Recovery	Recovery Limits
Trifluorotoluene (TFT)			1.89	mg/Kg	1	2.00	94	82.8 - 143.1
4-Bromofluorobenzene (4-BFB)			1.70	mg/Kg	1	2.00	85	70.6 - 179

Report Date: September 20, 2011
114-6400826

Work Order: 11091546
COG/Brigham H #3

Page Number: 8 of 46
Eddy Co., NM

Sample: 277378 - CS-2 Side Wall

Laboratory: Midland
Analysis: Chloride (Titration) Analytical Method: SM 4500-Cl B Prep Method: N/A
QC Batch: 84838 Date Analyzed: 2011-09-19 Analyzed By: AR
Prep Batch: 72038 Sample Preparation: 2011-09-16 Prepared By: AR

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

Sample: 277378 - CS-2 Side Wall

Laboratory: Midland
Analysis: TPH DRO - NEW Analytical Method: S 8015 D Prep Method: N/A
QC Batch: 84797 Date Analyzed: 2011-09-16 Analyzed By: kg
Prep Batch: 72014 Sample Preparation: 2011-09-16 Prepared By: kg

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

Surrogate	Flag	Cert	Result	Units	Dilution	Spike Amount	Percent Recovery	Recovery Limits
n-Tricosane			121	mg/Kg	1	100	121	67.5 - 147.1

Sample: 277378 - CS-2 Side Wall

Laboratory: Midland
Analysis: TPH GRO Analytical Method: S 8015 D Prep Method: S 5035
QC Batch: 84783 Date Analyzed: 2011-09-17 Analyzed By: AG
Prep Batch: 72007 Sample Preparation: 2011-09-16 Prepared By: AG

Parameter	Flag	Cert	RL Result	Units	Dilution	RL
GRO	u	1	<2.00	mg/Kg	1	2.00

Surrogate	Flag	Cert	Result	Units	Dilution	Spike Amount	Percent Recovery	Recovery Limits
Trifluorotoluene (TFT)	j		1.75	mg/Kg	1	2.00	88	30 - 134.6
4-Bromofluorobenzene (4-BFB)	j		1.31	mg/Kg	1	2.00	66	22.4 - 149

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Sample: 277379 - CS-3 Side Wall

Laboratory: Midland

Analysis: BTEX

QC Batch: 84782

Prep Batch: 72007

Analytical Method: S 8021B

Date Analyzed: 2011-09-17

Sample Preparation: 2011-09-16

Prep Method: S 5035

Analyzed By: AG

Prepared By: AG

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

Surrogate	Flag	Cert	Result	Units	Dilution	Spike Amount	Percent Recovery	Recovery Limits
Trifluorotoluene (TFT)			1.92	mg/Kg	1	2.00	96	82.8 - 143.1
4-Bromofluorobenzene (4-BFB)			1.73	mg/Kg	1	2.00	86	70.6 - 179

Sample: 277379 - CS-3 Side Wall

Laboratory: Midland

Analysis: Chloride (Titration)

QC Batch: 84838

Prep Batch: 72038

Analytical Method: SM 4500-Cl B

Date Analyzed: 2011-09-19

Sample Preparation: 2011-09-16

Prep Method: N/A

Analyzed By: AR

Prepared By: AR

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

Sample: 277379 - CS-3 Side Wall

Laboratory: Midland

Analysis: TPH DRO - NEW

QC Batch: 84797

Prep Batch: 72014

Analytical Method: S 8015 D

Date Analyzed: 2011-09-16

Sample Preparation: 2011-09-16

Prep Method: N/A

Analyzed By: kg

Prepared By: kg

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

Surrogate	Flag	Cert	Result	Units	Dilution	Spike Amount	Percent Recovery	Recovery Limits
n-Tricosane			119	mg/Kg	1	100	119	67.5 - 147.1

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Sample: 277379 - CS-3 Side Wall

Laboratory: Midland
Analysis: TPH GRO
QC Batch: 84783
Prep Batch: 72007

Analytical Method: S 8015 D
Date Analyzed: 2011-09-17
Sample Preparation: 2011-09-16

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

Parameter	Flag	Cert	RL Result	Units	Dilution	RL
GRO	u	1	<2.00	mg/Kg	1	2.00

Surrogate	Flag	Cert	Result	Units	Dilution	Spike Amount	Percent Recovery	Recovery Limits
Trifluorotoluene (TFT)	J		1.78	mg/Kg	1	2.00	89	30 - 134.6
4-Bromofluorobenzene (4-BFB)	J		1.32	mg/Kg	1	2.00	66	22.4 - 149

Sample: 277380 - CS-4 Bottom Hole 5'

Laboratory: Midland
Analysis: BTEX
QC Batch: 84782
Prep Batch: 72007

Analytical Method: S 8021B
Date Analyzed: 2011-09-17
Sample Preparation: 2011-09-16

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

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

Surrogate	Flag	Cert	Result	Units	Dilution	Spike Amount	Percent Recovery	Recovery Limits
Trifluorotoluene (TFT)			1.95	mg/Kg	1	2.00	98	82.8 - 143.1
4-Bromofluorobenzene (4-BFB)			1.76	mg/Kg	1	2.00	88	70.6 - 179

Sample: 277380 - CS-4 Bottom Hole 5'

Laboratory: Midland
Analysis: Chloride (Titration)
QC Batch: 84839
Prep Batch: 72038

Analytical Method: SM 4500-Cl B
Date Analyzed: 2011-09-19
Sample Preparation: 2011-09-16

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

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

Sample: 277380 - CS-4 Bottom Hole 5'

Laboratory: Midland
Analysis: TPH DRO - NEW
QC Batch: 84797
Prep Batch: 72014

Analytical Method: S 8015 D
Date Analyzed: 2011-09-16
Sample Preparation: 2011-09-16

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

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

Surrogate	Flag	Cert	Result	Units	Dilution	Spike Amount	Percent Recovery	Recovery Limits
n-Tricosane			106	mg/Kg	1	100	106	67.5 - 147.1

Sample: 277380 - CS-4 Bottom Hole 5'

Laboratory: Midland
Analysis: TPH GRO
QC Batch: 84783
Prep Batch: 72007

Analytical Method: S 8015 D
Date Analyzed: 2011-09-17
Sample Preparation: 2011-09-16

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

Parameter	Flag	Cert	RL Result	Units	Dilution	RL
GRO	u	1	<2.00	mg/Kg	1	2.00

Surrogate	Flag	Cert	Result	Units	Dilution	Spike Amount	Percent Recovery	Recovery Limits
Trifluorotoluene (TFT)	J		1.74	mg/Kg	1	2.00	87	30 - 134.6
4-Bromofluorobenzene (4-BFB)	J		1.35	mg/Kg	1	2.00	68	22.4 - 149

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Sample: 277381 - CS-5 Side Wall

Laboratory: Midland

Analysis: BTEX

QC Batch: 84782

Prep Batch: 72007

Analytical Method: S 8021B

Date Analyzed: 2011-09-17

Sample Preparation: 2011-09-16

Prep Method: S 5035

Analyzed By: AG

Prepared By: AG

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

Surrogate	Flag	Cert	Result	Units	Dilution	Spike Amount	Percent Recovery	Recovery Limits
Trifluorotoluene (TFT)			2.47	mg/Kg	1	2.00	124	82.8 - 143.1
4-Bromofluorobenzene (4-BFB)			2.20	mg/Kg	1	2.00	110	70.6 - 179

Sample: 277381 - CS-5 Side Wall

Laboratory: Midland

Analysis: Chloride (Titration)

QC Batch: 84839

Prep Batch: 72038

Analytical Method: SM 4500-Cl B

Date Analyzed: 2011-09-19

Sample Preparation: 2011-09-16

Prep Method: N/A

Analyzed By: AR

Prepared By: AR

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

Sample: 277381 - CS-5 Side Wall

Laboratory: Midland

Analysis: TPH DRO - NEW

QC Batch: 84797

Prep Batch: 72014

Analytical Method: S 8015 D

Date Analyzed: 2011-09-16

Sample Preparation: 2011-09-16

Prep Method: N/A

Analyzed By: kg

Prepared By: kg

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

Surrogate	Flag	Cert	Result	Units	Dilution	Spike Amount	Percent Recovery	Recovery Limits
n-Tricosane			119	mg/Kg	1	100	119	67.5 - 147.1

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Sample: 277381 - CS-5 Side Wall

Laboratory: Midland
Analysis: TPH GRO
QC Batch: 84783
Prep Batch: 72007

Analytical Method: S 8015 D
Date Analyzed: 2011-09-17
Sample Preparation: 2011-09-16

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

Parameter	Flag	Cert	RL Result	Units	Dilution	RL
GRO	u	1	<2.00	mg/Kg	1	2.00

Surrogate	Flag	Cert	Result	Units	Dilution	Spike Amount	Percent Recovery	Recovery Limits
Trifluorotoluene (TFT)			2.27	mg/Kg	1	2.00	114	30 - 134.6
4-Bromofluorobenzene (4-BFB)	J		1.68	mg/Kg	1	2.00	84	22.4 - 149

Sample: 277382 - CS-6 Side Wall

Laboratory: Midland
Analysis: BTEX
QC Batch: 84782
Prep Batch: 72007

Analytical Method: S 8021B
Date Analyzed: 2011-09-17
Sample Preparation: 2011-09-16

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

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

Surrogate	Flag	Cert	Result	Units	Dilution	Spike Amount	Percent Recovery	Recovery Limits
Trifluorotoluene (TFT)			2.30	mg/Kg	1	2.00	115	82.8 - 143.1
4-Bromofluorobenzene (4-BFB)			2.06	mg/Kg	1	2.00	103	70.6 - 179

Sample: 277382 - CS-6 Side Wall

Laboratory: Midland
Analysis: Chloride (Titration)
QC Batch: 84839
Prep Batch: 72038

Analytical Method: SM 4500-Cl B
Date Analyzed: 2011-09-19
Sample Preparation: 2011-09-16

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

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sample 277382 continued ...

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

Sample: 277382 - CS-6 Side Wall

Laboratory: Midland

Analysis: TPH DRO - NEW

QC Batch: 84797

Prep Batch: 72014

Analytical Method: S 8015 D

Date Analyzed: 2011-09-16

Sample Preparation: 2011-09-16

Prep Method: N/A

Analyzed By: kg

Prepared By: kg

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

Surrogate	Flag	Cert	Result	Units	Dilution	Spike Amount	Percent Recovery	Recovery Limits
n-Tricosane			120	mg/Kg	1	100	120	67.5 - 147.1

Sample: 277382 - CS-6 Side Wall

Laboratory: Midland

Analysis: TPH GRO

QC Batch: 84783

Prep Batch: 72007

Analytical Method: S 8015 D

Date Analyzed: 2011-09-17

Sample Preparation: 2011-09-16

Prep Method: S 5035

Analyzed By: AG

Prepared By: AG

Parameter	Flag	Cert	RL Result	Units	Dilution	RL
GRO	u	1	<2.00	mg/Kg	1	2.00

Surrogate	Flag	Cert	Result	Units	Dilution	Spike Amount	Percent Recovery	Recovery Limits
Trifluorotoluene (TFT)			2.12	mg/Kg	1	2.00	106	30 - 134.6
4-Bromofluorobenzene (4-BFB)	j		1.58	mg/Kg	1	2.00	79	22.4 - 149

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Sample: 277383 - CS-7 Side Wall

Laboratory: Midland

Analysis: BTEX

QC Batch: 84782

Prep Batch: 72007

Analytical Method: S 8021B

Date Analyzed: 2011-09-17

Sample Preparation: 2011-09-16

Prep Method: S 5035

Analyzed By: AG

Prepared By: AG

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

Surrogate	Flag	Cert	Result	Units	Dilution	Spike Amount	Percent Recovery	Recovery Limits
Trifluorotoluene (TFT)			2.40	mg/Kg	1	2.00	120	82.8 - 143.1
4-Bromofluorobenzene (4-BFB)			2.15	mg/Kg	1	2.00	108	70.6 - 179

Sample: 277383 - CS-7 Side Wall

Laboratory: Midland

Analysis: Chloride (Titration)

QC Batch: 84839

Prep Batch: 72038

Analytical Method: SM 4500-Cl B

Date Analyzed: 2011-09-19

Sample Preparation: 2011-09-16

Prep Method: N/A

Analyzed By: AR

Prepared By: AR

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

Sample: 277383 - CS-7 Side Wall

Laboratory: Midland

Analysis: TPH DRO - NEW

QC Batch: 84797

Prep Batch: 72014

Analytical Method: S 8015 D

Date Analyzed: 2011-09-16

Sample Preparation: 2011-09-16

Prep Method: N/A

Analyzed By: kg

Prepared By: kg

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

Surrogate	Flag	Cert	Result	Units	Dilution	Spike Amount	Percent Recovery	Recovery Limits
n-Tricosane			117	mg/Kg	1	100	117	67.5 - 147.1

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Sample: 277383 - CS-7 Side Wall

Laboratory: Midland
Analysis: TPH GRO
QC Batch: 84783
Prep Batch: 72007

Analytical Method: S 8015 D
Date Analyzed: 2011-09-17
Sample Preparation: 2011-09-16

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

Parameter	Flag	Cert	RL Result	Units	Dilution	RL
GRO	u	1	<2.00	mg/Kg	1	2.00

Surrogate	Flag	Cert	Result	Units	Dilution	Spike Amount	Percent Recovery	Recovery Limits
Trifluorotoluene (TFT)			2.17	mg/Kg	1	2.00	108	30 - 134.6
4-Bromofluorobenzene (4-BFB)	J		1.63	mg/Kg	1	2.00	82	22.4 - 149

Sample: 277384 - CS-8 Bottom Hole 7'

Laboratory: Midland
Analysis: BTEX
QC Batch: 84782
Prep Batch: 72007

Analytical Method: S 8021B
Date Analyzed: 2011-09-17
Sample Preparation: 2011-09-16

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

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

Surrogate	Flag	Cert	Result	Units	Dilution	Spike Amount	Percent Recovery	Recovery Limits
Trifluorotoluene (TFT)			1.86	mg/Kg	1	2.00	93	82.8 - 143.1
4-Bromofluorobenzene (4-BFB)			1.71	mg/Kg	1	2.00	86	70.6 - 179

Sample: 277384 - CS-8 Bottom Hole 7'

Laboratory: Midland
Analysis: Chloride (Titration)
QC Batch: 84839
Prep Batch: 72038

Analytical Method: SM 4500-Cl B
Date Analyzed: 2011-09-19
Sample Preparation: 2011-09-16

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

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Parameter	Flag	Cert	RL Result	Units	Dilution	RL
Parameter	Flag	Cert	RL Result	Units	Dilution	RL
Chloride			468	mg/Kg	50	4.00

Sample: 277384 - CS-8 Bottom Hole 7'

Laboratory: Midland
Analysis: TPH DRO - NEW
QC Batch: 84797
Prep Batch: 72014

Analytical Method: S 8015 D
Date Analyzed: 2011-09-16
Sample Preparation: 2011-09-16

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

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

Surrogate	Flag	Cert	Result	Units	Dilution	Spike Amount	Percent Recovery	Recovery Limits
n-Tricosane			117	mg/Kg	1	100	117	67.5 - 147.1

Sample: 277384 - CS-8 Bottom Hole 7'

Laboratory: Midland
Analysis: TPH GRO
QC Batch: 84783
Prep Batch: 72007

Analytical Method: S 8015 D
Date Analyzed: 2011-09-17
Sample Preparation: 2011-09-16

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

Parameter	Flag	Cert	RL Result	Units	Dilution	RL
GRO	u	i	<2.00	mg/Kg	1	2.00

Surrogate	Flag	Cert	Result	Units	Dilution	Spike Amount	Percent Recovery	Recovery Limits
Trifluorotoluene (TFT)	J		1.72	mg/Kg	1	2.00	86	30 - 134.6
4-Bromofluorobenzene (4-BFB)	J		1.30	mg/Kg	1	2.00	65	22.4 - 149

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Sample: 277385 - CS-9 Side Wall

Laboratory: Midland
Analysis: BTEX
QC Batch: 84782
Prep Batch: 72007

Analytical Method: S 8021B
Date Analyzed: 2011-09-17
Sample Preparation: 2011-09-16

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

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

Surrogate	Flag	Cert	Result	Units	Dilution	Spike Amount	Percent Recovery	Recovery Limits
Trifluorotoluene (TFT)			1.90	mg/Kg	1	2.00	95	82.8 - 143.1
4-Bromofluorobenzene (4-BFB)			1.70	mg/Kg	1	2.00	85	70.6 - 179

Sample: 277385 - CS-9 Side Wall

Laboratory: Midland
Analysis: Chloride (Titration)
QC Batch: 84839
Prep Batch: 72038

Analytical Method: SM 4500-Cl B
Date Analyzed: 2011-09-19
Sample Preparation: 2011-09-16

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

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

Sample: 277385 - CS-9 Side Wall

Laboratory: Midland
Analysis: TPH DRO - NEW
QC Batch: 84797
Prep Batch: 72014

Analytical Method: S 8015 D
Date Analyzed: 2011-09-16
Sample Preparation: 2011-09-16

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

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

Surrogate	Flag	Cert	Result	Units	Dilution	Spike Amount	Percent Recovery	Recovery Limits
n-Tricosane			119	mg/Kg	1	100	119	67.5 - 147.1

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Sample: 277385 - CS-9 Side Wall

Laboratory: Midland
Analysis: TPH GRO
QC Batch: 84783
Prep Batch: 72007

Analytical Method: S 8015 D
Date Analyzed: 2011-09-17
Sample Preparation: 2011-09-16

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

Parameter	Flag	Cert	RL Result	Units	Dilution	RL
GRO	u	1	<2.00	mg/Kg	1	2.00

Surrogate	Flag	Cert	Result	Units	Dilution	Spike Amount	Percent Recovery	Recovery Limits
Trifluorotoluene (TFT)	J		1.71	mg/Kg	1	2.00	86	30 - 134.6
4-Bromofluorobenzene (4-BFB)	J		1.30	mg/Kg	1	2.00	65	22.4 - 149

Sample: 277386 - CS-10 Side Wall

Laboratory: Midland
Analysis: BTEX
QC Batch: 84785
Prep Batch: 72007

Analytical Method: S 8021B
Date Analyzed: 2011-09-18
Sample Preparation: 2011-09-16

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

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

Surrogate	Flag	Cert	Result	Units	Dilution	Spike Amount	Percent Recovery	Recovery Limits
Trifluorotoluene (TFT)			2.65	mg/Kg	1	2.00	132	82.8 - 143.1
4-Bromofluorobenzene (4-BFB)			2.52	mg/Kg	1	2.00	126	70.6 - 179

Sample: 277386 - CS-10 Side Wall

Laboratory: Midland
Analysis: Chloride (Titration)
QC Batch: 84839
Prep Batch: 72038

Analytical Method: SM 4500-Cl B
Date Analyzed: 2011-09-19
Sample Preparation: 2011-09-16

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

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sample 277386 continued ...

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

Sample: 277386 - CS-10 Side Wall

Laboratory: Midland
Analysis: TPH DRO - NEW Analytical Method: S 8015 D Prep Method: N/A
QC Batch: 84804 Date Analyzed: 2011-09-16 Analyzed By: kg
Prep Batch: 72023 Sample Preparation: 2011-09-16 Prepared By: kg

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

Surrogate	Flag	Cert	Result	Units	Dilution	Spike Amount	Percent Recovery	Recovery Limits
n-Tricosane			120	mg/Kg	1	100	120	67.5 - 147.1

Sample: 277386 - CS-10 Side Wall

Laboratory: Midland
Analysis: TPH GRO Analytical Method: S 8015 D Prep Method: S 5035
QC Batch: 84786 Date Analyzed: 2011-09-18 Analyzed By: AG
Prep Batch: 72007 Sample Preparation: 2011-09-16 Prepared By: AG

Parameter	Flag	Cert	RL Result	Units	Dilution	RL
GRO	u	1	<2.00	mg/Kg	1	2.00

Surrogate	Flag	Cert	Result	Units	Dilution	Spike Amount	Percent Recovery	Recovery Limits
Trifluorotoluene (TFT)			2.42	mg/Kg	1	2.00	121	30 - 134.6
4-Bromofluorobenzene (4-BFB)	J		1.93	mg/Kg	1	2.00	96	22.4 - 149

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Sample: 277387 - CS-11 Side Wall

Laboratory: Midland

Analysis: BTEX

QC Batch: 84785

Prep Batch: 72007

Analytical Method: S 8021B

Date Analyzed: 2011-09-18

Sample Preparation: 2011-09-16

Prep Method: S 5035

Analyzed By: AG

Prepared By: AG

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

Surrogate	Flag	Cert	Result	Units	Dilution	Spike Amount	Percent Recovery	Recovery Limits
Trifluorotoluene (TFT)			2.32	mg/Kg	1	2.00	116	82.8 - 143.1
4-Bromofluorobenzene (4-BFB)			2.24	mg/Kg	1	2.00	112	70.6 - 179

Sample: 277387 - CS-11 Side Wall

Laboratory: Midland

Analysis: Chloride (Titration)

QC Batch: 84839

Prep Batch: 72038

Analytical Method: SM 4500-Cl B

Date Analyzed: 2011-09-19

Sample Preparation: 2011-09-16

Prep Method: N/A

Analyzed By: AR

Prepared By: AR

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

Sample: 277387 - CS-11 Side Wall

Laboratory: Midland

Analysis: TPH DRO - NEW

QC Batch: 84804

Prep Batch: 72023

Analytical Method: S 8015 D

Date Analyzed: 2011-09-16

Sample Preparation: 2011-09-16

Prep Method: N/A

Analyzed By: kg

Prepared By: kg

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

Surrogate	Flag	Cert	Result	Units	Dilution	Spike Amount	Percent Recovery	Recovery Limits
n-Tricosane			101	mg/Kg	1	100	101	67.5 - 147.1

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Sample: 277387 - CS-11 Side Wall

Laboratory: Midland
Analysis: TPH GRO
QC Batch: 84786
Prep Batch: 72007

Analytical Method: S 8015 D
Date Analyzed: 2011-09-18
Sample Preparation: 2011-09-16

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

Parameter	Flag	Cert	RL Result	Units	Dilution	RL
GRO	u	1	<2.00	mg/Kg	1	2.00

Surrogate	Flag	Cert	Result	Units	Dilution	Spike Amount	Percent Recovery	Recovery Limits
Trifluorotoluene (TFT)			2.12	mg/Kg	1	2.00	106	30 - 134.6
4-Bromofluorobenzene (4-BFB)	J		1.71	mg/Kg	1	2.00	86	22.4 - 149

Sample: 277388 - CS-12 Bottom Hole 7'

Laboratory: Midland
Analysis: BTEX
QC Batch: 84785
Prep Batch: 72007

Analytical Method: S 8021B
Date Analyzed: 2011-09-18
Sample Preparation: 2011-09-16

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

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

Surrogate	Flag	Cert	Result	Units	Dilution	Spike Amount	Percent Recovery	Recovery Limits
Trifluorotoluene (TFT)			2.73	mg/Kg	1	2.00	136	82.8 - 143.1
4-Bromofluorobenzene (4-BFB)			2.62	mg/Kg	1	2.00	131	70.6 - 179

Sample: 277388 - CS-12 Bottom Hole 7'

Laboratory: Midland
Analysis: Chloride (Titration)
QC Batch: 84839
Prep Batch: 72038

Analytical Method: SM 4500-Cl B
Date Analyzed: 2011-09-19
Sample Preparation: 2011-09-16

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

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sample 277388 continued ...

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

Sample: 277388 - CS-12 Bottom Hole 7'

Laboratory: Midland

Analysis: TPH DRO - NEW

QC Batch: 84804

Prep Batch: 72023

Analytical Method: S 8015 D

Date Analyzed: 2011-09-16

Sample Preparation: 2011-09-16

Prep Method: N/A

Analyzed By: kg

Prepared By: kg

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

Surrogate	Flag	Cert	Result	Units	Dilution	Spike Amount	Percent Recovery	Recovery Limits
n-Tricosane			91.3	mg/Kg	1	100	91	67.5 - 147.1

Sample: 277388 - CS-12 Bottom Hole 7'

Laboratory: Midland

Analysis: TPH GRO

QC Batch: 84786

Prep Batch: 72007

Analytical Method: S 8015 D

Date Analyzed: 2011-09-18

Sample Preparation: 2011-09-16

Prep Method: S 5035

Analyzed By: AG

Prepared By: AG

Parameter	Flag	Cert	RL Result	Units	Dilution	RL
GRO	u	i	<2.00	mg/Kg	1	2.00

Surrogate	Flag	Cert	Result	Units	Dilution	Spike Amount	Percent Recovery	Recovery Limits
Trifluorotoluene (TFT)			2.50	mg/Kg	1	2.00	125	30 - 134.6
4-Bromofluorobenzene (4-BFB)			2.00	mg/Kg	1	2.00	100	22.4 - 149

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Sample: 277389 - CS-13 Side Wall

Laboratory: Midland

Analysis: BTEX

QC Batch: 84785

Prep Batch: 72007

Analytical Method: S 8021B

Date Analyzed: 2011-09-18

Sample Preparation: 2011-09-16

Prep Method: S 5035

Analyzed By: AG

Prepared By: AG

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

Surrogate	Flag	Cert	Result	Units	Dilution	Spike Amount	Percent Recovery	Recovery Limits
Trifluorotoluene (TFT)			2.52	mg/Kg	1	2.00	126	82.8 - 143.1
4-Bromofluorobenzene (4-BFB)			2.39	mg/Kg	1	2.00	120	70.6 - 179

Sample: 277389 - CS-13 Side Wall

Laboratory: Midland

Analysis: Chloride (Titration)

QC Batch: 84839

Prep Batch: 72038

Analytical Method: SM 4500-Cl B

Date Analyzed: 2011-09-19

Sample Preparation: 2011-09-16

Prep Method: N/A

Analyzed By: AR

Prepared By: AR

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

Sample: 277389 - CS-13 Side Wall

Laboratory: Midland

Analysis: TPH DRO - NEW

QC Batch: 84804

Prep Batch: 72023

Analytical Method: S 8015 D

Date Analyzed: 2011-09-16

Sample Preparation: 2011-09-16

Prep Method: N/A

Analyzed By: kg

Prepared By: kg

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

Surrogate	Flag	Cert	Result	Units	Dilution	Spike Amount	Percent Recovery	Recovery Limits
n-Tricosane			85.5	mg/Kg	1	100	86	67.5 - 147.1

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Sample: 277389 - CS-13 Side Wall

Laboratory: Midland
Analysis: TPH GRO
QC Batch: 84786
Prep Batch: 72007

Analytical Method: S 8015 D
Date Analyzed: 2011-09-18
Sample Preparation: 2011-09-16

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

Parameter	Flag	Cert	RL Result	Units	Dilution	RL
GRO	u	1	<2.00	mg/Kg	1	2.00

Surrogate	Flag	Cert	Result	Units	Dilution	Spike Amount	Percent Recovery	Recovery Limits
Trifluorotoluene (TFT)			2.32	mg/Kg	1	2.00	116	30 - 134.6
4-Bromofluorobenzene (4-BFB)	J		1.82	mg/Kg	1	2.00	91	22.4 - 149

Sample: 277390 - CS-14 Side Wall

Laboratory: Midland
Analysis: BTEX
QC Batch: 84785
Prep Batch: 72007

Analytical Method: S 8021B
Date Analyzed: 2011-09-18
Sample Preparation: 2011-09-16

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

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

Surrogate	Flag	Cert	Result	Units	Dilution	Spike Amount	Percent Recovery	Recovery Limits
Trifluorotoluene (TFT)			2.21	mg/Kg	1	2.00	110	82.8 - 143.1
4-Bromofluorobenzene (4-BFB)			2.06	mg/Kg	1	2.00	103	70.6 - 179

Sample: 277390 - CS-14 Side Wall

Laboratory: Midland
Analysis: Chloride (Titration)
QC Batch: 84840
Prep Batch: 72038

Analytical Method: SM 4500-Cl B
Date Analyzed: 2011-09-19
Sample Preparation: 2011-09-16

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

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sample 277390 continued ...

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

Sample: 277390 - CS-14 Side Wall

Laboratory: Midland
Analysis: TPH DRO - NEW
QC Batch: 84804
Prep Batch: 72023

Analytical Method: S 8015 D
Date Analyzed: 2011-09-16
Sample Preparation: 2011-09-16

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

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

Surrogate	Flag	Cert	Result	Units	Dilution	Spike Amount	Percent Recovery	Recovery Limits
n-Tricosane			82.6	mg/Kg	1	100	83	67.5 - 147.1

Sample: 277390 - CS-14 Side Wall

Laboratory: Midland
Analysis: TPH GRO
QC Batch: 84786
Prep Batch: 72007

Analytical Method: S 8015 D
Date Analyzed: 2011-09-18
Sample Preparation: 2011-09-16

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

Parameter	Flag	Cert	RL Result	Units	Dilution	RL
GRO	u	1	<2.00	mg/Kg	1	2.00

Surrogate	Flag	Cert	Result	Units	Dilution	Spike Amount	Percent Recovery	Recovery Limits
Trifluorotoluene (TFT)			2.02	mg/Kg	1	2.00	101	30 - 134.6
4-Bromofluorobenzene (4-BFB)	j		1.58	mg/Kg	1	2.00	79	22.4 - 149

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Method Blanks

Method Blank (1) QC Batch: 84782

QC Batch: 84782
Prep Batch: 72007

Date Analyzed: 2011-09-17
QC Preparation: 2011-09-16

Analyzed By: AG
Prepared By: AG

Parameter	Flag	Cert	MDL Result	Units	RL
Benzene		1	<0.0118	mg/Kg	0.02
Toluene		1	<0.00600	mg/Kg	0.02
Ethylbenzene		1	<0.00850	mg/Kg	0.02
Xylene		1	<0.00613	mg/Kg	0.02

Surrogate	Flag	Cert	Result	Units	Dilution	Spike Amount	Percent Recovery	Recovery Limits
Trifluorotoluene (TFT)			2.03	mg/Kg	1	2.00	102	65.9 - 111.8
4-Bromofluorobenzene (4-BFB)			1.65	mg/Kg	1	2.00	82	48.4 - 123.1

Method Blank (1) QC Batch: 84783

QC Batch: 84783
Prep Batch: 72007

Date Analyzed: 2011-09-17
QC Preparation: 2011-09-16

Analyzed By: AG
Prepared By: AG

Parameter	Flag	Cert	MDL Result	Units	RL
GRO		1	<0.753	mg/Kg	2

Surrogate	Flag	Cert	Result	Units	Dilution	Spike Amount	Percent Recovery	Recovery Limits
Trifluorotoluene (TFT)			1.88	mg/Kg	1	2.00	94	67.6 - 150
4-Bromofluorobenzene (4-BFB)			1.30	mg/Kg	1	2.00	65	52.4 - 130

Method Blank (1) QC Batch: 84785

QC Batch: 84785
Prep Batch: 72007

Date Analyzed: 2011-09-18
QC Preparation: 2011-09-16

Analyzed By: AG
Prepared By: AG

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Parameter	Flag	Cert	MDL Result	Units	RL
Benzene		1	<0.0118	mg/Kg	0.02
Toluene		1	<0.00600	mg/Kg	0.02
Ethylbenzene		1	<0.00850	mg/Kg	0.02
Xylene		1	<0.00613	mg/Kg	0.02

Surrogate	Flag	Cert	Result	Units	Dilution	Spike Amount	Percent Recovery	Recovery Limits
Trifluorotoluene (TFT)			1.96	mg/Kg	1	2.00	98	65.9 - 111.8
4-Bromofluorobenzene (4-BFB)			1.56	mg/Kg	1	2.00	78	48.4 - 123.1

Method Blank (1) QC Batch: 84786

QC Batch: 84786
Prep Batch: 72007

Date Analyzed: 2011-09-18
QC Preparation: 2011-09-16

Analyzed By: AG
Prepared By: AG

Parameter	Flag	Cert	MDL Result	Units	RL
GRO		1	<0.753	mg/Kg	2

Surrogate	Flag	Cert	Result	Units	Dilution	Spike Amount	Percent Recovery	Recovery Limits
Trifluorotoluene (TFT)			1.82	mg/Kg	1	2.00	91	67.6 - 150
4-Bromofluorobenzene (4-BFB)			1.22	mg/Kg	1	2.00	61	52.4 - 130

Method Blank (1) QC Batch: 84797

QC Batch: 84797
Prep Batch: 72014

Date Analyzed: 2011-09-16
QC Preparation: 2011-09-16

Analyzed By: kg
Prepared By: kg

Parameter	Flag	Cert	MDL Result	Units	RL
DRO		1	<14.5	mg/Kg	50

Surrogate	Flag	Cert	Result	Units	Dilution	Spike Amount	Percent Recovery	Recovery Limits
n-Tricosane			117	mg/Kg	1	100	117	52.7 - 133.8

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Method Blank (1) QC Batch: 84804

QC Batch: 84804
Prep Batch: 72023

Date Analyzed: 2011-09-16
QC Preparation: 2011-09-16

Analyzed By: kg
Prepared By: kg

Parameter	Flag	Cert	MDL Result	Units	RL
DRO		1	<14.5	mg/Kg	50

Surrogate	Flag	Cert	Result	Units	Dilution	Spike Amount	Percent Recovery	Recovery Limits
n-Tricosane			117	mg/Kg	1	100	117	52.7 - 133.8

Method Blank (1) QC Batch: 84838

QC Batch: 84838
Prep Batch: 72038

Date Analyzed: 2011-09-19
QC Preparation: 2011-09-16

Analyzed By: AR
Prepared By: AR

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

Method Blank (1) QC Batch: 84839

QC Batch: 84839
Prep Batch: 72038

Date Analyzed: 2011-09-19
QC Preparation: 2011-09-16

Analyzed By: AR
Prepared By: AR

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

Method Blank (1) QC Batch: 84840

QC Batch: 84840
Prep Batch: 72038

Date Analyzed: 2011-09-19
QC Preparation: 2011-09-16

Analyzed By: AR
Prepared By: AR

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

Laboratory Control Spikes

Laboratory Control Spike (LCS-1)

QC Batch: 84782
Prep Batch: 72007

Date Analyzed: 2011-09-17
QC Preparation: 2011-09-16

Analyzed By: AG
Prepared By: AG

Param	F	C	LCS Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit
Benzene		1	2.19	mg/Kg	1	2.00	<0.0118	110	77.4 - 121.7
Toluene		1	2.04	mg/Kg	1	2.00	<0.00600	102	88.6 - 121.6
Ethylbenzene		1	1.96	mg/Kg	1	2.00	<0.00850	98	74.3 - 117.9
Xylene		1	5.79	mg/Kg	1	6.00	<0.00613	96	73.4 - 118.8

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

Param	F	C	LCSD Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit	RPD	RPD Limit
Benzene		1	2.27	mg/Kg	1	2.00	<0.0118	114	77.4 - 121.7	4	20
Toluene		1	2.12	mg/Kg	1	2.00	<0.00600	106	88.6 - 121.6	4	20
Ethylbenzene		1	2.02	mg/Kg	1	2.00	<0.00850	101	74.3 - 117.9	3	20
Xylene		1	6.02	mg/Kg	1	6.00	<0.00613	100	73.4 - 118.8	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)	2.00	2.02	mg/Kg	1	2.00	100	101	65.5 - 116.7
4-Bromofluorobenzene (4-BFB)	1.87	1.88	mg/Kg	1	2.00	94	94	56.2 - 132.1

Laboratory Control Spike (LCS-1)

QC Batch: 84783
Prep Batch: 72007

Date Analyzed: 2011-09-17
QC Preparation: 2011-09-16

Analyzed By: AG
Prepared By: AG

Param	F	C	LCS Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit
GRO		1	13.1	mg/Kg	1	20.0	<0.753	66	60.9 - 95.4

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

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Param	F	C	LCSD Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit	RPD	RPD Limit
Param	F	C	LCSD Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit	RPD	RPD Limit
GRO		1	12.9	mg/Kg	1	20.0	<0.753	64	60.9 - 95.4	2	20

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

Surrogate	LCS Result	LCSD Result	Units	Dil.	Spike Amount	LCS Rec.	LCSD Rec.	Rec. Limit
Trifluorotoluene (TFT)	1.87	1.88	mg/Kg	1	2.00	94	94	61.9 - 142
4-Bromofluorobenzene (4-BFB)	1.45	1.43	mg/Kg	1	2.00	72	72	68.2 - 132

Laboratory Control Spike (LCS-1)

QC Batch: 84785
Prep Batch: 72007

Date Analyzed: 2011-09-18
QC Preparation: 2011-09-16

Analyzed By: AG
Prepared By: AG

Param	F	C	LCS Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit
Benzene		1	2.19	mg/Kg	1	2.00	<0.0118	110	77.4 - 121.7
Toluene		1	2.03	mg/Kg	1	2.00	<0.00600	102	88.6 - 121.6
Ethylbenzene		1	1.95	mg/Kg	1	2.00	<0.00850	98	74.3 - 117.9
Xylene		1	5.74	mg/Kg	1	6.00	<0.00613	96	73.4 - 118.8

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

Param	F	C	LCSD Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit	RPD	RPD Limit
Benzene		1	2.20	mg/Kg	1	2.00	<0.0118	110	77.4 - 121.7	0	20
Toluene		1	2.03	mg/Kg	1	2.00	<0.00600	102	88.6 - 121.6	0	20
Ethylbenzene		1	1.95	mg/Kg	1	2.00	<0.00850	98	74.3 - 117.9	0	20
Xylene		1	5.78	mg/Kg	1	6.00	<0.00613	96	73.4 - 118.8	1	20

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

Surrogate	LCS Result	LCSD Result	Units	Dil.	Spike Amount	LCS Rec.	LCSD Rec.	Rec. Limit
Trifluorotoluene (TFT)	1.94	1.93	mg/Kg	1	2.00	97	96	65.5 - 116.7
4-Bromofluorobenzene (4-BFB)	1.88	1.92	mg/Kg	1	2.00	94	96	56.2 - 132.1

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Laboratory Control Spike (LCS-1)

QC Batch: 84786
Prep Batch: 72007

Date Analyzed: 2011-09-18
QC Preparation: 2011-09-16

Analyzed By: AG
Prepared By: AG

Param	F	C	LCS Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit
GRO		1	17.2	mg/Kg	1	20.0	<0.753	86	60.9 - 95.4

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

Param	F	C	LCSD Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit	RPD	RPD Limit
GRO		1	16.7	mg/Kg	1	20.0	<0.753	84	60.9 - 95.4	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
Trifluorotoluene (TFT)	1.96	1.94	mg/Kg	1	2.00	98	97	61.9 - 142
4-Bromofluorobenzene (4-BFB)	1.58	1.52	mg/Kg	1	2.00	79	76	68.2 - 132

Laboratory Control Spike (LCS-1)

QC Batch: 84797
Prep Batch: 72014

Date Analyzed: 2011-09-16
QC Preparation: 2011-09-16

Analyzed By: kg
Prepared By: kg

Param	F	C	LCS Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit
DRO		1	260	mg/Kg	1	250	<14.5	104	64.5 - 146.9

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

Param	F	C	LCSD Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit	RPD	RPD Limit
DRO		1	272	mg/Kg	1	250	<14.5	109	64.5 - 146.9	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	127	129	mg/Kg	1	100	127	129	65.3 - 135.8

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Laboratory Control Spike (LCS-1)

QC Batch: 84804
Prep Batch: 72023

Date Analyzed: 2011-09-16
QC Preparation: 2011-09-16

Analyzed By: kg
Prepared By: kg

Param	F	C	LCS Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit
DRO		1	290	mg/Kg	1	250	<14.5	116	64.5 - 146.9

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

Param	F	C	LCSD Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit	RPD	RPD Limit
DRO		1	297	mg/Kg	1	250	<14.5	119	64.5 - 146.9	2	20

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

Surrogate	LCS Result	LCSD Result	Units	Dil.	Spike Amount	LCS Rec.	LCSD Rec.	Rec. Limit
n-Tricosane	128	130	mg/Kg	1	100	128	130	65.3 - 135.8

Laboratory Control Spike (LCS-1)

QC Batch: 84838
Prep Batch: 72038

Date Analyzed: 2011-09-19
QC Preparation: 2011-09-16

Analyzed By: AR
Prepared By: AR

Param	F	C	LCS Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit
Chloride			94.4	mg/Kg	1	100	<3.85	94	85 - 115

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

Param	F	C	LCSD Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit	RPD	RPD Limit
Chloride			103	mg/Kg	1	100	<3.85	103	85 - 115	9	20

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

Laboratory Control Spike (LCS-1)

QC Batch: 84839
Prep Batch: 72038

Date Analyzed: 2011-09-19
QC Preparation: 2011-09-16

Analyzed By: AR
Prepared By: AR

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Param	F	C	LCS Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit
Chloride			95.7	mg/Kg	1	100	<3.85	96	85 - 115

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

Param	F	C	LCSD Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit	RPD	RPD Limit
Chloride			104	mg/Kg	1	100	<3.85	104	85 - 115	8	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: 84840
Prep Batch: 72038

Date Analyzed: 2011-09-19
QC Preparation: 2011-09-16

Analyzed By: AR
Prepared By: AR

Param	F	C	LCS Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit
Chloride			93.5	mg/Kg	1	100	<3.85	94	85 - 115

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

Param	F	C	LCSD Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit	RPD	RPD Limit
Chloride			105	mg/Kg	1	100	<3.85	105	85 - 115	12	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: 277377

QC Batch: 84782
Prep Batch: 72007

Date Analyzed: 2011-09-17
QC Preparation: 2011-09-16

Analyzed By: AG
Prepared By: AG

Param	F	C	MS Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit
Benzene		1	1.96	mg/Kg	1	2.00	<0.0118	98	69.4 - 123.6
Toluene		1	1.91	mg/Kg	1	2.00	<0.00600	96	75.4 - 134.3
Ethylbenzene		1	1.95	mg/Kg	1	2.00	<0.00850	98	58.8 - 133.7
Xylene		1	5.76	mg/Kg	1	6.00	<0.00613	96	57 - 134.2

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

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matrix spikes continued ...

Param	F	C	MSD Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit	RPD	RPD Limit
Param	F	C	MSD Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit	RPD	RPD Limit
Benzene		1	2.18	mg/Kg	1	2.00	<0.0118	109	69.4 - 123.6	11	20
Toluene		1	2.12	mg/Kg	1	2.00	<0.00600	106	75.4 - 134.3	10	20
Ethylbenzene		1	2.18	mg/Kg	1	2.00	<0.00850	109	58.8 - 133.7	11	20
Xylene		1	6.42	mg/Kg	1	6.00	<0.00613	107	57 - 134.2	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
Trifluorotoluene (TFT)	2.05	2.25	mg/Kg	1	2	102	112	79.4 - 141.1
4-Bromofluorobenzene (4-BFB)	2.03	2.16	mg/Kg	1	2	102	108	71 - 167

Matrix Spike (MS-1) Spiked Sample: 277380

QC Batch: 84783
Prep Batch: 72007

Date Analyzed: 2011-09-17
QC Preparation: 2011-09-16

Analyzed By: AG
Prepared By: AG

Param	F	C	MS Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit
GRO		1	15.5	mg/Kg	1	20.0	<0.753	78	61.8 - 114

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

Param	F	C	MSD Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit	RPD	RPD Limit
GRO		1	15.4	mg/Kg	1	20.0	<0.753	77	61.8 - 114	1	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)	2.18	2.08	mg/Kg	1	2	109	104	29.4 - 161.7
4-Bromofluorobenzene (4-BFB)	1.91	1.78	mg/Kg	1	2	96	89	37.3 - 162

Matrix Spike (MS-1) Spiked Sample: 277319

QC Batch: 84785
Prep Batch: 72007

Date Analyzed: 2011-09-18
QC Preparation: 2011-09-16

Analyzed By: AG
Prepared By: AG

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Param	F	C	MS Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit
Benzene		1	2.38	mg/Kg	1	2.00	<0.0118	119	69.4 - 123.6
Toluene		1	2.32	mg/Kg	1	2.00	<0.00600	116	75.4 - 134.3
Ethylbenzene		1	2.38	mg/Kg	1	2.00	<0.00850	119	58.8 - 133.7
Xylene		1	7.04	mg/Kg	1	6.00	<0.00613	117	57 - 134.2

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

Param	F	C	MSD Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit	RPD	RPD Limit
Benzene		1	2.37	mg/Kg	1	2.00	<0.0118	118	69.4 - 123.6	0	20
Toluene		1	2.32	mg/Kg	1	2.00	<0.00600	116	75.4 - 134.3	0	20
Ethylbenzene		1	2.40	mg/Kg	1	2.00	<0.00850	120	58.8 - 133.7	1	20
Xylene		1	7.09	mg/Kg	1	6.00	<0.00613	118	57 - 134.2	1	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)	2.32	2.16	mg/Kg	1	2	116	108	79.4 - 141.1
4-Bromofluorobenzene (4-BFB)	2.27	2.12	mg/Kg	1	2	114	106	71 - 167

Matrix Spike (MS-1) Spiked Sample: 277387

QC Batch: 84786
Prep Batch: 72007

Date Analyzed: 2011-09-18
QC Preparation: 2011-09-16

Analyzed By: AG
Prepared By: AG

Param	F	C	MS Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit
GRO		1	17.0	mg/Kg	1	20.0	<0.753	85	61.8 - 114

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

Param	F	C	MSD Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit	RPD	RPD Limit
GRO		1	17.3	mg/Kg	1	20.0	<0.753	86	61.8 - 114	2	20

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

Surrogate	MS Result	MSD Result	Units	Dil.	Spike Amount	MS Rec.	MSD Rec.	Rec. Limit
Trifluorotoluene (TFT)	2.24	2.05	mg/Kg	1	2	112	102	29.4 - 161.7
4-Bromofluorobenzene (4-BFB)	1.92	1.78	mg/Kg	1	2	96	89	37.3 - 162

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Matrix Spike (MS-1) Spiked Sample: 277385

QC Batch: 84797
Prep Batch: 72014

Date Analyzed: 2011-09-16
QC Preparation: 2011-09-16

Analyzed By: kg
Prepared By: kg

Param	F	C	MS Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit
DRO		1	263	mg/Kg	1	250	<14.5	105	38.8 - 153.3

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

Param	F	C	MSD Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit	RPD	RPD Limit
DRO		1	258	mg/Kg	1	250	<14.5	103	38.8 - 153.3	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-Tricosane	116	116	mg/Kg	1	100	116	116	54.6 - 149.8

Matrix Spike (MS-1) Spiked Sample: 277390

QC Batch: 84804
Prep Batch: 72023

Date Analyzed: 2011-09-16
QC Preparation: 2011-09-16

Analyzed By: kg
Prepared By: kg

Param	F	C	MS Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit
DRO		1	194	mg/Kg	1	250	<14.5	78	38.8 - 153.3

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

Param	F	C	MSD Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit	RPD	RPD Limit
DRO		1	186	mg/Kg	1	250	<14.5	74	38.8 - 153.3	4	20

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

Surrogate	MS Result	MSD Result	Units	Dil.	Spike Amount	MS Rec.	MSD Rec.	Rec. Limit
n-Tricosane	74.1	73.0	mg/Kg	1	100	74	73	54.6 - 149.8

Matrix Spike (MS-1) Spiked Sample: 277379

QC Batch: 84838
Prep Batch: 72038

Date Analyzed: 2011-09-19
QC Preparation: 2011-09-16

Analyzed By: AR
Prepared By: AR

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Param	F	C	MS Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit
Chloride			9700	mg/Kg	100	10000	<385	97	79.4 - 120.6

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

Param	F	C	MSD Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit	RPD	RPD Limit
Chloride			10300	mg/Kg	100	10000	<385	103	79.4 - 120.6	6	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: 277389

QC Batch: 84839
Prep Batch: 72038

Date Analyzed: 2011-09-19
QC Preparation: 2011-09-16

Analyzed By: AR
Prepared By: AR

Param	F	C	MS Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit
Chloride			9990	mg/Kg	100	10000	<385	100	79.4 - 120.6

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

Param	F	C	MSD Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit	RPD	RPD Limit
Chloride			10700	mg/Kg	100	10000	<385	107	79.4 - 120.6	7	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: 277399

QC Batch: 84840
Prep Batch: 72038

Date Analyzed: 2011-09-19
QC Preparation: 2011-09-16

Analyzed By: AR
Prepared By: AR

Param	F	C	MS Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit
Chloride			9960	mg/Kg	100	10000	<385	100	79.4 - 120.6

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

Param	F	C	MSD Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit	RPD	RPD Limit
Chloride			10600	mg/Kg	100	10000	<385	106	79.4 - 120.6	6	20

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

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Calibration Standards

Standard (CCV-1)

QC Batch: 84782

Date Analyzed: 2011-09-17

Analyzed By: AG

Param	Flag	Cert	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
Benzene		1	mg/Kg	0.100	0.112	112	80 - 120	2011-09-17
Toluene		1	mg/Kg	0.100	0.104	104	80 - 120	2011-09-17
Ethylbenzene		1	mg/Kg	0.100	0.100	100	80 - 120	2011-09-17
Xylene		1	mg/Kg	0.300	0.298	99	80 - 120	2011-09-17

Standard (CCV-2)

QC Batch: 84782

Date Analyzed: 2011-09-17

Analyzed By: AG

Param	Flag	Cert	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
Benzene		1	mg/Kg	0.100	0.112	112	80 - 120	2011-09-17
Toluene		1	mg/Kg	0.100	0.103	103	80 - 120	2011-09-17
Ethylbenzene		1	mg/Kg	0.100	0.0993	99	80 - 120	2011-09-17
Xylene		1	mg/Kg	0.300	0.292	97	80 - 120	2011-09-17

Standard (CCV-3)

QC Batch: 84782

Date Analyzed: 2011-09-17

Analyzed By: AG

Param	Flag	Cert	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
Benzene		1	mg/Kg	0.100	0.112	112	80 - 120	2011-09-17
Toluene		1	mg/Kg	0.100	0.103	103	80 - 120	2011-09-17
Ethylbenzene		1	mg/Kg	0.100	0.0996	100	80 - 120	2011-09-17
Xylene		1	mg/Kg	0.300	0.294	98	80 - 120	2011-09-17

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Standard (CCV-1)

QC Batch: 84783

Date Analyzed: 2011-09-17

Analyzed By: AG

Param	Flag	Cert	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
GRO		1	mg/Kg	1.00	0.812	81	80 - 120	2011-09-17

Standard (CCV-2)

QC Batch: 84783

Date Analyzed: 2011-09-17

Analyzed By: AG

Param	Flag	Cert	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
GRO		1	mg/Kg	1.00	0.843	84	80 - 120	2011-09-17

Standard (CCV-3)

QC Batch: 84783

Date Analyzed: 2011-09-17

Analyzed By: AG

Param	Flag	Cert	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
GRO		1	mg/Kg	1.00	0.800	80	80 - 120	2011-09-17

Standard (CCV-1)

QC Batch: 84785

Date Analyzed: 2011-09-18

Analyzed By: AG

Param	Flag	Cert	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
Benzene		1	mg/Kg	0.100	0.114	114	80 - 120	2011-09-18
Toluene		1	mg/Kg	0.100	0.106	106	80 - 120	2011-09-18
Ethylbenzene		1	mg/Kg	0.100	0.0999	100	80 - 120	2011-09-18
Xylene		1	mg/Kg	0.300	0.299	100	80 - 120	2011-09-18

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Standard (CCV-2)

QC Batch: 84785

Date Analyzed: 2011-09-18

Analyzed By: AG

Param	Flag	Cert	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
Benzene		1	mg/Kg	0.100	0.119	119	80 - 120	2011-09-18
Toluene		1	mg/Kg	0.100	0.110	110	80 - 120	2011-09-18
Ethylbenzene		1	mg/Kg	0.100	0.107	107	80 - 120	2011-09-18
Xylene		1	mg/Kg	0.300	0.315	105	80 - 120	2011-09-18

Standard (CCV-1)

QC Batch: 84786

Date Analyzed: 2011-09-18

Analyzed By: AG

Param	Flag	Cert	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
GRO		1	mg/Kg	1.00	0.938	94	80 - 120	2011-09-18

Standard (CCV-2)

QC Batch: 84786

Date Analyzed: 2011-09-18

Analyzed By: AG

Param	Flag	Cert	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
GRO		1	mg/Kg	1.00	0.978	98	80 - 120	2011-09-18

Standard (CCV-2)

QC Batch: 84797

Date Analyzed: 2011-09-16

Analyzed By: kg

Param	Flag	Cert	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
DRO		1	mg/Kg	250	266	106	80 - 120	2011-09-16

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Standard (CCV-3)

QC Batch: 84797

Date Analyzed: 2011-09-16

Analyzed By: kg

Param	Flag	Cert	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
DRO		1	mg/Kg	250	282	113	80 - 120	2011-09-16

Standard (CCV-4)

QC Batch: 84797

Date Analyzed: 2011-09-16

Analyzed By: kg

Param	Flag	Cert	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
DRO		1	mg/Kg	250	288	115	80 - 120	2011-09-16

Standard (CCV-1)

QC Batch: 84804

Date Analyzed: 2011-09-16

Analyzed By: kg

Param	Flag	Cert	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
DRO		1	mg/Kg	250	290	116	80 - 120	2011-09-16

Standard (CCV-2)

QC Batch: 84804

Date Analyzed: 2011-09-16

Analyzed By: kg

Param	Flag	Cert	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
DRO		1	mg/Kg	250	243	97	80 - 120	2011-09-16

Standard (ICV-1)

QC Batch: 84838

Date Analyzed: 2011-09-19

Analyzed By: AR

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Param	Flag	Cert	Units	ICVs True Conc.	ICVs Found Conc.	ICVs Percent Recovery	Percent Recovery Limits	Date Analyzed
Chloride			mg/Kg	100	105	105	85 - 115	2011-09-19

Standard (CCV-1)

QC Batch: 84838

Date Analyzed: 2011-09-19

Analyzed By: AR

Param	Flag	Cert	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
Chloride			mg/Kg	100	95.3	95	85 - 115	2011-09-19

Standard (ICV-1)

QC Batch: 84839

Date Analyzed: 2011-09-19

Analyzed By: AR

Param	Flag	Cert	Units	ICVs True Conc.	ICVs Found Conc.	ICVs Percent Recovery	Percent Recovery Limits	Date Analyzed
Chloride			mg/Kg	100	99.4	99	85 - 115	2011-09-19

Standard (CCV-1)

QC Batch: 84839

Date Analyzed: 2011-09-19

Analyzed By: AR

Param	Flag	Cert	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
Chloride			mg/Kg	100	101	101	85 - 115	2011-09-19

Standard (ICV-1)

QC Batch: 84840

Date Analyzed: 2011-09-19

Analyzed By: AR

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Param	Flag	Cert	Units	ICVs True Conc.	ICVs Found Conc.	ICVs Percent Recovery	Percent Recovery Limits	Date Analyzed
Chloride			mg/Kg	100	98.5	98	85 - 115	2011-09-19

Standard (CCV-1)

QC Batch: 84840

Date Analyzed: 2011-09-19

Analyzed By: AR

Param	Flag	Cert	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
Chloride			mg/Kg	100	102	102	85 - 115	2011-09-19

Appendix

Laboratory Certifications

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

Standard Flags

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

Attachments

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

XW0 #: 11091546

Analysis Request of Chain of Custody Record

PAGE: 2 OF: 2

**TETRA TECH**

1910 N. Big Spring St.

Midland, Texas 79705

(432) 682-4559 • Fax (432) 682-3946

ANALYSIS REQUEST
(Circle or Specify Method No.)

CLIENT NAME:

COG

SITE MANAGER:

Ike Tavaraz

PROJECT NO.:

114-6400826

PROJECT NAME:

Bringham A #3

Edley County

LAB I.D.
NUMBER

DATE

TIME

MATRIX

COMP

GRAB

SAMPLE IDENTIFICATION

NUMBER OF CONTAINERS

FILTERED (Y/N)

PRESERVATIVE
METHOD

HCL

HNO3

ICE

NONE

BTX 8021B

TPH 8015 MOD. TX1005 (Ext. to C35)

PAH 8270

RCRA Metals Ag As Ba Cd Cr Pb Hg Se

TCLP Metals Ag As Ba Cd Cr Pb Hg Se

TCLP Volatiles

TCLP Semi Volatiles

RCI

GC/MS Vol. 8240/8260/824

GC/MS Semi. Vol. 8270/625

PCB's 8080/608

Pest. 808/608

Chloride

Gamma Spec.

Alpha Beta (Air)

PLM (Asbestos)

Major Anions/Cations, pH, TDS

RELINQUISHED BY: (Signature)

Date:

9/15/11

Time:

650

RECEIVED BY: (Signature)

Date:

9/15/11

Time:

0900

SAMPLED BY: (Print & Initial)

B. AN Schaefer Eric Schaefer

Date:

9/15/11

Time:

1130

RELINQUISHED BY: (Signature)

Date:

9/15/11

Time:

1510

RECEIVED BY: (Signature)

Date:

9/15/11

Time:

1510

SAMPLE SHIPPED BY: (Circle)

FEDEX

BUS

AIRBILL #:

RELINQUISHED BY: (Signature)

Date:

Time:

RECEIVED BY: (Signature)

Date:

Time:

HAND DELIVERED

UPS

OTHER:

RECEIVING LABORATORY:

ADDRESS:

CITY:

STATE:

ZIP:

CONTACT:

PHONE:

RECEIVED BY: (Signature)

DATE:

TIME:

TETRA TECH CONTACT PERSON:

Ike Tavaraz

Results by:

RUSH Charges

Authorized:

Yes

No

SAMPLE CONDITION WHEN RECEIVED:

REMARKS:

0.9°C intact

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

Table 2
COG Operating LLC.
BRIGHAM H #3
Eddy County, New Mexico

Sample ID		Sample Date	Sample Depth (ft)	Depth (BEB)	Soil Status		TPH (mg/kg)			Benzene (mg/kg)	Toluene (mg/kg)	Ethlybenzene (mg/kg)	Xylene (mg/kg)	Total BTEX	Chloride (mg/kg)
					In-Situ	Removed	GRO	DRO	Total						
Area of AH-4															
CS-1	Bottom Hole	9/6/2011	8'		X		<2.00	<50.0	<50.0	<0.0200	<0.0200	<0.0200	<0.0200	<0.0200	474
CS-2	Side Wall	9/6/2011	-		X		<2.00	<50.0	<50.0	<0.0200	<0.0200	<0.0200	<0.0200	<0.0200	<200
CS-3	Side Wall	9/6/2011	-		X		<2.00	<50.0	<50.0	<0.0200	<0.0200	<0.0200	<0.0200	<0.0200	<200
Area of AH-2															
CS-4	Bottom Hole	9/6/2011	5'		X		<2.00	<50.0	<50.0	<0.0200	<0.0200	<0.0200	<0.0200	<0.0200	<200
CS-5	Side Wall	9/6/2011	-		X		<2.00	<50.0	<50.0	<0.0200	<0.0200	<0.0200	<0.0200	<0.0200	<200
CS-6	Side Wall	9/6/2011	-		X		<2.00	<50.0	<50.0	<0.0200	<0.0200	<0.0200	<0.0200	<0.0200	<200
Area of AH-3															
CS-7	Side Wall	9/6/2011	-		X		<2.00	<50.0	<50.0	<0.0200	<0.0200	<0.0200	<0.0200	<0.0200	<200
CS-8	Bottom Hole	9/6/2011	7'		X		<2.00	<50.0	<50.0	<0.0200	<0.0200	<0.0200	<0.0200	<0.0200	468
CS-9	Side Wall	9/6/2011	-		X		<2.00	<50.0	<50.0	<0.0200	<0.0200	<0.0200	<0.0200	<0.0200	<200
CS-10	Side Wall	9/6/2011	-		X		<2.00	<50.0	<50.0	<0.0200	<0.0200	<0.0200	<0.0200	<0.0200	<200
Area of AH-1															
CS-11	Side Wall	9/6/2011	-		X		<2.00	<50.0	<50.0	<0.0200	<0.0200	<0.0200	<0.0200	<0.0200	<200
CS-12	Bottom Hole	9/6/2011	7'		X		<2.00	<50.0	<50.0	<0.0200	<0.0200	<0.0200	<0.0200	<0.0200	<200
CS-13	Side Wall	9/6/2011	-		X		<2.00	<50.0	<50.0	<0.0200	<0.0200	<0.0200	<0.0200	<0.0200	<200
CS-14	Side Wall	9/6/2011	-		X		<2.00	<50.0	<50.0	<0.0200	<0.0200	<0.0200	<0.0200	<0.0200	<200

(--)

Not Analyzed

BEB

Below Excavation Bottom