

RECEIVED

MAR 1,6 2012

**NMOCD ARTESIA** 

February 20, 2012

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

Re: Closure Report for the SM Energy Company
Parkway Delaware Unit Tract 1 Tank Battery
Heater Treater Fire Tube Line Release and
Release from 750 barrel Steel Tank Bottom
Unit P, Section 35, Township 19 South, Range 29 East
Eddy County, New Mexico

Mr. Bratcher:

Tetra Tech, Inc. (Tetra Tech) was contacted by SM Energy Company (SM Energy) to assess a heater treater fire tube line release at the Parkway Delaware Unit Tract 1 Tank Battery (PDU Tract 1 TB) located in Unit P, Section 35, Township 19 South, Range 29 East, Eddy County, New Mexico (Site). The spill site coordinates are N 32.61531°, W 104.04324°. The site location is shown on Figures 1 and 2.

#### Background

According to the State of New Mexico C-141 Initial Report, the leak was discovered on May 14, 2009. Approximately 25 barrels of produced water and 250 barrels of crude oil were released from a hole in the heater treater fire tube line. Approximately 20 barrels of produced water and 240 barrels of crude oil were recovered. All fluids were contained within the facility dikes. The heater treater was emptied and the fire tube line was repaired.

A second leak was discovered at the site on May 16, 2011. Approximately 205 barrels of crude oil was released from a hole in the bottom of one of the 750 barrel steel tanks. An estimated 200 barrel of crude oil was recovered as part of the initial remedial effort and placed back into one of the onsite tanks. This tank was removed from service. The final C-141s for both releases are enclosed in Appendix A.

#### Hydrology

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



1986. These wells are shown on Figure 3.

The Geology and Ground-Water Resources of Eddy County, New Mexico (Report 3) showed the closest well to be in Section 3 of Township 20 South and Range 29 East. This well is approximately 1 mile south of the site and is reported to be completed in either the Rustler Formation or the Dockum Group. Depth to water for this well is not available. The New Mexico Oil Conservation Division (OCD) regional groundwater gradient map for Eddy County shows the depth to groundwater in this section at approximately 90 feet.

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

#### Regulatory

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

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

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

On May 25, 2010, Tetra Tech personnel remobilized to the site with a drilling rig to advance soil borings in the areas previously assessed with a hand auger for the May 14, 2009 spill. SB-1, SB-2 and SB-3 were advanced to 40 feet bgs, 30 feet bgs and 45 feet bgs, respectively. Soil samples from the borings were submitted for laboratory analysis to evaluate the BTEX, TPH and chloride concentrations. The bottom sample in each boring did not exhibit chloride concentrations above the laboratory reporting limits.

Analytical results indicate the maximum extent of chloride impact greater than 1,000 mg/Kg extending to 1 foot (SB-1), 5 feet (SB-2) and 20 feet (SB-3). All sample locations had chloride concentrations that decreased with depth. TPH concentrations exceeded the RRALs in the vicinity of AH-2 and AH-4 to depths of 1 foot and 2 feet, respectively. In addition, Total BTEX concentrations in the vicinity of AH-4 and AH-5



exceeded the RRAL to depths of 2 feet. Copies of laboratory analysis and chain-of-custody documentation are included in Appendix B. The results of the sampling are summarized in Table 1. The borehole locations are shown on Figure 3.

In addition, on June 1, 2011 Tetra Tech personnel remobilized to the site to collect soil samples with a hand auger in the vicinity of the May 16, 2011 spill area. Borings were advanced with a hand auger at five locations within the spill area (identified as AH-1, AH-2, AH-3, AH-4 and AH-5). Soil sampling stopped in each location when auger refusal occurred. Soil samples were submitted for laboratory analysis of TPH by EPA method 8015 modified, BTEX by EPA Method 8021B and chloride by EPA method 300.0. Copies of laboratory analysis and chain-of-custody documentation are included in Appendix B. The results of the sampling are summarized in Table 2.

#### **Remedial Work and Closure Request**

A work plan dated April 26, 2011, was submitted and approved by the OCD. Based on the approved work plan, Tetra Tech personnel supervised the excavation of the site. In addition, soils from the May 16, 2011 spill were excavated to the same depth as the May 14, 2009 spill. The final depths of the soil remediation for the entire spill met or exceeded the depths of the approved work plan for the May 14, 2009 spill area. The excavated depths for the May 16, 2011 spill removed all soils previously identified as exceeding the RRAL for BTEX/TPH with the exception of the soils in the vicinity of AH-5. Additional excavation in this area was not possible due to facility equipment. The excavation depths are highlighted in Table 1 and Table 2 and shown on Figure 4. Once excavated, the site (May 14, 2009 and May 16, 2001 spill areas) was sprayed with microblaze. The site was then backfilled with clean material to surface grade.

Based on the remedial activities performed at this site, SM Energy requests closure of this site. If you require any additional information or have any questions or comments concerning this report, please call at (432) 682-4559.

Sincerely,

TETRA TECH INC.

Aaron M. Hale

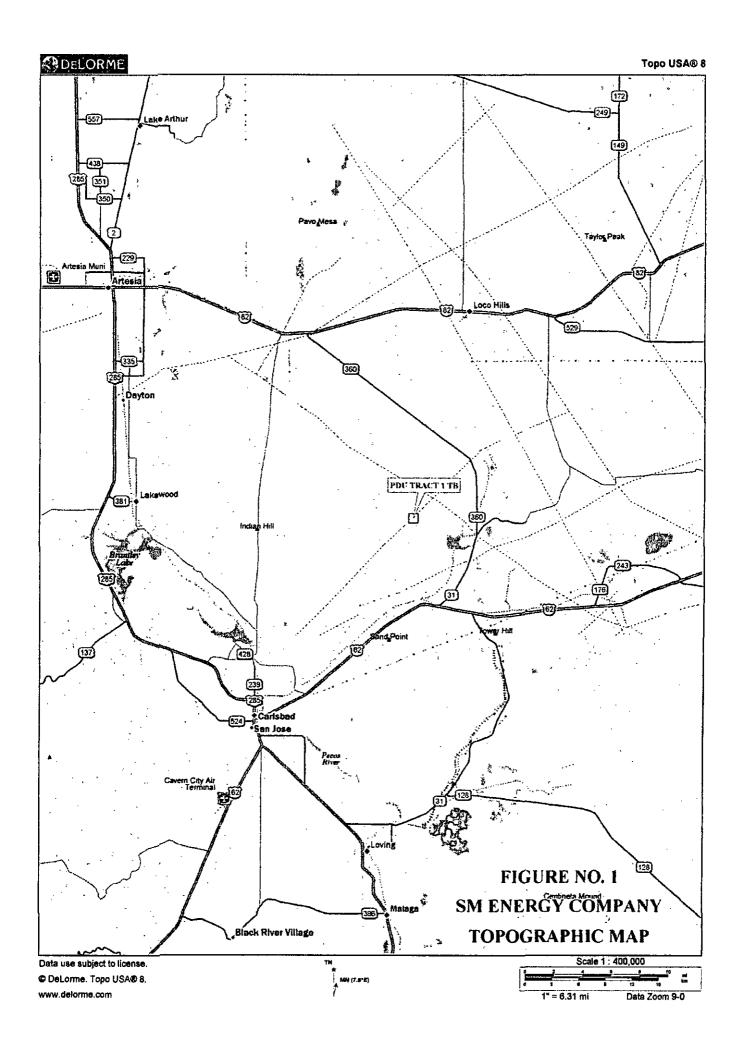
Senior Project Manager

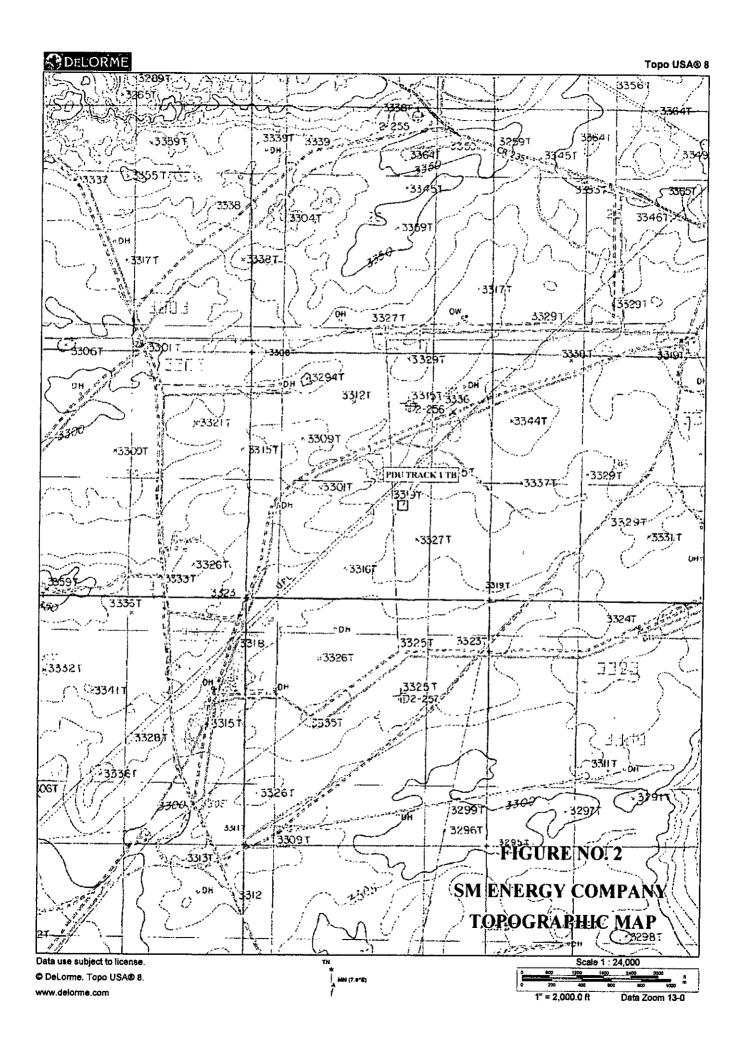
cc: Chad McNeely - SM Energy Company

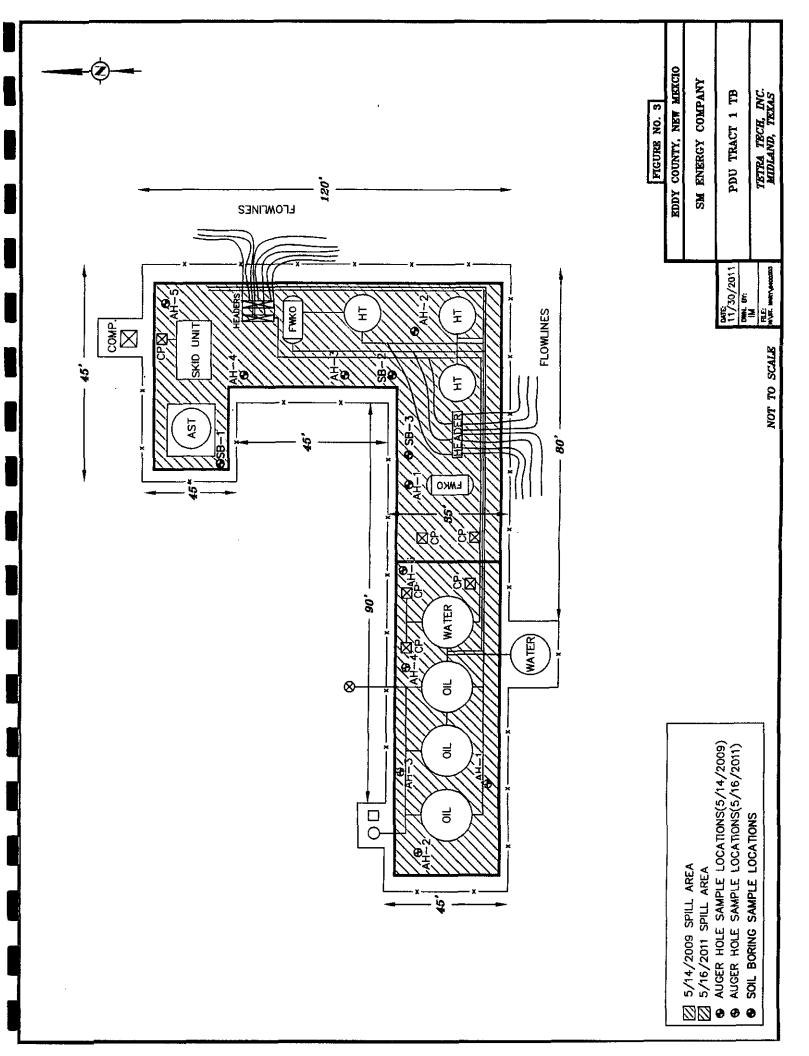
Don Riggs – SM Energy Company Mark Bondy – SM Energy Company

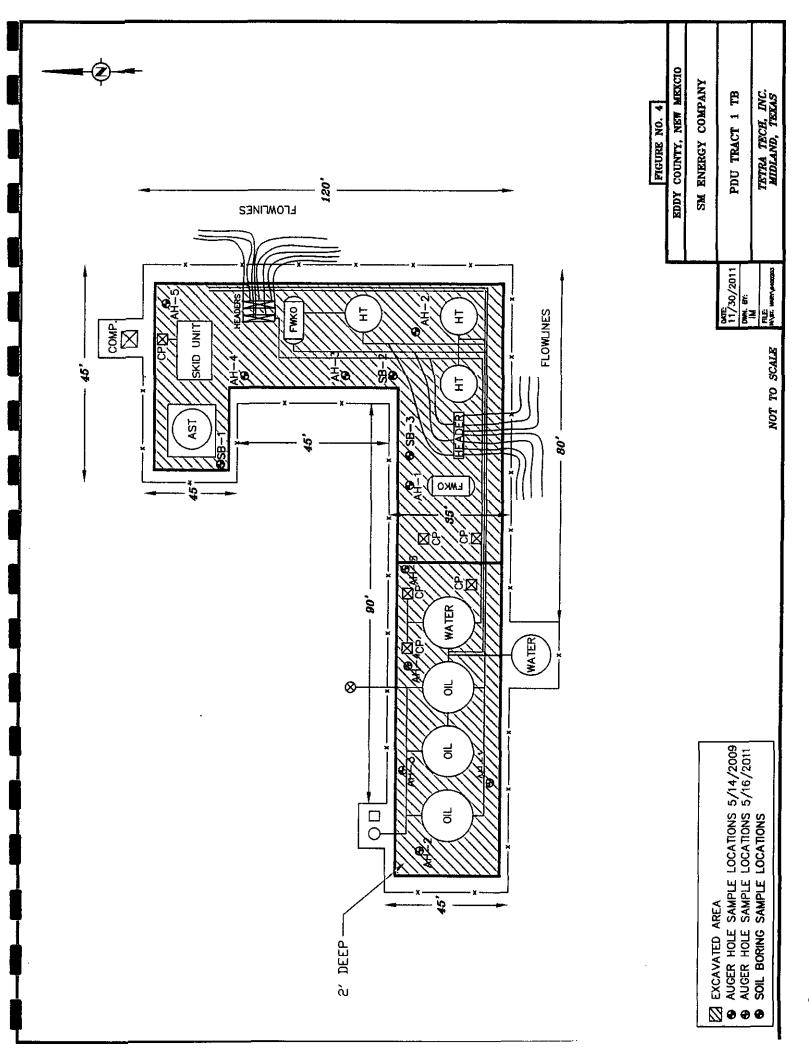
BLM - Jim Amos

**FIGURES** 









**TABLES** 

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

Chloride	(mg/Kg)	6,750;	9,070	7,730	3,740	3.250	6,500	1,010	6,460	1,680	1,080	808	974	<200	<200		3,580	1.200	1.480	1.360	486	374	276	314	303
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SM Energy Company Parkware Deleware Unit Tract #1 Tank Battery Eddy County, New Mexico Table 1

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Sample	۵	SB-2									AH-4	AH-5	6 4 4 5	5									

Not Analyzed Excavated Depths

Table 2
SM Energy Company
PDU TRACT #1 TANK BATTERY
Eddy County, New Mexico

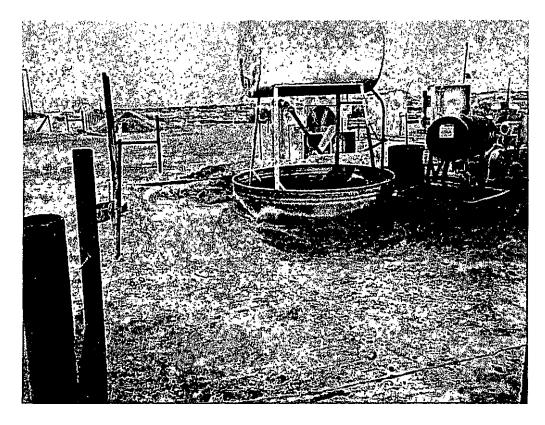
	L		BEB			Î							
Sample	Sample Date	Sample Depth (ft)	Depth (ft)	Ju-Situ	Situ Removed	GRO	DRO DRO	g) Total	Benzene (mg/kg)	Toluene (mg/kg)	Ethlybenzene (mg/kg)	Xylene (mg/kg)	Chloride (mg/kg)
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	n	7-7.5	<del>-</del>	×		1,360	1,130	2,490	3.67	21.5	10.1	33.5	2,090

(-) Not Analyzed

Fixe Not Excavated Depths

## **PHOTOGRAPHS**





Site info and picture details



Site info and picture details

## TETRA TECH

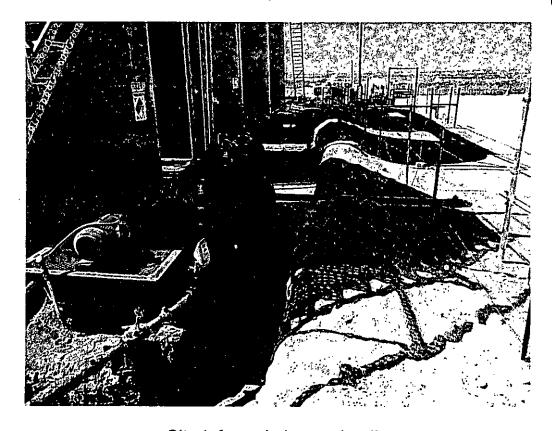


Site info and picture details

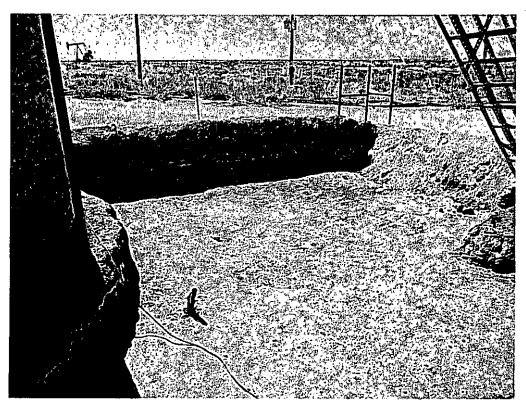


Site info and picture details

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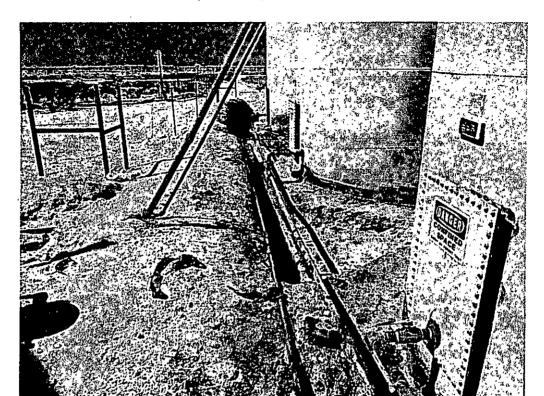


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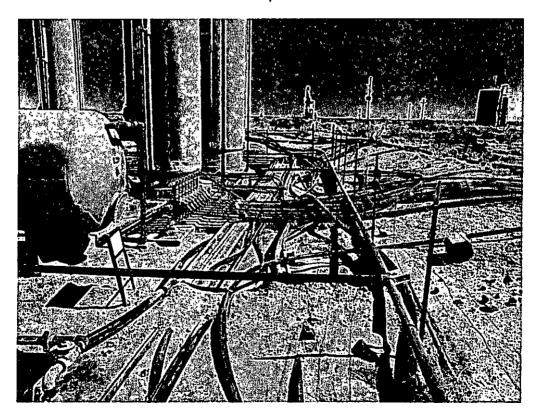


Site info and picture details

## TETRATECH



Site info and picture details



Site info and picture details

## **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 Revised October 10, 2003

Submit 2 Copies to appropriate
District Office in accordance

Form C-141

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 SM Energy Company Contact Donna Huddleston Address 3300 N. A Street, Bldg. 7, Ste. 200 Midland, Tx Telephone No. (432) 688-1789 Facility Name Parkway Delaware Tract 1 Battery Facility Type Tank Battery Surface Owner: BLM Mineral Owner: BLM Lease No. NMNM8849X LOCATION OF RELEASE Unit Letter Section Township Range Feet from the North/South Line Feet from the East/West Line 35 198 29E Eddy Co. NM ì Latitude N 32.61531° Longitude W 104.04324° NATURE OF RELEASE Type of Release: Oil Volume of Release 205 bbls Volume Recovered 200 bbls Date and Hour of Discovery Source of Release: 750 Steel Tank Date and Hour of Occurrence 05/16/2011 05/16/2011 @ 7:30 am Was Immediate Notice Given? If YES, To Whom? ☑ Yes ☐ No ☐ Not Required Jim Amos with BLM Date and Hour 05/16/2011 9:57 am By Whom? Bill Hearne If YES, Volume Impacting the Watercourse. Was a Watercourse Reached? ☐ Yes ⊠ No N/A If a Watercourse was Impacted, Describe Fully.\* N/A Describe Cause of Problem and Remedial Action Taken.\* 750 Steel (Test Tank) discovered @ 7:30 am leaking oil from bottom of tank. Spill contained inside of diked area. Estimated 205 bbls. Oil spilled and recovered 200 bbls and transferred to empty stock tank. Net Loss: 5 bbls oil. Oil will be circulated back through heater treater. Describe Area Affected and Cleanup Action Taken.\* 85 ft x 60 ft area contained in dike. Dug out thop 1 foot of soil. Tetra Tech inspected site and collected samples to define spills extent. Soil that exceeded RRAL was removed and hauled away for proper disposal to the maximum extent practicable. Microblaze was applied to the excavated area prior to the site being 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. OIL CONSERVATION DIVISION Signature: Chill Printed Name: Aaron Hale agent for Sm Energy Approved by District Supervisor: Expiration Date: Approval Date: Title: Project Manager Conditions of Approval: E-mail Address: aaron.hale@tetratech.com Attached

Phone: (432) 682-4559

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

Attach Additional Sheets If Necessary

## State of New Mexico Energy Minerals and Natural Resources

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

						OPERAT	<b>TOR</b>	[	Initia	ıl Report	$\boxtimes$	Final Report
Name of Co	трапу <b>S</b>	t. Mary Lar	ıd & Exp	oloration Co.		Contact Do	nna Huddlesto	n				
				00 Midland, Tx			lo. (432) 688-1					
Facility Nan	ne Parkwa	ny Delaware	Tract 1 I	Battery		Facility Typ	e Tank Batter	ry				
Surface Own	ner: BLM			Mineral O	wner: I	BLM			Lease N	lo.		
				LOCA	TION	OF REI	LEASE					
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				e. Spilled estimate								
				bls wtr/ 10bbls oi ent to welding sho								
fluid from vessel, removed failed fire tube, and sent to welding shop for repairs and coating. Will coat 8'X 20' treater while open. Return vessel to operation when repairs are completed.  Describe Area Affected and Cleanup Action Taken.*												
Describe Area Affected and Cleanup Action Taken.*												
Describe Area Affected and Cleanup Action Taken.*  Tetra Tech inspected site and collected samples to define spills extent. Soil that exceeded RRAL was removed and hauled away for proper disposal. Site was then brought up to surface grade with clean backfill material. Tetra Tech prepared closure report and submitted to NMOCD for review.								osal. Site				
was then brou	ight up to su	ırface grade w	ith clean	backfill material.	Tetra Te	ch prepared o	losure report and	submitte	d to NMC	CD for revie	ew.	
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				investigate and re								
or the environ federal, state,				tance of a C-141 r	eport do	es not relieve	the operator of r	esponsibi	ility for co	impliance wi	th any	other
Todorat, States		1/0	14-11-11-1	· · · · · · · · · · · · · · · · · · ·		· · · · · · · · · · · · · · · · · · ·	OIL CONS	SERVA	TION	DIVISIO	<u>N</u>	
Signature:	<u>Ur</u>											ļ
Printed Name	: Aaron Ha	le agent l	or Sm	Energy	A	approved by	District Superviso	or:				
Title: Project		0		7	A	pproval Date	e:	Ex	piration I	Date:		
E-mail Addre	ss: aaron.ha	le@tetratech.	com		] c	Conditions of	Approval:			Attached	m	
Date:			Phone:	(432) 682-4559						Altacheu	u	

## **APPENDIX B**



6701 Aberdees Avenue, Suite 9 209 East Sunset Hoad, Suite E 5002 Basin Street, Suite A1 6015 Harris Parkway, Suite 110

Lubbock, Texas 79424 El Paso, Texas 79922 Midland, lexas 79703

800 • 378 • 1296 888 • 588 • 3443

806 • 794 • 1296 915 • 585 • 3443 432 • 689 • 6301

FAX 806 • 794 • 1298 FAX 915 • 585 • 4944

Ft. Worth, Texas 76132

817 • 201 • 5260

FAX 432 • 689 • 6313

E-Mail: lab@traceanalysis.com

### Certifications

**WBENC:** 237019

HUB:

1752439743100-86536

**DBE:** VN 20657

NCTRCA

WFWB38444Y0909

### **NELAP Certifications**

T104704219-08-TX Lubbock:

LELAP-02003 Kansas E-10317 El Paso: T104704221-08-TX

Midland: T104704392-08-TX

LELAP-02002

## Analytical and Quality Control Report

Ike Tavarez Tetra Tech

1910 N. Big Spring Street Midland, TX, 79705

Report Date: June 11, 2009

Work Order: 9052928

Project Name:

St. Mary/PDU Tract #1 TB

Project Number: 114-6400203

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

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

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

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

This report consists of a total of 28 pages and shall not be reproduced except in its entirety, without written approval of TraceAnalysis, Inc.

Michael april

Dr. Blair Leftwich, Director

#### Standard Flags

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

### Case Narrative

Samples for project St. Mary/PDU Tract #1 TB were received by TraceAnalysis, Inc. on 2009-05-29 and assigned to work order 9052928. Samples for work order 9052928 were received intact at a temperature of 7.8 deg. C.

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

		Prep	$\mathbf{Prep}$	$_{ m QC}$	Analysis
Test	Method	Batch	Date	Batch	Date
BTEX	S 8021B	51377	2009-06-08 at 10:09	60203	2009-06-08 at 10:09
BTEX	S 8021B	51454	2009-06-10 at 09:21	60299	2009-06-10 at 09:21
Chloride (Titration)	SM 4500-Cl B	51186	2009-06-01 at 10:21	60012	2009-06-02 at 10:17
Chloride (Titration)	SM 4500-Cl B	51187	2009-06-01 at 10:21	60013	2009-06-02 at 10:17
TPH DRO	Mod. 8015B	51212	2009-06-01 at 14:30	60003	2009-06-01 at 12:05
TPH GRO	S 8015B	51213	2009-06-01 at 10:33	59966	2009-06-01 at 10:33
TPH GRO	S 8015B	51248	2009-06-02 at 15:03	60032	2009-06-02 at 15:03

Results for these samples are reported on a wet weight basis unless data package indicates otherwise.

A matrix spike (MS) and matrix spike duplicate (MSD) sample is chosen at random from each preparation batch. The MS and MSD will indicate if a site specific matrix problem is occurring, however, it may not pertain to the samples for work order 9052928 since the sample was chosen at random. Therefore, the validity of the analytical data reported has been determined by the laboratory control sample (LCS) and the method blank (MB). These quality control measures are performed with each preparation batch to ensure data integrity.

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

114-6400203

Work Order: 9052928 St. Mary/PDU Tract #1 TB Page Number: 4 of 28

## **Analytical Report**

Sample: 197378 - AH-1 0-1'

Laboratory:

Midland

Analysis: Chloride (Titration)

QC Batch: 60012 Prep Batch: 51186

Analytical Method: Date Analyzed:

SM 4500-Cl B 2009-06-02

2009-06-01

Prep Method: N/A Analyzed By:  $\Lambda R$ Prepared By: AR

DΤ

		1.617			
Parameter	Flag	Result	Units	Dilution	RL
Chloride		6750	mg/Kg	50	4.00

Sample Preparation:

Sample: 197378 - AH-1 0-1'

Laboratory:

Midland

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

Analytical Method: Date Analyzed:

Mod. 8015B 2009-06-01 Sample Preparation: 2009-06-01

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

RL

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

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

Sample: 197378 - AH-1 0-1'

Laboratory: Midland

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

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

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

RL

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

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

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

114-6400203

Work Order: 9052928 St. Mary/PDU Tract #1 TB Page Number: 5 of 28

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

Laboratory:

Analysis:

QC Batch:

Midland

Chloride (Titration)

Analytical Method: Date Analyzed: 60012 Prep Batch: 51186 Sample Preparation:

SM 4500-Cl B 2009-06-02 2009-06-01

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

RL

Parameter Chloride

Flag Result 8760

Units mg/Kg Dilution RL

4.00

50

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

Laboratory:

Midland

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

Analytical Method:

Mod. 8015B 2009-06-01

Prep Method: N/A Analyzed By:  $\mathbf{AG}$ 

Date Analyzed: Sample Preparation: 2009-06-01

Prepared By: AG

RL

Parameter Flag Result Units Dilution RLDRO < 50.0 mg/Kg 50.0

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

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

Laboratory:

Midland

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

Analytical Method: Date Analyzed: Sample Preparation:

S 8015B 2009-06-01 2009-06-01 Prep Method: S 5035 Analyzed By: ME Prepared By: ME

RL

Result Units Dilution RLParameter Flag 50.0 GRO mg/Kg 1 1.00

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

114-6400203

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

Page Number: 6 of 28

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

Laboratory:

Midland

Chloride (Titration) Analysis:

QC Batch: 60012 Prep Batch: 51186

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

Units

mg/Kg

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

RL

Parameter Flag Result Chloride 9070

Dilution RL50 4.00

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

Laboratory:

Midland

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

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

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

RL

Parameter Chloride

Flag Result 7730

Units Dilution mg/Kg

RL

4.00

Sample: 197382 - AH-2 0-1'

Laboratory: Midland

Analysis: BTEX QC Batch: 60203 Prep Batch: 51377

Analytical Method: S 8021B Date Analyzed: 2009-06-08 Sample Preparation: 2009-06-08 Prep Method: S 5035 Analyzed By: MEPrepared By: ME

50

RL

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

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

114-6400203

Work Order: 9052928 St. Mary/PDU Tract #1 TB Page Number: 7 of 28

Sample: 197382 - AH-2 0-1'

Laboratory: Midland

Chloride (Titration) Analysis:

QC Batch: 60012 Prep Batch: 51186

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

Sample Preparation: 2009-06-01

Prep Method: N/A Analyzed By: AR Prepared By:  $\Lambda R$ 

RL

Parameter Flag Result Units Dilution RLChloride 50 3580 mg/Kg 4.00

Sample: 197382 - AH-2 0-1'

Laboratory: Midland

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

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

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

RL

Dilution RLParameter Flag Result Units DRO 13000 5 50.0 mg/Kg

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

Sample: 197382 - AH-2 0-1'

Laboratory: Midland

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

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

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

RLDilution RLParameter Flag Result Units  $\overline{GRO}$ 1130 mg/Kg 10 1.00

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

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

<sup>&</sup>lt;sup>3</sup>High surrogate recovery due to peak interference.

114-6400203

Work Order: 9052928 St. Mary/PDU Tract #1 TB Page Number: 8 of 28

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

Laboratory:

Midland

Chloride (Titration) Analysis:

QC Batch: 60012 Prep Batch: 51186

Analytical Method: Date Analyzed:

SM 4500-Cl B 2009-06-02

Prep Method: N/AAnalyzed By:

50

Sample Preparation:

2009-06-01

AR Prepared By: AR.

RL

Parameter Flag Chloride

Result 1340

Units Dilution mg/Kg

RL

4.00

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

Laboratory:

Midland

Analysis: QC Batch: Prep Batch: 51212

TPH DRO 60003

Analytical Method: Date Analyzed:

Mod. 8015B 2009-06-01 Sample Preparation: 2009-06-01

Prep Method: N/A

Analyzed By:  $\mathbf{AG}$ Prepared By:  $\mathbf{AG}$ 

RL

Result Units Dilution RLParameter Flag 311 50.0 DRO mg/Kg

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

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

Laboratory:

Midland

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

Analytical Method: Date Analyzed:

Sample Preparation:

S 8015B 2009-06-01 2009-06-01 Prep Method: S 5035 Analyzed By: MEPrepared By: ME

RL

Flag Result Units Dilution RLParameter GRO 74.3 mg/Kg 1.00

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

<sup>&</sup>lt;sup>4</sup>High surrogate recovery due to peak interference.

Work Order: 9052928 Page Number: 9 of 28 Report Date: June 11, 2009 114-6400203 St. Mary/PDU Tract #1 TB Sample: 197384 - AH-2 2'-2.5' Laboratory: Midland Analysis: Chloride (Titration) Analytical Method: SM 4500-Cl B Prep Method: N/A QC Batch: 60012 Date Analyzed: 2009-06-02 Analyzed By: AR Prep Batch: 51186 Sample Preparation: 2009-06-01 Prepared By: ARRLParameter Flag Result Units Dilution RLChloride 1200 mg/Kg 50 4.00 Sample: 197385 - AH-2 3'-3.5' Laboratory: Midland Analysis: Chloride (Titration) Prep Method: N/A Analytical Method: SM 4500-Cl B QC Batch: Analyzed By: AR 60012 Date Analyzed: 2009-06-02 Prepared By: Prep Batch: 51186 AR Sample Preparation: 2009-06-01 RLParameter Dilution RLFlag Result. Units 4.00 Chloride 1480 50 mg/Kg Sample: 197386 - AH-2 4'-4.5' Laboratory: Midland Analysis: Chloride (Titration) Analytical Method: SM 4500-Cl B Prep Method: N/AQC Batch: 2009-06-02 Analyzed By: AR 60012 Date Analyzed: Prep Batch: 51186 Sample Preparation: Prepared By: AR 2009-06-01 RLParameter Result Units Dilution RLFlag Chloride 1360 mg/Kg 50 4.00 Sample: 197387 - AH-3 0-1' Laboratory: Midland SM 4500-Cl B Prep Method: N/A Analysis: Chloride (Titration) Analytical Method:

Date Analyzed:

RL

486

Result

Sample Preparation:

2009-06-02 2009-06-01

Units

mg/Kg

QC Batch:

Parameter Chloride

Prep Batch: 51186

60012

Flag

Analyzed By:

Prepared By:

Dilution

50

AR.

AR

RL

4.00

114-6400203

Work Order: 9052928 St. Mary/PDU Tract #1 TB Page Number: 10 of 28

Sample: 197387 - AH-3 0-1'

51212

Laboratory: Analysis:

QC Batch:

Prep Batch:

Midland TPH DRO 60003

Analytical Method: Date Analyzed:

Mod. 8015B 2009-06-01 Sample Preparation: 2009-06-01

Prep Method: N/A Analyzed By:  $\mathbf{AG}$ Prepared By: AG

RL

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

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

Sample: 197387 - AH-3 0-1'

Laboratory:

Midland Analysis: TPH GRO

QC Batch: 60032 Prep Batch: 51248

Analytical Method:

S 8015B Date Analyzed: 2009-06-02 Sample Preparation: 2009-06-02 Prep Method: S 5035 Analyzed By: ME

ME

Prepared By:

RL

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

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

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

Laboratory:

Midland

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

Analytical Method: Date Analyzed:

SM 4500-Cl B 2009-06-02 Sample Preparation: 2009-06-01

Prep Method: N/A Analyzed By: ARPrepared By: AR.

RL

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

<sup>&</sup>lt;sup>5</sup>High surrogate recovery due to peak interference.

<sup>&</sup>lt;sup>6</sup>High surrogate recovery due to peak interference.

114-6400203

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

Page Number: 11 of 28

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

Laboratory: Analysis:

Midland TPH DRO 60003

Analytical Method: Date Analyzed:

Mod. 8015B 2009-06-01 Sample Preparation: 2009-06-01

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

QC Batch: Prep Batch: 51212

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

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

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

Laboratory: Analysis:

Midland TPH CRO QC Batch: 59966 Prep Batch: 51213

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

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

RL

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

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

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

Laboratory: Midland

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

Analytical Method: Date Analyzed:

SM 4500-Cl B 2009-06-02 Sample Preparation: 2009-06-01

Prep Method: N/A Analyzed By: ARPrepared By: AR.

RL

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

<sup>&</sup>lt;sup>7</sup>High surrogate recovery due to peak interference.

114-6400203

Work Order: 9052928 St. Mary/PDU Tract #1 TB Page Number: 12 of 28

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

Laboratory:

Midland

Analysis: QC Batch: Chloride (Titration)

60013 Prep Batch: 51187

Analytical Method: Date Analyzed:

Sample Preparation:

SM 4500-Cl B 2009-06-02 2009-06-01

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

RL

Parameter Chloride

Flag

Result 314 mg/Kg

Units Dilution 50

RL

4.00

RL

4.00

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

Laboratory:

Midland

Analysis: QC Batch:

Chloride (Titration)

60013 Prep Batch: 51187

Analytical Method: Date Analyzed:

SM 4500-Cl B 2009-06-02 Sample Preparation: 2009-06-01

Prep Method: N/A Analyzed By: AR

Prepared By: AR

RL

Parameter Flag Result Units Dilution Chloride 303 mg/Kg 50

Sample: 197392 - AH-4 0-1'

Laboratory: Midland

Analysis: BTEX QC Batch: 60203 Prep Batch: 51377

Analytical Method: Date Analyzed:

Sample Preparation:

S 8021B 2009-06-08 2009-06-08 Prep Method: Analyzed By:

S 5035 ME Prepared By: ME

		RL
rameter	Flag	Result
nzene		4 96

Pa. ılt Units Dilution RLBenzene 4.96mg/Kg 0.0100 5 Toluene 68.2 mg/Kg 5 0.0100 Ethylbenzene 41.5 0.0100 mg/Kg 5 10 Xylene 144 mg/Kg 5 0.0100

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

<sup>&</sup>lt;sup>8</sup>Estimated concentration value greater than standard range.

<sup>&</sup>lt;sup>9</sup>Estimated concentration value greater than standard range.

<sup>&</sup>lt;sup>16</sup>Estimated concentration value greater than standard range.

<sup>&</sup>lt;sup>11</sup> High surrogate recovery due to peak interference.

114-6400203

Work Order: 9052928 St. Mary/PDU Tract #1 TB Page Number: 13 of 28

Sample: 197392 - AH-4 0-1'

Laboratory: Midland

Analysis: Chloride (Titration) QC Batch:

60013 Prep Batch: 51187

Analytical Method: SM 4500-Cl B Date Analyzed:

Sample Preparation:

Prep Method: N/A 2009-06-02 Analyzed By: AR. 2009-06-01 Prepared By: AR

RL

Parameter Result Units Dilution RLFlag mg/Kg Chloride 238 50 4.00

Sample: 197392 - AH-4 0-1'

Laboratory: Midland

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

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

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

RL

50.0

RL

1.00

52 - 117

Parameter Flag Result Units Dilution  $\overline{\text{DRO}}$ 11800 mg/Kg

RL

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

Sample: 197392 - AH-4 0-1'

Laboratory: Midland

GRO

Surrogate

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

Trifluorotoluene (TFT)

4-Bromofluorobenzene (4-BFB)

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

Units

mg/Kg

mg/Kg

20

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

Parameter

Flag

13

Result Units Flag 5490 mg/Kg

Result

43.5

253

RL

Spike Percent Recovery Dilution Amount Recovery Limits 20 40.0 109 68.5 - 119.4

40.0

Dilution

20

632

<sup>&</sup>lt;sup>12</sup>High surrogate recovery due to peak interference.

<sup>&</sup>lt;sup>13</sup> High surrogate recovery due to peak interference.

114-6400203

Work Order: 9052928 St. Mary/PDU Tract #1 TB Page Number: 14 of 28

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

Laboratory:

Midland

Analysis:

Chloride (Titration)

QC Batch: 60013 Prep Batch: 51187

Analytical Method: Date Analyzed: Sample Preparation:

SM 4500-Cl B 2009-06-02 2009-06-01

Prep Method: N/AAnalyzed By: AR Prepared By: AR

RL

Parameter Chloride

Flag

Result 200

Units mg/Kg Dilution 50

RL4.00

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

Laboratory: QC Batch:

Analysis:

Midland TPH DRO 60003 Prep Batch: 51212

Analytical Method: Date Analyzed:

Mod. 8015B 2009-06-01 Sample Preparation: 2009-06-01

Prep Method: N/A Analyzed By: AG

Prepared By:  $\mathbf{AG}$ 

RL

Parameter Flag Result Units Dilution RL $\overline{\text{DRO}}$ 9330 50.0 mg/Kg 5

					$\mathbf{S}$ pike	Percent	Recovery
Surrogate	Flag	Result	Units	Dilution	Amount	Recovery	Limits
n-Triacontane	14	1050	mg/Kg	5	100	1050	13.2 - 219.3

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

Laboratory:

Midland

Analysis: QC Batch:

TPH GRO 60032 Prep Batch: 51248

Analytical Method: Date Analyzed:

S 8015B 2009-06-02 Sample Preparation: 2009-06-02

Analyzed By: Prepared By:

Prep Method: S 5035 ME ME

RL

Flag Parameter Dilution RLResult Units GRO 4250 mg/Kg 20 1.00

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

<sup>&</sup>lt;sup>14</sup>High surrogate recovery due to peak interference.

<sup>&</sup>lt;sup>15</sup> High surrogate recovery due to peak interference.

114-6400203

Work Order: 9052928 St. Mary/PDU Tract #1 TB Page Number: 15 of 28

Sample: 197394 - AH-5 0-1'

Laboratory: Midland

Analysis: BTEX 60299 QC Batch: Prep Batch: 51454

Analytical Method: Date Analyzed:

S 8021B 2009-06-10 Sample Preparation: 2009-06-10 Prep Method: S 5035 Analyzed By: ME Prepared By: ME

RL

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

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

Sample: 197394 - AH-5 0-11

Laboratory: Midland

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

Analytical Method: Date Analyzed:

Sample Preparation:

SM 4500-Cl B 2009-06-02 2009-06-01

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

RL

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

Sample: 197394 - AH-5 0-1'

Laboratory: Midland

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

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

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

RL

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

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

<sup>&</sup>lt;sup>16</sup>High surrogate recovery due to peak interference.

114-6400203

Work Order: 9052928 St. Mary/PDU Tract #1 TB Page Number: 16 of 28

Sample: 197394 - AH-5 0-1'

Laboratory:

Midland TPH GRO

Analysis: QC Batch: 60032 Prep Batch: 51248 Analytical Method: Date Analyzed:

S 8015B 2009-06-02 Sample Preparation: 2009-06-02 Prep Method: S 5035 Analyzed By: ME Prepared By: ME

RL

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

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

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

Laboratory:

Midland

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

Analytical Method: Date Analyzed:

SM 4500-Cl B 2009-06-02 Sample Preparation: 2009-06-01

Prep Method: N/A Analyzed By:  $\mathbf{AR}$ Prepared By: AR.

RL

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

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

Laboratory:

Midland

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

Analytical Method: Date Analyzed:

RL

Mod. 8015B 2009-06-01 Sample Preparation: 2009-06-01

Prep Method: N/A Analyzed By: AG Prepared By:  $\mathbf{AG}$ 

Flag Dilution RLParameter Result Units DRO 2110 mg/Kg 50.0

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

<sup>&</sup>lt;sup>17</sup> High surrogate recovery due to peak interference.

<sup>&</sup>lt;sup>18</sup>High surrogate recovery due to peak interference.

114-6400203

Work Order: 9052928 St. Mary/PDU Tract #1 TB Page Number: 17 of 28

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

Laboratory: Midland

Analysis: TPH GRO QC Batch: 60032 Prep Batch: 51248 Analytical Method: S 8015B
Date Analyzed: 2009-06-02
Sample Preparation: 2009-06-02

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

RL

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

					$\mathbf{S}_{\mathbf{P}i\mathbf{k}\mathbf{e}}$	Percent	Recovery
Surrogate	Flag	Result	Units	Dilution	Amount	Recovery	Limits
Trifluorotoluene (TFT)		9.75	mg/Kg	5	10.0	98	68.5 - 119.4
4-Bromofluorobenzene (4-BFB)	19	16.5	mg/Kg	5	10.0	165	52 - 117

Method Blank (1) QC Batch: 59966

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

MDL

Parameter	Flag	Result	Units	RL
GRO		< 0.482	ıng/Kg	1

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

Method Blank (1) QC Batch: 60003

QC Batch: 60003 Prep Batch: 51212

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

Analyzed By: AG Prepared By: AG

MDL

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

<sup>&</sup>lt;sup>19</sup> High surrogate recovery due to peak interference.

Report Date: June 11, 2009 Work Order: 9052928 Page Number: 18 of 28 114-6400203 St. Mary/PDU Tract #1 TB Method Blank (1) QC Batch: 60012 QC Batch: 60012 Date Analyzed: 2009-06-02 Analyzed By: AR Prep Batch: 51186 QC Preparation: 2009-06-01 Prepared By: AR. MDL Parameter Result Units Flag RLChloride <2.18 mg/Kg 4 Method Blank (1) QC Batch: 60013 QC Batch: 60013 Date Analyzed: 2009-06-02 Analyzed By: AR. Prep Batch: 51187 QC Preparation: 2009-06-01 Prepared By: AR. MDL Parameter Result Units RLFlag Chloride < 2.18mg/Kg Method Blank (1) QC Batch: 60032 QC Batch: 60032 2009-06-02 Analyzed By: ME Date Analyzed: Prep Batch: 51248 QC Preparation: 2009-06-02 Prepared By: MDL Flag Parameter Result Units RL $\overline{GRO}$ < 0.482 mg/Kg Spike Percent Recovery Flag Units Dilution Surrogate Result Amount Recovery Limits Trifluorotoluene (TFT) 1.97 mg/Kg 1 2.00 98 71.9 - 115 4-Bromofluorobenzene (4-BFB) 1.45 1 2.00 72 45.7 - 118.9 mg/Kg Method Blank (1) QC Batch: 60203 QC Batch: 60203 Date Analyzed: 2009-06-08 Analyzed By: ME Prep Batch: 51377 QC Preparation: 2009-06-08 Prepared By: MEMDL Parameter Flag Result Units RLBenzene < 0.00100 mg/Kg 0.01 Toluene < 0.00100 mg/Kg 0.01 Ethylbenzene < 0.00110 0.01 mg/Kg Xylene < 0.00360 mg/Kg 0.01

114-6400203

Work Order: 9052928 St. Mary/PDU Tract #1 TB Page Number: 19 of 28

Surrogate	Flag	Result	Units	Dilution	$\begin{array}{c} {\rm Spike} \\ {\rm Amount} \end{array}$	Percent Recovery	Recovery Limits
Trifluorotoluene (TFT)		1.87	mg/Kg	1	2.00	94	65.6 - 130.6
4-Bromofluorobenzene (4-BFB)		1.66	mg/Kg	1	2.00	83	51.9 - 128.1

Method Blank (1)

QC Batch: 60299

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

Analyzed By: ME Prepared By: ME

		$\operatorname{MDL}$			
Parameter	Flag	Result	Units	RL	
Benzene	· · · · · · · · · · · · · · · · · · ·	< 0.00100	mg/Kg	0.01	
Toluene		< 0.00100	mg/Kg	0.01	
Ethylbenzene		< 0.00110	mg/Kg	0.01	
Xvlene		< 0.00360	mg/Kg	0.01	

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

### Laboratory Control Spike (LCS-1)

QC Batch:

59966 Prep Batch: 51213 Date Analyzed:

2009-06-01 QC Preparation: 2009-06-01

Analyzed By: ME Prepared By: ME

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

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

	LCSD			Spike	Matrix		Rec.		RPD
Param	Result	Units	Dil.	Amount	Result	Rec.	Limit	RPD	Limit
GRO	13.2	mg/Kg	1	20.0	< 0.482	66	60.5 - 100.1	5	20

	LCS	LCSD			Spike	LCS	LCSD	Rec.
Surrogate	Result	Result	Units	Dil.	Amount	$\mathrm{Rec}.$	Rec.	$\mathbf{Limit}$
Trifluorotoluene (TFT)	1.97	1.90	mg/Kg	1	2.00	98	95	78.8 - 104.7
4-Bromofluorobenzene (4-BFB)	1.36	1.37	mg/Kg	1	2.00	68	68	66.1 - 107.3

<sup>&</sup>lt;sup>20</sup>SPECIAL - MS/MSD was run but not reported due to out of range. •

114-6400203

Work Order: 9052928 St. Mary/PDU Tract #1 TB Page Number: 20 of 28

Laboratory Control Spike (LCS-1)

QC Batch:

60003 Prep Batch: 51212 Date Analyzed:

2009-06-01

Analyzed By: AG

QC Preparation: 2009-06-01 Prepared By: AG

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

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

	LCSD			Spike	Matrix		Rec.		RPD
Param	Result	Units	Dil.	Amount	Result	Rec.	Limit	RPD	Limit
DRO	204	mg/Kg	1	250	20.2	74	57.4 - 133.4	3	20

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

	LCS	LCSD			$\mathbf{Spike}$	LCS	LCSD	Rec.
Surrogate	Result	Result	Units	Dil.	Amount	Rec.	Rec.	Limit
n-Triacontane	77.3	75.2	mg/Kg	1	100	77	75	48.5 - 146.7

### Laboratory Control Spike (LCS-1)

QC Batch: Prep Batch: 51186

60012

Date Analyzed:

2009-06-02 QC Preparation: 2009-06-01 Analyzed By: AR Prepared By: AR

	LCS			Spike	Matrix		Rec.
Param	Result	Units	Dil.	Amount	Result	Rec.	Limit
Chloride	08.0	mø/Kø	1	100	<2.18	98	85 - 115

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

	LCSD			Spike	Matrix		Rec.		RPD
Param	Result	Units	Dil.	Amount	Result	Rec.	Limit	RPD	Limit
Chloride	99.8	mg/Kg	i	100	< 2.18	100	85 - 115	2	20

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

### Laboratory Control Spike (LCS-1)

QC Batch:

60013

Date Analyzed:

2009-06-02

Analyzed By: AR.

Prep Batch: 51187

QC Preparation: 2009-06-01

Prepared By: AR.

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

Report Date: June 11, 2009 114-6400203

Work Order: 9052928 St. Mary/PDU Tract #1 TB Page Number: 21 of 28

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

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

### Laboratory Control Spike (LCS-1)

QC Batch: 60032 Prep Batch: 51248 Date Analyzed: 2009-06-02 QC Preparation: 2009-06-02 Analyzed By: ME Prepared By: ME

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

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

	LCSD			Spike	Matrix		Rec.		RPD
Param	Result	Units	Dil.	Amount	Result	_Rec.	Limit	RPD	Limit
GRO	14.4	mg/Kg	1	20.0	< 0.482	72	60.5 - 100.1	7	20

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

	LCS	$_{ m LCSD}$			$_{ m Spike}$	LCS	LCSD	Rec.
Surrogate	Result	Result	Units	Dil.	Amount	Rec.	Rec.	Limit
Trifluorotoluene (TFT)	2.02	2.00	mg/Kg	1	2.00	101	100	78.8 - 104.7
4-Bromofluorobenzene (4-BFB)	1.61	1.54	mg/Kg	1	2.00	80	77	66.1 - 107.3

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

QC Batch: 60203 Prep Batch: 51377 Date Analyzed: 2009-06-08 QC Preparation: 2009-06-08

Analyzed By: ME Prepared By: ME

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

Param	LCSD Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit	RPD	RPD Limit
			1	2.00	< 0.00100	93	72.7 - 129.8	1112	20
Benzene	1.86	mg/Kg	7	2.00		90		4	20
Toluene	1.90	mg/Kg	1	2.00	< 0.00100	95	71.6 - 129.6	4	20
Ethylbenzene	1.94	mg/Kg	1	2.00	< 0.00110	97	70.8 - 129.7	8	20
Xylene	5.96	mg/Kg	1	6.00	< 0.00360	99	70.9 - 129.4	10	20

114-6400203

Work Order: 9052928 St. Mary/PDU Tract #1 TB Page Number: 22 of 28

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

	LCS	LCSD			Spike	LCS	LCSD	Rec.
Surrogate	Result	Result	Units	Dil.	Amount	Rec.	Rec.	Limit
Trifluorotoluene (TFT)	1.88	1.88	mg/Kg	1	2.00	94	94	65.9 - 132
4-Bromofluorobenzene (4-BFB)	1.62	1.75	mg/Kg	1	2.00	81	88	55.2 - 128.9

### Laboratory Control Spike (LCS-1)

QC Batch:

60299

Date Analyzed:

2009-06-10

Analyzed By: ME

Prep Batch: 51454

QC Preparation: 2009-06-10

Prepared By: ME

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

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

	LCSD			Spike	Matrix		Rec.		RPD
Param	Result	Units	Dil.	Amount	Result	Rec.	Limit	RPD	Limit
Benzene	2.16	mg/Kg	1	2.00	< 0.00100	108	72.7 - 129.8	6	20
Toluene	2.25	mg/Kg	1	2.00	< 0.00100	112	71.6 - 129.6	7	20
Ethylbenzene	2.31	mg/Kg	1	2.00	< 0.00110	116	70.8 - 129.7	12	20
Xylene	7.13	mg/Kg	1	6.00	< 0.00360	119	70.9 - 129.4	12	20

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

	LCS	LCSD			Spike	LCS	LCSD	Rec.
Surrogate	Result	Result	Units	Dil.	Amount	Rec.	Rec.	Limit
Trifluorotoluene (TFT)	1.92	1.96	mg/Kg	1	2.00	96	98	65.9 - 132
4-Bromofluorobenzene (4-BFB)	1.99	2.16	mg/Kg	1	2.00	100	108	55.2 - 128.9

Matrix Spike (MS-1) Spiked Sample: 197293

QC Batch:

60003

Date Analyzed:

2009-06-01

Analyzed By: AG

Prep Batch: 51212

QC Preparation: 2009-06-01

Prepared By: AG

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

114-6400203

Work Order: 9052928 St. Mary/PDU Tract #1 TB Page Number: 23 of 28

	MSD			Spike	Matrix		Rec.		RPD
Param	Result	Units	Dil.	Amount	Result	Rec.	Limit	RPD	Limit
DRO	204	mg/Kg	1	250	32.4	69	35.2 - 167.1	2	20
Donant reservery is based on the oni	Ira naarile	d a: dad	and or	s the enilse	and aniles	danslian t	a namel+		

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

	MS	MSD			Spike	MS	MSD	Rec.
Surrogate	$\mathbf{Result}$	Result	$\mathbf{Units}$	Dil.	Amount	Rec.	Rec.	Limit
n-Triacontane	65.1	68.9	mg/Kg	1	100	65	69	34.5 - 178.4

Matrix Spike (MS-1)

Spiked Sample: 197387

QC Batch: 60012 Prep Batch: 51186 Date Analyzed: 2009-06-02 QC Preparation: 2009-06-01 Analyzed By: AR Prepared By: AR

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

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

	MSD			Spike	Matrix		Rec.		RPD
Param	Result	Units	Dil.	Amount	Result	Rec.	Limit	RPD	Limit
Chloride	5360	mg/Kg	50	5000	486	97	85 - 115	1	20

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

Matrix Spike (MS-1)

Spiked Sample: 197395

QC Batch: 60013 Prep Batch: 51187 Date Analyzed: 2009-06-02 QC Preparation: 2009-06-01 Analyzed By: AR . Prepared By: AR

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

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

	MSD			Spike	Matrix		Rec.		RPD
Param	Result	Units	Dil.	Amount	Result	Rec.	Limit	RPD	Limit
Chloride	5560	mg/Kg	50	5000	449	102	85 - 115	1	20

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

Matrix Spike (MS-1)

Spiked Sample: 197395

QC Batch: 60032 Prep Batch: 51248 Date Analyzed: 2009-06-02 QC Preparation: 2009-06-02

Analyzed By: ME Prepared By: ME

114-6400203

Work Order: 9052928 St. Mary/PDU Tract #1 TB Page Number: 24 of 28

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

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

	MSD			Spike	Matrix		Rec.		RPD
Param	Result	Units	Dil.	Amount	Result	Rec.	Limit	RPD	Limit
GRO	478	mg/Kg	5	100	361.95	116	12.8 - 175.2	20	20

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

		MS	MSD			$_{ m Spike}$	MS	MSD	Rec.
Surrogate		Result	Result	Units	Dil.	Amount	Rec.	Rec.	Limit
Trifluorotoluene (TFT)		10.0	10.1	mg/Kg	5	10	100	101	60.8 - 132.1
4-Bromofluorobenzene (4-BFB)	21	15.8	19.4	mg/Kg	5	10	158	194	31.3 - 161.7

Matrix Spike (MS-1) Spiked Sample: 198073

QC Batch: 60203 Prep Batch: 51377 Date Analyzed: 2009-06-08 QC Preparation: 2009-06-08 Analyzed By: ME Prepared By: ME

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

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

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

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

<sup>&</sup>lt;sup>21</sup> High surrogate recovery due to peak interference.

<sup>&</sup>lt;sup>22</sup>SPECIAL - MSD was not spiked •

<sup>&</sup>lt;sup>23</sup>SPECIAL - MSD was not spiked •

<sup>24</sup>SPECIAL - MSD was not spiked •

<sup>&</sup>lt;sup>25</sup>SPECIAL - MSD was not spiked •

114-6400203

Work Order: 9052928 St. Mary/PDU Tract #1 TB Page Number: 25 of 28

Matrix Spike (MS-1) Spiked Sample: 197394

QC Batch: 60299 Prep Batch: 51454 Date Analyzed: QC Preparation:

2009-06-10 2009-06-10 Analyzed By: ME Prepared By: ME

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

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

	MSD			Spike	Matrix		Rec.		RPD
Param	Result	Units	Dil.	Amount	Result	Rec.	Limit	RPD	Limit
Benzene	12.6	mg/Kg	5	10.0	< 0.00500	126	58.6 - 165.2	4	20
Toluene	23.6	mg/Kg	5	10.0	14.0265	96	64.2 - 153.8	8	20
Ethylbenzene	22.6	mg/Kg	5	10.0	12.0165	106	61.6 - 159.4	10	20
Xylene	78.7	mg/Kg	5	30.0	47.4302	104	64.4 - 155.3	8	20

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

		MS	MSD			Spike	MS	MSD	Rec.
Surrogate		Result	Result	Units	Dil.	Amount	Rec.	Rec.	Limit
Trifluorotoluene (TFT)		9.89	9.89	mg/Kg	5	10	99	99	76 - 127.9
4-Bromofluorobenzene (4-BFB)	26 27	13.1	14.0	mg/Kg	5	10	131	140	72 - 127.8

### Standard (CCV-1)

QC Batch: 59966

Date Analyzed: 2009-06-01

Analyzed By: ME

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

## Standard (CCV-2)

QC Batch: 59966

Date Analyzed: 2009-06-01

Analyzed By: ME

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

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

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

Report Date: June 11, 2009 Work Order: 9052928 Page Number: 26 of 28 St. Mary/PDU Tract #1 TB 114-6400203 Standard (CCV-1) Date Analyzed: 2009-06-01 QC Batch: 60003 Analyzed By: AG **CCVs CCVs CCVs** Percent True Found Recovery Percent Date Units Param Flag Conc. Conc. Recovery Limits Analyzed DRO mg/Kg 250 242 97 80 - 120 2009-06-01 Standard (CCV-2) QC Batch: 60003 Date Analyzed: 2009-06-01 Analyzed By: AG **CCVs CCVs** CCVs Percent True Found Percent Recovery Date Conc. Param Flag Units Conc. Recovery Limits Analyzed DRO mg/Kg 250 234 94 80 - 120 2009-06-01 Standard (CCV-3) QC Batch: 60003 Date Analyzed: 2009-06-01 Analyzed By: AG **CCVs** CCVsCCVsPercent True Found Percent Recovery Date Units Conc. Conc. Recovery Limits Param Flag Analyzed 250 257 80 - 120 2009-06-01 mg/Kg 103 DRO Standard (ICV-1) Date Analyzed: 2009-06-02 Analyzed By: AR QC Batch: 60012

**ICVs** 

Found

Conc.

103

CCVs

Found

Conc.

97.0

Date Analyzed: 2009-06-02

**ICVs** 

Percent

Recovery

103

CCVs

Percent

Recovery

97

Percent

Recovery

Limits

85 - 115

Percent

Recovery

Limits

85 - 115

Date

Analyzed

2009-06-02

Date

Analyzed

2009-06-02

Analyzed By: AR

**ICVs** 

True

Conc.

100

CCVs

True

Conc.

100

Flag

Flag

Param

Param

Chloride

Chloride

Standard (CCV-1)

QC Batch: 60012

Units

mg/Kg

Units

mg/Kg

Report Date: June 11, 2009 Work Order: 9052928 Page Number: 27 of 28 114-6400203 St. Mary/PDU Tract #1 TB

Standard (ICV-1)

QC Batch: 60013

Date Analyzed: 2009-06-02

Analyzed By: AR

			ICVs True	ICVs	ICVs	Percent	Deta
Param	Flag	Units	Conc.	Found Conc.	Percent	Recovery Limits	Date Analyzed
	1105				Recovery	Limits	<del>_</del>
Chloride		mg/Kg	100	100	100	85 - 115	2009-06-02

Standard (CCV-1)

QC Batch: 60013

Date Analyzed: 2009-06-02

Analyzed By: AR

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

Standard (CCV-1)

QC Batch: 60032

Date Analyzed: 2009-06-02

Analyzed By: ME

			CCVs True	CCVs Found	CCVs Percent	Percent Recovery	Date
Param	Flag	Units	Conc.	Conc.	Recovery	Limits	Analyzed
GRO	1	mg/Kg	1.00	0.899	90	80 - 120	2009-06-02

Standard (CCV-2)

QC Batch: 60032

Date Analyzed: 2009-06-02

Analyzed By: ME

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

Standard (CCV-2)

QC Batch: 60203

Date Analyzed: 2009-06-08

Analyzed By: ME

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

continued

Work Order: 9052928 Report Date: June 11, 2009 Page Number: 28 of 28 St. Mary/PDU Tract #1 TB 114-6400203 standard continued ... **CCVs CCVs CCVs** Percent True Found Percent Recovery Date Flag Param Units Conc. Conc. Recovery Limits Analyzed Ethylbenzene mg/Kg 0.1000.102102 80 - 120 2009-06-08 Xylene mg/Kg 0.300 0.311104 80 - 120 2009-06-08 Standard (CCV-3) QC Batch: 60203 Date Analyzed: 2009-06-08 Analyzed By: ME **CCVs CCVs CCVs** Percent True Found Percent Date Recovery Flag Units Conc. Conc. Recovery Limits Analyzed Param 0.100 0.102 80 - 120 2009-06-08 Benzene mg/Kg 102 mg/Kg 0.1000.102102 80 - 1202009-06-08 Toluene 0.1000.098899 80 - 120 2009-06-08 Ethylbenzene mg/Kg 102 Xylene mg/Kg 0.300 0.30580 - 120 2009-06-08 Standard (CCV-1) Date Analyzed: 2009-06-10 QC Batch: 60299 Analyzed By: ME **CCVs CCVs CCVs** Percent True Found Percent Recovery Date  ${\bf Conc.}$ Flag Param Units Conc. Recovery Limits Analyzed 0.100 0.102 102 80 - 120 2009-06-10 Benzene mg/Kg 0.1000.104104 80 - 120 2009-06-10 Toluene mg/Kg Ethylbenzene mg/Kg 0.1000.110 110 80 - 120 2009-06-10 mg/Kg 0.3000.338 113 80 - 120 2009-06-10 Xylene Standard (CCV-2) Date Analyzed: 2009-06-10 Analyzed By: ME QC Batch: 60299 **CCVs CCVs CCVs** Percent True Found Percent Recovery Date Flag Units Conc. Conc. Recovery Limits Param Analyzed

0.100

0.100

0.100

0.300

mg/Kg

mg/Kg

mg/Kg

mg/Kg

Benzene

Toluene

Xylene

Ethylbenzene

0.100

0.106

0.115

0.356

100

106

115

119

80 - 120

80 - 120

80 - 120

80 - 120

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Lubbock, Texas 79424 El Paso, Texas 79922 Midland, lexas 79703

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6015 Harris Parkway, Suite 170 Ft. Worth, Texas 76132

432 • 689 • 6301 817 • 201 • 5260 FAX 432 • 689 • 6313

E-Mail: latr@traceamilysis.com

## Certifications

**WBENC:** 237019

HUB:

1752439743100-86536

**DBE:** VN 20657

NCTRCA

WFWB38444Y0909

# **NELAP Certifications**

T104704219-08-TX Lubbock:

LELAP-02003

El Paso:

T104704221-08-TX LELAP-02002

Midland: T104704392-08-TX

Kansas E-10317

# **Analytical and Quality Control Report**

Ike Tavarez Tetra Tech

1910 N. Big Spring Street

Midland, TX, 79705

Report Date: June 7, 2010

Work Order: 10052812

Project Name:

St. Mary/PDU Tract #1 TB

114-6400203 Project Number:

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

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

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

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

This report consists of a total of 24 pages and shall not be reproduced except in its entirety, without written approval of TraceAnalysis, Inc.

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

Michael april

### Standard Flags

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

# Case Narrative

Samples for project St. Mary/PDU Tract #1 TB were received by TraceAnalysis, Inc. on 2010-05-27 and assigned to work order 10052812. Samples for work order 10052812 were received intact at a temperature of 3.1 C.

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

		Prep	$\operatorname{Prep}$	QC	Analysis
Test	Method	Batch	Date	Batch	Date
BTEX	S 8021B	60437	2010-06-02 at 14:15	70573	2010-06-02 at 16:31
Chloride (Titration)	SM 4500-Cl B	60409	2010-06-01 at 12:03	70556	2010-06-02 at 13:04
Chloride (Titration)	SM 4500-Cl B	60410	2010-06-01 at 12:04	70557	2010-06-02 at 13:04
Chloride (Titration)	SM 4500-Cl B	60411	2010-06-01 at 12:04	70558	2010-06-02 at 13:05
Chloride (Titration)	SM 4500-Cl B	60412	2010-06-01 at 12:05	70559	2010-06-02 at 13:06
TPH DRO - NEW	S 8015 D	60419	2010-06-01 at 13:52	70544	2010-06-01 at 13:52
TPH GRO	S 8015 D	60437	2010-06-02 at 14:15	70574	2010-06-02 at 16:59

Results for these samples are reported on a wet weight basis unless data package indicates otherwise.

A matrix spike (MS) and matrix spike duplicate (MSD) sample is chosen at random from each preparation batch. The MS and MSD will indicate if a site specific matrix problem is occurring, however, it may not pertain to the samples for work order 10052812 since the sample was chosen at random. Therefore, the validity of the analytical data reported has been determined by the laboratory control sample (LCS) and the method blank (MB). These quality control measures are performed with each preparation batch to ensure data integrity.

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

114-6400203

Work Order: 10052812 St. Mary/PDU Tract #1 TB Page Number: 4 of 24

# **Analytical Report**

Sample: 233081 - SB-1 1'

Laboratory: Midland

Analysis: BTEX QC Batch: 70573 Prep Batch: 60437

Analytical Method: Date Analyzed: Sample Preparation:

S 8021B 2010-06-02 2010-06-02

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

RL

Parameter	Flag	Result	Units	Dilution	RL
Benzene	0	0.454	mg/Kg	5	0.0100
Toluene		5.28	mg/Kg	5	0.0100
Ethylbenzene		4.80	mg/Kg	5	0.0100
Xylene		18.6	mg/Kg	5	0.0100

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

Sample: 233081 - SB-1 1'

Laboratory:

Midland

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

Analytical Method: Date Analyzed:

SM 4500-Cl B 2010-06-02 Sample Preparation: 2010-06-01

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

RL

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

Sample: 233081 - SB-1 1'

Laboratory:

Midland

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

Analytical Method: Date Analyzed: Sample Preparation:

S 8015 D 2010-06-01 2010-06-01 Prep Method: N/A Analyzed By: kg Prepared By:

RL

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

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

114-6400203

Work Order: 10052812 St. Mary/PDU Tract #1 TB Page Number: 5 of 24

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

### Sample: 233081 - SB-1 1'

Laboratory: Midland

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

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

Prep Method: S 5035  $\mathbf{AG}$ Analyzed By: Prepared By: AG

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

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

### Sample: 233082 - SB-1 3'

Laboratory: Midland

Analysis: BTEX QC Batch: 70573 Prep Batch: 60437

Analytical Method: S 8021B Date Analyzed: 2010-06-02 Sample Preparation: 2010-06-02

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

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

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

### Sample: 233082 - SB-1 3'

Laboratory: Midland

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

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

<sup>&</sup>lt;sup>3</sup>High surrogate recovery due to peak interference.

114-6400203

Work Order: 10052812 St. Mary/PDU Tract #1 TB Page Number: 6 of 24

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

Sample: 233082 - SB-1 3'

Laboratory:

Midland

Analysis: QC Batch: Prep Batch: 60419

TPH DRO - NEW

70544

Analytical Method: Date Analyzed:

S 8015 D 2010-06-01 Sample Preparation: 2010-06-01

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

RL

Parameter Flag Result Units Dilution RLDRO 144 mg/Kg 50.0

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

Sample: 233082 - SB-1 3'

Laboratory:

Midland

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

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

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

RLResult RLParameter Flag Units Dilution 1.00 GRO 264 mg/Kg 5

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

Sample: 233083 - SB-1 5'

Laboratory: Midland

Analysis: Chloride (Titration)

QC Batch: 70556 Prep Batch: 60409 Analytical Method: SM 4500-Cl B Date Analyzed: 2010-06-02 Sample Preparation: 2010-06-01

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

114-6400203

Work Order: 10052812 St. Mary/PDU Tract #1 TB Page Number: 7 of 24

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

Sample: 233084 - SB-1 7'

Laboratory:

Midland Chloride (Titration)

Analysis: QC Batch: 70556 Prep Batch: 60409

Analytical Method: SM 4500-Cl B

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

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

RLParameter Result Units Dilution RLFlag Chloride <200 mg/Kg 50 4.00

Sample: 233085 - SB-1 10'

Laboratory: Midland

Chloride (Titration) Analysis:

QC Batch: 70556 Prep Batch: 60409

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

2010-06-01

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

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

Sample Preparation:

Sample: 233086 - SB-1 15'

Laboratory: Midland

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

Analytical Method: Date Analyzed:

SM 4500-Cl B 2010-06-02 2010-06-01 Sample Preparation:

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

RLResult Units Dilution RLParameter Flag 4.00Chloride <200 mg/Kg

Sample: 233087 - SB-1 20'

Laboratory: Midland

Analysis: Chloride (Titration) QC Batch: 70556

Prep Batch: 60409 Analytical Method: Date Analyzed:

SM 4500-Cl B 2010-06-02 Sample Preparation: 2010-06-01

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

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		$\mathbf{R}\mathbf{L}$			
Parameter	Flag	Result	Units	Dilution	RL
Chloride		<200	mg/Kg	50	4.00

Sample: 233088 - SB-1 25'

Laboratory: Midland

Analysis: Chloride (Titration)

QC Batch: 70556 Prep Batch: 60409

Analytical Method: SM 4500-Cl B Date Analyzed:

2010-06-02 Sample Preparation: 2010-06-01

Units

mg/Kg

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

RL

4.00

RLResult

Flag Parameter Chloride 545 Dilution 50

Sample: 233089 - SB-1 30'

Laboratory: Midland

Chloride (Titration) Analysis:

QC Batch: 70557 Prep Batch: 60410 Analytical Method: SM 4500-Cl B Date Analyzed: 2010-06-02

2010-06-01

N/A Prep Method: Analyzed By: ARPrepared By: AR.

RLFlag RLParameter Result Units Dilution <200 mg/Kg 50 4.00 Chloride

Sample Preparation:

Sample: 233090 - SB-1 40'

Laboratory: Midland

Analysis: Chloride (Titration)

QC Batch: 70557 Prep Batch: 60410

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

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

Flag Result Units Dilution RLParameter <200 4.00Chloride mg/Kg

RL

Sample: 233091 - SB-2 1'

Laboratory: Midland

Chloride (Titration) Analysis: QC Batch: 70557 Prep Batch: 60410

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

Prep Method: N/AAnalyzed By: ARPrepared By: AR

Report Date: June 7, 2010 114-6400203

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

Sample: 233092 - SB-2 3'

Laboratory: Midland

Analysis: Chloride (Titration) QC Batch: 70557 Prep Batch: 60410

Analytical Method: SM 4500-Cl B Prep Method: N/ADate Analyzed: 2010-06-02 Analyzed By: ARSample Preparation: 2010-06-01 Prepared By: AR

RLFlag Parameter Result Units Dilution RLChloride 514 mg/Kg 50 4.00

Sample: 233093 - SB-2 5'

Laboratory: Midland

Analysis: Chloride (Titration) QC Batch: 70557 Prep Batch: 60410

Analytical Method: SM 4500-Cl B Prep Method: N/A Date Analyzed: 2010-06-02 Analyzed By: AR Sample Preparation: 2010-06-01 Prepared By: AR

RLParameter Flag Result Units Dilution RLChloride 1430 100 4.00 mg/Kg

Sample: 233094 - SB-2 7'

Laboratory: Midland

Analysis: Chloride (Titration) QC Batch: 70557 Prep Batch: 60410

Analytical Method: SM 4500-Cl B Prep Method: N/A Date Analyzed: 2010-06-02 Analyzed By: AR Sample Preparation: 2010-06-01 Prepared By: AR

RLParameter Flag Result Units Dilution RLChloride 414 50 4.00 mg/Kg

Sample: 233095 - SB-2 10'

Laboratory: Midland

Analysis: Chloride (Titration) QC Batch: 70557 Date Analyzed: Prep Batch: 60410 Sample Preparation:

Analytical Method: SM 4500-Cl B Prep Method: N/A 2010-06-02 Analyzed By: AR 2010-06-01 Prepared By: AR

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Work Order: 10052812 St. Mary/PDU Tract #1 TB Page Number: 10 of 24

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

Sample: 233096 - SB-2 15'

Laboratory:

Midland

Analysis: Chloride (Titration)

QC Batch: 70557 Prep Batch: 60410 Analytical Method: SM 4500-Cl B

Date Analyzed: 2010-06-02 Sample Preparation: 2010-06-01 Prep Method: N/A
Analyzed By: AR
Prepared By: AR

Sample: 233097 - SB-2 20'

Laboratory:

Midland

Analysis: Chloride (Titration)
QC Batch: 70557
Prep Batch: 60410

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

500-Cl B Prep Method: N/A
06-02 Analyzed By: AR
06-01 Prepared By: AR

Sample: 233098 - SB-2 30'

Laboratory:

Midland

Analysis: Chloride (Titration)
QC Batch: 70557
Prep Batch: 60410

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

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

Sample: 233099 - SB-3 1'

Laboratory: Midland

Analysis: Chloride (Titration)
QC Batch: 70558
Prep Batch: 60411

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

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

Work Order: 10052812

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St. Mary/PDU Tract #1 TB

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

Sample: 233100 - SB-3 3'

Laboratory: Midland

Analysis: Chloride (Titration)

QC Batch: 70558 Prep Batch: 60411

Analytical Method: SM 4500-Cl B

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

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

RL

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

Sample: 233101 - SB-3 5'

Laboratory: Midland

Chloride (Titration) Analysis:

QC Batch: 70558 Prep Batch: 60411

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

Sample Preparation: 2010-06-01

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

RI.

RL

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

Sample: 233102 - SB-3 7'

Laboratory: Midland

Analysis: Chloride (Titration)

QC Batch: 70558 Prep Batch: 60411

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

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

Parameter Result Units Dilution RLFlag Chloride 1010 mg/Kg 4.00

Sample: 233103 - SB-3 10'

Laboratory: Midland

Analysis: Chloride (Titration) QC Batch: 70558 Prep Batch: 60411

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

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

Report Date: June 7, 2010 114-6400203

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

Sample: 233104 - SB-3 15'

Laboratory: Midland

Analysis: Chloride (Titration)
QC Batch: 70558
Prep Batch: 60411

Analytical Method: SM 4500-Cl B Prep Method: N/A
Date Analyzed: 2010-06-02 Analyzed By: AR
Sample Preparation: 2010-06-01 Prepared By: AR

Sample: 233105 - SB-3 20'

Laboratory: Midland

Analysis: Chloride (Titration)
QC Batch: 70558
Prep Batch: 60411

Analytical Method: SM 4500-Cl B Prep Method: N/A
Date Analyzed: 2010-06-02 Analyzed By: AR
Sample Preparation: 2010-06-01 Prepared By: AR

Sample: 233106 - SB-3 25'

Laboratory: Midland

Analysis: Chloride (Titration)
QC Batch: 70558
Prep Batch: 60411

Analytical Method: SM 4500-Cl B Prep Method: N/A
Date Analyzed: 2010-06-02 Analyzed By: AR
Sample Preparation: 2010-06-01 Prepared By: AR

 RL

 Parameter
 Flag
 Result
 Units
 Dilution
 RL

 Chloride
 808
 mg/Kg
 100
 4.00

Sample: 233107 - SB-3 30'

Laboratory: Midland

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

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		RL			
Parameter	Flag	Result	Units	Dilution	RL_
<u>C</u> hloride		974	mg/Kg	100	4.00

Sample: 233108 - SB-3 40'

Laboratory: Midland

Analysis: Chloride (Titration)

QC Batch: 70558 Prep Batch: 60411 Analytical Method: SM 4500-Cl B

Date Analyzed: 2010-06-02 Sample Preparation: 2010-06-01 Prep Method: N/A
Analyzed By: AR
Prepared By: AR

Sample: 233109 - SB-3 45'

Laboratory: Midland

Analysis: Chloride (Titration)

QC Batch: 70559 Prep Batch: 60412 Analytical Method: SM 4500-Cl B Date Analyzed: 2010-06-02

 SM 4500-Cl B
 Prep Method:
 N/A

 2010-06-02
 Analyzed By:
 AR

 2010-06-01
 Prepared By:
 AR

Sample Preparation:

Method Blank (1) QC Batch: 70544

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

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

Report Date: June 7, 2010 114-6400203		Work Order: 10052812 St. Mary/PDU Tract #1 TB		Page Number: 14 of 24		
Method Blank (1)	QC Batch: 70556					
QC Batch: 70556 Prep Batch: 60409		Date Analyzed: 2010-06-02 QC Preparation: 2010-06-01		Analyzed By: Prepared By:	AR AR	
		MDL				
Parameter	Flag_	Result	Units		RL	
Chloride		<2.18	mg/Kg		4	
Method Blank (1)	QC Batch: 70557					
QC Batch: 70557		Date Analyzed: 2010-06-02		Analyzed By:	AR	
Prep Batch: 60410		QC Preparation: 2010-06-01		Prepared By:	$\Lambda R$	
		MDL				
Parameter	Flag	Result	Units		RL	
Chloride	1145	<2.18	mg/Kg		4	
Method Blank (1)  QC Batch: 70558  Prep Batch: 60411	QC Batch: 70558	Date Analyzed: 2010-06-02 QC Preparation: 2010-06-01		Analyzed By: Prepared By:	AR AR	
		MDL				
Parameter	Flag	Result	Units		RL	
Chloride		<2.18	mg/Kg		4	
Method Blank (1)	QC Batch: 70559					
QC Batch: 70559 Prep Batch: 60412		Date Analyzed: 2010-06-02 QC Preparation: 2010-06-01		Analyzed By: Prepared By:	AR AR	
D.	FI	MDL	IIta.a		DI	
Parameter Chloride	Flag	Result <2.18	Units mg/Kg		$\frac{RL}{4}$	
O A HOLLING		\Z.10	mg/ng		-1	
Method Blank (1)	QC Batch: 70573					
QC Batch: 70573		Date Analyzed: 2010-06-02		Analyzed By:	AG	
Prep Batch: 60437		QC Preparation: 2010-06-02		Prepared By:	$\mathbf{AG}$	

Report Date: June 7, 2010 114-6400203

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<b>7</b> 0	D)	MDL	#7 1v	p r
Parameter	Flag	Result	Units	RL
Benzene		< 0.00410	mg/Kg	0.01
Toluene		< 0.00310	mg/Kg	0.01
Ethylbenzene		< 0.00240	mg/Kg	0.01
Xylene		< 0.00650	mg/Kg	0.01

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

Method Blank (1)

QC Batch: 70574

QC Batch: 70574 Prep Batch: 60437 Date Analyzed: 2010-06-02 QC Preparation: 2010-06-02 Analyzed By: AG Prepared By: AG

MDL

		11122		
Parameter	Flag	Result	Units	RL
GRO		< 0.396	mg/Kg	1

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

### Laboratory Control Spike (LCS-1)

QC Batch: 70544 Prep Batch: 60419

70544

Date Analyzed: 2010-06-01 QC Preparation: 2010-06-01 Analyzed By: kg Prepared By: kg

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

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

	LCSD			$\mathbf{S}$ pike	Matrix		Rec.		RPD
Param	Result	Units	Dil.	Amount	Result	Rec.	Limit	RPD	Limit
DRO	277	mg/Kg	1	250	< 5.86	111	57.4 - 133.4	4	20

	LCS	LCSD			Spike	LCS	LCSD	Rec.
Surrogate	Result	Result	Units	Dil.	Amount	Rec.	Rec.	Limit
n-Tricosane	98.0	99.8	mg/Kg	1	100	98	100	70 - 130

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Laboratory Control Spike (LCS-1)

QC Batch: Prep Batch: 60409

70556

Date Analyzed:

2010-06-02

QC Preparation: 2010-06-01 Analyzed By: AR Prepared By: AR

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

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

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

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

Laboratory Control Spike (LCS-1)

QC Batch:

70557

Date Analyzed:

2010-06-02

Analyzed By: AR.

Prep Batch: 60410

QC Preparation: 2010-06-01

Prepared By: AR

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

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

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

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

Laboratory Control Spike (LCS-1)

QC Batch:

70558 Prep Batch: 60411

Date Analyzed:

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

Analyzed By: AR Prepared By: AR

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

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

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

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Laboratory Control Spike (LCS-1)

QC Batch: Prep Batch: 60412

70559

Date Analyzed:

2010-06-02

QC Preparation: 2010-06-01

Analyzed By: AR Prepared By: AR

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

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

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

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

Laboratory Control Spike (LCS-1)

QC Batch:

70573 Prep Batch: 60437 Date Analyzed:

2010-06-02 QC Preparation: 2010-06-02 Analyzed By: AG

Prepared By: AG

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

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

Param	LCSD Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit	RPD	RPD Limit
Benzene	1.90	mg/Kg	1	2.00	< 0.00410	95	75.4 - 115.7	4	20
Toluene	1.91	mg/Kg	1	2.00	< 0.00310	96	78.4 - 113.6	4	20
Ethylbenzene	1.87	mg/Kg	1	2.00	< 0.00240	94	76 - 114.2	4	20
Xylene	5.64	mg/Kg	1	6.00	< 0.00650	94	76.9 - 113.6	4	20

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

	LCS	LCSD			Spike	LCS	LCSD	${ m Rec.}$
Surrogate	Result	Result	Units	Dil.	Amount	Rec.	Rec.	Limit
Trifluorotoluene (TFT)	1.86	1.82	mg/Kg	1	2.00	93	91	65 - 142.9
4-Bromofluorobenzene (4-BFB)	1.76	1.76	mg/Kg	1	2.00	88	88	43.8 - 144.9

Laboratory Control Spike (LCS-1)

QC Batch: Prep Batch: 60437

70574

Date Analyzed:

2010-06-02 QC Preparation: 2010-06-02 Analyzed By: AG

Prepared By: AG

Report Date: June 7, 2010 114-6400203

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

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

	LCSD			$_{ m Spike}$	Matrix		Rec.		RPD
Param	Result	Units	Dil.	Amount	Result	Rec.	Limit	RPD	Limit
GRO	16.0	mg/Kg	1	20.0	< 0.396	80	52.5 - 114.3	4	20

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

	LCS	LCSD			Spike	LCS	LCSD	Rec.
Surrogate	Result	Result	Units	Dil.	Amount	Rec.	Rec.	Limit
Trifluorotoluene (TFT)	2.08	1.89	mg/Kg	1	2.00	104	94	66.2 - 148.7
4-Bromofluorobenzene (4-BFB)	1.83	1.66	mg/Kg	1	2.00	92	83	64.1 - 127.4

Matrix Spike (MS-1) Spiked Sample: 233169

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

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

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

	MSD			Spike	Matrix		Rec.		RPD
Param	Result	Units	Dil.	Amount	Result	Rec.	Limit	RPD	Limit
DRO	298	mg/Kg	1	250	37.7	104	35.2 - 167.1	11	20

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

	MS	MSD			Spike	MS	MSD	Rec.
Surrogate	Result	Result	Units	Dil.	Amount	Rec.	Rec.	Limit
n-Tricosane	115	112	mg/Kg	1	100	115	112	70 - 130

Matrix Spike (MS-1) Spiked Sample: 233088

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

Analyzed By: AR Prepared By: AR

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

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_	MSD	<b>T</b> T	<b></b>	Spike	Matrix	_	Rec.		RPD
Param	Result	Units	Dil.	Amount	Result	Rec.	Limit	RPD	Limit
Chloride	9830	mg/Kg	100	10000	545	93	85 - 115	2	20

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

Matrix Spike (MS-1)

Spiked Sample: 233098

QC Batch:

70557

Date Analyzed:

2010-06-02

Analyzed By: AR

Prep Batch: 60410

QC Preparation:

2010-06-01

Prepared By: AR.

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

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

	MSD			$\mathbf{S}_{\mathbf{pike}}$	Matrix		Rec.		RPD
Param	Result	Units	Dil.	Amount	Result	Rec.	$\mathbf{Limit}$	RPD	Limit
Chloride	10400	mg/Kg	100	10000	<218	102	85 - 115	2	20

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

Matrix Spike (MS-1)

Spiked Sample: 233108

QC Batch:

70558

Date Analyzed:

2010-06-02

Analyzed By: AR

Prep Batch: 60411

QC Preparation:

2010-06-01

Prepared By: AR

	MS			$\mathbf{S}$ pike	Matrix		Rec.
Param	Result	Units	Dil.	Amount	Result	Rec.	Limit
Chloride	10400	mg/Kg	100	10000	<218	104	85 - 115

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

	MSD			Spike	Matrix		Rec.		RPD
Param	Result	Units	Dil.	Amount	Result	Rec.	Limit	RPD	Limit
Chloride	10600	mg/Kg	100	10000	<218	106	85 - 115	2	20

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

Matrix Spike (MS-1)

Spiked Sample: 233121

QC Batch: Prep Batch: 60412

70559

Date Analyzed:

2010-06-02

QC Preparation:

2010-06-01

Analyzed By: AR. Prepared By: AR.

continued ...

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matrix spikes continued ...

Param	MS Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit
_	MS			Spike	Matrix	_	Rec.
Param	Result	Units	Dil.	Amount	Result	$\mathbf{Rec.}$	Limit
Chloride	16400	mg/Kg	100	10000	6000	104	85 - 115

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

	MSD			Spike	Matrix		${f Rec.}$		RPD
Param	Result	Units	Dil.	Amount	Result	Rec.	Limit	RPD	Limit
Chloride	16500	mg/Kg	100	10000	6000	105	85 - 115	1	20

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

Matrix Spike (MS-1) Spiked Sample: 233018

QC Batch: 70573 Prep Batch: 60437

Date Λnalyzed:

Date Analyzed: 2010-06-02 QC Preparation: 2010-06-02 Analyzed By: AG Prepared By: AG

MS Matrix Rec. Spike Param Limit Result Units Dil. Amount Result Rec. Benzene 57.7 - 140.7 1.82 mg/Kg ī 2.00 < 0.00410 91 Toluene 1.88 < 0.00310 94 53.4 - 146.6 mg/Kg 1 2.00 Ethylbenzene 1.90 2.00 < 0.00240 95 62.1 - 141.6 mg/Kg 1 Xylene 5.72 95 61.2 - 142.76.00 < 0.00650 mg/Kg 1

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

	MSD			Spike	Matrix		Rec.		RPD
Param	Result	Units	Dil.	Amount	Result	Rec.	Limit	RPD	Limit
Benzene	1.86	mg/Kg	1	2.00	< 0.00410	93	57.7 - 140.7	2	20
Toluene	1.92	mg/Kg	1	2.00	< 0.00310	96	53.4 - 146.6	$2_{+}$	20
Ethylbenzene	1.94	mg/Kg	1	2.00	< 0.00240	97	62.1 - 141.6	2	20
Xylene	5.82	mg/Kg	1	6.00	< 0.00650	97	61.2 - 142.7	2	20

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

Surrogate	MS Result	$\begin{array}{c} \text{MSD} \\ \text{Result} \end{array}$	Units	Dil.	Spike Amount	MS Rec.	MSD Rec.	Rec. Limit
Trifluorotoluene (TFT)	1.48	1.54	mg/Kg	1	2	74	77	61.7 - 139.6
4-Bromofluorobenzene (4-BFB)	1.44	1.48	mg/Kg	1	2	72	74	49.6 - 146.7

Matrix Spike (MS-1) Spiked Sample: 233165

QC Batch: 70574 Prep Batch: 60437 Date Analyzed: 2010-06-02 QC Preparation: 2010-06-02 Analyzed By: AG Prepared By: AG

114-6400203

Work Order: 10052812 St. Mary/PDU Tract #1 TB Page Number: 21 of 24

			1.40				c	n	34			n
Param			MS Resu		Units	Dil.	-	oike ount	Matrix Result	Rec.		Rec. Limit
GRO	<u>-</u>	<del></del>	25.1		mg/Kg	1		0.0	5.5866	98		- 198.3
		1 (1										130.0
Percent rec	overy is base	d on the spik	œ result.	KPD 18	s based o	n tne spike	and sp	ыке априс	ate resu	1 <del>.</del>		
			MSD			Spike	Ma	trix		Rec.		RPD
$\underline{\mathbf{P}}_{\mathbf{aram}}$			Result	Units	Dil.	Amount		sult Ro		Limit	RPD	Limit
$\overline{G}RO$			26.8	mg/K	g 1	20.0	5.5	866 10	6 10	- 198.3	7	20
Percent rec	overy is base	d on the spik	e result.	RPD is	s based o	n the spike	and sp	ike duplic	ate resu	lt.		
			MS	,	MSD			Spike	MS	s MSI	`	Rec.
Surrogate			Resul		visib Lesult	Units	Dil.	Amoun				Limit
	uene (TFT)	<b>-</b>	2.28		2.37	mg/Kg	1	2	114			.5 - 143
	orobenzene (	1-BFB)	2.42		2.38	mg/Kg	1	$\overline{2}$	12			.6 - 140
	<u> </u>											
Standard	(CCV-1)											
	•			_								_
QC Batch:	70544			Date A	Analyzed	l: 2010-06-	01			Ana	dyzed B	y: kg
			(	CCVs	(	CCVs	C	CVs	Per	cent		
			1	True	F	ound	Per	cent	Reco	overy		Date
<u>P</u> aram	Flag	Units		Conc.		Conc.		overy		nits		alyzed
DRO		mg/Kg		250		291	1	16	80 -	120	201	0-06-01
_												
Standard	(CCV-2)											
QC Batch:	70544			Date A	Analyzed	l: 2010-06-	01			Ana	lyzed B	y: kg
			(	CCVs	C	CCVs	CO	CVs	Per	cent		
				True		ound		cent		overy	]	Date
Param	Flag	Units	(	Conc.	(	Conc.	Rec	overy	Lir	nits	An	alyzed
DRO		mg/Kg		250		290	1	16	80 -	120	201	0-06-01
Standard	(ICV-1)											
QC Batch:	70556			Date A	nalyzed:	2010-06-0	)2			Analy	yzed By	: AR
				ICVs		ICVs	10	CVs	Per	cent		
				TO			D.		·			<b>.</b> .

## Standard (CCV-1)

Flag

Units

mg/Kg

QC Batch: 70556

Param

Chloride

Date Analyzed: 2010-06-02

True

Conc.

100

Found

Conc.

101

Percent

Recovery

101

Analyzed By: AR

Date

Analyzed

2010-06-02

Recovery

Limits

85 - 115

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Work Order: 10052812 St. Mary/PDU Tract #1 TB Page Number: 22 of 24

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

### Standard (ICV-1)

QC Batch: 70557

Date Analyzed: 2010-06-02

Analyzed By: AR

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

### Standard (CCV-1)

QC Batch: 70557

Date Analyzed: 2010-06-02

Analyzed By: AR

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

### Standard (ICV-1)

QC Batch: 70558

Date Analyzed: 2010-06-02

Analyzed By: AR

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

### Standard (CCV-1)

QC Batch: 70558

Date Analyzed: 2010-06-02

Analyzed By: AR

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

### Standard (ICV-1)

QC Batch: 70559

Date Analyzed: 2010-06-02

Analyzed By: AR

114-6400203

Work Order: 10052812 St. Mary/PDU Tract #1 TB Page Number: 23 of 24

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

Standard (CCV-1)

QC Batch: 70559

Date Analyzed: 2010-06-02

Analyzed By: AR

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

Standard (CCV-1)

QC Batch: 70573

Date Analyzed: 2010-06-02

Analyzed By: AG

D.	171	TT *2.	CCVs True	CCVs Found	CCVs Percent	Percent Recovery	Date
Param	Flag	Units	Conc.	Conc.	Recovery	Limits	Analyzed
Benzene		mg/Kg	0.100	0.0918	92	80 - 120	2010-06-02
Toluene		mg/Kg	0.100	0.0925	92	80 - 120	2010-06-02
Ethylbenzene		mg/Kg	0.100	0.0910	91	80 - 120	2010-06-02
Xylene		mg/Kg	0.300	0.274	91	80 - 120	2010-06-02

Standard (CCV-2)

QC Batch: 70573

Date Analyzed: 2010-06-02

Analyzed By: AG

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

Standard (CCV-1)

QC Batch: 70574

Date Analyzed: 2010-06-02

Analyzed By: AG

Report Date: June 7, 2010 114-6400203

Work Order: 10052812 St. Mary/PDU Tract #1 TB Page Number: 24 of 24

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

Standard (CCV-2)

QC Batch: 70574

Date Analyzed: 2010-06-02

Analyzed By: AG

			CCVs	$_{ m CCVs}$	CCVs	Percent	
			$\operatorname{True}$	$\mathbf{Found}$	Percent	Recovery	Date
Param	Flag	Units	Conc.	Conc.	Recovery	Limits	Analyzed
GRO		mg/Kg	1.00	1.01	101	80 - 120	2010-06-02

- Return Orginal copy to Tetra Tech - Project Manager retains Pink copy - Accounting receives Gold cop Circle or Specify Method No. **ANALYSIS REQUEST** SAMPLED BY: (Print & british) K. K. Table BCB's 8080/608 SAMPLE SHIPPED BY: (Circle)
FEDEX
HAND OELIVERED DES
TETAL TECH CONTACT PERSON: GC'M2 29mj; A9F 8510/652 GC'M2 API: 8540/8580/854 TCLP Semi Volatiles Ike TCLP Volatiles Metals Ag As Ba Cd Vr Pd Hg Se RCRA Metals Ag As Ba Cd Cr Pb Hg Sa **TX1005** TPH BOTS MOD BISÖS X3TB PRESERVATIVE METHOD NONE Analysis Request of Chain of Custody Record ECE Time: Date: Date: EONH нсг FILTERED (Y/N) NUMBER OF CONTAINERS 2 (432) 682-4559 • Fax (432) 682-3946 RECEIVED BY: (Signature) RECEIVED BY: (Signature) RECEIVED BY: (Signature) RECEIVED BY: (Signature) Eddy G., NM SAMPLE IDENTIFICATION All test, - Midland SITE MANAGER: The Tamet *TETRATECH* Midland, Texas 79705 1910 N. Big Spring St. POU Tract # 5 9 2 25, Ř 7 0 M 58-1 513-1 1-515 573-1 58-1 58-1 SS 장 535-1 58-1 282-¥. PROJECT NAME: Time: Derte: Time: Not (0052917 BARĐ -10 COMP STATE IX TRACE V XIRTAM TIME SAMPLE CONDITION WHEN RECEIVED 14-6400203 RELINCUISHED BY: (Signature) 5/25 25.0 DATE RECEIVING LABORATORY: CITY: Flidte RELINGUISHED BY: (Sign PROJECT NO. LAB I.D. NUMBER <u>გ</u> 8 8 Ŕ 8 g 133% 8 8 B

Major Anions/Catlona, pH, TDS

(soteedsA) MJ9

Pest, 808/608

9

e1/52/5 aug

AIRBILL #: - HERE RUSH Charge Authorized:

Resurts by:

RUSH Charge Authorized: Pesunts by. Major Anions/Cations, pH, TDS e. AIRBILL #. - Laboratory retains Yellow copy - Return Orginal copy to Tetra Tech - Project Manager retains Pink copy - Accounting receives Gold copy. OTHER (sotsedsA) MJ9 Circle or Specify Method No.) (niA) steB enqlA **ANALYSIS REQUEST** Tava/ez R09/808 1884 PAGE PCB's 8080/608 GC.MS Semi. Vol. 8270/625 SAMPLE SHIPPED BY: (Circle)
BUS PEDEX BUS GC:W2 A9f: 8540/8560/654 SAMPLED BY: (Print & Initial) TCLP Semi Volatiles Ike Metals Ag As Ba Cd Vr Pd Hg Se RCRA Metals Ag As Ba Cd Cr Pb Hg Se 0728 HA9 (Ext. to C35) 2001XT GOM STOR 81508 X3T8 PRESERVATIVE METHOD HONE Analysis Request of Chain of Custody Record ICE TIME 11.05 Time: EQNH нсг (MY) OBRATIF NUMBER OF CONTAINERS 6 (432) 682-4559 • Fax (432) 682-3946 RECEIVED BY: (Signature) RECEIVED BY: (Signature) RECEIVED BY: (Signature) 5. 27 .10 POU Trat #1 Eddy G, NM Sample identification RECEIVED BY: (Signatury) SITE MANAGER: TRE TOWNER *FETRA TECH* 1910 N. Big Spring St. Midland, Texas 79705 15, 30,0 2 <u>`</u> 3 ŗ 3 S 58-3 53-2 58-3 2-95 2.85 2-85 SB-2 29-2 58-2 Z Z PROJECT NAME: Date: Time: Time: WI# (005 2012 **BARD** b COMP Please fill out all copies S XIBTAM STATE TIME SAMPLE CONDITION WHEN RECEIVED 4-640083 RELINQUISHED BY: (Signeture) 5/25 200 RECEIVING LABORATORY:
ADDRESS:
CITY: Tistory
CONTACT: DATE RELINQUISHED BY: CLIENT NAME PROFECTING. RELINQUISHED E <u>7</u> LAB I.D. NUMBER व् B E क्र 븅 00 g 095 2330

M

Date: 5/25/10 RUSH Charge Authorized: Results by: Major Aniona/Cations, pH, TDS ë. AIRBILL #: Please fill out all copies - Laboratory retains Yellow copy • Return Orginal copy to Tetra Tech • Project Manager retains Pink copy - Accounting receives Gold copy PLM (Asbestos) (Circle or Specify Method No.) ANALYSIS REQUEST ħ Tavale Pest, 808/608 PAGE: PCB's 8080/608 GC:WS 2emi, Vol. 8270/625 SAMPLE SHIPPED BY: (Grich)
FEDEY
BUS
HAND DELIVERED
JUPS SAMPLED BY: (Print & trittal) GC'W2 API 8540/8580/854 TCLP Semi Volatiles Ike TCLP Volatiles CG AL PG Hg Se 88 sA gA slateM HCRA Metals Ag As Ba Cd Cr Pb Hg Se 300 t X T 8012 MOD. (EXt to C32) Hdl BIEX BO21B PRESERVATIVE METHOD HONE 20° Analysis Request of Chain of Custody Record ICE Deth. ЕОМН ног FILTERED (Y/N) NUMBER OF CONTAINERS 73 5.24.10 (432) 682-4559 • Fax (432) 682-3946 RECEIVED BY: (Signature) RECEIVED BY: (Signature) F.C. | RECEIVED BY: (Signature) RECEIVED BY: (Signature) SITE MANAGER:
TICE TANGE EAL, Co., NM SAMPLE IDENTIFICATION Tast *TETRATECH* 910 N. Big Spring St. Midland, Texas 79705 20, 25, S S <u>3</u> 45, <u>ა</u> W Š 90 533-3 58-3 513-3 56-33 58-3 Mary PROJECT NAME: Date: 5005 # 000 # 000 BARD COMP  $\overline{\langle}$ ₩ ✓ **XINTAM** TIME SAMPLE CONDITION WHEN RECEIVED 14-640 0203 RELINCUISHED BY: (Signature) 15/25 220 DATE ADDRESS ALT (ALT
CITY RELINCUISHED BY: (Signa RELINGUISHED BY: (S) CLIENT NAME 60) LAB I.D. NUMBER B 103 104 ठ ٥ <u>ठिक</u>्रा 90 8