Received	by	OCD:	4/12/2023	3 7:12:17 .	AM
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District 1 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

State of New Mexico Energy Minerals and Natural Resources

**Oil Conservation Division** 

Revised August 8, 2011 Submit 1 Copy to appropriate District Office in accordance with 19.15.29 NMAC.

1220 S. St. Francia Dr. Santa Fa. NM 97505	th St. Francis Dr.	
Santa I	Fe, NM 87505	
Release Notification	on and Corrective Action	
	<b>OPERATOR</b> Initial Report Sinal Report	
Name of Company Enterprise Field Services LLC	Contact Alena Miro	
PO Box 4324, Houston, TX 77210	Telephone No. 575-628-6802	
Facility Name Pipeline ROW, 30137 Gathering Lateral	Facility Type: Gas Gathering Pipeline	
Surface Owner State of New Mexico Mineral Owner		
	DN OF RELEASE	
Unit LetterSectionTownshipRangeFeet from theNorth01319S28E97	h/South Line Feet from the East/West Line County South 562 West Eddy	
Latitude: <u>N 32.6540</u>		
Type of Release Natural Gas, Pipeline Liquids	<b>E OF RELEASE</b> Volume of Release: 1581 MCF, Volume Recovered: N/A	
•••••••	Volume of Release: 1581 MCF, Volume Recovered: N/A 10 BBL Liquids (update)	
Source of Release Pipeline Leak.	Date and Hour of Occurrence Date and Hour of Discovery	
Was Immediate Notice Given?	02/15/2015 @ 09:10 MST         02/15/2015 @ 09:10 MST           If YES, To Whom?         02/15/2015 @ 09:10 MST	
Yes No Not Required	<i>NMOCD Reporting Hotline</i>	
By Whom? Dina Ferguson	Date and Hour 02/15/2015 @ 12:43 MST	
Was a Watercourse Reached?	If YES, Volume Impacting the Watercourse.	
🗌 Yes 🖾 No		
If a Watercourse was Impacted, Describe Fully.*		
Describe Cause of Problem and Remedial Action Taken.*		
Pipeline leak was detected by pipeline technician. Pipeline segment wa	ts clamped and blown down, and leaking portion was repaired.	
Describe Area Affected and Cleanup Action Taken.*		
	formed and additional sampling was received to confirm cleanup is satisfactory.	
Operations personnel originally estimated approximately 3 bbl pipeline	e liquids spilled to the ground within pipeline right-of-way. After further	
investigation and excavation, it was determined that the liquid spill vol.	ume is approximately 10 bbl pipeline liquids. Enterprise performed remediation	
activities in accordance with Enterprise's General Release Notification	n, Response and Remediation Plan (dated March 9, 2015). NMOCD Reference	
2RP-2896.		
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	he NMOCD marked as "Final Report" does not relieve the operator of liability	
should their operations have failed to adequately investigate and remedia	te contamination that pose a threat to ground water, surface water, human health	
or the environment. In addition, NMOCD acceptance of a C-141 report of	does not relieve the operator of responsibility for compliance with any other	
federal, state, or local laws and/or regulations.		
(161)	OIL CONSERVATION DIVISION	
Signature: AM - Full		

Signature: Ame Fucks		
Printed Name: Jon E. Fields	Approved by District Supervisor:	Ashley Maxwell
Title: Director, Field Environmental	Approval Date: 4/13/2023	Expiration Date:
E-mail Address: <i>jefields@eprod.com</i> Date: 5 - 9 - 19 Phone: 713-381-6684	Conditions of Approval:	Attached

\* Attach Additional Sheets If Necessary

Form C-141



# **CORRECTIVE ACTION REPORT**

Property:

# **30137 Pipeline Releases SW<sup>1</sup>/<sub>4</sub> SE <sup>1</sup>/<sub>4</sub>, S13 T19S R28E Eddy County, New Mexico** ECIRTS: 25049, 25811, 26242, 26497

# NMOCD RP#s: 2RP-2846 (30137 #3 Release), 2RP-3191 (30137 #4 Release), 2RP-3044 (30137 #5 Release), 2RP-3100 (30137 #6 Release)

July 2016 Apex Project No. 725010112096

Prepared for:

Enterprise Field Services, LLC PO Box 4324 Houston, TX 77252 Attention: Dina Ferguson

Prepared by:

Karolanne Toby Project Manager

Liz Scaggs, P.G. Division Manager

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Appendix E:	NMOCD C-141 Documentation



# **CORRECTIVE ACTION REPORT**

#### **30137 Pipeline Releases**

SW¼ SE ¼, S13 T19S R28E Eddy County, New Mexico ECIRTS: 25049, 25811, 26242, 26497 Apex Project No. 725010112096

# NMOCD RP#s: 2RP-2846 (30137 #3 Release), 2RP-3191 (30137 #4 Release), 2RP-3044 (30137 #5 Release), 2RP-3100 (30137 #6 Release)

# 1.0 INTRODUCTION

# 1.1 Site Description & Background

The 30137 #3, #4, #5 and #6 Pipeline Releases (30137 releases) are located within the Enterprise Field Services, LLC (Enterprise) 30137 natural gas gathering pipeline right-of-way (ROW) in the southwest (SW) ¼ of the southeast (SE) ¼ of Section 13 in Township 19 South and Range 28 East in rural Eddy County, New Mexico (32.65386N, 104.12857W), referred to hereinafter as the "Site". The Site is surrounded by native vegetation rangeland periodically interrupted with oil and gas production and gathering facilities. The subsurface consists of fine sandy loam over mixed alluvium and /or eolian sands.

On February 15, 2015 a leak (30137 #3) was detected on the 30137 natural gas gathering pipeline (30137 pipeline) by a pipeline technician. Subsequent to the initial response activities, a second leak (30137 #4) was detected on the 30137 pipeline on April 30, 2015. Immediate response action was taken based on the Enterprise *General Release Notification, Response and Remediation Plan (dated March 2015).* On June 8, 2015, a third leak (30137 #5) was detected on the 30137 pipeline. During the completion of remediation activities to address the third leak on the 30137 pipeline, a fourth leak (30137 #6) was detected in the same approximate area as the third release. The four (4) releases on the 30137 pipeline were repaired and remediation efforts were completed subsequent to Enterprise Operations combining the excavation efforts for each individual release. All four (4) of the 30137 pipeline releases listed above occurred within a 200-foot segment along the 30137 pipeline. The RP numbers assigned by the NMOCD to the 30137 #3, #4, #5 and #6 releases are 2RP-2846, 2RP-3191, 2RP-3044 and 2RP-3100, respectively.

Due to the close proximity of each leak on the 30137 pipeline, Enterprise submitted a notification to the New Mexico Oil Conservation Division (NMOCD) of Enterprise's intent to combine the excavation efforts for each release (30137 #3, #4, #5 and #6) into one large excavation in order to effectively complete remediation efforts and to replace the 200-foot segment of pipeline on which all the releases occurred. NMOCD approved Enterprise's plan to address the combined remediation efforts and to combine the releases into a single report subsequent to completion of remediation activities.

A topographic map depicting the location of the Site is included as Figure 1, and a Site Vicinity Map is included as Figure 2 in Appendix A.

#### 1.2 **Project Objective**

The primary objective of the corrective actions was to reduce the concentration of constituents of concern (COCs) in the on-Site soils to below the NMOCD *Recommended Remediation Action Levels (RRALs)* using the New Mexico Energy, Minerals and Natural Resources Division (EMNRD) OCD's *Guidelines for Remediation of Leaks, Spills and Releases* as guidance.



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#### 2.0 SITE RANKING

In accordance with the New Mexico EMNRD OCD's *Guidelines for Remediation of Leaks, Spills and Releases*, Apex TITAN, Inc. (Apex) utilized the general site characteristics obtained during the completion of corrective action activities and information available from the New Mexico Office of the State Engineer (OSE) to determine the appropriate "ranking" for the Site. The ranking criteria and associated scoring are provided in the following table:

Ranking Criteria			Ranking Score
	<50 ft.	20	
Depth to Groundwater	50 to 99 ft.	10	10
	>100 ft.	0	
Wellhead Protection Area <1,000 ft. from a water source,	Yes	20	0
or; <200 ft. from private domestic water source.	No	0	
	<200 ft.	20	
Distance to Surface Water Body	200 to 1,000 ft.	10	0
	>1,000 ft.	0	
Total Ranking Score		10	

Based on Apex's evaluation of the scoring criteria, the Site would have a maximum Total Ranking Score of "10". This ranking is based on the following:

- The approximate depth to the initial groundwater-bearing zone is between 50 and 99 feet (ft.).
- No water source wells (municipal/community wells) were identified within 1,000 ft. of the Site. No private domestic water sources were identified within 200 ft. of the Site.
- The distance to the nearest surface water body is greater than 1,000 ft.

Based on a Total Ranking Score of "10", cleanup goals for soils remaining in place at the Site include:

- 10 milligrams per Kilogram (mg/Kg) for benzene;
- 50 mg/Kg for total benzene, toluene, ethylbenzene and xylene (BTEX);
- 1,000 mg/Kg for combined total petroleum hydrocarbons (TPH) gasoline range organics (GRO) and diesel range organics (DRO); and
- 500 mg/Kg for chloride.

# 3.0 SITE CHRONOLOGY

Apex has reviewed the available documentation from previously conducted subsurface investigation and corrective action activities completed at the Site.

The following is a chronology of Site assessment, investigation and corrective action activities previously conducted at the Site. Each release

February 15, 2015 A release was discovered along the Enterprise 30137 pipeline within the pipeline ROW. Enterprise initially estimated the release as approximately three (3) barrels (bbls) of natural gas pipeline liquid. This release is referred to hereinafter as the 30137 #3 release.



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- February 24, 2015 An initial C-141 was submitted by Enterprise to the NMOCD due to the gas volume associated with the 30137 #3 release. The initial liquid spill volume was estimated to be approximately three (3) bbls of natural gas pipeline liquid. The RP # 2RP-2846 was assigned by the NMOCD to the 30137 #3 release.
- February 25, 2015 Enterprise Operations initiated excavation activities at the 30137 #3 release site and removed impacted soil from below and surrounding the release point on the pipeline. Apex collected five (5) confirmation soil samples (N-Wall, S-Wall, E-Wall, W-Wall, and RP) from each sidewall and floor of the 30137 #3 excavation and two (2) confirmation soil samples [CS-1(2015) and CS-2(2015)] from an area of hydrocarbon staining identified to the southeast of the excavation. In addition, Apex collected one (1) composite soil sample (SP) from the stockpiled material staged next to the excavation. Based on laboratory analytical results from the initial soil samples, additional excavation was required.
- April 29, 2015 A new release was discovered on the 30137 pipeline approximately 170 ft. to the east of the 30137 #3 release. Enterprise initially estimated the release as approximately two (2) bbls of natural gas pipeline liquids. This release is referred to hereinafter as the 30137 #4 release. The RP # 2RP-3191 was assigned by the NMOCD to the 30137 #4 release.
- May 18, 2015 An initial C-141 was submitted by Enterprise to the NMOCD due to the gas volume associated with the 30137 #4 release. The initial liquid spill volume was estimated to be approximately two (2) bbls of natural gas pipeline liquid.
- June 8, 2015 A new release was discovered on the 30137 pipeline approximately 105 ft. to the east of the 30137 #3 release. Enterprise initially estimated the release as approximately three (3) bbls of natural gas pipeline liquid. This release is referred to hereinafter as the 30137 #5 release.
- June 10, 2015 An initial C-141 was submitted by Enterprise to the NMOCD due to the gas volume associated with the 30137 #5 release. The initial liquid spill volume was estimated to be approximately three (3) bbls of natural gas pipeline liquid. The RP # 2RP-3044 was assigned by the NMOCD to the 30137 #5 release.
- June 15 to June 16, Enterprise Operations conducted excavation activities at the 30137 #4 and 2015 30137 #5 release sites. Apex returned to the Site to conduct additional field activities. Apex did not collect additional samples from the 30137 #3 release due to elevated field readings collected from a photoionization detector (PID) and a salinity meter. Apex collected five (5) confirmation soil samples (N-Wall, S-Wall, E-Wall, W-Wall and RP) from the excavation in the vicinity of the 30137 #4 release and five (5) confirmation soil samples (N-Wall, S-Wall, E-Wall, W-Wall and RP) from the excavation in the vicinity of the 30137 #5 release. In addition, Apex collected three (3) composite soil samples (STP-2, STP and STP) from the stockpiled material staged on-Site and two (2) background soil samples (BKG-1 and BKG-2) from areas within the 30137 pipeline ROW, approximately 150 feet (ft.) to the east and west of the excavated areas on-Site. Based on laboratory analytical results, additional excavation was required in the vicinity of the 30137 #5 release.



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July 2, 2015	A new release was discovered on the 30137 pipeline in the same approximate location as the 30137 #5 release. Enterprise initially estimated the release to be approximately three (3) bbls of natural gas pipeline liquid. This release is referred to hereinafter as the 30137 #6 release.	
July 7, 2015	An initial C-141 was submitted by Enterprise to the NMOCD due to the gas volume associated with the 30137 #6 release. The initial liquid spill volume was estimated to be approximately three (3) bbls of natural gas pipeline liquid. The RP # 2RP-3100 was assigned by the NMOCD to the 30137 #6 release.	
August 2015	Enterprise submits revised C-141 forms with updated liquid spill volumes for the 30137 #3, #4 and #5 releases subsequent to the receipt of field and soil sampling data associated with the initial response actions for each release. The revised liquid spill estimates are ten (10) bbls, eight and a half (8.5) bbls and nine (9) bbls, respectively.	
	Due to the close proximity of each leak on the 30137 pipeline, Enterprise submitted a notification to the NMOCD of Enterprise's intent to combine the excavation efforts for each release (30137 #3, #4, #5 and #6) into one large excavation in order to effectively complete remediation efforts and to replace the 200-foot segment of pipeline on which all the releases occurred. NMOCD approves Enterprise's plan to address the combined remediation efforts and combining the releases into a single report subsequent to completion of remediation activities.	
January 14, 2016	Apex arrived on-Site to collect confirmation soil samples from the combined excavation for the 30137 #3, #4, #5 and #6 releases subsequent to Enterprise Operations completing excavation activities and replacing the 200-foot segment of pipeline. Apex collected 14 confirmation soil samples (CS-1(2016), CS-2(2016) and CS-3 through CS-14) from the sidewalls and floor of the combined excavation for the 30137 pipeline releases. In addition, Apex collected three (3) composite soil samples (SP-1 through SP-3) from the soil stockpiles staged next to the excavation.	
March 14, 2016	Based on laboratory analytical results, additional excavation was required. Apex returned to the Site and collected four (4) confirmation soil samples [CS-1(2015) (RE), CS-2(2015) (RE), S-Wall (RE) and R.P.(RE)] from areas within the excavation and from the previously identified area of hydrocarbon staining to the southeast of the former 30137 #3 excavation.	
March through April, 2016	Based on laboratory analytical results, no further remediation activities were required. The excavation was backfilled utilizing the final stockpiled soils (SP-1 through SP-6) as fill material and the area was contoured to approximate original surface grade.	



#### 4.0 **RESPONSE ACTIONS**

#### 4.1 Soil Excavation Activities

On February 25, 2015, Enterprise Operations and Willbros Construction, LLC (Willbros) initiated response actions in the vicinity of the 30137 #3 release. It was at this time that Enterprise estimated the initial spill volume for the 30137 #3 release as three (3) bbls of natural gas pipeline liquid. Enterprise isolated the leaking portion of the 30137 pipeline and the pipeline section was blown down to carry out repair activities. Impacted soil was removed from the vicinity of the release point and collected into a stockpile on-Site. The former 30137 #3 excavation dimensions measured approximately 25 ft. (ft.) long by 15 ft. wide with an approximate depth of ten (10) ft. below ground surface (bgs). The area of hydrocarbon staining identified to the southeast of the 30137 #3 excavation measured approximately 50 ft. long by 15 ft. wide with an approximate depth of two (2) ft. bgs.

On April 29, 2015, Enterprise Operations and Willbros returned to the Site to initiate response actions at in the vicinity of the 30137 #4 release. It was at this time that Enterprise estimated the initial spill volume for the 30137 #4 release as two (2) bbls of natural gas pipeline liquid. The leak was subsequently identified and repaired. Impacted soil was removed from the affected areas surrounding the release point on the 30137 pipeline associated with the 30137 #4 release and collected into a stockpile on-Site. The former 30137 #4 excavation dimensions measured approximately 25 ft. long by 15 ft. wide with an approximate depth of eight (8) ft. bgs.

On June 8, 2016, Enterprise Operations and Willbros returned to the Site to initiate response actions in the vicinity of the 30137 #5 release. It was at this time that Enterprise estimated the initial spill volume for the 30137 #5 release as three (3) bbls of natural gas pipeline liquid. The leak was subsequently identified and repaired. Impacted soil was removed from the affected areas surrounding the release point on the 30137 pipeline associated with the 30137 #5 release and collected into a stockpile on-Site. The former 30137 #5 excavation dimensions measured approximately 35 ft. long by 15 ft. wide with an approximate depth of ten (10) ft. bgs.

On July 2, 2015, Enterprise Operations returned to the Site to initiate response actions in the vicinity of the 30137 #6 release, which occurred in the same approximate location on the 30137 pipeline as the 30137 #5 release. It was at this time that Enterprise estimated the liquid spill volume for the 30137 #6 release as approximately three (3) bbls of natural gas pipeline liquid.

During August, 2015, Enterprise submitted to the NMOCD revised C-141 forms with updated liquid spill volumes for the 30137 #3, #4 and #5 releases. Subsequent to the initial remediation activities conducted at the Site, the 30137 #3, #4 and #5 release volumes were updated and revised to be ten (10) bbls, eight and a half (8.5) bbls and nine (9) bbls, respectively.

Between August, 2015 and January, 2016, Enterprise Operations and NMR Pipeline, LLC (NMR) returned to the Site to complete remediation activities and to replace the 200-foot segment of the 30137 pipeline on which the 30137 #3, #4, #5 and #6 releases occurred. Due to the close proximity of each leak on the 30137 pipeline, the excavation efforts for the 30137 #3, #4, #5 and #6 releases were combined into a single excavation subsequent to Enterprise notification to the NMOCD.

The final excavation dimensions measured approximately 200 ft. long by 15 ft. wide, with an approximate depth ranging from approximately eight (8) ft. to 14 ft. bgs. Figure 3 - Site Map, provided in Appendix A, indicates the previous extent of the former 30137 #3, #4 and #5 excavation limits in relation to the final combined 30137 releases excavation.



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Backfill of the final combined 30137 #3, #4, #5 and #6 excavation was completed during March 2016. The soil stockpiles generated from the individual 30137 #3, #4, #5 and #6 releases were blended into the soils generated during the combined excavation effort.

During the initiation of the combined excavation effort, the initial soil stockpiles from the individual 30137 #3, #4, #5 and #6 releases were moved to different areas around the excavation on-Site to allow heavy equipment safe access around the combined excavation. This allowed the initial affected soil stockpiles from the individual 30137 #3, #4, #5 and #6 releases to aerate during the combined excavation process. It was also during this time that a substantial amount of soil was removed from the excavation and added to the pre-existing stockpiles, which allowed for potential COC concentrations remaining in the previous soil stockpiles to become diluted.

Based on laboratory analytical results, the final stockpiled material (SP-1 through SP-6) generated from combined excavation activities was reused as fill material in the excavation and the area was contoured to approximate original surface grade.

# 4.2 Soil Sampling Program

On February 25, 2015, Apex collected five (5) confirmation soil samples (N-Wall, S-Wall, E-Wall, W-Wall, and RP) from each sidewall and floor of the 30137 #3 release excavation and two (2) confirmation soil samples [CS-1(2015) and CS-2(2015)] from the area of hydrocarbon staining identified to the southeast of the 30137 #3 release excavation. In addition, Apex collected one (1) composite soil sample (SP) from the stockpiled material staged next to the 30137 #3 release excavation.

On June 15 and 16, 2015, Apex returned to the Site and collected five (5) confirmation soil samples (N-Wall, S-Wall, E-Wall, W-Wall and RP) from the excavation in the vicinity of the 30137 #4 release and five (5) confirmation soil samples (N-Wall, S-Wall, E-Wall, W-Wall and RP) from the excavation in the vicinity of the 30137 #5 release. In addition, Apex collected three (3) composite soil samples from the stockpiled soils removed from the 30137 #3 excavation (STP-2), from the stockpiled soils removed from the 30137 #4 excavation (STP) and from the stockpiled soils removed from the 30137 #5 excavation (STP). Apex also collected two (2) background soil samples (BKG-1 and BKG-2) from areas within the 30137 pipeline ROW approximately 150 ft. to the east and west of the excavated areas on-Site.

On January 14, 2016, Apex arrived on-Site to collect confirmation soil samples from the combined excavation for the 30137 releases. The confirmation soil samples were collected subsequent to Enterprise Operations completing excavation activities and replacing the 200-foot segment of pipeline. Apex collected 14 confirmation soil samples [CS-1(2016), CS-2(2016) and CS-3 through CS-14] from the sidewalls and floor of the combined excavation. Confirmation soil sample CS-1(2016) was collected in the vicinity of confirmation soil sample W-Wall (30137 #3) subsequent to over-excavation activities. The confirmation soil sample CS-3 was collected to the east of confirmation soil sample E-Wall (30137 #3) along the excavation floor, subsequent to the complete removal of soil that comprised the boundary of the E-Wall sample location. Confirmation soil sample CS-9 was collected from the same location as confirmation soil sample RP (30137 #5) subsequent to over-excavation activities. In addition, Apex collected three (3) composite soil samples (SP-1 through SP-3) from the final soil stockpiles staged next to the final combined excavation.

Based on previous laboratory analytical results, additional excavation was required in the vicinity of the former location of the 30137 #3 release. Apex returned to the Site and collected four (4) confirmation soil samples [CS-1(2015)(RE), CS-2(2015)(RE), S-Wall(RE) and R.P.(RE)] from areas within the former 30137 #3 excavation boundaries and in the vicinity of the previously identified area of hydrocarbon staining. In addition, Apex collected three (3) composite soil samples (SP-4 through SP-6) from the final soil stockpiles staged next to the excavation.



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Soil samples were collected and delivered under chain of custody control to Trace Analysis Laboratory and Xenco Laboratories in Midland, Texas for analysis of BTEX utilizing EPA SW-846 Method #8021B, TPH GRO and DRO utilizing EPA SW-846 Method #8015 and chloride utilizing EPA Method SM 4500-Cl B and/or EPA Method 300.

Executed chain-of-custody forms and laboratory data sheets are provided in Appendix D. All soil samples were analyzed within the specified holding times.

Figure 2 is a Site Vicinity Map that indicates the approximate location of the background soil samples in relation to the Site. Figure 3 is a Site Map that indicates the approximate confirmation soil sample and composite stockpile soil sample locations in relation to the former individual 30137 releases excavation boundaries and the final combined 30137 releases excavation and pertinent land features (Appendix A).

# 5.0 DATA EVALUATION

The Site is subject to regulatory oversight by the New Mexico EMNRD OCD. To address activities related to condensate releases, the New Mexico EMNRD OCD utilizes the *Guidelines for Remediation of Leaks, Spills and Releases* as guidance, in addition to the OCD rules, specifically NMAC 19.15.29 *Remediation Plan.* These guidance documents establish investigation and abatement action requirements for sites subject to reporting and/or corrective action.

# 5.1 Confirmation Soil Samples

Apex compared the benzene, BTEX, TPH GRO/DRO and chloride concentrations associated with the final confirmation soil samples collected from the previous limits of excavation for the individual 30137 #3, #4 and #5 releases and the final combined excavation for the 30137 #3, #4, #5 and #6 releases to the OCD RRALs for sites having a total ranking score of "10".

The laboratory analyses of the final confirmation soil samples CS-1(2015)(RE), CS-2(2015)(RE), CS-1 (2016), CS-2(2016), CS-3, CS-4, N-Wall, S-Wall(RE), R.P.(RE), CS-11, N-Wall, CS-12, CS-13, CS-14, S-Wall, RP, E-Wall and CS-5 through CS-10, collected from both the previous limits of excavation for the individual 30137 #3, #4 and #5 releases and the final combined excavation at the Site, indicate benzene concentrations ranging from below the laboratory reporting limit of 0.000990 mg/Kg to 4.08 mg/Kg, which are below the OCD RRAL limits of 10 mg/Kg for a Site ranking of "10".

The laboratory analyses of the final confirmation soil samples CS-1(2015)(RE), CS-2(2015)(RE), CS-1(2016), CS-2(2016), CS-3, CS-4, N-Wall, S-Wall(RE), R.P.(RE), CS-11, N-Wall, CS-12, CS-13, CS-14, S-Wall, RP, E-Wall and CS-5 through CS-10, collected from both the previous limits of excavation for the individual 30137 #3, #4, and #5 releases and the final combined excavation at the Site, indicate total BTEX concentrations ranging from below the laboratory reporting limit of 0.000990 mg/Kg to 0.507 mg/Kg, which are below the OCD RRAL limits of 50 mg/Kg for a Site ranking of "10".

The laboratory analyses of the final confirmation soil samples CS-1(2015)(RE), CS-2(2015)(RE), CS-1(2016), CS-2(2016), CS-3, CS-4, N-Wall, S-Wall(RE), R.P.(RE), CS-11, N-Wall, CS-12, CS-13, CS-14, S-Wall, RP, E-Wall and CS-5 through CS-10, collected from both the previous limits of excavation for the individual 30137 #3, #4, and #5 releases and the final combined excavation at the Site, indicate combined TPH GRO/DRO concentrations ranging from below the laboratory reporting limit of15.0 mg/Kg to 449 mg/kg, which are below the OCD RRAL limits of 1,000 mg/Kg for a Site ranking of "10".

The laboratory analyses of the final confirmation soil samples CS-1(2015)(RE), CS-2(2015)(RE), CS-1(2016), CS-2(2016), CS-3, CS-4, N-Wall, S-Wall(RE), R.P.(RE), CS-11, N-Wall, CS-12, CS-13, CS-14, S-Wall, RP, E-Wall and CS-5 through CS-10, collected from both the previous limits of excavation for the



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individual 30137 #3, #4, and #5 releases and the final combined excavation at the Site, indicate chloride concentrations ranging from below the laboratory reporting limit of 20.0 mg/Kg to 403 mg/Kg, which are below the OCD RRAL limits of 500 mg/Kg for a Site ranking of "10".

#### 5.2 Stockpile Soil Samples

Apex compared the benzene, BTEX, TPH GRO/DRO and chloride concentrations associated with the final composite soil samples (SP-1 through SP-6) collected from the stockpiled soils generated from excavation activities to the OCD RRALs for sites having a total ranking score of "10".

The laboratory analyses of the final composite soil samples (SP-1 though SP-6) indicate benzene concentrations below the laboratory reporting limits, ranging from 0.000996 mg/Kg to 0.0299 mg/Kg, which are below the OCD RRAL limits of 10 mg/Kg for a Site ranking of "10". The laboratory analyses of the final composite soil samples (SP-1 though SP-6) indicate total BTEX concentrations ranging from below the laboratory reporting limit of 0.000996 mg/Kg to 19.2 mg/Kg, which are below the OCD RRAL limits of 50 mg/Kg for a Site ranking of "10".

The final composite soil samples (SP-1 though SP-6), indicate combined TPH GRO/DRO concentrations ranging from below the laboratory reporting limit of 15.0 mg/Kg to 829 mg/kg, which are below the OCD RRAL limits of 1,000 mg/Kg for a Site ranking of "10".

The final composite soil samples (SP-1 though SP-6), indicate chloride concentrations ranging from 37.0 mg/Kg to 364 mg/Kg, which are below the OCD RRAL limits of 500 mg/Kg for a Site ranking of "10".

Based on the laboratory analytical results, the final soil stockpiles (SP-1 though SP-6) indicated benzene, total BTEX, combined TPH GRO/DRO and chloride concentrations below the applicable regulatory standards, and were suitable to be reused as fill material in the excavation subsequent to the completion of remediation activities.

The laboratory analytical results for the soil samples collected from the Site are provided in Table 1 in Appendix C.

#### 6.0 FINDINGS AND RECOMMENDATIONS

The 30137 releases are located within the Enterprise 30137 natural gas gathering pipeline ROW in the SW ¼ of the southeast SE ¼ of Section 13 in Township 19 South and Range 28 East in rural Eddy County, New Mexico. The Site is surrounded by native vegetation rangeland periodically interrupted with oil and gas production and gathering facilities. The subsurface consists of fine sandy loam over mixed alluvium and /or eolian sands.

On February 15, 2015 a leak (30137 #3) was detected on the 30137 natural gas gathering pipeline (30137 pipeline) by a pipeline technician. Subsequent to the initial response activities, a second leak (30137 #4) was detected on the 30137 pipeline on April 30, 2015. Immediate response action was taken based on the Enterprise *General Release Notification, Response and Remediation Plan (dated March 2015).* On June 8, 2015, a third leak (30137 #5) was detected on the 30137 pipeline. During the completion of remediation activities to address the third leak on the 30137 pipeline, a fourth leak (30137 #6) was detected in the same approximate area as the third release. The four (4) releases on the 30137 pipeline were repaired and remediation efforts were completed subsequent to Enterprise Operations combining the excavation efforts for each individual release. All four (4) of the 30137 pipeline releases listed above occurred within a 200-foot segment along the 30137 pipeline. The RP numbers assigned by the NMOCD to the 30137 #3, #4, #5 and #6 releases are 2RP-2846, 2RP-3191, 2RP-3044 and 2RP-3100, respectively.



Enterprise Field Services, LLC	July 2016
Corrective Action Report	Page 9
30137 Pipeline Releases	

- The primary objective of the corrective actions completed at the Site was to reduce the concentration of COCs in the on-Site soils to below the New Mexico EMNRD OCD *RRALs* using the New Mexico EMNRD OCD's *Guidelines for Remediation of Leaks, Spills and Releases* as guidance.
- On-Site remediation included excavation of the affected areas impacted by the 30137 #3, #4, #5 and #6 releases of natural gas pipeline liquid starting from each release point on the 30137 pipeline. The final combined excavated area for the 30137 releases measured approximately 200 ft. long by 15 ft. wide, with an approximate depth ranging from approximately eight (8) ft. to 14 ft. bgs. Excavated soils were removed and collected into six (6) stockpiles on-Site (SP-1 through SP-6).
- The final confirmation soil samples CS-1(2015)(RE), CS-2(2015)(RE), CS-1 (2016), CS-2(2016), CS-3, CS-4, N-Wall, S-Wall(RE), R.P.(RE), CS-11, N-Wall, CS-12, CS-13, CS-14, S-Wall, RP, E-Wall and CS-5 through CS-10, collected from both the previous limits of excavation for the individual 30137 #3, #4, #5 and #6 releases and the final combined excavation at the Site, indicate benzene, total BTEX, combined TPH GRO/DRO and chloride concentrations below the applicable OCD RRALs for a Site ranking of "10".
- The six (6) final soil stockpiles on-Site (SP-1 through SP-6) indicated laboratory results below the applicable OCD RRALs for a Site ranking of "10" and were suitable to be reused as fill material in the excavation. The final excavated area was backfilled with the final stockpiled soils and subsequently contoured to approximate original surface grade.

Based on field observations and laboratory analytical results, no additional investigation or corrective action appears warranted at this time.



APPENDIX A

Figures



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Enterprise Field Services, LLC 30137 Pipeline Releases Eddy County, New Mexico 30137 #3 - 32.653859 N, 104.130117 W 30137 #4 - 32.653864 N, 104.129549 W 30137 #5/#6 - 32.653862 N, 104.129766 W



Apex TITAN, Inc. 2351 W. Northwest Highway, Suite 3321 Dallas, Texas 75220 Phone: (214) 350-5469 www.apexcos.com A Subsidiary of Apex Companies, LLC FIGURE 2

Site Vicinity Map

Aerial Photograph March 2016

Project No. 725010112096

P:\Drafting\2016\725010112096\Figure 2.mxd 5/6/2016 NAD 1983 2011 StatePlane New Mexico East FIPS 3001 Ft US Projected Coordinate System

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P:\Drafting\2016\725010112096\Figure 3B.mxd 5/6/2016 NAD 1983 2011 StatePlane New Mexico East FIPS 3001 Ft US Projected Coordinate System Released to Imaging: 4/13/2023 8:35:21 AM Page 16 of 189



APPENDIX B

Photographic Documentation



View of combined 30137 releases excavation facing southeast.



View of hydrocarbon stain removal in the vicinity of the former 30137 #3 excavation, facing southwest.



View of stockpiled soils after final excavation activities, facing northeast.



View of excavation sidewall during final remediation activities, facing east.



View of stockpiled soil during final remediation activities, facing west.



View of excavation during final remediation activities, facing east.





APPENDIX C

Analytical Tables

•

			SOI		BLE 1	SULTS					
					eline Releases						
								TOU	TOU	TOU	
Sample I.D.	Sample Date	Sample Depth (feet bgs)	Benzene (mg/Kg)	Toluene (mg/Kg)	Ethylbenzene (mg/Kg)	Xylenes (mg/Kg)	Total BTEX (mg/Kg)	TPH GRO	TPH DRO	TPH GRO/DRO (mg/Kg)	Chlorid
								(mg/Kg)	(mg/Kg)	(mg/Kg)	(mg/Kg
ew Mexico Oil Conse	rvation Division (NM	IOCD) Recommen	ded Remediati	on Action Leve	els (RRALs) (Tot	al Ranking Sco	ore: 10)				1
	Conservation Division de Remediation Act		10	NE	NE	NE	50	NE	NE	1,000	500
BKG-1	6/16/2015	6	BACKGRC <0.0200	<0.0200	<pre>MPLE ANALYTIC &lt;0.0200</pre>	<0.0200	<0.0200	-4.00	<b>4</b> 50.0	-54.0	08.0
BKG-1 BKG-2	6/16/2015	6	<0.0200	<0.0200	<0.0200 0.0517	<0.0200	<0.0200 0.0517	<4.00 <4.00	<50.0 <50.0	<54.0 <54.0	<b>98.0</b> <20.0
BRO 2	0/10/2010				ON SOIL SAMPL			41100	400.0	40 110	< <u>2</u> 0.0
W-Wall	2/25/2015	8	0.0665	0.304	0.0500	0.851	1.27	14.5	<\$0.0	14.5	3,080
CS-1 (2016)	1/14/2016	6	0.0142	0.0637	0.0147	0.142	0.234	24.3	<14.9	24.3	56.5
CS-1 (2015)	2/25/2015	2	4.08	25.3 <sup>Je</sup>	5.54	47.6 <sup>Je</sup>	82.5	2,420	<\$0.0	2,420	383
CS-1 (2015) (RE)	3/14/2016	10	<0.00150	<0.00200	<0.00200	<0.0020	<0.00150	<25.0	34.3	34.3	NS
CS-2 (2015) CS-2 (2015) (RE)	2/25/2015 3/14/2016	2 14	<0.00149	378 <sup>1</sup>	<0.00199	<0.00199	<b>918</b> <0.00149	15,200	320	15,520	3,160
CS-2 (2015) (RE) CS-2 (2016)	1/14/2016	14 6	<0.00149	<0.00199 <0.00198	<0.00199	<0.00199	<0.000149	<24.9 <15.0	135 40.7	135 40.7	343 13.7
E-Wall	2/25/2015	8	0.0214	0.163	0.746	3.48	4.41	122	61.1	183	1,530
CS-3	1/14/2016	10	<0.000998	<0.00200	<0.000998	<0.000998	<0.000998	<15.0	<15.0	<15.0	6.74
CS-4	1/14/2016	6	0.00150	<0.00198	<0.000990	0.505	0.507	149	300	449	9.42
N-Wall	2/25/2015	8	0.0270	0.0436	<0.0200	0.0334	0.104	<4.00	<50.0	<54.0	383
S-Wall	2/25/2015	8	0.0494	0.277	0.352	0.556	1.23	120	62.1	182	11,10
S-Wall (RE) RP	3/14/2016 2/25/2015	8 10	NS	NS 	NS 0.254	NS	NS	NS	NS 292	NS	254 9,000
R.P. (RE)	3/14/2016	13	NS	NS	NS	NS	NS	NS	NS	NS	403
····· (//2/	311/2010				ON SOIL SAMPL					110	
CS-11	1/14/2016	6	<0.00100	<0.00200	<0.00100	<0.00100	<0.00100	<15.0	<15.0	<15.0	<2.00
N-Wall	6/15/2015	6	<0.0200	<0.0200	<0.0200	<0.0200	<0.0200	<4.00	<50.0	<54.00	<20.0
W-Wall	6/15/2015	6	<0.0200	0.0221	0.0389	0.0681	0.129	9.34	<50.0	9.34	<20.0
CS-12	1/14/2016	10	<0.00101	<0.00202	<0.00101	<0.00101	<0.00101	<14.9	<14.9	<14.9	7.29
CS-13	1/14/2016	6	<0.00101	<0.00202	<0.00101	<0.00101	<0.00101	<15.0	<15.0	<15.0	2.47
E-Wall	6/15/2015	6	<0.0200	0.0231	0.0528	0.0585	0.134	8 14	<50.0	8.14	<20.0
CS-14 S-Wall	1/14/2016 6/15/2015	6	<0.000992 <0.0200	<0.00198 <0.0200	<0.000992 <0.0200	<0.000992 <0.0200	<0.000992 <0.0200	<15.0 <4.00	<15.0 <50.0	<15.0 <54.0	<b>5.75</b>
RP	6/15/2015	8	<0.0200	<0.0200	<0.0200	<0.0200	<0.0200	<4.00	<50.0	<54.0	<20.0
	0,10,2010				ON SOIL SAMPL			41.00	400.0	40 110	42010
CS-5	1/14/2016	6	<0.00990	<0.00198	<0.000990	<0.000990	<0.000990	<15.0	101	101	<2.00
W-Wall	6/15/2015	6	<0.0200	<0.0200	<0.0200	<0.0200	<0.0200	<4.00	<50.0	<54.00	<20.0
CS-6	1/14/2016	6	<0.00101	<0.00202	<0.00101	<0.00101	<0.00101	<14.9	<14.9	<14.9	<2.00
CS-7	1/14/2016	6	<0.00100	<0.00201	<0.00100	<0.00100	<0.00100	<15.0	<15.0	<15.0	2.84
N-Wall	6/15/2015	6	<0.0200	<0.0200	<0.0200	<0.0200	<0.0200	<4.00	<50.0	<54.00	193
CS-8	1/14/2016	6	<0.00100	< 0.00200	<0.00100	<0.00100	<0.00100	<15.0	<15.0	<15.0	5.66
E-Wall	6/15/2015	6	<0.0200	<0.0200	<0.0200	<0.0200	<0.0200	<4.00	<50.0	<54.00	<20.0
RP CS-9	6/15/2015 1/14/2016	10 10	<0.000996	<0.0200 <0.00199	<0.000996	<0.000996	<0.000996	<4.00 <15.0	<50.0 <15.0	<54.00 <15.0	<b>5,630</b> <2.00
S-Wall	6/15/2015	6	<0.0200	<0.0200	<0.0200	<0.0200	<0.000990	<13.0	<15.0	<13.0	<2.00
CS-10	1/14/2016	6	<0.000994	<0.00199	<0.000994	<0.000994	<0.000994	<15.0	<15.0	<15.0	2.63
				CKPILE SOIL	SAMPLE ANALY	TICAL RESUL					
SP	2/25/2015	NA	1,88	63.2	30.1	129	224	3,150	571	3,721	1,530
STP-2	6/16/2015	NA	4.22	20.4	7.34	34.0 <sup>Je</sup>	66.0	1,190 <sup>06</sup>	575	1,765	98.0
					SAMPLE ANALY						
STP	6/15/2015	NA	0.0248	0.777	1.13		3.15	314	<50.0	314	588
STP	6/15/2015	NA	<0.0200		SAMPLE ANALY		S <0.0200	<4.00	<50.0	<54.00	<20.0
011	0,10/2010				APLE SOIL ANAL						
SP-1	1/14/2016	NA	<0.000996	< 0.00199	< 0.000996	<0.000996	<0.000996	<15.0	<15.0	<15.0	364
SP-2	1/14/2016	NA	< 0.000996	<0.00199	<0.000996	< 0.000996	< 0.000996	<15.0	<15.0	<15.0	141
SP-3	1/14/2016	NA	<0.00101	<0.00201	<0.00101	<0.00101	<0.00101	<15.0	<15.0	<15.0	37.0
SP-4	3/14/2016	NA	<0.0299	1.95	2.77	14.5	19.2	583	122	705	107
SP-5	3/14/2016	NA	<0.00150	0.0137	0.0174	0.126	0.157	215	561	829	344
SP-6	3/14/2016	NA	< 0.00150	0.0140	0.0193	0.233	0.266			455	

: indicates overexcavated area and/or resample

Note: Concentrations in **bold** and yellow exceed the applicable OCD Remediation Action Level

NE: Not Established

NS: Not Sampled Je: Estimated concentration exceeding calibration range

bgs: below ground surface



# APPENDIX D

Laboratory Analytical Reports & Chain of Custody Documentation



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806 • 794 • 1296 FAX 806 • 794 • 1298 915-585-3443 FAX 915 • 585 • 4944 432-689-6301 FAX 432 • 689 • 6313 972-242 -7750

Certifications

WBE HUB NCTRCA DBE NELAP DoD LELAP Kansas Oklahoma ISO 17025

# Analytical and Quality Control Report

Karolanne Toby APEX/Titan 2351 W. Northwest Hwy. Suite 3321 Dallas, Tx, 75220

Report Date: March 9, 2015

Work Order: 15022625 

**Project** Name: 30137 #3 Project Number: 7250715022.001

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
387688	CS-1	soil	2015-02-25	14:52	2015-02-26
387689	CS-2	soil	2015-02-25	14:54	2015-02-26
387690	N- Wall	soil	2015-02-25	14:58	2015-02-26
387691	E- Wall	soil	2015-02-25	15:02	2015-02-26
387692	W- Wall	soil	2015-02-25	15:04	2015-02-26
387693	S- Wall	soil	2015-02-25	15:06	2015-02-26
387694	RP	soil	2015-02-25	15:08	2015-02-26
387695	SP	soil	2015-02-25	15:15	2015-02-26

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

Blain Lepturch

Dr. Blair Leftwich, Director James Taylor, Assistant Director Brian Pellam, Operations Manager

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# **Report Contents**

Case Narrative
Analytical Report
Sample 387688 (CS-1)
Sample 387689 (CS-2)
Sample 387690 (N- Wall)
Sample 387691 (E- Wall)
Sample 387692 (W- Wall)
Sample 387693 (S- Wall)
Sample 387694 (RP)
Sample 387695 (SP) $\ldots$
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QC Batch 119733 - Method Blank (1)
QC Batch 119741 - Method Blank (1) $\ldots$
QC Batch 119761 - Method Blank (1) $\ldots$
QC Batch 119764 - Method Blank (1) $\ldots$
QC Batch 119791 - Method Blank (1) $\ldots$
QC Batch 119849 - Method Blank (1) $\ldots$
Laboratory Control Spikes
QC Batch 119724 - LCS (1)
QC Batch 119733 - LCS (1)
QC Batch 119741 - LCS (1)
QC Batch 119761 - LCS (1)
QC Batch 119764 - LCS (1)
QC Batch 119791 - LCS (1)
QC Batch 119849 - LCS (1)

# Matrix Spikes

1																							
QC Batch	ı 119724 -	· MS (1)			 										 							 	25
QC Batch	ı 119733 -	• MS (1)			 										 							 	25
QC Batch	n 119741 -	· MS (1)			 										 							 	25
QC Batch	n 119761 -	$\cdot$ MS $(1)$			 										 							 	26
QC Batch	n 119764 -	$\cdot$ MS $(1)$			 										 							 	26
QC Batch	ı 119791 -	MS(1)			 										 							 	27
QC Batch	ı 119849 -	$\cdot$ MS $(1)$	•		 		•						 •	•	 	•		•	•			 •	27
Calibration	Standar	rds																					29
QC Batch	n 119724 -	- CCV (1	)		 										 							 	29
QC Batch		、 、	/																				
QC Batch	ı 119733 -	$\cdot$ ICV $(1)$	<i>.</i>		 										 							 	29
QC Batch	n 119733 -	· CCV (1	)		 										 							 	29

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QC Batch 119741 - CCV (1) ......

29

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QC Batch 119761 - CCV $(1)$	
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# Case Narrative

Samples for project 30137 #3 were received by TraceAnalysis, Inc. on 2015-02-26 and assigned to work order 15022625. Samples for work order 15022625 were received intact at a temperature of 4.1 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	101285	2015-03-03 at 14:50	119761	2015-03-04 at 12:14
Chloride (Titration)	SM 4500-Cl B $$	101275	2015-03-03 at $12:51$	119733	2015-03-03 at $12:53$
Chloride (Titration)	SM 4500-Cl B $$	101283	2015-03-03 at $14:35$	119741	2015-03-03 at $14:51$
TPH DRO - NEW	S 8015 D	101249	2015-03-02 at $14:10$	119724	2015-03-03 at $11:04$
TPH GRO	S 8015 D	101285	2015-03-03 at $14:50$	119764	2015-03-04 at $12:23$
TPH GRO	S 8015 D	101317	2015-03-04 at $14:57$	119791	2015-03-05 at $10:28$
TPH GRO	S 8015 D	101336	2015-03-05 at 11:54	119849	2015-03-09 at $09:05$

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 15022625 since the sample was chosen at random. Therefore, the validity of the analytical data reported has been determined by the laboratory control sample (LCS) and the method blank (MB). These quality control measures are performed with each preparation batch to ensure data integrity.

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

•

Report Date: March 9, 2015

7250715022.001

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Analy	tical Re	eport							
Sample: 38	7688 - CS-1								
Laboratory: Analysis: QC Batch: Prep Batch:	Midland BTEX 119761 101285		Analytica Date Ana Sample P		S 802 2015-( 2015-(	03-04		Prep Metho Analyzed B Prepared B	By: AK
D			C I	T	RL	TT •			DI
Parameter		Flag	Cert	ł	Result	Units		Dilution	RL
Benzene			1		4.08	mg/Kg		1	0.0200
Toluene		Je	1		25.3	mg/Kg		1	0.0200
Ethylbenzene	5		1		5.54	mg/Kg	·	1	0.0200
Xylene		Je	1		47.6	mg/Kg		1	0.0200
							Spike	Percent	Recovery
Surrogate		$\mathbf{Fl}$	ag Cert	Result	Units	Dilution	Amount		Limits
Trifluorotolu	ono (TFT)	1.10	ag Oert	1.58	mg/Kg		2.00	79	70 - 130
	cobenzene (4-BFB)			6.72	mg/Kg	·	2.00 2.00	336	70 - 130
Sample: 38	7688 - CS-1								
Laboratory:	Midland								
Analysis:	Chloride (Titrati	on)		lytical Met		SM 4500-Cl B		Prep Met	,
QC Batch:	119733			e Analyzed		2015-03-03		Analyzed	•
Prep Batch:	101275		Sam	ple Prepara	ation: 2	2015-03-03		Prepared	By: EM
			_		RL				
Parameter		Flag	Cert	F	Result	Unit		Dilution	RL
Chloride		Qs			383	mg/K	g	5	4.00
Chloride Sample: 38 Laboratory:	<b>7688 - CS-1</b> Midland	Qs			383	mg/K	g	5	4.0
Applycic.	TPH DRO NEV	<b>X</b> 7	And	lytical Mo	thod	S 8015 D		Prop Mot	hod N/A

Work Order: 15022625

30137~#3

Analysis:	TPH DRO - NEW		Analytical M	Iethod: S	8015 D	Prep Method:	N/A
QC Batch:	119724		Date Analyze	ed: 20	015-03-03	Analyzed By:	$\mathbf{SC}$
Prep Batch:	101249		Sample Prep	aration: 20	015-03-02	Prepared By:	$\mathbf{SC}$
				$\operatorname{RL}$			
Parameter		Flag C	Cert	Result	Units	Dilution	$\operatorname{RL}$
DRO			1	<50.0	mg/Kg	1	50.0

Report Date: March 9, 2015 7250715022.001			V	Page Number: 7 of 34					
Surrogate Flag	Cer	t	Result	Units	Dilu		Spike mount	Percent Recovery	Recovery Limits
n-Tricosane			82.7	mg/Kg			100	83	70 - 130
Sample: 387688 - CS-1									
Laboratory: Midland Analysis: TPH GRO QC Batch: 119791 Prep Batch: 101317			Date An	al Method alyzed: Preparation	2015-0	03-05		Prep Metho Analyzed E Prepared B	By: AK
-			-	-	RL			-	-
Parameter	Flag		Cert	F	Result	Un		Dilution	RL
GRO			1		2420	mg/I	Кg	50	4.00
Surrogate		Flag	Cert	Result	Units	Dilution	Spike Amount	Percent Recovery	Recovery Limits
Trifluorotoluene (TFT)		1 1005	0010	86.2	mg/Kg	50	100	<u>86</u>	70 - 130
4-Bromofluorobenzene (4-BFB)	)			107	mg/Kg	50	100	107	70 - 130

#### Sample: 387689 - CS-2

Laboratory:MidlandAnalysis:BTEXQC Batch:119761Prep Batch:101285		Da	ate Analy	Method: yzed: eparation:	S 8021B 2015-03- 2015-03-	04		Prep Methoo Analyzed By Prepared By	: AK
					$\operatorname{RL}$				
Parameter	Flag		Cert	R	lesult	Units		Dilution	$\operatorname{RL}$
Benzene			1		112	mg/Kg		20	0.0200
Toluene	Je		1		<b>378</b>	$\mathrm{mg/Kg}$		20	0.0200
Ethylbenzene			1		82.3	$\mathrm{mg/Kg}$		20	0.0200
Xylene	Je		1		346	mg/Kg		20	0.0200
							Spike	Percent	Recovery
Surrogate		Flag	Cert	Result	Units	Dilution	Amount	Recovery	Limits
Trifluorotoluene (TFT)				35.1	mg/Kg	20	40.0	88	70 - 130
4-Bromofluorobenzene (4-BFB)	Qsr	Qsr		67.3	mg/Kg	20	40.0	168	70 - 130

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Sample: 38768	9 - CS-2								
Analysis: Ch QC Batch: 119	dland loride (Titration )733 1275	n)	Date	ytical Metl Analyzed: ple Prepara	20	M 4500-Cl B )15-03-03 )15-03-03		Prep Met Analyzed Prepared	By: EM
_				_	RL				
Parameter Chloride		Flag <sub>Qs</sub>	Cert		tesult <b>3160</b>	Uni mg/k		Dilution 5	RL 4.00
							-0		
Sample: 38768	9 - CS-2								
Analysis: TF QC Batch: 119	dland PH DRO - NEW 9724 1249		Dat	alytical Met le Analyzed aple Prepar	l: 2	5 8015 D 2015-03-03 2015-03-02		Prep Met Analyzed Prepared	By: SC
					$\operatorname{RL}$				
Parameter		Flag	Cert	R	lesult	Uni		Dilution	RL
DRO			1		320	mg/ŀ	g	1	50.0
Surrogate	Flag	Cert	Result	Units	Dilu	ition Ai	bpike nount	Percent Recovery	Recovery Limits
n-Tricosane			96.7	m mg/Kg	-	1	100	97	70 - 130
Analysis: TF	dland PH GRO 9849		Date An	al Method: alyzed: Preparation	2015-0	03-09		Prep Metho Analyzed B Prepared B	y: AK
Parameter		Flag	Cert	D	RL Result	Uni	ta	Dilution	$\operatorname{RL}$
GRO		r lag			<b>5200</b>	mg/k		100	4.00
Surrogate Trifluorotoluene	(TFT)	Flag		Result 185	Units mg/Kg	Dilution 100	Spike Amount 200	Percent Recovery 92	Recovery Limits 70 - 130
4-Bromofluorober				$\frac{185}{248}$	mg/Kg mg/Kg	100	200 200	$\frac{92}{124}$	70 - 130 70 - 130
	(1 D1 D)			- 10		200	-00	±# ±	100

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Sample: 387690 - N- Wall									
Laboratory: Midland					G				
Analysis: BTEX			Analytical					Prep Method	
QC Batch: 119761			Date Anal	v	2015-03			Analyzed By	
Prep Batch: 101285		;	Sample Pı	reparation	n: 2015-03	-03		Prepared By:	: AK
					$\operatorname{RL}$				
Parameter	Flag		Cert		Result	Units	3	Dilution	$\operatorname{RL}$
Benzene	-		1		0.0270	mg/Kg	r 5	1	0.0200
Toluene			1		0.0436	mg/Kg	5	1	0.0200
Ethylbenzene	U		1	<	< 0.0200	mg/Kg	5	1	0.0200
Xylene			1		0.0334	mg/Kg		1	0.0200
							Spike	Percent	Recovery
Surrogate		Flag	Cert	Result	Units	Dilution	Amount	Recovery	Limits
Trifluorotoluene (TFT)				1.79	mg/Kg	1	2.00	90	70 - 130
4-Bromofluorobenzene (4-BFB)				2.23	mg/Kg	1	2.00	112	70 - 130

# Sample: 387690 - N- Wall

Laboratory: Analysis: QC Batch: Prep Batch:	Midland Chloride (Titration) 119733 101275	Date	ytical Method: Analyzed: ple Preparation:	SM 4500-Cl B 2015-03-03 2015-03-03	Prep Method: Analyzed By: Prepared By:	ÉM
			RL			
Parameter	Flag	Cert	Result	Units	Dilution	$\operatorname{RL}$
Chloride	$_{ m Qs}$		383	m mg/Kg	5	4.00

# Sample: 387690 - N- Wall

Laboratory:	Midland							
Analysis:	TPH DRO - NE	W	Ana	Analytical Method: S 80			Prep Me	thod: N/A
QC Batch:	119724		Date Analyzed: 2015-0			)3-03	Analyzed	l By: SC
Prep Batch:	101249		Sam	ple Preparat	ion: 2015-0	03-02	Preparec	l By: SC
				]	RL			
Parameter		Flag	Cert	Res	ult	Units	Dilution	$\operatorname{RL}$
DRO		U	1	<5	0.0	mg/Kg	1	50.0
Surrogate	Flag	Cert	Result	Units	Dilution	Spike Amount	Percent Recovery	Recovery Limits
n-Tricosane	-0		87.0	mg/Kg	1	100	87	70 - 130

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Sample: 387690 - N- Wall										
Laboratory:MidlandAnalysis:TPH GROAnalytical Method:S 8015 DQC Batch:119764Date Analyzed:2015-03-04Prep Batch:101285Sample Preparation:2015-03-03									d: S 5035 y: AK y: AK	
					$\operatorname{RL}$					
Parameter	Flag		Cert		Result	Unit	s	Dilution	$\operatorname{RL}$	
GRO	U		1		<4.00	$\mathrm{mg/K}$	g	1	4.00	
			C .		<b>T</b> T <b>1</b> .		Spike	Percent	Recovery	
Surrogate		Flag	Cert	Result	Units	Dilution	Amount	Recovery	Limits	
Trifluorotoluene (TFT)				1.82	m mg/Kg	1	2.00	91	70 - 130	
4-Bromofluorobenzene (4-BFB)				1.96	$\mathrm{mg/Kg}$	1	2.00	98	70 - 130	

#### Sample: 387691 - E- Wall

Laboratory: Midland									
Analysis: BTEX		Ar	nalytical	Method:	S 8021B			Prep Method	: S 5035
QC Batch: 119761		Da	te Anal	yzed:	2015-03-	04		Analyzed By:	AK
Prep Batch: 101285		Sa	mple Pr	eparation:	2015-03-	03		Prepared By:	AK
					$\operatorname{RL}$				
Parameter	Flag		Cert	F	Result	Units		Dilution	$\operatorname{RL}$
Benzene			1	0.	0214	mg/Kg		1	0.0200
Toluene			1	(	).163	$\mathrm{mg/Kg}$		1	0.0200
Ethylbenzene			1	(	).746	mg/Kg		1	0.0200
Xylene			1		3.48	mg/Kg		1	0.0200
							Spike	Percent	Recovery
Surrogate		Flag	Cert	Result	Units	Dilution	Amount	Recovery	Limits
Trifluorotoluene (TFT)				2.14	mg/Kg	1	2.00	107	70 - 130
4-Bromofluorobenzene (4-BFB)	Qsr	Qsr		4.44	mg/Kg	1	2.00	222	70 - 130

#### Sample: 387691 - E- Wall

Laboratory:	Midland				
Analysis:	Chloride (Titration)	Analytical Method:	SM 4500-Cl B	Prep Method:	N/A
QC Batch:	119733	Date Analyzed:	2015-03-03	Analyzed By:	EM
Prep Batch:	101275	Sample Preparation:	2015-03-03	Prepared By:	$\mathbf{E}\mathbf{M}$

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sample 38769	1 continued							
					RL			
Parameter		Flag	Cert	Res	sult	Units	Dilution	RL
					RL			
Parameter		Flag	Cert	Res		Units	Dilution	RL
Chloride		Qs		15	530	m mg/Kg	5	4.00
Laboratory: Analysis: QC Batch:	<b>7691 - E- Wall</b> Midland TPH DRO - NE 119724 101249	W	Date	lytical Meth e Analyzed: ple Preparat	2015-0	03-03	Prep Met Analyzed Prepared	By: SC
					RL			
Parameter		Flag	Cert	Res		Units	Dilution	RL
DRO			1	6	1.1	m mg/Kg	1	50.0
Surrogate	Flag	Cert	Result	Units	Dilution	Spike Amount	Percent Recovery	Recovery Limits
n-Tricosane	~		94.5	mg/Kg	1	100	94	70 - 130
Sample: 387 Laboratory: Analysis: QC Batch: Prep Batch:	<b>7691 - E- Wall</b> Midland TPH GRO 119764 101285		Date Ana	ul Method: alyzed: Preparation:	S 8015 D 2015-03-04 2015-03-03		Prep Methe Analyzed E Prepared B	By: AK
					$\operatorname{RL}$			
Parameter		Flag	Cert	Res	14	Units	Dilution	RI

Analysis: TPH GRO QC Batch: 119764 Prop. Patch: 101285		Γ	Date Ana	v	2015-03	3-04		Prep Metho Analyzed By Prepared Pr	v: AK
Prep Batch: 101285		G	ample P	reparation	n: 2015-03 RL	5-03		Prepared By	r: AK
Parameter	Flag		Cert	F	Result	Unit	5	Dilution	RL
GRO			1		122	mg/Kg	r	1	4.00
Surrogate		Flag	Cert	Result	Units	Dilution	Spike Amount	Percent Recovery	Recovery Limits
Trifluorotoluene (TFT)		8		1.65	mg/Kg	1	2.00	82	70 - 130
4-Bromofluorobenzene (4-BFB	) Qsr	Qsr		5.27	mg/Kg	1	2.00	264	70 - 130

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Sample: 387692 - W- Wall									
Laboratory:MidlandAnalysis:BTEXQC Batch:119761Prep Batch:101285	Ι	Date Anal	Method: lyzed: ceparation	2015-03-	-04		Prep Method Analyzed By Prepared By	: AK	
				$\operatorname{RL}$					
Parameter	Flag	Cert		Result	Units		Dilution	$\operatorname{RL}$	
Benzene		1	0	0.0665	mg/Kg		1	0.0200	
Toluene		1		0.304	mg/Kg		1	0.0200	
Ethylbenzene		1	0	0.0500	$\mathrm{mg/Kg}$		1	0.0200	
Xylene		1		0.851	m mg/Kg		1	0.0200	
						Spike	Percent	Recovery	
Surrogate	Flag	Cert	Result	Units	Dilution	Amount	Recovery	Limits	
Trifluorotoluene (TFT)			1.64	$\mathrm{mg/Kg}$	1	2.00	82	70 - 130	
4-Bromofluorobenzene (4-BFB)			2.23	m mg/Kg	1	2.00	112	70 - 130	

# Sample: 387692 - W- Wall

Laboratory: Analysis: QC Batch: Prep Batch:	Midland Chloride (Titration) 119741 101283	Date A	ical Method: analyzed: e Preparation:	SM 4500-Cl B 2015-03-03 2015-03-03	Prep Method: Analyzed By: Prepared By:	ÉM
			$\operatorname{RL}$			
Parameter	Flag	Cert	Result	Units	Dilution	$\operatorname{RL}$
Chloride	Qs		3080	m mg/Kg	5	4.00

# Sample: 387692 - W- Wall

Laboratory:	Midland							
Analysis:	TPH DRO - NE	W	Ana	Analytical Method: S 8015 D			Prep Me	thod: N/A
QC Batch:	119724		Date	e Analyzed:	)3-03	Analyzed	l By: SC	
Prep Batch:	101249		Sam	ple Preparat	ion: 2015-0	03-02	Preparec	l By: SC
				]	RL			
Parameter		Flag	Cert	Res	ult	Units	Dilution	$\operatorname{RL}$
DRO		U	1	<5	0.0	mg/Kg	1	50.0
Surrogate	Flag	Cert	Result	Units	Dilution	Spike Amount	Percent Recovery	Recovery Limits
n-Tricosane			94.1	m mg/Kg	1	100	94	70 - 130

Report Date: March 9, 2015 7250715022.001		Work Order: 15022625 30137 #3						Page Number: 13 of 34	
Sample: 387692 - W- Wall									
Laboratory:MidlandAnalysis:TPH GROAnalytical Method:S 8015 DQC Batch:119849Date Analyzed:2015-03-09Prep Batch:101336Sample Preparation:2015-03-05							Prep Metho Analyzed B Prepared B	y: AK	
					$\operatorname{RL}$				
Parameter	Flag		Cert		Result	Unit	s	Dilution	$\operatorname{RL}$
GRO	$_{\rm Qs}$		1		14.5	mg/K	g	1	4.00
							Spike	Percent	Recovery
Surrogate		Flag	Cert	Result	Units	Dilution	Amount	Recovery	Limits
Trifluorotoluene (TFT)				1.72	m mg/Kg	1	2.00	86	70 - 130
4-Bromofluorobenzene (4-BFB)				2.01	$\mathrm{mg/Kg}$	1	2.00	100	70 - 130

# Sample: 387693 - S- Wall

Analysis:BTEXAnalytical Method:S 8021BPrep Method:S 5035QC Batch:119761Date Analyzed:2015-03-04Analyzed By:AKPrep Batch:101285Sample Preparation:2015-03-03Prepared By:AKRLParameterFlagCertResultUnitsDilutionRLBenzene10.0494mg/Kg10.0200Toluene10.277mg/Kg10.0200Ethylbenzene10.352mg/Kg10.0200	Laboratory:	Midland									
Prep Batch:101285Sample Preparation:2015-03-03Prepared By:AKRLParameterFlagCertResultUnitsDilutionRLBenzene10.0494mg/Kg10.0200Toluene10.277mg/Kg10.0200	Analysis:	BTEX		Ar	nalytical	Method:	S 8021B			Prep Method	: S 5035
RLParameterFlagCertResultUnitsDilutionRLBenzene10.0494mg/Kg10.0200Toluene10.277mg/Kg10.0200	QC Batch:	119761		Dε	Date Analyzed:		2015-03-	2015-03-04		Analyzed By	: AK
ParameterFlagCertResultUnitsDilutionRLBenzene10.0494mg/Kg10.0200Toluene10.277mg/Kg10.0200	Prep Batch:	101285		Sa	Sample Preparation:		2015-03-	03		Prepared By	AK
Benzene         1         0.0494         mg/Kg         1         0.0200           Toluene         1         0.277         mg/Kg         1         0.0200							RL				
Toluene 1 0.277 mg/Kg 1 0.0200	Parameter		Flag		Cert	F	Result	Units		Dilution	$\operatorname{RL}$
	Benzene				1	0.	0494	mg/Kg		1	0.0200
Ethylbenzene 1 <b>0.352</b> mg/Kg 1 0.0200	Toluene				1	(	0.277	$\mathrm{mg/Kg}$		1	0.0200
	Ethylbenzene				1	(	0.352	m mg/Kg		1	0.0200
Xylene 1 0.556 mg/Kg 1 0.0200	Xylene				1	(	).556	mg/Kg		1	0.0200
Spike Percent Recovery									Spike	Percent	Recovery
Surrogate Flag Cert Result Units Dilution Amount Recovery Limits	Surrogate			Flag	Cert	Result	Units	Dilution	Amount	Recovery	Limits
Trifluorotoluene (TFT) $1.70 \text{ mg/Kg}$ $1$ $2.00 \text{ 85}$ $70 - 130$	Trifluorotolue	ene (TFT)				1.70	mg/Kg	1	2.00	85	70 - 130
$\begin{array}{c ccccccccccccccccccccccccccccccccccc$	4-Bromofluor	obenzene (4-BFB)	Qsr	Qsr		2.72	$\mathrm{mg/Kg}$	1	2.00	136	70 - 130

#### Sample: 387693 - S- Wall

Laboratory:	Midland				
Analysis:	Chloride (Titration)	Analytical Method:	SM 4500-Cl B	Prep Method:	N/A
QC Batch:	119733	Date Analyzed:	2015-03-03	Analyzed By:	EM
Prep Batch:	101275	Sample Preparation:	2015-03-03	Prepared By:	$\mathbf{E}\mathbf{M}$

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70 - 130

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sample 3876!	93 continued										
				_	RL						
Parameter		Flag	Cert	Re	sult	Units	Dilution	RL			
					RL						
Parameter		Flag	Cert	Re	sult	Units	Dilution	RL			
Chloride		Qs		11	100	mg/Kg	5	4.00			
Laboratory: Analysis: QC Batch: Prep Batch:	<b>7693 - S- Wall</b> Midland TPH DRO - NE 119724 101249	EW	Date	lytical Meth e Analyzed: ple Prepara	201	015 D 5-03-03 5-03-02	Prep Metl Analyzed Prepared	By: SC			
Parameter		Flag	Cert	Be	RL sult	Units	Dilution	RI			
DRO		Tag	1		<b>32.1</b>	mg/Kg	1	50.0			
							D				
Surrogate	Flor	Cont	Dogult	Units	Dilutio	Spike	Percent	Recovery Limits			
n-Tricosane	Flag	Cert	Result 91.4	mg/Kg	1	on Amount 100	Recovery 91	70 - 130			
Sample: 38	7693 - S- Wall										
Laboratory:	Midland										
Analysis:	TPH GRO			al Method:	S 8015 I		Prep Metho				
QC Batch:	119764		Date Ana		2015-03-		Analyzed By				
Prep Batch:	101285		Sample P	reparation:	2015-03-	03	Prepared By	y: AK			
					RL						
Parameter		Flag	Cert	Re	sult	Units	Dilution	RI			
GRO			1		120	m mg/Kg	1	4.00			
			Flag Cert	Result		-	pike Percent nount Recovery	Recovery Limits			
Surrogate					Units		nount Recovery				

						Spike	
Surrogate	Flag	Cert	Result	Units	Dilution	Amount	
Trifluorotoluene (TFT)			1.68	mg/Kg	1	2.00	
4-Bromofluorobenzene (4-BFB) Qss	r Qsr		3.36	$\mathrm{mg/Kg}$	1	2.00	

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Sample: 387694 - RP								
Laboratory: Midland								
Analysis: BTEX	Analytica	l Method:	S 8021B	3		Prep Metho	d: S 5035	
QC Batch: 119761		Date Ana	lyzed:	2015-03-	-04		Analyzed B	y: AK
Prep Batch: 101285		Sample P	Sample Preparation: 2015-03-03				Prepared B	y: AK
				$\operatorname{RL}$				
Parameter	Flag	Cert		Result	Unit	s	Dilution	$\operatorname{RL}$
Benzene	-	1	0.0461		mg/K	mg/Kg		0.0200
Toluene	U	1	<	0.0200	mg/Kg		1	0.0200
Ethylbenzene		1		0.254				0.0200
Xylene		1		0.511	mg/Kg		1	0.0200
						Spike	Percent	Recovery
Surrogate	Fla	ag Cert	Result	Units	Dilution	Amount	Recovery	Limits
Trifluorotoluene (TFT)		<u> </u>	1.78	mg/Kg	1	2.00	89	70 - 130
4-Bromofluorobenzene (4-BFB)			2.47	mg/Kg	1	2.00	124	70 - 130

#### Sample: 387694 - RP

Laboratory: Analysis: QC Batch: Prep Batch:	Midland Chloride (Titration) 119733 101275	Date	ytical Method: Analyzed: ble Preparation:	SM 4500-Cl B 2015-03-03 2015-03-03	Prep Method: Analyzed By: Prepared By:	ÉM
D			RL	<b>T</b> T •/		DI
Parameter	Flag	$\operatorname{Cert}$	Result	Units	Dilution	$\operatorname{RL}$
Chloride	Qs		9000	m mg/Kg	5	4.00

#### Sample: 387694 - RP

Laboratory: Analysis: QC Batch: Prep Batch:	Midland TPH DRO - NEW 119724 101249		Date	Analytical Method: Date Analyzed: Sample Preparation:			D 3-03 3-02	Prep Met Analyzed Prepared	•	
						$\operatorname{RL}$				
Parameter		Fla	g	Cert	Res	$\operatorname{sult}$		Units	Dilution	$\operatorname{RL}$
DRO				1	6 4	292		mg/Kg	1	50.0
Surrogate	Fla	g C	ert :	Result	Units	Di	ilution	Spike Amount	Percent Recovery	Recovery Limits
n-Tricosane				106	mg/Kg		1	100	106	70 - 130
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Sample: 387694 - RP										
Laboratory:MidlandAnalysis:TPH GROQC Batch:119764Prep Batch:101285		Γ	Date Ana	ll Method llyzed: reparation	2015-03	3-04		Prep Methoo Analyzed By Prepared By	v: AK	
					$\operatorname{RL}$					
Parameter	Flag		Cert	Ι	Result	Units	5	Dilution	$\operatorname{RL}$	
GRO			1		90.7	m mg/Kg	r	1	4.00	
							Spike	Percent	Recovery	
Surrogate		Flag	Cert	Result	Units	Dilution	Amount	Recovery	Limits	
Trifluorotoluene (TFT)				1.66	mg/Kg	1	2.00	83	70 - 130	
4-Bromofluorobenzene (4-BFB)	Qsr	Qsr		3.24	$\mathrm{mg/Kg}$	1	2.00	162	70 - 130	

#### Sample: 387695 - SP

Laboratory:MidlandAnalysis:BTEXQC Batch:119761Prep Batch:101285		D	nalytical ate Analy ample Pre		S 8021B 2015-03- 2015-03-	04		Prep Method Analyzed By Prepared By	: AK
					$\operatorname{RL}$				
Parameter	Flag		Cert	R	lesult	Units		Dilution	$\operatorname{RL}$
Benzene			1		1.88	mg/Kg		5	0.0200
Toluene			1		63.2	mg/Kg		5	0.0200
Ethylbenzene			1		30.1	mg/Kg		5	0.0200
Xylene			1		129	mg/Kg		5	0.0200
							Spike	Percent	Recovery
Surrogate		Flag	Cert	Result	Units	Dilution	Amount	Recovery	Limits
Trifluorotoluene (TFT)				7.71	m mg/Kg	5	10.0	77	70 - 130
4-Bromofluorobenzene (4-BFB)	Qsr	Qsr		23.4	$\mathrm{mg/Kg}$	5	10.0	234	70 - 130

#### Sample: 387695 - SP

Laboratory:	Midland				
Analysis:	Chloride (Titration)	Analytical Method:	SM 4500-Cl B $$	Prep Method:	N/A
QC Batch:	119733	Date Analyzed:	2015-03-03	Analyzed By:	EM
Prep Batch:	101275	Sample Preparation:	2015-03-03	Prepared By:	$\mathbf{E}\mathbf{M}$

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sample 387695 continued									
Parameter	Flag	Cert	Η	RL Result	Uni	ts	Dilution	RL	
Parameter	Flag	Cert	т	RL Result	Uni	ta	Dilution	RL	
Chloride	Qs	Cert		1530	mg/k		5	4.00	
Sample: 387695 - SP									
Laboratory: Midland Analysis: TPH DRO - N	EW		alytical Me		8015 D		Prep Met	,	
QC Batch: 119724 Prep Batch: 101249			te Analyzeo nple Prepa		015-03-03 015-03-02		Analyzed Prepared		
Parameter	Flag	Cert	I	RL Result	Uni	ts	Dilution	RI	
DRO	0	1		571	mg/F	Kg	1	50.0	
Sumorata Elar	Cert	Pogult	Units	Dilu		Spike mount	Percent	Recovery Limits	
Surrogate Flag n-Tricosane	Cert	Result 106	mg/Kg			100	Recovery 106	70 - 130	
Sample: 387695 - SP Laboratory: Midland Analysis: TPH GRO QC Batch: 119791 Prep Batch: 101317		Date Ar	cal Method aalyzed: Preparation	2015-0	)3-05		Prep Metho Analyzed E Prepared B	By: AK	
Parameter	Flag	Cert	I	RL Result	Uni	ts	Dilution	RI	
GRO	~	1		3150	mg/F	Kg	50	4.00	
Surrogate	F	lag Cert	Result	Units	Dilution	Spike Amount	Percent Recovery	Recovery Limits	
Trifluorotoluene (TFT) 4-Bromofluorobenzene (4-BF	B)		$82.6 \\ 115$	mg/Kg mg/Kg	$\frac{50}{50}$	$\begin{array}{c} 100 \\ 100 \end{array}$	$\frac{83}{115}$	70 - 130 70 - 130	

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7250715022.001				30137	7 #3					
Method I	Blan	ks								
Method Blank (1)	QC E	Batch: 1197	24							
QC Batch: 119724			Date .	Analyzed:	2015-03-03			Analyz	ed By:	$\mathbf{SC}$
Prep Batch: 101249				reparation:	2015-03-02			Prepare	ed By:	$\mathbf{SC}$
						MDL				
Parameter		$\operatorname{Flag}$	or S	Cert		Result		Units		$\operatorname{RL}$
DRO				1		<7.41		m mg/Kg		50
						5	Spike	Percent	Reco	overy
Surrogate	Flag	Cert	Result	Units	Dilutio		mount	Recovery		nits
n-Tricosane			91.3	mg/Kg	1		100	91	70 -	130

Work Order: 15022625

Method Blank (1)	QC Batch: 119733				
QC Batch: 119733 Prep Batch: 101275		Date Analyzed: QC Preparation:	2015-03-03 2015-03-03	Analyzed By: Prepared By:	
Parameter	Flag	Cert	${ m MDL}$ Result	Units	RL
Chloride			<3.85	m mg/Kg	4

Method Blank (1)	QC Batch: $119741$				
QC Batch: 119741 Prep Batch: 101283		Date Analyzed: QC Preparation:		Analyzed By Prepared By	
Parameter Chloride	Flag	Cert	MDL Result <3.85	Units	$\frac{\mathrm{RL}}{4}$

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Method Blank (1) QC Batch: 1	19761							
QC Batch: 119761		Date A	nalyzed:	2015-03-0	)4		Analyzed	l By: AK
Prep Batch: 101285		QC Pre	eparation:	2015-03-0	)3		Prepared	By: AK
					MDL			
Parameter	Flag		Cert		Result		Units	RL
Benzene			1		< 0.00533	1	ng/Kg	0.02
Toluene			1		< 0.00645		ng/Kg	0.02
Ethylbenzene			1		< 0.0116		ng/Kg	0.02
Xylene			1		< 0.00874	1	mg/Kg	0.02
						Spike	Percent	Recovery
Surrogate	Flag	Cert	Result	Units	Dilution	Amount	Recovery	Limits
Trifluorotoluene (TFT)			1.86	mg/Kg	1	2.00	93	70 - 130
4-Bromofluorobenzene (4-BFB)			2.04	mg/Kg	1	2.00	102	70 - 130

#### Method Blank (1) QC Batch: 119764

QC Batch: 119764 Prep Batch: 101285			nalyzed: eparation:	2015-03-0 2015-03-0			Analyzed Prepared	e e
					MDL			
Parameter	Flag		Cert		Result		Units	$\operatorname{RL}$
GRO			1		<2.32		m mg/Kg	4
Surrogate	Flag	Cert	Result	Units	Dilution	Spike Amount	Percent Recovery	Recovery Limits
Trifluorotoluene (TFT)	1 145	CCIU	1.94	mg/Kg	1	2.00	97	70 - 130
4-Bromofluorobenzene (4-BFB)			1.83	mg/Kg	1	2.00	92	70 - 130

#### Method Blank (1) QC Batch: 119791

QC Batch:	119791		Date Analyzed:	2015-03-05	Analyzed By:	
Prep Batch:	101317		QC Preparation:	2015-03-04	Prepared By:	AK
				MDL		
Parameter		Flag	Cert	Result	Units	$\operatorname{RL}$
GRO			1	<2.32	mg/Kg	4

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~		~				Spike	Percent	Recovery
Surrogate	Flag	Cert	Result	Units	Dilution	Amount	Recovery	Limits
Trifluorotoluene (TFT)			1.88	$\mathrm{mg/Kg}$	1	2.00	94	70 - 130
4-Bromofluorobenzene (4-BFB)			1.82	m mg/Kg	1	2.00	91	70 - 130
Method Blank (1) QC Batch QC Batch: 119849 Prep Batch: 101336	: 119849		Analyzed: eparation:	2015-03-0 2015-03-0			Analyzed Prepared	v
					MDL			
Parameter	Flag		Cert		Result		Units	$\operatorname{RL}$
GRO			1		<2.32		mg/Kg	4
						Spike	Percent	Recovery
Surrogate	Flag	Cert	Result	Units	Dilution	Amount	Recovery	•
Suriogate	1 lag	0010	10000010					Limits
Trifluorotoluene (TFT)	Tag	0.010	1.87	mg/Kg	1	2.00	94	70 - 130

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## Laboratory Control Spikes

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

QC Batch: 119724 Prep Batch: 101249				te Analyz Preparat		15-03-03 15-03-02				lyzed B pared B	0
Param		F	С	LCS Result	Units	Dil.	Spike Amount	Re		ec.	Rec. Limit
DRO			1	251	mg/Kg		250			00	70 - 130
Percent recovery is based on the	spike	resu	lt. RPI	) is based	on the sp	oike and sp	pike duplica	ate resu	ılt.		
Param DRO	F	C	LCSD Result 260			Spike Amount 250	Matrix Result <7.41	Rec.	Rec. Limit 70 - 130	RPD 4	RPD Limit 20
Percent recovery is based on the	snike										
refeelit feedvery is based on the	-				on the s	Jine and 5					
C .		CS	LCS		· <b>·</b> · ·	D'1	Spike	LCS			$\operatorname{Rec.}$
Surrogate n-Tricosane		sult 01	Res 99		Units ng/Kg	Dil.	Amount 100	Rec 101			Limit 70 - 130
Laboratory Control Spike (L	CS-1	L)									
QC Batch: 119733 Prep Batch: 101275				e Analyze Preparat		5-03-03 5-03-03			,	yzed By ared By	
				LCS			Spike	Ma	atrix		Rec.
Param		F	С	Result	Units	Dil.	Amount			ec.	Limit
Chloride				2680	mg/Kg		2500			07	85 - 115
Percent recovery is based on the	spike	resu	lt. RPI	) is based	on the sp	oike and sp	pike duplica	ate resu	ılt.		
			LCSD	)		Spike	Matrix		Rec.		RPD
Param	$\mathbf{F}$	$\mathbf{C}$	Result		Dil.	Amount	Result	Rec.	Limit	RPD	
	1'	U	nesun	U Units	$D_{\Pi}$ .	Amount	nesun	nec.		ΠΓ D	Limit

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

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Prep Batch: 101285

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Prepared By: AK

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Laboratory Control Spike (LCS-	1)									
QC Batch: 119741			Analyzed:		5-03-03				yzed By	
Prep Batch: 101283		QC I	Preparation	n: 201	.5-03-03			Prep	ared By	v: EM
			LCS			Spike	M	atrix		Rec.
Param	$\mathbf{F}$	C I	Result	Units	Dil.	Amount	Re	esult R	ec.	Limit
Chloride			2500 1	ng/Kg	5	2500	<	19.2 1	00	85 - 115
Percent recovery is based on the spike	e resu	lt. RPD	is based or	n the sp	pike and sp	ike duplica	ate res	ult.		
		LCSD			Spike	Matrix		Rec.		RPD
Param F	$\mathbf{C}$	Result	Units	Dil.	Amount	Result	Rec.	Limit	RPD	Limit
Chloride		2310	mg/Kg	5	2500	<19.2	92	85 - 115	8	20
Percent recovery is based on the spike	e resu	lt. RPD	is based or	n the sp	pike and sp	ike duplica	ate resi	ult.		
Laboratory Control Spike (LCS-	1)									
QC Batch: 119761		Data	Analyzed:	201	5-03-04			Anal	yzed B	v: AK

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Param	F	С	LCS Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit
Benzene		1	2.09	mg/Kg	1	2.00	< 0.00533	104	70 - 130
Toluene		1	2.02	mg/Kg	1	2.00	< 0.00645	101	70 - 130
Ethylbenzene		1	2.07	mg/Kg	1	2.00	< 0.0116	104	70 - 130
Xylene		1	6.25	$\mathrm{mg/Kg}$	1	6.00	< 0.00874	104	70 - 130

QC Preparation: 2015-03-03

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

			LCSD			Spike	Matrix		Rec.		RPD
Param	$\mathbf{F}$	$\mathbf{C}$	Result	Units	Dil.	Amount	Result	Rec.	Limit	RPD	Limit
Benzene		1	2.00	mg/Kg	1	2.00	< 0.00533	100	70 - 130	4	20
Toluene		1	1.96	$\mathrm{mg/Kg}$	1	2.00	$<\!0.00645$	98	70 - 130	3	20
Ethylbenzene		1	1.99	$\mathrm{mg/Kg}$	1	2.00	< 0.0116	100	70 - 130	4	20
Xylene		1	6.03	mg/Kg	1	6.00	< 0.00874	100	70 - 130	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.	$\operatorname{Limit}$
Trifluorotoluene (TFT)	1.76	1.78	mg/Kg	1	2.00	88	89	70 - 130
4-Bromofluorobenzene (4-BFB)	2.05	2.08	m mg/Kg	1	2.00	102	104	70 - 130

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Laboratory Control Spike (L	CS-1	L)												
QC Batch: 119764 Prep Batch: 101285					alyzed: paration:		15-03-04 15-03-03						vzed E ared B	•
		F	a	LCS		- <b>-</b> •.	5.1		Spike		Iatrix	D		Rec.
Param GRO		F	С	Resu		Units	Dil.	A	mount		cesult	Re		Limit
			1	20.5		ig/Kg			20.0			1(	)2	70 - 130
Percent recovery is based on the s	spike	resu	lt. RPI	) is ba	ased on	the s	pike and	spike	duplica	ate res	sult.			
Param	F	С	LCSI Resul		Jnits	Dil.	Spike Amoun		latrix tesult	Rec.	Re Lin		RPE	RPD Limit
GRO	-	1	21.9		g/Kg	1	20.0		(2.32	110	70 -		7	20
Percent recovery is based on the s	niko				-, -									
creent recovery is based on the a	эрис	icsu.					pike and	эрікс	uupnee	100 108	5u10.			
					TOOD	)			Spil	ke	LCS	LC	SD	Rec.
				$\Delta$ CS	LCSE									
			Re	esult	Result	t	Units	Dil.	Amo		Rec.	Re		Limit
Trifluorotoluene (TFT) 4-Bromofluorobenzene (4-BFB)			Re 1			t n	Units ng/Kg ng/Kg	Dil. 1 1	Amo 2.0 2.0	0	Rec. 98 94	9	ec. 7 6	Limit 70 - 130 70 - 130
Surrogate Trifluorotoluene (TFT) 4-Bromofluorobenzene (4-BFB) Laboratory Control Spike (Lo QC Batch: 119791	C <b>S</b> -1	L)	Re 1 1 Da	esult .95 .89 te Ana	Result 1.94 1.92 alyzed:	t n n 201	ng/Kg ng/Kg 15-03-05	1	2.0	0	98 94	9 9 Analy	7 6 vzed E	70 - 130 70 - 130 By: AK
Trifluorotoluene (TFT) 4-Bromofluorobenzene (4-BFB) Laboratory Control Spike (L QC Batch: 119791	CS-1	L)	Re 1 1 Da	esult .95 .89 te Ana	Result 1.94 1.92	t n n 201	ng/Kg ng/Kg	1	2.0	0	98 94	9 9 Analy	7 6	70 - 130 70 - 130 By: AK
Irifluorotoluene (TFT) 4-Bromofluorobenzene (4-BFB) Laboratory Control Spike (Lo QC Batch: 119791 Prep Batch: 101317	CS-1		Re 1 1 Da QC	esult .95 .89 te Ana 2 Prep LCS	Result 1.94 1.92 alyzed: baration:	t nn n 201 : 201	ng/Kg ng/Kg 15-03-05 15-03-04	1	2.0 2.0 Spike	0 0 M	98 94	9 9 Analy Prepa	7 6 vzed E ured B	70 - 130 70 - 130 8y: AK y: AK Rec.
Trifluorotoluene (TFT) I-Bromofluorobenzene (4-BFB) Laboratory Control Spike (Lo QC Batch: 119791 Prep Batch: 101317	CS-1	L) F	Ra 1 1 Da QC	esult .95 .89 te Ana 2 Prep LCS Resu	Result 1.94 1.92 alyzed: aration: S It U	t n n 200 : 201	ng/Kg ng/Kg 15-03-05 15-03-04 Dil.	1	2.0 2.0 Spike	0 0 M R	98 94 Iatrix Lesult	9 9 Prepa Re	7 6 vzed E ared B ec.	70 - 130 70 - 130 8y: AK y: AK Rec. Limit
Frifluorotoluene (TFT) I-Bromofluorobenzene (4-BFB) Laboratory Control Spike (L QC Batch: 119791 Prep Batch: 101317 Param GRO		F	C	esult .95 .89 te Ana 2 Prep LCS Resu 21.3	Result 1.94 1.92 alyzed: baration: 5 1t U 5 m	t n 200 : 200 : 200 : 200	ng/Kg ng/Kg 15-03-05 15-03-04 Dil. g 1	1 1 A	2.0 2.0 Spike mount 20.0	0 0 M R <	98 94 Iatrix cesult <2.32	9 9 Analy Prepa	7 6 vzed E ared B ec.	70 - 130 70 - 130 8y: AK y: AK Rec.
Irifluorotoluene (TFT) 4-Bromofluorobenzene (4-BFB) Laboratory Control Spike (L QC Batch: 119791 Prep Batch: 101317 Param GRO		F	C	esult .95 .89 te Ana 2 Prep LCS Resu 21.3	Result 1.94 1.92 alyzed: baration: 5 1t U 5 m	t n 200 : 200 : 200 : 200	ng/Kg ng/Kg 15-03-05 15-03-04 Dil. g 1	1 1 A	2.0 2.0 Spike mount 20.0	0 0 M R <	98 94 Iatrix cesult <2.32	9 9 Prepa Re	7 6 vzed E ared B ec.	70 - 130 70 - 130 8y: AK y: AK Rec. Limit
Trifluorotoluene (TFT) 4-Bromofluorobenzene (4-BFB) Laboratory Control Spike (Lo QC Batch: 119791 Prep Batch: 101317 Param GRO Percent recovery is based on the s	spike	F	$\frac{Re}{1}$ Da QC $\frac{C}{1}$ It. RPI LCSI	te Ana Sesuit .95 .89 te Ana Prep LCS Resu 21.3 D is ba	Result 1.94 1.92 alyzed: baration: 5 1t U 3 m ased on	t n 20 : 20 : 20 : <u>Units</u> ng/Kg the s	ng/Kg ng/Kg 15-03-05 15-03-04 Dil. g 1 pike and Spike	1 1 Spike	2.0 2.0 2.0 duplica duplica	0 0 M R ate res	98 94 Iatrix Lesult (2.32 sult. Re	9 9 Prepa Re 10	7 6 vzed E ured B ec. 06	70 - 130 70 - 130 By: AK y: AK Rec. Limit 70 - 130 RPD
Trifluorotoluene (TFT) 4-Bromofluorobenzene (4-BFB) Laboratory Control Spike (Lo QC Batch: 119791 Prep Batch: 101317 Param GRO Percent recovery is based on the s Param		F resu C	C LCSI Resul	te Ana 2 Prep LCS Resu 21.3 D is ba 0 t U	Result 1.94 1.92 alyzed: paration: 5 1t U 3 m ased on Units	t n 20 20 20 20 20 20 20 20 20 20 20 20 20	ng/Kg ng/Kg 15-03-05 15-03-04 Dil. g 1 pike and Spike Amoun	1 1 spike M t R	2.0 2.0 2.0 duplica duplica fatrix cesult	0 0 M R ate res Rec.	98 94 Iatrix tesult 2.32 sult. Re Lim	9 9 Prepa Re 10 ec.	7 6 vzed E ared B ec. 06 RPD	70 - 130 70 - 130 By: AK y: AK Rec. Limit 70 - 130 RPD D Limit
Trifluorotoluene (TFT) 4-Bromofluorobenzene (4-BFB) Laboratory Control Spike (LO QC Batch: 119791 Prep Batch: 101317 Param GRO Percent recovery is based on the s Param GRO	spike F	F result 1	C 1 Da QC LCSI Resul 19.4	esult .95 .89 te Ana 2 Prep LCS Resu 21.3 D is ba D is ba D t U ma	Result 1.94 1.92 alyzed: paration: S lt U ased on Units g/Kg	t n 200 200 200 200 200 200 200 200 200 2	ng/Kg ng/Kg 15-03-05 15-03-04 Dil. g 1 pike and Spike Amount 20.0	1 1 spike t R <	2.0 2.0 2.0 duplica duplica fatrix cesult (2.32	0 0 M R ate res Rec. 97	98 94 [atrix cesult c2.32 sult. Re Lin 70 -	9 9 Prepa Re 10 ec.	7 6 vzed E ured B ec. 06	70 - 130 70 - 130 By: AK y: AK Rec. Limit 70 - 130 RPD
Trifluorotoluene (TFT) 4-Bromofluorobenzene (4-BFB) Laboratory Control Spike (LO QC Batch: 119791 Prep Batch: 101317 Param GRO Percent recovery is based on the s Param GRO	spike F	F result 1	C Da QC LCSI Resul 19.4 It. RPI	$\frac{\text{esult}}{.95}$ $.89$ $\text{te Analysis}$ $CS \\ Result \\ 21.3 \\ D \text{ is back}$ $\frac{21.3}{D} \\ \text{is back}$ $\frac{1}{D} \\ \text{is back}$	Result 1.94 1.92 alyzed: paration: S It U ased on Units g/Kg ased on	t 200 200 200 200 200 200 200 20	ng/Kg ng/Kg 15-03-05 15-03-04 Dil. g 1 pike and Spike Amount 20.0	1 1 spike t R <	2.0 2.0 2.0 duplica duplica duplica duplica	M R ate res Rec. 97 ate res	$98 \\ 94$ 94 $(2.32)$ sult. Re Lin 70 - sult.	9 9 Prepa Re 10 ec. nit 130	7 6 vzed E ured B ec. 06 RPE 9	70 - 130 70 - 130 8y: AK y: AK Rec. Limit 70 - 130 RPD Limit 20
Trifluorotoluene (TFT)         4-Bromofluorobenzene (4-BFB)         4-Bromofluorobenzene (4-BFB)         Laboratory Control Spike (L0         QC Batch:       119791         Prep Batch:       101317         Param       GRO         Percent recovery is based on the second second percent recovery is based on the second percent p	spike F	F result 1	C 1 Da QC 1 It. RPI LCSI Resul 19.4 It. RPI	$\frac{\text{esult}}{.95}$ $.89$ $\text{te Analysis}$ $CS$ $\frac{\text{te Analysis}}{.89}$ $\frac{\text{te Analysis}}{.21.3}$ $\frac{21.3}{.3}$ $C \text{ is ba}$ $\frac{\text{t} \text{ U}}{.01}$ $\frac{\text{mag}}{.01}$	Result 1.94 1.92 alyzed: baration: baration: baration: based on Units g/Kg ased on LCSE	$\frac{t}{200}$ $\frac{200}{200}$ $$	ng/Kg ng/Kg 15-03-05 15-03-04 Dil. g 1 pike and Spike Amoum 20.0 pike and	1 1 spike M t R spike	2.0 2.0 2.0 duplica duplica fatrix cesult c2.32 duplica Spil	0 0 M R ate res Rec. 97 ate res ke	98 94 94 Latrix cesult c2.32 sult. Re Lim 70 - sult. LCS	9 9 Prepa Re 10 ec. nit 130	7 6 vzed E ured B ec. 06 <u>RPD</u> 9 SD	70 - 130 70 - 130 8y: AK y: AK Rec. Limit 70 - 130 RPD Limit 20 Rec.
Trifluorotoluene (TFT) 4-Bromofluorobenzene (4-BFB) Laboratory Control Spike (L QC Batch: 119791	spike F	F result 1	C 1 Da QC 1 tt. RPI LCSI Resul 19.4 tt. RPI LL Reference LCSI Resul	$\frac{\text{esult}}{.95}$ $.89$ $\text{te Analysis}$ $CS \\ Result \\ 21.3 \\ D \text{ is back}$ $\frac{21.3}{D} \\ \text{is back}$ $\frac{1}{D} \\ \text{is back}$	Result 1.94 1.92 alyzed: paration: S It U ased on Units g/Kg ased on	$\frac{t}{20}$ $20$ $20$ $20$ $20$ $\frac{0}{1}$ $\frac{0}{1}$ $\frac{1}{1}$ $\frac{1}{1}$	ng/Kg ng/Kg 15-03-05 15-03-04 Dil. g 1 pike and Spike Amount 20.0	1 1 spike t R <	2.0 2.0 2.0 duplica duplica duplica duplica	0 0 M R ate res Rec. 97 ate res ke unt	$98 \\ 94$ 94 $(2.32)$ sult. Re Lin 70 - sult.	9 9 Prepa Re 10 ec. nit 130 LC Re	7 6 vzed E ured B ec. 06 <u>RPD</u> 9 SD	70 - 130 70 - 130 8y: AK y: AK Rec. Limit 70 - 130 RPD Limit 20

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Laboratory Control Spike (LO	CS-1	)											
QC Batch: 119849			Date	Analyzed	: 201	15-03-09					Analy	zed By	: AK
Prep Batch: 101336			QC I	Preparatio	n: 201	15-03-05					Prepa	red By	: AK
				LCS				Spike	Ν	Iatrix			Rec.
Param		F		lesult	Units	Dil		mount		Result	Re	c.	Limit
GRO			1	20.6	mg/Kg	1		20.0	<	<2.32	10	3 7	0 - 130
Percent recovery is based on the s	pike	resu	lt. RPD i	s based o	n the s	pike and	l spike	duplica	ate res	sult.			
			LCSD			Spike	e N	Iatrix		Re	ec.		RPD
Param	$\mathbf{F}$	$\mathbf{C}$	Result	Units	Dil.	Amou	nt R	lesult	Rec.	Lin	$\operatorname{nit}$	RPD	Limit
GRO		1	21.1	mg/Kg	1	20.0	<	<2.32	106	70 -	130	2	20
Percent recovery is based on the s	pike	resu	lt. RPD i	s based o	n the s	pike and	l spike	duplica	ate res	sult.			
			LC	S LCS	D			$\operatorname{Spi}$	ke	LCS	LC	SD	Rec.
Surrogate			Resu	ılt Resu	ılt 🔤	Units	Dil.	Amo	unt	Rec.	Re	ec.	Limit
Trifluorotoluene (TFT)			1.8	4 1.9	2 n	ng/Kg	1	2.0	0	92	90	6 7	0 - 130
4-Bromofluorobenzene (4-BFB)			1.8	7 1.8	7 n	ıg/Kg	1	2.0	0	94	94	4 7	0 - 130

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Matrix Spike	s									
Matrix Spike (MS-1) Sp	oiked Sam	ple: 3876	594							
QC Batch: 119724 Prep Batch: 101249			Date Analy QC Prepara		15-03-03 15-03-02				lyzed B pared B	•
			MS			Spike	Ma	atrix		Rec.
Param	F	C C	Result	Units	Dil.	Amount			lec.	Limit
DRO		1	512	mg/Kg	1	250	2	292	88	70 - 130
Percent recovery is based on t	he spike r	esult. R	PD is base	d on the sp	oike and sp	pike duplica	ate resu	ult.		
		MS	D		Spile	Motnin		Pag		RPE
D	-			D'1	Spike Amount	Matrix Result	Rec.	Rec. Limit	RPD	Limi
Param	H'	C Rog	ult Linut	C []1]					/	1/11/11
	F	$\frac{C}{1}$ Res $52$			250	292	94	70 - 130	3	20
DRO		1 52	7 mg/k	Kg 1	250	292	94	70 - 130		
Param DRO Percent recovery is based on t	he spike r	1 52esult. R	7 mg/ł PD is base	Kg 1	250	292 pike duplica	94 ate resu	70 - 130 ult.	3	20
DRO Percent recovery is based on t	he spike r MS	1 52 esult. R 5	7 mg/ł PD is basec MSD	Kg 1 d on the sp	250 pike and sp	292 pike duplica Spike	94 ate resu M	70 - 130 ult. S MS	3 SD	20 Rec.
DRO Percent recovery is based on t Surrogate	he spike r MS Resu	1 52 esult. R S ilt I	7 mg/F PD is base MSD Result	Kg 1 d on the sp Units	250 pike and sj Dil.	292 pike duplica Spike Amount	94 ate resu M Re	70 - 130           ult.           S         MS           ec.         Re	3 SD ec.	20 Rec. Limit
DRO	he spike r MS	1 52 esult. R S ilt I	7 mg/F PD is base MSD Result	Kg 1 d on the sp	250 pike and sp	292 pike duplica Spike	94 ate resu M	70 - 130           ult.           S         MS           ec.         Re	3 SD ec.	20 Rec. Limit
DRO Percent recovery is based on t Surrogate n-Tricosane Matrix Spike (MS-1) Sp QC Batch: 119733	he spike r MS Resu	1 52 esult. R 3 11 I ple: 3876	7 mg/F PD is based MSD Result 101	Kg     1       d on the sp       Units       mg/Kg       zed:     201	250 pike and sj Dil.	292 pike duplica Spike Amount	94 ate resu M Re	70 - 130 ult. S MS ec. Re 7 10	3 SD ec.	20 Rec. Limit 70 - 130
DRO Percent recovery is based on t Surrogate n-Tricosane Matrix Spike (MS-1) Sp QC Batch: 119733 Prep Batch: 101275	he spike r MS Resu 97.	1 52 esult. R 3 1lt I 1 ple: 3876 [	7 mg/F PD is based MSD Result 101 588 Date Analyz QC Prepara MS	Kg     1       d on the sp       Units       mg/Kg       zed:     201       tion:     201	250 pike and sp Dil. 1 5-03-03 5-03-03	292 pike duplica Spike Amount 100 Spike	94 ate resu M Re 97	70 - 130 ult. S MS cc. Re 7 10 Anal Prep	3 SD ac. 11	20 Rec. Limit 70 - 130 y: EM y: EM Rec.
DRO Percent recovery is based on t Surrogate n-Tricosane Matrix Spike (MS-1) Sp QC Batch: 119733 Prep Batch: 101275 Param	he spike r MS Resu 97. biked Sam	1 52 esult. R 3 11 1 ple: 3876 E C	7 mg/F PD is based MSD Result 101 588 Oate Analyz OC Prepara MS Result	Kg     1       d on the sp       Units       mg/Kg       zed:     201       tion:     201       Units	250 pike and sp Dil. 1 5-03-03 5-03-03 Dil.	292 pike duplica Spike Amount 100 Spike Amount	94 ate resu M Re 97	70 - 130 ult. S MS cc. Re 7 10 Anal Prep trix sult Re	3 SD cc. 11 bared By c.	20 Rec. Limit 70 - 130 y: EM y: EM Rec. Limit
DRO Percent recovery is based on t Surrogate n-Tricosane Matrix Spike (MS-1) Sp QC Batch: 119733 Prep Batch: 101275 Param Chloride	he spike r MS Resu 97. biked Sam	$\begin{array}{cccc} & & 52 \\ \text{esult. R.} \\ \\ \\ \\ \\ \\ \\ \\ \\ \\ \\ \\ \\ \\ \\ \\ \\ \\ \\$	7 mg/F PD is based MSD Result 101 588 Date Analyz QC Prepara MS Result 574	Kg     1       d on the sp       Units       mg/Kg       zed:     201       tion:     201       Units     mg/Kg	250 pike and sp Dil. 1 5-03-03 5-03-03 Dil. 5	292 pike duplica Spike Amount 100 Spike Amount 2500	94 ate resu Re 97 97 97 97 97 97 97 97 97 97 97 97 94	70 - 130 ult. S MS ec. Re 7 10 Anal Prep trix sult Re 33 8	3 SD cc. 11 bared By c.	20 Rec. Limit 70 - 130 y: EM y: EM Rec. Limit
DRO Percent recovery is based on t Surrogate n-Tricosane Matrix Spike (MS-1) Sp QC Batch: 119733 Prep Batch: 101275 Param Chloride	he spike r MS Resu 97. biked Sam	$\begin{array}{cccc} & & 52 \\ \text{esult. R.} \\ \\ \\ \\ \\ \\ \\ \\ \\ \\ \\ \\ \\ \\ \\ \\ \\ \\ \\$	7 mg/F PD is based MSD Result 101 588 Date Analyz QC Prepara MS Result 574	Kg     1       d on the sp       Units       mg/Kg       zed:     201       tion:     201       Units     mg/Kg	250 pike and sp Dil. 1 5-03-03 5-03-03 Dil. 5	292 pike duplica Spike Amount 100 Spike Amount 2500	94 ate resu Re 97 97 97 97 97 97 97 97 97 97 97 97 94	70 - 130 ult. S MS ec. Re 7 10 Anal Prep trix sult Re 33 8	3 SD cc. 11 bared By c.	20 Rec. Limit 70 - 130 y: EM y: EM Rec. Limit
DRO Percent recovery is based on t Surrogate n-Tricosane Matrix Spike (MS-1) Sp QC Batch: 119733 Prep Batch: 101275 Param	he spike r MS Resu 97. biked Sam	$\begin{array}{cccc} & & 52 \\ \text{esult. R.} \\ \\ \\ \\ \\ \\ \\ \\ \\ \\ \\ \\ \\ \\ \\ \\ \\ \\ \\$	7 mg/F PD is based MSD Result 101 888 0ate Analyz QC Prepara MS Result 574 PD is based	Kg     1       d on the sp       Units       mg/Kg       zed:     201       tion:     201       Units     mg/Kg	250 pike and sp Dil. 1 5-03-03 5-03-03 Dil. 5	292 pike duplica Spike Amount 100 Spike Amount 2500	94 ate resu Re 97 97 97 97 97 97 97 97 97 97 97 97 94	70 - 130 ult. S MS ec. Re 7 10 Anal Prep trix sult Re 33 8	3 SD cc. 11 bared By c.	20 Rec. Limit 70 - 130 y: EM 7: EM Rec. Limit 3.9 - 12
DRO Percent recovery is based on t Surrogate n-Tricosane Matrix Spike (MS-1) Sp QC Batch: 119733 Prep Batch: 101275 Param Chloride	he spike r MS Resu 97. biked Sam	$\begin{array}{c ccccccccccccccccccccccccccccccccccc$	7 mg/F PD is based MSD Result 101 888 9ate Analyz 9C Prepara MS Result 574 PD is based	Kg       1         d on the sp         Units         mg/Kg         zed:       201         tion:       201         Units       mg/Kg         d on the sp       sp         d on the sp       sp         s       Dil.	250 pike and sp Dil. 1 5-03-03 5-03-03 Dil. 5 pike and sp	292 pike duplica Spike Amount 100 Spike Amount 2500 pike duplica Matrix	94 ate resu Re 97 97 97 97 97 97 97 97 97 97 97 97 94	70 - 130 ult. S MS ec. Re 7 10 Anal Prep trix sult Re 33 8 ult.	3 SD cc. 11 bared By c.	20 Rec. Limit 70 - 130 y: EM y: EM Rec.

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

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Matrix Spike (MS-1)	Spiked Sa	mple:	387692							
QC Batch: 119741 Prep Batch: 101283					15-03-03 15-03-03				zed By: red By:	
Param		F	M C Res		Dil.	Spike Amount	Matrix Result	Rec.		Rec. Limit
Chloride	$_{\rm Qs}$	$_{\rm Qs}$	11	50 mg/Kg	5	2500	<19.2	46	78.	9 - 121
Percent recovery is based	on the spike	e resu	t. RPD is	based on the s	pike and s	pike duplio	cate result.			
Param	F	С	MSD Result	Units Dil.	Spike Amount	Matrix Result		Rec. Jimit	RPD	RPD Limit
Chloride	Qs Qs			ng/Kg 5	2500	<19.2		9 - 121	8	20
Percent recovery is based Matrix Spike (MS-1)	on the spike Spiked Sa			based on the s	pike and s	pike duplio	cate result.			
QC Batch: 119761			Date A	nalyzed: 20	15-03-04			Analy	zed By:	AK
Prep Batch: 101285				*	15-03-03			•	red By:	
			M	5		Spike	Matrix	ζ		Rec.

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MS Spike Matrix		Rec.
Param F C Result Units Dil. Amount Result	Rec.	Limit
Benzene 1 1.63 mg/Kg 1 2.00 0.027	80	70 - 130
Toluene 1 1.68 mg/Kg 1 2.00 0.0436	82	70 - 130
Ethylbenzene 1 1.81 mg/Kg 1 2.00 <0.0116	90	70 - 130
Xylene 1 5.48 mg/Kg 1 6.00 0.0334	91	70 - 130

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

			MSD			Spike	Matrix		Rec.		RPD
Param	$\mathbf{F}$	$\mathbf{C}$	Result	Units	Dil.	Amount	Result	Rec.	Limit	RPD	Limit
Benzene		1	1.48	mg/Kg	1	2.00	0.027	73	70 - 130	10	20
Toluene		1	1.54	$\mathrm{mg/Kg}$	1	2.00	0.0436	75	70 - 130	9	20
Ethylbenzene		1	1.66	$\mathrm{mg/Kg}$	1	2.00	< 0.0116	83	70 - 130	9	20
Xylene		1	5.01	$\mathrm{mg/Kg}$	1	6.00	0.0334	83	70 - 130	9	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)	1.77	1.64	mg/Kg	1	2	88	82	70 - 130
4-Bromofluorobenzene (4-BFB)	2.16	2.03	m mg/Kg	1	2	108	102	70 - 130

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Matrix Spike (MS-1) Spike	ed Sa	mple	387690	)								
QC Batch: 119764 Prep Batch: 101285				te Anal Prepa		2015-03-04 2015-03-03					.nalyzed repared	•
				MS			-	oike		atrix		Rec.
Param		F	С	Result				ount		esult	Rec.	Limit
GRO			1	14.7	mg/ł			0.0		2.32	74	70 - 130
Percent recovery is based on the	spike	resu	lt. RPI	) is bas	ed on the	spike and s	spike dı	uplicat	e rest	ult.		
			MSD			Spike	Mat	rix		Rec		RPD
Param	$\mathbf{F}$	$\mathbf{C}$	Result		its Dil	-			Rec.	Limi		
GRO		1	15.2	mg/		20.0	<2.		76	70 - 1		
Percent recovery is based on the	spike	resu	lt BPI	-,	-	spike and s	spike di	plicat	e resi	ult		
referre recovery is based on the	opine	1054				opine and i	opine u	apricat	0 100			
_				MS	MSD			Spik		MS	MSD	Rec.
Surrogate				esult	Result	Units	Dil.	Amou	ınt	Rec.	Rec.	Limit
							1	2		87	84	70 - 130
				74 94	1.67 1.88	mg/Kg mg/Kg	1	2		97	94	70 - 130
4-Bromofluorobenzene (4-BFB) Matrix Spike (MS-1) Spike QC Batch: 119791	ed Sa	mple	1 387700 Da	94 ) te Anal	1.88 yzed: 2	mg/Kg 2015-03-05				97 A	94 .nalyzed	70 - 130 By: AK
4-Bromofluorobenzene (4-BFB) Matrix Spike (MS-1) Spike QC Batch: 119791	ed Sa	mple:	1 387700 Da	94	1.88 yzed: 2	mg/Kg				97 A	94	70 - 130 By: AK
4-Bromofluorobenzene (4-BFB) Matrix Spike (MS-1) Spike QC Batch: 119791	ed Sa	-	1 387700 Da QC	94 ) te Anal 2 Prepai MS	1.88 yzed: 2 ration: 2	mg/Kg 2015-03-05 2015-03-04	1			97 A P atrix	94 .nalyzed	70 - 130 By: AK By: AK Rec.
4-Bromofluorobenzene (4-BFB) Matrix Spike (MS-1) Spike QC Batch: 119791 Prep Batch: 101317 Param	ed Sa	mple:	1 387700 Da	94 ) te Anal 2 Prepar MS Result	1.88 yzed: 2 ration: 2 Unit	mg/Kg 2015-03-05 2015-03-04 ts Dil.	1 Sp Am	2 vike ount	Re	97 A P atrix esult	94 nalyzed repared Rec.	70 - 130 By: AK By: AK Rec. Limit
4-Bromofluorobenzene (4-BFB) Matrix Spike (MS-1) Spike QC Batch: 119791 Prep Batch: 101317 Param	ed Sa	-	1 387700 Da QC	94 ) te Anal 2 Prepai MS	1.88 yzed: 2 ration: 2	mg/Kg 2015-03-05 2015-03-04 ts Dil.	1 Sp Am	2 vike	Re	97 A P atrix	94 .nalyzed repared	70 - 130 By: AK By: AK Rec.
4-Bromofluorobenzene (4-BFB) <b>Matrix Spike (MS-1)</b> Spike QC Batch: 119791 Prep Batch: 101317 Param GRO		F	1 387700 Da QC C	94 te Anal Prepar MS Result 15.6	1.88 yzed: 2 ration: 2 Unit mg/I	mg/Kg 2015-03-05 2015-03-04 ts Dil. Kg 1	1 Sp Am 20	ike ount 0.0	Re <	97 A P atrix esult 2.32	94 nalyzed repared Rec.	70 - 130 By: AK By: AK Rec. Limit
4-Bromofluorobenzene (4-BFB) <b>Matrix Spike (MS-1)</b> Spike QC Batch: 119791 Prep Batch: 101317 Param GRO		F	1 387700 Da QC <u>C</u> 1 It. RPI	94 te Anal Prepar MS Result 15.6 D is bas	1.88 yzed: 2 ration: 2 Unit mg/I	$\frac{\text{mg/Kg}}{2015-03-05}$ $\frac{2015-03-04}{2015-03-04}$ $\frac{\text{ts}}{\text{Kg}} = 1$ $\frac{1}{2}$ spike and s	1 Sp Am 20 spike du	ike ount 0.0 uplicat	Re <	97 A P atrix esult 2.32 ult.	94 .nalyzed repared Rec. 78	70 - 130 By: AK By: AK Rec. Limit 70 - 130
4-Bromofluorobenzene (4-BFB) Matrix Spike (MS-1) Spike QC Batch: 119791 Prep Batch: 101317 Param GRO Percent recovery is based on the	spike	F resu	$\frac{1}{387700}$ Dar QC $\frac{C}{1}$ It. RPI MSD	94 D te Anal Prepar MS Result 15.6 D is bas	1.88 yzed: 2 ration: 2 Unit mg/I ted on the	$\frac{mg/Kg}{2015-03-05}$ $\frac{2015-03-05}{2015-03-04}$ $\frac{ts}{Kg} = 1$ $\frac{Kg}{Spike}$	1 Sp Am 20 spike du Mat	2 bike ount 0.0 uplicat rix	e rest	97 A P atrix esult 2.32 ult. Rec	94 analyzed repared <u>Rec.</u> 78	70 - 130 By: AK By: AK Rec. Limit 70 - 130 RPD
4-Bromofluorobenzene (4-BFB) Matrix Spike (MS-1) Spike QC Batch: 119791 Prep Batch: 101317 Param GRO Percent recovery is based on the Param		F	1 387700 Dar QC <u>C</u> 1 It. RPI MSD Result	94 te Anal Prepar MS Result 15.6 D is bas t Un	$\frac{1.88}{\text{yzed: 2}}$ $\frac{2}{\text{ration: 2}}$ $\frac{\text{Unit}}{\text{mg/H}}$ $\frac{2}{\text{ration: 2}}$	$\frac{mg/Kg}{2015-03-05}$ $\frac{2015-03-04}{2015-03-04}$ $\frac{5}{Kg} = 1$ $\frac{1}{Kg}$ $\frac{1}{Spike}$ $\frac{1}{Spike}$	1 Sp Am 20 spike du Mat 5 Res	jike ount J.O uplicat rix ult I	Rec.	97 A P atrix esult 2.32 ult. Rec Limi	94 .nalyzed repared Rec. 78 t RF	70 - 130 By: AK By: AK Rec. Limit 70 - 130 PD Limit
4-Bromofluorobenzene (4-BFB) Matrix Spike (MS-1) Spike QC Batch: 119791 Prep Batch: 101317 Param GRO Percent recovery is based on the Param GRO	spike F	F e resu C 1	1 387700 Da' QC	94 te Anal Prepar MS Result 15.6 D is bas t Un mg/	$\frac{1.88}{\text{yzed: 2}}$ ration: 2 $\frac{\text{Unit}}{\text{mg/H}}$ red on the its Dil /Kg 1	$\frac{mg/Kg}{2015-03-05}$ $\frac{2015-03-04}{2015-03-04}$ $\frac{ks}{kg} = 1$ $\frac{kg}{kg}$ $\frac{kg}{kg}$ $\frac{kg}{kg}$	1 Sp Am 20 spike du Mat 5 Res 22.	ike ount 0.0 uplicat rix ult 1 32	Re c rest Rec. 83	97 A P atrix esult 2.32 ult. Rec Limi 70 - 1	94 .nalyzed repared Rec. 78 t RF	70 - 130 By: AK By: AK Rec. Limit 70 - 130 PD Limit
4-Bromofluorobenzene (4-BFB) Matrix Spike (MS-1) Spike QC Batch: 119791 Prep Batch: 101317 Param GRO Percent recovery is based on the Param GRO	spike F	F e resu C 1	1 387700 Da' QC 1 It. RPI It. RPI It. RPI	94 te Anal Prepar MS Result 15.6 D is bas t Un mg/ D is bas	1.88 yzed: 2 ration: 2 Unit mg/I red on the its Dil Kg 1 red on the	$\frac{mg/Kg}{2015-03-05}$ $\frac{2015-03-04}{2015-03-04}$ $\frac{ks}{kg} = 1$ $\frac{kg}{kg}$ $\frac{kg}{kg}$ $\frac{kg}{kg}$	1 Sp Am 20 spike du Mat 5 Res 22.	ike ount 0.0 uplicat ight 1 32 uplicat	Rec. Rec. 83 e rest	97 A P atrix esult 2.32 ult. Rec Limi 70 - 1 ult.	94 Inalyzed repared Rec. 78	70 - 130 By: AK By: AK Rec. Limit 70 - 130 PD Limit 5 20
4-Bromofluorobenzene (4-BFB) Matrix Spike (MS-1) Spike QC Batch: 119791 Prep Batch: 101317 Param GRO Percent recovery is based on the Param GRO Percent recovery is based on the	spike F	F e resu C 1	$\frac{1}{387700}$ Dav QC $\frac{C}{1}$ It. RPI MSD Result 16.6 It. RPI	94 D te Anal Prepar MS Result 15.6 D is bas t Un mg/ D is bas MS	1.88 yzed: 2 ration: 2 Unit mg/I red on the its Dil /Kg 1 red on the MSD	$\frac{\text{mg/Kg}}{\text{2015-03-05}}$ $\frac{2015-03-05}{2015-03-04}$ $\frac{\text{Kg}}{\text{1}}$ $\frac{\text{Spike}}{\text{Spike}}$ $\frac{\text{Amount}}{20.0}$ $\frac{20.0}{\text{Spike}}$	1 Sp Am 20 spike du Mat 20 Spike du	ike ount 0.0 uplicat 132 uplicat Spik	Rec. 83 e rest	97 A P atrix esult 2.32 ult. Rec Limi 70 - 1 ult. MS	94 alyzed repared Rec. 78	70 - 130 By: AK By: AK Rec. Limit 70 - 130 PD Limit 20 Rec.
4-Bromofluorobenzene (4-BFB) Matrix Spike (MS-1) Spike QC Batch: 119791 Prep Batch: 101317 Param GRO Percent recovery is based on the Param GRO Percent recovery is based on the Surrogate	spike F	F e resu C 1	1 387700 Dar QC tt. RPI MSD Result 16.6 It. RPI	94 94 te Anal Prepar MS Result 15.6 D is bas t Un mg/ D is bas MS esult	1.88 yzed: 2 ration: 2 Unit mg/I ted on the its Dil /Kg 1 red on the MSD Result	mg/Kg $2015-03-05$ $2015-03-04$ $ts Dil.$ $Kg 1$ $spike and s$ $Spike$ $Amount$ $20.0$ $spike and s$ $Units$	1 Sp Am 20 spike du Mat 5 Res <2. spike du Dil.	oike ount 1.0 1.0 1.0 1.0 1.0 1.0 1.0 1.0 1.0 1.0	Rec. 83 e rest	$\begin{array}{r} 97 \\ A \\ P \\ atrix \\ esult \\ \hline 2.32 \\ ult. \\ Rec \\ Limi \\ \hline 70 - 1 \\ ult. \\ MS \\ Rec. \\ \end{array}$	94 .nalyzed repared Rec. 78 t RF 30 6 MSD Rec.	70 - 130 By: AK By: AK Rec. Limit 70 - 130 PD Limit 5 20 Rec. Limit
QC Batch: 119791	spike F	F e resu C 1	1 387700 Dar QC 1 It. RPI It. RPI Result 16.6 It. RPI	94 D te Anal Prepar MS Result 15.6 D is bas t Un mg/ D is bas MS	1.88 yzed: 2 ration: 2 Unit mg/I red on the its Dil /Kg 1 red on the MSD	mg/Kg $2015-03-05$ $2015-03-04$ $ts Dil.$ $Kg 1$ $e spike and s$ $Spike$ $Amount$ $20.0$ $e spike and s$	1 Sp Am 20 spike du Mat 20 Spike du	ike ount 0.0 uplicat 132 uplicat Spik	Rec. 83 e rest	97 A P atrix esult 2.32 ult. Rec Limi 70 - 1 ult. MS	94 alyzed repared Rec. 78	70 - 130 By: AK By: AK Rec. Limit 70 - 130 PD Limit 20 Rec.

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Matrix Spike (MS-1) Spiked Sample:	387705							
QC Batch: 119849 Prep Batch: 101336	Date Ana QC Prep	•	015-03-09 015-03-05				nalyzed l repared l	v
	MS			Spik	e M	atrix		Rec.
Param F	C Resul	lt Units	s Dil.	Amou	nt R	esult	Rec.	Limit
GRO	1 15.2	2 mg/K	lg 1	20.0	) <	2.32	76	70 - 130
Percent recovery is based on the spike result	. RPD is ba	ased on the	spike and s	pike dup	licate res	ult.		
	MSD		Spike	Matri	x	Rec		RPD
Param F C	Result U	Units Dil	-			Lim	it RPI	D Limit
GRO Qs Qs 1	13.4 m	ng/Kg 1	20.0	<2.32	2 67	70 - 1	.30 13	20
Percent recovery is based on the spike result	. RPD is ba	ased on the	spike and s	pike dup	licate res	ult.		
	MS	MSD			Spike	MS	MSD	Rec.
Surrogate	Result	Result	Units	Dil. A	mount	Rec.	Rec.	Limit
Trifluorotoluene (TFT)	1.81	1.83	mg/Kg	1	2	90	92	70 - 130
4-Bromofluorobenzene (4-BFB)	1.94	1.96	mg/Kg	1	2	97	98	70 - 130

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## **Calibration Standards**

#### Standard (CCV-1)

QC Batch:	119724	Date Analyzed:			2015-03-03		Analyzed By: SC		
				CCVs	$\mathrm{CCVs}$	$\mathrm{CCVs}$	Percent		
				True	Found	Percent	Recovery	Date	
Param	Flag	Cert	Units	Conc.	Conc.	Recovery	Limits	Analyzed	
DRO		1	mg/Kg	250	224	90	80 - 120	2015-03-03	

#### Standard (CCV-2)

QC Batch:	119724	24 Dat			2015-03-03		Analyzed By: SC		
				$\mathrm{CCVs}$	CCVs	CCVs	Percent		
				True	Found	Percent	Recovery	Date	
Param	Flag	Cert	Units	Conc.	Conc.	Recovery	Limits	Analyzed	
DRO		1	mg/Kg	250	218	87	80 - 120	2015-03-03	

#### Standard (ICV-1)

QC Batch:	119733	Date Analyzed:				2015-03-03		Analyz	zed By: EM
					ICVs	ICVs	ICVs	Percent	
					True	Found	Percent	Recovery	Date
Param		Flag	Cert	Units	Conc.	Conc.	Recovery	Limits	Analyzed
Chloride				m mg/Kg	100	100	100	85 - 115	2015-03-03

#### Standard (CCV-1)

QC Batch:	119733			Date A	Analyzed:	2015-03-03		Analyzed By: EM		
					CCVs True	CCVs Found	CCVs Percent	Percent Recovery	Date	
Param		Flag	Cert	Units	Conc.	Conc.	Recovery	Limits	Analyzed	
Chloride				mg/Kg	100	100	100	85 - 115	2015-03-03	

80 - 120

80 - 120

2015-03-04

2015-03-04

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Standard (ICV-1)								
QC Batch: 119741			Date A	nalyzed: 2	015-03-03		Analyz	zed By: EM
				ICVs True	ICVs Found	ICVs Percent	Percent Recovery	Date
Param	Flag	Cert	Units	Conc.	Conc.	Recovery	Limits	Analyzed
Chloride			m mg/Kg	100	101	101	85 - 115	2015-03-03
Standard (CCV-1	)							
QC Batch: 119741			Date A	nalyzed: 2	015-03-03		Analyz	zed By: EM
Param	Flag	Cert	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
Chloride	1 1008		mg/Kg	100	99.0	99	85 - 115	2015-03-03
Standard (CCV-1) QC Batch: 119761	)		Date A	nalyzed: 2	015-03-04		Analy	zed By: AK
				$\rm CCVs$	$\rm CCVs$	CCVs	Percent	
				True	Found	Percent	Recovery	Date
Param	Flag	Cert	Units	Conc.	Conc.	Recovery	Limits	Analyzed
Benzene		1	mg/kg	0.100	0.103	103	80 - 120	2015-03-04
Toluene		1	m mg/kg	0.100	0.0995	100	80 - 120	2015-03-04
Fthylbonzono			mg/lrg	0 100	0 101	101	<u> 20 120</u>	2015 02 04

#### Standard (CCV-2)

Ethylbenzene

Xylene

QC Batch: 119761	Date Analyzed: 2015-03-04							zed By: AK
				$\mathrm{CCVs}$	$\mathrm{CCVs}$	$\operatorname{CCVs}$	Percent	
				True	Found	Percent	Recovery	Date
Param	Flag	Cert	Units	Conc.	Conc.	Recovery	Limits	Analyzed
Benzene		1	mg/kg	0.100	0.0987	99	80 - 120	2015-03-04
Toluene		1	m mg/kg	0.100	0.0978	98	80 - 120	2015-03-04
Ethylbenzene		1	m mg/kg	0.100	0.0987	99	80 - 120	2015-03-04
Xylene		1	m mg/kg	0.300	0.297	99	80 - 120	2015-03-04

0.100

0.300

0.101

0.304

101

101

mg/kg

 $\mathrm{mg/kg}$ 

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Standard (	CCV-3)									
QC Batch:	119761			Date A	analyzed: 2	015-03-04		Analy	zed By: AK	
					$\mathrm{CCVs}$	$\mathrm{CCVs}$	$\mathrm{CCVs}$	Percent		
					True	Found	Percent	Recovery	Date	
Param		Flag	Cert		Conc.	Conc.	Recovery	Limits	Analyzed	
Benzene			1	mg/kg	0.100	0.102	102	80 - 120	2015-03-04	
Toluene			1	mg/kg	0.100	0.0984	98	80 - 120	2015-03-0	
Ethylbenzen	e		1	mg/kg	0.100	0.101	101	80 - 120	2015-03-0	
Tylene			1	mg/kg	0.300	0.302	101	80 - 120	2015-03-0	
Standard (	CCV-1)									
QC Batch:	119764			Date A	analyzed: 2	2015-03-04		Analy	zed By: AK	
					aat	CCVs	$\mathrm{CCVs}$	Percent		
					CCVS					
					CCVs True				Date	
Param	Flag		Cert	Units	True	Found	Percent	Recovery	Date Analyzed	
	Flag		Cert	Units mg/Kg					Analyzed	
GRO Standard (	CCV-2)			mg/Kg	True Conc. 1.00	Found Conc.	Percent Recovery	Recovery Limits 80 - 120	Analyzed 2015-03-0	
GRO Standard (	CCV-2)			mg/Kg	True Conc. 1.00	Found Conc. 1.04	Percent Recovery 104	Recovery Limits 80 - 120 Analy	Analyzed 2015-03-0	
GRO Standard (	CCV-2)			mg/Kg	True Conc. 1.00	Found Conc. 1.04 2015-03-04 CCVs	Percent Recovery	Recovery Limits 80 - 120 Analy Percent	Analyzed 2015-03-0 zed By: AK	
GRO Standard ( QC Batch:	<b>CCV-2)</b> 119764			mg/Kg	True Conc. 1.00 Analyzed: 2 CCVs	Found Conc. 1.04	Percent Recovery 104 CCVs	Recovery Limits 80 - 120 Analy	Analyzed 2015-03-0 zed By: AK Date	
GRO Standard ( QC Batch: Param	CCV-2)		1	mg/Kg Date A	True Conc. 1.00 Analyzed: 2 CCVs True	Found Conc. 1.04 2015-03-04 CCVs Found	Percent Recovery 104 CCVs Percent	Recovery Limits 80 - 120 Analy Percent Recovery	Analyzed 2015-03-0 zed By: AK	
GRO Standard ( QC Batch: Param GRO	<b>CCV-2)</b> 119764 Flag		ı	mg/Kg Date A Units	True Conc. 1.00 Analyzed: 2 CCVs True Conc.	Found Conc. 1.04 2015-03-04 CCVs Found Conc.	Percent Recovery 104 CCVs Percent Recovery	Recovery Limits 80 - 120 Analy Percent Recovery Limits	Analyzed 2015-03-0 zed By: AK Date Analyzed	
Param GRO Standard ( QC Batch: Param GRO Standard ( QC Batch:	CCV-2) 119764 Flag CCV-3)		ı	mg/Kg Date A Units mg/Kg	True Conc. 1.00 Analyzed: 2 CCVs True Conc. 1.00	Found Conc. 1.04 2015-03-04 CCVs Found Conc.	Percent Recovery 104 CCVs Percent Recovery	Recovery Limits 80 - 120 Analy Percent Recovery Limits 80 - 120	Analyzed 2015-03-0 zed By: AK Date Analyzed 2015-03-0	
GRO Standard ( QC Batch: Param GRO Standard (	CCV-2) 119764 Flag CCV-3)		ı	mg/Kg Date A Units mg/Kg	True Conc. 1.00 Analyzed: 2 CCVs True Conc. 1.00 Analyzed: 2 CCVs	Found Conc. 1.04 2015-03-04 CCVs Found Conc. 1.09 2015-03-04 CCVs	Percent Recovery 104 CCVs Percent Recovery 109	Recovery Limits 80 - 120 Analy Percent Recovery Limits 80 - 120 Analy Percent	Analyzed 2015-03-0 zed By: AK Date Analyzed 2015-03-0 zed By: AK	
GRO Standard ( QC Batch: Param GRO Standard ( QC Batch:	CCV-2) 119764 Flag CCV-3) 119764		ı Cert ı	mg/Kg Date A Units mg/Kg Date A	True Conc. 1.00 Analyzed: 2 CCVs True Conc. 1.00 Analyzed: 2 CCVs True Conc. 1.00	Found Conc. 1.04 2015-03-04 CCVs Found Conc. 1.09 2015-03-04 CCVs Found	Percent Recovery 104 CCVs Percent Recovery 109 CCVs Percent	Recovery Limits 80 - 120 Analy Percent Recovery Limits 80 - 120 Analy Percent Recovery	Analyzed 2015-03-0 zed By: AK Date Analyzed 2015-03-0 zed By: AK Date	
GRO Standard ( QC Batch: Param GRO Standard (	CCV-2) 119764 Flag CCV-3)		ı	mg/Kg Date A Units mg/Kg	True Conc. 1.00 Analyzed: 2 CCVs True Conc. 1.00 Analyzed: 2 CCVs	Found Conc. 1.04 2015-03-04 CCVs Found Conc. 1.09 2015-03-04 CCVs	Percent Recovery 104 CCVs Percent Recovery 109	Recovery Limits 80 - 120 Analy Percent Recovery Limits 80 - 120 Analy Percent	Analyzed 2015-03-0 zed By: AK Date Analyzed 2015-03-0 zed By: AK	

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Standard (C	CV-1)								
QC Batch: 1	19791		Date	Analyzed:	2015-03-05		Analyzed By: AK		
Param	Flag	Cert	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed	
GRO		1	mg/Kg	1.00	1.04	104	80 - 120	2015-03-05	
Standard (C	CV-2)								
QC Batch: 11	19791		Date	Analyzed:	Analy	zed By: AK			
				CCVs True	CCVs Found	CCVs Percent	Percent Recovery	Date	
Param GRO	Flag	Cert	Units mg/Kg	Conc. 1.00	Conc. 1.01	Recovery 101	Limits 80 - 120	Analyzed 2015-03-05	
Standard (C	CV-1)								
QC Batch: 11			Date	Analyzed:	2015-03-09		Analy	zed By: AK	
				CCVs True	CCVs Found	CCVs Percent	Percent Recovery	Date	
Param GRO	Flag	Cert	Units mg/Kg	Conc. 1.00	Conc. 1.05	Recovery 105	Limits 80 - 120	Analyzed 2015-03-09	
Standard (C	CV-2)								
QC Batch: 11	19849		Date	Analyzed:	2015-03-09		Analy	zed By: AK	
				CCVs True	CCVs Found	CCVs Percent	Percent Recovery	Date	
Param	Flag	Cert	Units	Conc.	Conc.	Recovery	Limits	Analyzed	
GRO		1	m mg/Kg	1.00	0.979	98	80 - 120	2015-03-09	

Report Date: March 9, 2015 7250715022.001 Work Order: 15022625  $30137 \ #3$ 

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## Appendix

#### **Report Definitions**

NameDefinitionMDLMethod Detection LimitMQLMinimum Quantitation LimitSDLSample Detection Limit

### Laboratory Certifications

	Certifying	Certification	Laboratory
$\mathbf{C}$	Authority	Number	Location
-	NCTRCA	WFWB384444Y0909	TraceAnalysis
-	DBE	VN 20657	TraceAnalysis
-	HUB	1752439743100-86536	TraceAnalysis
-	WBE	237019	TraceAnalysis
1	NELAP	T104704392-14-8	Midland

#### Standard Flags

- F Description
- B Analyte detected in the corresponding method blank above the method detection limit
- H Analyzed out of hold time
- J Estimated concentration
- Jb The analyte is positively identified and the value is approximated between the SDL and MQL. Sample contains less then ten times the concentration found in the method blank. The result should be considered non-detect to the SDL.
- Je Estimated concentration exceeding calibration range.
- MI1 Split peak or shoulder peak
- MI2 Instrument software did not integrate
- MI3 Instrument software misidentified the peak
- MI4 Instrument software integrated improperly
- MI5 Baseline correction
- Qc Calibration check outside of laboratory limits.
- Qr RPD outside of laboratory limits
- Qs Spike recovery outside of laboratory limits.
- Qsr Surrogate recovery outside of laboratory limits.
- U The analyte is not detected above the SDL

### Attachments

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The scanned attachments will follow this page.

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





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

Lubbock, Texas 79424 El Paso, Texas 79922 Midland. Texas 79703 Texas 75006 Carroliton. E-Mail: lab@traceanalysis.com WEB: www.traceanalysis.com

800-378-1296

915-585-3443 432-689-6301 972-242 -7750

806 • 794 • 1296 FAX 806 • 794 • 1298 FAX 915 • 585 • 4944 FAX 432 • 689 • 6313

Certifications

HUB NCTRCA DBE NELAP DoD LELAP Oklahoma ISO 17025 WBE Kansas

### Analytical and Quality Control Report

Karolanne Toby APEX/Titan 2351 W. Northwest Hwy. Suite 3321 Dallas, Tx, 75220

Report Date: June 23, 2015

Work Order: 15061712 

**Project Name:** 30137 #3 Project Number: 7250715022.001

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
395922	BKG-1	soil	2015-06-16	10:15	2015-06-17
395923	BKG-2	soil	2015-06-16	10:30	2015-06-17
395924	STP-2	soil	2015-06-16	10:30	2015-06-17

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.

TraceAnalysis, Inc. uses the attached chain of custody (COC) as the laboratory check-in documentation which includes sample receipt, temperature, sample preservation method and condition, collection date and time, testing requested, company, sampler, contacts and any special remarks.

This report consists of a total of 22 pages and shall not be reproduced except in its entirety, without written approval of TraceAnalysis, Inc.

Blain Lepturch

Dr. Blair Leftwich, Director James Taylor, Assistant Director Brian Pellam, Operations Manager

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# **Report Contents**

Case Narrative	4
Analytical Report         Sample 395922 (BKG-1)         Sample 395923 (BKG-2)         Sample 395924 (STP-2)	<b>5</b> 5 6 7
QC Batch 122418 - Method Blank (1)	<b>10</b> 10 10 10 11
QC Batch 122418 - LCS (1)	<b>12</b> 12 12 13 13
QC Batch 122418 - MS (1)	<b>15</b> 15 15 16 16
QC Batch 122418 - ICV (1)	<b>18</b> 18 18 18 19 19 19 20
Report Definitions	<b>21</b> 21 21 21 21

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### Case Narrative

Samples for project 30137 #3 were received by TraceAnalysis, Inc. on 2015-06-17 and assigned to work order 15061712. Samples for work order 15061712 were received intact at a temperature of 2.1 C.

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

		$\operatorname{Prep}$	Prep	$\mathbf{QC}$	Analysis
Test	Method	Batch	Date	Batch	Date
BTEX	S 8021B	103647	2015-06-22 at 15:12	122539	2015-06-23 at 07:18
Chloride (Titration)	SM 4500-Cl B $$	103564	2015-06-18 at $08:35$	122418	2015-06-18 at $09:30$
TPH DRO - NEW	S 8015 D	103612	2015-06-19 at $15:26$	122545	2015-06-23 at $09:48$
TPH GRO	S 8015 D	103647	2015-06-22 at 15:12	122540	2015-06-23 at 07:21

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 15061712 since the sample was chosen at random. Therefore, the validity of the analytical data reported has been determined by the laboratory control sample (LCS) and the method blank (MB). These quality control measures are performed with each preparation batch to ensure data integrity.

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

•

Report Date: June 23, 2015 7250715022.001	Work Order: 15061712 30137 #3	Page Number: 5 of 22
Analytical Report		

#### Sample: 395922 - BKG-1

Laboratory:MidlanAnalysis:BTEXQC Batch:122539Prep Batch:103647		Analytical Date Anal Sample Pr	lyzed:	2015	21B -06-23 -06-22		Prep Method Analyzed By Prepared By	: AK	
				$\operatorname{RL}$					
Parameter	Flag	Cert		Result	Units		Dilution	RL	
Benzene	U	1		< 0.0200	mg/Kg		1	0.0200	
Toluene	U	1	<	< 0.0200	m mg/Kg		1	0.0200	
Ethylbenzene	U	1		< 0.0200	m mg/Kg		1	0.0200	
Xylene	U	1	<	< 0.0200	mg/Kg	5	1	0.0200	
Surrogate	Fla	g Cert	Result	Units	5 Dilution	Spike Amount	Percent Recovery	Recovery Limits	
Trifluorotoluene (TF			2.03	mg/K	g 1	2.00	102	70 - 130	
4-Bromofluorobenzen	e (4-BFB)		2.08	mg/K	g 1	2.00	104	70 - 130	
Sample: 395922 - BKG-1Laboratory:MidlandAnalysis:Chloride (Titration)QC Batch:122418Prep Batch:103564			ytical Me Analyzec ble Prepar	1:	SM 4500-Cl B 2015-06-18 2015-06-18		Prep Meth Analyzed E Prepared E	By: AK	
Parameter	Flag	Cert		RL Result	Unit		Dilution	RL	
		Cert							
Chloride     Qs     98.0     mg/Kg     5     4.00       Sample: 395922 - BKG-1       Laboratory: Midland									

Laboratory:	Midland						
Analysis:	TPH DRO - NE	W	Analytic	al Method:	S 8015 D	Prep Method:	N/A
QC Batch:	122545	122545 Date Analyzed:				Analyzed By:	$\mathbf{SC}$
Prep Batch:	103612		Sample I	Preparation:	2015-06-19	Prepared By:	$\mathbf{SC}$
				$\operatorname{RL}$			
Parameter		Flag	Cert	Result	Units	Dilution	$\operatorname{RL}$
DRO		$_{ m Qr,Qs,U}$	1	<50.0	mg/Kg	1	50.0
					•		

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Surrogate	Flag C	ert	Result	Units	Dilu		Spike mount	Percent Recovery	Recovery Limits
n-Tricosane <sub>Qsr</sub>	Qsr		68.6	mg/K	o.	1	50.0	137	70 - 130
Sample: 395922 - BK0	G-1								
Laboratory:MidlandAnalysis:TPH GROQC Batch:122540Prep Batch:103647			Analytical Method: Date Analyzed: Sample Preparation:		2015-0	6-23		Prep Metho Analyzed E Prepared B	By: AK
					RL				
Parameter	Flag		Cert		Result	Un	its	Dilution	$\operatorname{RL}$
GRO	Qs,U		1		<4.00	mg/l	Kg	1	4.00
Surrogate		Flag	Cert	Result	Units	Dilution	Spike Amount	Percent Recovery	Recovery Limits
Trifluorotoluene (TFT)				2.54	mg/Kg	1	2.00	127	70 - 130
	DED)			0 10	/ 17/2	-1	0.00	100	<b>H</b> O 100

 $\mathrm{mg/Kg}$ 

1

2.00

109

70 - 130

#### Sample: 395923 - BKG-2

4-Bromofluorobenzene (4-BFB)

Laboratory:MidlandAnalysis:BTEXQC Batch:122539Prep Batch:103647		Analytical Method: Date Analyzed: Sample Preparation:		S 8021E 2015-06 2015-06	-23		Prep Method Analyzed By Prepared By	: AK
				RL				
Parameter	Flag	Cert	]	Result	Unit	3	Dilution	$\operatorname{RL}$
Benzene	U	1	<(	0.0200	mg/Kg	r S	1	0.0200
Toluene	U	1	<(	0.0200	mg/Kg	r S	1	0.0200
Ethylbenzene		1	0	.0517	mg/Kg	r S	1	0.0200
Xylene	U	1	</td <td>0.0200</td> <td>mg/Kg</td> <td>r,</td> <td>1</td> <td>0.0200</td>	0.0200	mg/Kg	r,	1	0.0200
						Spike	Percent	Recovery
Surrogate	Fla	g Cert	Result	Units	Dilution	Amount	Recovery	Limits
Trifluorotoluene (TFT)			1.95	mg/Kg	1	2.00	98	70 - 130
4-Bromofluorobenzene (4-BFB)			2.05	mg/Kg	1	2.00	102	70 - 130

Report Date 7250715022.0	:: June 23, 2015 001	V	Vork Order: 30137 <del>7</del>			Page Num	ber: 7 of 22	
Sample: 39	5923 - BKG-2							
Laboratory:	Midland							
Analysis:	Chloride (Titrat	tion)		ytical Metho		00-Cl B	Prep Met	/
QC Batch: Prep Batch:	$122418 \\ 103564$			Analyzed: ole Preparati	2015-06 on: 2015-06		Analyzed Prepared	v
i iep Daten.	105504		Sam	петтератан	011. 2010-00	9-10	Tiepareu	Dy. AR
					RL			
Parameter		Flag	Cert	Res		Units	Dilution	RL
Chloride		$_{\rm Qs,U}$		<2	0.0	m mg/Kg	5	4.00
Sample: 30	5923 - BKG-2							
_								
Laboratory:	Midland							
Analysis: QC Batch:	TPH DRO - NE 122545	ΞW		lytical Meth			Prep Meth Analyzed	
Prep Batch:	122545 103612		Date Analyzed: 2015-06-23 Sample Preparation: 2015-06-19				Prepared	v
r rop Batom	100012		Star	ipio i roparat	2010 0		Tiepuida	<b>D</b> J. 50
					RL			
Parameter		Flag	Cert		sult	Units	Dilution	RL
DRO		$_{\rm Qr,Qs,U}$	1	<;	50.0	mg/Kg	1	50.0
						Spike	Percent	Recovery
Surrogate	Flag	Cert	Result	Units	Dilution	Amount	Recovery	Limits
n-Tricosane			54.6	m mg/Kg	1	50.0	109	70 - 130
Sample: 39	5923 - BKG-2							
-								
Laboratory: Analysis:	Midland TPH GRO		Analytia	al Method:	S 8015 D		Prep Metho	d: S 5035
QC Batch:	122540		Date Ana		2015-06-23		Analyzed B	
Prep Batch:	103647			Preparation:	2015-06-22		Prepared By	<i>v</i>
					RL			
Parameter		Flag	Cert	Res		Units	Dilution	RL
CRO		~0			00	mg/Kg		4.00

GRO	$_{\rm Qs,U}$		1		<4.00	mg/K	g	1	4.00
Surrogate	F	Flag	Cert	Result	Units	Dilution	Spike Amount	Percent Recovery	Recovery Limits
Trifluorotoluene (TFT)				2.47	mg/Kg	1	2.00	124	70 - 130
4-Bromofluorobenzene (4-BFB)				2.14	$\mathrm{mg/Kg}$	1	2.00	107	70 - 130

Report Date: June 23, 2015 7250715022.001			W	Vork Order 30137	:: 15061712 7 #3	2	Page Number: 8 of 22			
Sample: 395924 - STP-2										
Laboratory:MidlandAnalysis:BTEXQC Batch:122539Prep Batch:103647		Da	ate Anal	Method: yzed: eparation:	S 8021B 2015-06- 2015-06-	23		Prep Method Analyzed By Prepared By	r: AK	
					RL					
Parameter	Flag		Cert	R	lesult	Units		Dilution	$\operatorname{RL}$	
Benzene			1		4.22	mg/Kg		1	0.0200	
Toluene			1		<b>20.4</b>	mg/Kg		1	0.0200	
Ethylbenzene			1		7.34	$\mathrm{mg/Kg}$		1	0.0200	
Xylene	Je		1		34.0	m mg/Kg		1	0.0200	
~							Spike	Percent	Recovery	
Surrogate		Flag	Cert	Result	Units	Dilution	Amount		Limits	
Trifluorotoluene (TFT)				1.72	$\mathrm{mg/Kg}$	1	2.00	86	70 - 130	
4-Bromofluorobenzene (4-BFB)	Qsr	Qsr		6.49	$\mathrm{mg/Kg}$	1	2.00	324	70 - 130	

#### Sample: 395924 - STP-2

Laboratory: Analysis: QC Batch: Prep Batch:	Midland Chloride (Titration) 122418 103564	Date	tical Method: Analyzed: le Preparation:	SM 4500-Cl B 2015-06-18 2015-06-18	Prep Method: Analyzed By: Prepared By:	ÁK
			RL			
Parameter	Flag	Cert	Result	Units	Dilution	$\operatorname{RL}$
Chloride	Qs		98.0	mg/Kg	5	4.00

#### Sample: 395924 - STP-2

Laboratory:	Midland								
Analysis:	TPH DR	O - NEW	7	Anal	ytical Metho	d: S 8015 I	)	Prep Me	thod: N/A
QC Batch:	122545			Date	Analyzed:	2015-06	-23	Analyzed	l By: SC
Prep Batch:	103612			Sam	ple Preparati	on: 2015-06	-19	Prepared	By: SC
					F	RL			
Parameter			Flag	Cert	Rest	ılt	Units	Dilution	$\operatorname{RL}$
DRO			$_{ m Qr,Qs}$	1	5'	75	mg/Kg	1	50.0
Surrogate		Flag	Cert	Result	Units	Dilution	Spike Amount	Percent Recovery	Recovery Limits
n-Tricosane			CCIU	81.9		1	50.0	164	70 - 130
n-111cosane	Qsr	Qsr		01.9	m mg/Kg	1	50.0	104	10 - 150

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Report Date: June 23, 2015 7250715022.001			W	ork Order 3013		Page Number: 9 of 22			
Sample: 395924 - STP-2									
Laboratory:MidlandAnalysis:TPH GROQC Batch:122540Prep Batch:103647		Analytical Method:S 8015 DDate Analyzed:2015-06-23Sample Preparation:2015-06-22							d: S 5035 y: AK y: AK
					$\operatorname{RL}$				
Parameter	Flag		Cert	F	Result	Unit	S	Dilution	$\operatorname{RL}$
GRO	$_{\rm Je,Qs}$		1		1190	$mg/K_s$	r S	1	4.00
							Spike	Percent	Recovery
Surrogate		Flag	Cert	Result	Units	Dilution	Amount	Recovery	Limits
Trifluorotoluene (TFT)				11.4	mg/Kg	1	10.0	114	70 - 130
4-Bromofluorobenzene (4-BFB)	Qsr	$_{\rm Qsr}$		25.6	$\mathrm{mg/Kg}$	1	10.0	256	70 - 130

Report Date: June 23, 2015

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Method B	Blanks				
Method Blank (1)	QC Batch: 122418				
QC Batch: 122418		Date Analyzed:	2015-06-18	Analyzed By:	AK
Prep Batch: 103564		QC Preparation:	2015-06-18	Prepared By:	AK
			MDL		
Parameter	Flag	Cert	Result	Units	$\operatorname{RL}$
Chloride			<3.85	mg/Kg	4

Work Order: 15061712

Method Blank (1)	QC Batch: 12253	39
------------------	-----------------	----

QC Batch: 122539 Prep Batch: 103647			Date Analyzed: QC Preparation:		23 22		By: AK By: AK	
					MDL			
Parameter	Flag		Cert		Result		Units	$\operatorname{RL}$
Benzene			1		< 0.00533		m mg/Kg	0.02
Toluene			1		< 0.00645		m mg/Kg	0.02
Ethylbenzene			1		< 0.0116		mg/Kg	0.02
Xylene			1		< 0.00874		mg/Kg	0.02
						Spike	Percent	Recovery
Surrogate	Flag	Cert	Result	Units	Dilution	Amount	Recovery	Limits
Trifluorotoluene (TFT)			1.82	mg/Kg	1	2.00	91	70 - 130
4-Bromofluorobenzene (4-BFB)			1.88	mg/Kg	1	2.00	94	70 - 130
				2, 0				

#### Method Blank (1) QC Batch: 122540

QC Batch: Prep Batch:	$122540 \\ 103647$		Date Analyzed: QC Preparation:		Analyzed By Prepared By:	
				MDL		
Parameter		Flag	Cert	Result	Units	$\operatorname{RL}$
GRO			1	<2.32	mg/Kg	4

Report Date: June 23, 7250715022.001	Report Date: June 23, 2015 7250715022.001				: 15061712 7 #3		Page Number: 11 of 22			
C			a .		TT •		Spike	Percent		overy
Surrogate		Fla	g Cert	Result	Units	Dilution	Amount	Recovery		nits
Trifluorotoluene (TFT)				2.33	mg/Kg	1	2.00	116		130
4-Bromofluorobenzene (4-BFB)				1.99	$\mathrm{mg/Kg}$	1	2.00	100	70 -	130
Method Blank (1)	QC E	Batch: 12254	45							
Method Blank (1) QC Batch: 122545 Prep Batch: 103612	QC E	Batch: 1225	Date A	Analyzed: reparation:	2015-06- 2015-06-	19		Analyze Prepare	v	SC SC
QC Batch: 122545 Prep Batch: 103612	QC E		Date A QC Pr	reparation:		19 MDL		Prepare	v	$\mathbf{SC}$
QC Batch: 122545 Prep Batch: 103612 Parameter	QC E	Batch: 12254 Flag	Date A QC Pr	•		19 MDL Result		Prepare	v	SC RL
QC Batch: 122545 Prep Batch: 103612	QC E		Date A QC Pr	reparation:		19 MDL		Prepare	v	$\mathbf{SC}$
QC Batch: 122545 Prep Batch: 103612 Parameter	QC E		Date A QC Pr	reparation: Cert		19 MDL Result <7.41	Spike	Prepare	d By:	SC RL

70 - 130

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### Laboratory Control Spikes

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

QC Batch: 122418 Prep Batch: 103564	Date Analyzed:2015-06-18Analyzed BQC Preparation:2015-06-18Prepared B										
-											
				LCS			Spike	M	atrix		Rec.
Param	-	F	C I	Result	Units	Dil.	Amount	$\mathbf{R}$	esult R	lec.	Limit
Chloride				2350	mg/Kg	5	2500	<	19.2	94	85 - 115
Percent recovery is based on the s	pike 1	resu	lt. RPD	is based o	on the sp	pike and sp	ike duplica	ate res	ult.		
			LCSD			Spike	Matrix		Rec.		RPD
Param	$\mathbf{F}$	С	Result	Units	Dil.	Amount	Result	Rec.	Limit	RPD	Limit
Chloride			2350	mg/Kg	5	2500	$<\!19.2$	94	85 - 115	0	20

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

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

Xylene

QC Batch:	122539			Date Analy		5-06-23			•	By: AK
Prep Batch:	103647		C	QC Prepara	ation: $201$	5-06-22		Р	repared	By: AK
				LCS			Spike	Matrix		Rec.
Param		$\mathbf{F}$	$\mathbf{C}$	Result	Units	Dil.	Amount	Result	Rec.	Limit
Benzene			1	1.89	m mg/Kg	1	2.00	< 0.00533	94	70 - 130
Toluene			1	1.80	m mg/Kg	1	2.00	$<\!0.00645$	90	70 - 130
Ethylbenzene	<u>þ</u>		1	1.73	m mg/Kg	1	2.00	< 0.0116	86	70 - 130

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

1

5.64

			LCSD			Spike	Matrix		Rec.		RPD
Param	F	$\mathbf{C}$	Result	Units	Dil.	Amount	Result	Rec.	Limit	RPD	Limit
Benzene		1	1.93	mg/Kg	1	2.00	< 0.00533	96	70 - 130	2	20
Toluene		1	1.81	mg/Kg	1	2.00	< 0.00645	90	70 - 130	1	20
Ethylbenzene		1	1.74	mg/Kg	1	2.00	< 0.0116	87	70 - 130	1	20
Xylene		1	5.70	$\mathrm{mg/Kg}$	1	6.00	< 0.00874	95	70 - 130	1	20
					-				-		

mg/Kg

1

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

continued ...

< 0.00874

Report Date: June 23, 2015 7250715022.001	Work Order: 15061712 Page Nur 30137 #3									er: 13 of 22
control spikes continued										
			CS	LCSD			Spike	LCS	LCSD	Rec.
Surrogate		Re	esult	Result	Units	Dil.	Amount	Rec.	Rec.	Limit
		T	CS	LCSD			Spike	LCS	LCSD	Rec.
Surrogate			esult	Result	Units	Dil.	Amount		Rec.	Limit
Trifluorotoluene (TFT)			.86	1.76	mg/Kg	1	2.00	93	88	70 - 130
4-Bromofluorobenzene (4-BFB)		1	.83	1.75	mg/Kg	1	2.00	92	88	70 - 130
Laboratory Control Spike (LO QC Batch: 122540 Prep Batch: 103647	CS-1)			alyzed: paration:	2015-06-23 2015-06-22				Analyzed Prepared	v
		v	1						Ĩ	v
			LCS	3			Spike	Matrix		Rec.
Param	$\mathbf{F}$	$\mathbf{C}$	Resu		nits Dil	l. A	mount	Result	Rec.	Limit
GRO		1	15.5	ó mg	g/Kg = 1		20.0	$<\!2.32$	78	70 - 130
Param GRO	F C	LCSI Resul 15.3	t U mg	g/Kg	Spike Dil. Amou 1 20.0	nt R	atrix esult Re 2.32 70	c. Li: 5 70-	ec. mit RP · 130 1	
Percent recovery is based on the s	pike resu	ılt. RPI	) is ba	ased on the	he spike and	l spike	duplicate	result.		
		L	$\mathbf{CS}$	LCSD			Spike	LCS	LCSD	Rec.
		B	esult	D 1/	Units	Dil.	Amount		р	
Surrogate		100	suit	Result	Units	D.11.	Amount	Rec.	Rec.	$\operatorname{Limit}$
			.34	2.35	mg/Kg	1	2.00	Rec. 117	Rec. 118	Limit 70 - 130
Trifluorotoluene (TFT)		2								70 - 130
Surrogate Trifluorotoluene (TFT) 4-Bromofluorobenzene (4-BFB) Laboratory Control Spike (LC QC Batch: 122545 Prep Batch: 103612	CS-1)	2 2 Da	.34 .09	2.35	mg/Kg	1 1	2.00	117	118	70 - 130 70 - 130 By: SC
Trifluorotoluene (TFT) 4-Bromofluorobenzene (4-BFB) Laboratory Control Spike (LC QC Batch: 122545 Prep Batch: 103612		2 2 Da QC	.34 .09 te An. C Prep LCS	2.35 2.12 alyzed: paration:	mg/Kg mg/Kg 2015-06-23 2015-06-19	1 1 3	2.00 2.00	117 104 Matrix	118 106 Analyzed Prepared	70 - 130 70 - 130 By: SC By: SC Rec.
Irifluorotoluene (TFT) 4-Bromofluorobenzene (4-BFB) Laboratory Control Spike (LC QC Batch: 122545 Prep Batch: 103612 Param	C <b>S-1</b> ) F	2 2 Da	.34 .09 te An C Prep LCS Resu	2.35 2.12 alyzed: baration: S lt U	mg/Kg mg/Kg 2015-06-23 2015-06-19 nits Dil	1 1 3	2.00 2.00 Spike mount	117 104 Matrix Result	118 106 Analyzed Prepared Rec.	70 - 130 70 - 130 By: SC By: SC Rec. Limit
Trifluorotoluene (TFT) 4-Bromofluorobenzene (4-BFB) Laboratory Control Spike (LC QC Batch: 122545		2 2 Da QC	.34 .09 te An. C Prep LCS	2.35 2.12 alyzed: baration: S lt U	mg/Kg mg/Kg 2015-06-23 2015-06-19	1 1 3	2.00 2.00	117 104 Matrix	118 106 Analyzed Prepared	70 - 130 70 - 130 By: SC By: SC Rec.

Report Date: June 23, 2015 7250715022.001				Work Or 30	rder: 15 0137 #3				Page Nu	ımber:	14 of 22
control spikes continued											
			LCSD			Spike	Matrix		Rec.		RPD
Param	$\mathbf{F}$	$\mathbf{C}$	Result	Units	Dil.	Amount	Result	Rec.	Limit	$\operatorname{RPD}$	Limit
			LCSD			Spike	Matrix		Rec.		RPD
Param	$\mathbf{F}$	С	Result	Units	Dil.	Amount	Result	Rec.	Limit	RPD	Limit
DRO		1	249	mg/Kg	1	250	$<\!7.41$	100	70 - 130	4	20
Percent recovery is based on th	e spike	resu	lt. RPD	is based o	on the s	pike and s	pike duplic	ate resu	lt.		
	LO	CS	LCSI	)			Spike	LCS	5 LCS	D	Rec.
Surrogate	Res	sult	Resul	lt U	nits	Dil.	Amount	Rec	. Rec		Limit
n-Tricosane	58	5.5	61.9	mg	g/Kg	1	50.0	117	124	: '	70 - 130

Report Date: June 23, 2015

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7250715022.001				30	)137 #3						
Matrix Spike	es										
Matrix Spike (MS-1) S	piked Sa	ample:	396009								
QC Batch: 122418 Prep Batch: 103564				Analyzec Preparatic		.5-06-18 .5-06-18			•	zed By red By:	
Flep Datch. 105504			QUI	reparatio	011: 201	.0-00-10			гтера	ied by:	AK
				MS			Spike	Matr	rix		Rec.
Param		$\mathbf{F}$	C F	$\operatorname{Result}$	Units	Dil.	Amount	Resu	ilt Rec.	I	Limit
Chloride	$_{\rm Qs}$	$_{\rm Qs}$	1	9700	mg/Kg	5	2500	1660	0 124	78.	9 - 121
Percent recovery is based on	the spik	e resu	lt. RPD	is based o	on the sp	pike and s	pike duplie	cate resul	lt.		
			MSD			Spike	Matrix		Rec.		RPD
Param	F	C	Result	Units	Dil.	Amount	Result	Rec.	Limit	RPD	Limit
Chloride	Qs Q	5	19900	mg/Kg	5	2500	16600	132 7	78.9 - 121	1	20

Work Order: 15061712

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

#### Matrix Spike (MS-1) Spiked Sample: 395922

QC Batch:	122539	Date Analyzed:	2015-06-23	Analyzed By:	AK
Prep Batch:	103647	QC Preparation:	2015-06-22	Prepared By:	AK

			MS			Spike	Matrix		Rec.
Param	$\mathbf{F}$	$\mathbf{C}$	Result	Units	Dil.	Amount	Result	Rec.	Limit
Benzene		1	1.78	mg/Kg	1	2.00	< 0.00533	89	70 - 130
Toluene		1	1.72	m mg/Kg	1	2.00	$<\!0.00645$	86	70 - 130
Ethylbenzene		1	1.70	m mg/Kg	1	2.00	< 0.0116	85	70 - 130
Xylene		1	5.63	$\mathrm{mg/Kg}$	1	6.00	< 0.00874	94	70 - 130

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

			MSD			Spike	Matrix		Rec.		RPD
Param	$\mathbf{F}$	$\mathbf{C}$	Result	Units	Dil.	Amount	Result	Rec.	Limit	RPD	Limit
Benzene		1	1.66	mg/Kg	1	2.00	< 0.00533	83	70 - 130	7	20
Toluene		1	1.59	$\mathrm{mg/Kg}$	1	2.00	< 0.00645	80	70 - 130	8	20
Ethylbenzene		1	1.59	mg/Kg	1	2.00	< 0.0116	80	70 - 130	7	20
Xylene		1	5.25	mg/Kg	1	6.00	< 0.00874	88	70 - 130	7	20
					-				-		

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

continued ...

Report Date: June 23, 20 7250715022.001	15	Wo	ork Order: 30137				Pa	ge Numbe	r: 16 of 2		
matrix spikes continued						a .:			F		
Surrogate		MS Result	MSD Result	Units	Dil.	Spike Amount	MS Rec.	MSD Rec.	Rec. Limit		
Surrogate		nesun	nesun	Onits	DII.	Amount	nec.	nec.	LIIIII		
		MS	MSD			Spike	MS	MSD	Rec.		
Surrogate		Result	Result	Units	Dil.	Amount	Rec.	Rec.	Limit		
Trifluorotoluene (TFT)		1.84	1.89	$\mathrm{mg/Kg}$	1	2	92	94	70 - 130		
4-Bromofluorobenzene (4-1	BFB)	1.92	1.96	mg/Kg	1	2	96	98	70 - 130		
<b>Matrix Spike (MS-1)</b> QC Batch: 122540 Prep Batch: 103647	Spiked Sample:	395922 Date An QC Prep	v	2015-06-23 2015-06-22				Analyzed Prepared			
Param	$\mathbf{F}$	MS C Resu		its Dil.		1	Matrix Result	Rec.	Rec. Limit		
GRO	Ľ	1 14.8					< 2.32	74	70 - 130		
Percent recovery is based of	on the spike resu		07	*				11	10 - 100		
referint recovery is based of	on the spike resu			c spike and	spike (	upilcate re	sur.				
-		MSD		Spike		atrix	Re		RPD		
Param	F C			il. Amour		esult Rec		nit RP			
GRO	Qs Qs 1		0/ 0	1 20.0		2.32 69		130 7	20		
Percent recovery is based of	on the spike resu	lt. RPD is ba	ased on th	e spike and	spike o	luplicate re	sult.				
		MS	MSD			Spike	MS	MSD	Rec.		
Surrogate		Result	Result	Units	Dil.	Amount	Rec.	Rec.	Limit		
Trifluorotoluene (TFT)		2.49	2.48	mg/Kg	1	2	124	124	70 - 130		
Irilluorotoluene (IFI)	>	2.20	2.21	mage / IZ or	1	2	110	110	70 - 130		
	BFB)	2.20	2.21	mg/Kg	1	2	110				
4-Bromofluorobenzene (4-1 <b>Matrix Spike (MS-1)</b> QC Batch: 122545 Prep Batch: 103612	BFB) Spiked Sample:		alyzed:	2015-06-23 2015-06-19			110	Analyzed Prepared	•		
4-Bromofluorobenzene (4-1 Matrix Spike (MS-1) QC Batch: 122545	,	: 395908 Date An	alyzed:	2015-06-23				v	•		
4-Bromofluorobenzene (4-1 Matrix Spike (MS-1) QC Batch: 122545	,	: 395908 Date An	alyzed: paration:	2015-06-23			Лаtrix	v	By: SC Rec.		
4-Bromofluorobenzene (4-1 Matrix Spike (MS-1) QC Batch: 122545	,	395908 Date An QC Prep	alyzed: paration: lt Uni	2015-06-23 2015-06-19 its Dil.	S	pike M nount I		v	By: SC		
Report Date: June 23, 2015 7250715022.001	Work Order: 15061712 30137 #3						Page Number: 17 of 22				
--	----------------------------------	--------------	---------------	-------	----------	-----------------	-----------------------	----------	---------------	----------------------	---------------------
matrix spikes continued											
			MSD			Spike	Matrix		Rec.		RPD
Param	$\mathbf{F}$	$\mathbf{C}$	Result	Units	Dil.	Amount	Result	Rec.	Limit	$\operatorname{RPD}$	Limit
Param	F	С	MSD Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit	RPD	RPD Limit
DDO	Γ Qr,Qs Qr,Qs	1	163	mg/Kg	<u> </u>	250	<7.41	65	70 - 130	27	$\frac{111111}{20}$
Percent recovery is based on th		lt. I	RPD is b	0, 0	ne spił	and spil	ke duplica	te resul	t.		
	MS		MSD				Spike	MS	MSI	)	Rec.
Surrogate	Result		Result	Units		Dil.	Amount	Rec	. Rec.		Limit
n-Tricosane	57.2		59.8	mg/K	g	1	50	114	120	7	70 - 130

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# **Calibration Standards**

## Standard (ICV-1)

QC Batch:	122418			Date A	Analyzed:	2015-06-18		Analy	zed By: AK
					ICVs	ICVs	ICVs	Percent	
					True	Found	Percent	Recovery	Date
Param		Flag	Cert	Units	Conc.	Conc.	Recovery	Limits	Analyzed
Chloride				mg/Kg	100	100	100	85 - 115	2015-06-18

## Standard (CCV-1)

QC Batch:	122418			Date A	Analyzed:	2015-06-18		Analy	zed By: AK
					$\mathrm{CCVs}$	$\mathrm{CCVs}$	CCVs	Percent	
					True	Found	Percent	Recovery	Date
Param		Flag	Cert	Units	Conc.	Conc.	Recovery	Limits	Analyzed
Chloride				m mg/Kg	100	100	100	85 - 115	2015-06-18

### Standard (CCV-1)

QC Batch: 122539			Date Analyzed: 2015-06-23				Analyzed By: AK		
				$\mathrm{CCVs}$	CCVs	CCVs	Percent		
				True	Found	Percent	Recovery	Date	
Param	Flag	Cert	Units	Conc.	Conc.	Recovery	Limits	Analyzed	
Benzene		1	mg/kg	0.100	0.0958	96	80 - 120	2015-06-23	
Toluene		1	m mg/kg	0.100	0.0891	89	80 - 120	2015-06-23	
Ethylbenzene		1	m mg/kg	0.100	0.0848	85	80 - 120	2015-06-23	
Xylene		1	mg/kg	0.300	0.278	93	80 - 120	2015-06-23	

#### Standard (CCV-2)

QC Batch: 122539

Date Analyzed: 2015-06-23

Analyzed By: AK

Report Date: June 2 7250715022.001		We	ork Order: 1 30137 #			Page Number: 19 of 22		
				CCVs True	CCVs Found	CCVs Percent	Percent Recovery	Date
Param	Flag	Cert	Units	Conc.	Conc.	Recovery	Limits	Analyzed
Benzene		1	mg/kg	0.100	0.0950	95	80 - 120	2015-06-23
Toluene		1	mg/kg	0.100	0.0905	90	80 - 120	2015-06-23
Ethylbenzene		1	mg/kg	0.100	0.0861	86	80 - 120	2015-06-23
Xylene		1	mg/kg	0.300	0.283	94	80 - 120	2015-06-23

### Standard (CCV-3)

QC Batch: 122539			Date An	Analyzed By: AK				
				$\mathrm{CCVs}$	CCVs	$\operatorname{CCVs}$	Percent	
				True	Found	Percent	Recovery	Date
Param	Flag	Cert	Units	Conc.	Conc.	Recovery	Limits	Analyzed
Benzene		1	mg/kg	0.100	0.0924	92	80 - 120	2015-06-23
Toluene		1	m mg/kg	0.100	0.0894	89	80 - 120	2015-06-23
Ethylbenzene		1	m mg/kg	0.100	0.0856	86	80 - 120	2015-06-23
Xylene		1	mg/kg	0.300	0.279	93	80 - 120	2015-06-23

## Standard (CCV-1)

QC Batch:	122540		Date	Analyzed:	2015-06-23		Analy	zed By: AK
				$\mathrm{CCVs}$	$\mathrm{CCVs}$	CCVs	Percent	
				True	Found	Percent	Recovery	Date
Param	Flag	Cert	Units	Conc.	Conc.	Recovery	Limits	Analyzed
GRO		1	m mg/Kg	1.00	0.968	97	80 - 120	2015-06-23

# Standard (CCV-2)

QC Batch:	122540		Date	Analyzed:	2015-06-23		Analy	zed By: AK
				CCVs	CCVs	CCVs	Percent	_
				True	Found	Percent	Recovery	Date
Param	Flag	Cert	Units	Conc.	Conc.	Recovery	Limits	Analyzed
GRO		1	m mg/Kg	1.00	0.964	96	80 - 120	2015-06-23

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Standard (C	CCV-2)							
QC Batch: 1	122545		Date	Analyzed:	2015-06-23		Anal	yzed By: SC
Param DRO	Flag	Cert	Units mg/Kg	CCVs True Conc. 250	CCVs Found Conc. 243	CCVs Percent Recovery 97	Percent Recovery Limits 80 - 120	Date Analyzed 2015-06-23
Standard (C QC Batch: 1	CCV-3) 122545		Date	Analyzed:	2015-06-23		Anal	yzed By: SC
·				CCVs	CCVs	$\rm CCVs$	Percent	v v

				True	Found	Percent	Recovery	Date
Param	Flag	Cert	Units	Conc.	Conc.	Recovery	Limits	Analyzed
DRO		1	m mg/Kg	250	249	100	80 - 120	2015-06-23

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# Appendix

## **Report Definitions**

NameDefinitionMDLMethod Detection LimitMQLMinimum Quantitation LimitSDLSample Detection Limit

# Laboratory Certifications

	Certifying	Certification	Laboratory
$\mathbf{C}$	Authority	Number	Location
-	NCTRCA	WFWB384444Y0909	TraceAnalysis
-	DBE	VN 20657	TraceAnalysis
-	HUB	1752439743100-86536	TraceAnalysis
-	WBE	237019	TraceAnalysis
1	NELAP	T104704392-14-8	Midland

# Standard Flags

- F Description
- B Analyte detected in the corresponding method blank above the method detection limit
- H Analyzed out of hold time
- J Estimated concentration
- Jb The analyte is positively identified and the value is approximated between the SDL and MQL. Sample contains less then ten times the concentration found in the method blank. The result should be considered non-detect to the SDL.
- Je Estimated concentration exceeding calibration range.
- MI1 Split peak or shoulder peak
- MI2 Instrument software did not integrate
- MI3 Instrument software misidentified the peak
- MI4 Instrument software integrated improperly
- MI5 Baseline correction
- Qc Calibration check outside of laboratory limits.
- Qr RPD outside of laboratory limits
- Qs Spike recovery outside of laboratory limits.
- Qsr Surrogate recovery outside of laboratory limits.
- U The analyte is not detected above the SDL

# Attachments

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The scanned attachments will follow this page.

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





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

 Lubbock
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 800-378-1296
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 WEB: www.traceanalysis.com
 WEB: www.traceanalysis.com

Certifications

WBE HUB NCTRCA DBE NELAP DoD LELAP Kansas Oklahoma ISO 17025

# Analytical and Quality Control Report

Karolanne Toby APEX/Titan 2351 W. Northwest Hwy. Suite 3321 Dallas, Tx, 75220

Report Date: June 23, 2015

FAX 915 • 585 • 4944

FAX 432 • 689 • 6313

Work Order: 15061711

915-585-3443

432-689-6301

972-242 -7750

Project Name: 30137 #4 Project Number: 7250715053

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
395914	N-Wall	soil	2015-06-15	13:15	2015-06-17
395915	W-Wall	soil	2015-06-15	13:17	2015-06-17
395916	E-Wall	soil	2015-06-15	13:19	2015-06-17
395917	S-Wall	soil	2015-06-15	13:22	2015-06-17
395918	RP	soil	2015-06-15	13:25	2015-06-17
395919	STP	soil	2015-06-15	13:27	2015-06-17

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.

TraceAnalysis, Inc. uses the attached chain of custody (COC) as the laboratory check-in documentation which includes sample receipt, temperature, sample preservation method and condition, collection date and time, testing requested, company, sampler, contacts and any special remarks.

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

Blain Lepturch

Dr. Blair Leftwich, Director James Taylor, Assistant Director Brian Pellam, Operations Manager

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Sample 395916 (E-Wall)	
Sample 395917 (S-Wall)	
Sample 395918 (RP)	
Sample 395919 (STP)	
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QC Batch 122419 - Method Blank (1)	15
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QC Batch 122488 - Method Blank (1)	15
QC Batch 122489 - Method Blank (1)	16
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Laboratory Control Spikes	17
QC Batch 122418 - LCS (1)	
QC Batch 122410 - LCS (1)	
QC Batch 122475 - LCS $(1)$	
QC Batch 122488 - LCS (1)	
QC Batch 122486 - LCS (1)	
QC Batch 122545 - LCS $(1)$	
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Matrix Spikes	<b>20</b>
QC Batch 122418 - MS (1)	20
QC Batch 122419 - MS (1)	20
QC Batch 122475 - MS $(1)$	20
QC Batch 122488 - xMS (1)	21
$\overrightarrow{QC}$ Batch 122489 - xMS $(1)$	
QC Batch 122545 - MS (1)	
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QC Batch 122545 - CCV (2)	
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# Case Narrative

Samples for project 30137 #4 were received by TraceAnalysis, Inc. on 2015-06-17 and assigned to work order 15061711. Samples for work order 15061711 were received intact at a temperature of 2.1 C.

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

		$\operatorname{Prep}$	Prep	$\mathbf{QC}$	Analysis
Test	Method	Batch	Date	Batch	Date
BTEX	S 8021B	103596	2015-06-19 at 08:14	122488	2015-06-20 at 12:17
Chloride (Titration)	SM 4500-Cl B $$	103564	2015-06-18 at $08:35$	122418	2015-06-18 at $09:30$
Chloride (Titration)	SM 4500-Cl B $$	103564	2015-06-18 at $08:35$	122419	2015-06-18 at $09:55$
Chloride (Titration)	SM 4500-Cl B $$	103564	2015-06-18 at $08:35$	122475	2015-06-19 at 12:51
TPH DRO - NEW	S 8015 D	103612	2015-06-19 at 15:26	122545	2015-06-23 at $09:48$
TPH GRO	S 8015 D	103596	2015-06-19 at $08:14$	122489	2015-06-20 at $12:28$

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 15061711 since the sample was chosen at random. Therefore, the validity of the analytical data reported has been determined by the laboratory control sample (LCS) and the method blank (MB). These quality control measures are performed with each preparation batch to ensure data integrity.

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

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Analytical Report		

# Analytical Report

### Sample: 395914 - N-Wall

Laboratory: Midland								
Analysis: BTEX		Analytica	l Method:	S 8021E	3		Prep Method	l: S 5035
QC Batch: 122488		Date Ana	lyzed:	2015-06	-20		Analyzed By	r: AK
Prep Batch: 103596		Sample P	reparation:	2015-06	-19		Prepared By	: AK
				$\operatorname{RL}$				
Parameter	Flag	Cert		Result	Unit	s	Dilution	RL
Benzene	U	5	<	0.0200	mg/Kg	5	1	0.0200
Toluene	U	5	<	0.0200	$\mathrm{mg/Kg}$	5	1	0.0200
Ethylbenzene	$_{\rm Qs,U}$	5	<	0.0200	$\mathrm{mg/Kg}$	5	1	0.0200
Xylene	U	5	<	0.0200	mg/Kg	5	1	0.0200
						а ч		D
C .		<b>a</b> .		<b>TT</b>		Spike	Percent	Recovery
Surrogate	Fla	g Cert	Result	Units	Dilution	Amount	5	Limits
Trifluorotoluene (TFT)			1.86	$\mathrm{mg/Kg}$	1	2.00	93	70 - 130
4-Bromofluorobenzene (4-BFB)			1.95	$\mathrm{mg/Kg}$	1	2.00	98	70 - 130
Sample: 395914 - N-Wall								
Laboratory: Midland	<sup>×</sup>							

Analysis:	Chloride (Titration	) A	nalytical Method:	SM 4500-Cl B $$	Prep Method:	N/A
QC Batch:	122419 Date Analyzed:		ate Analyzed:	2015-06-18	Analyzed By:	AK
Prep Batch:	103564	Sa	ample Preparation:	2015-06-18	Prepared By:	AK
			$\operatorname{RL}$			
Parameter	Ι	Flag Cei	rt Result	Units	Dilution	$\operatorname{RL}$
Chloride		U	<20.0	mg/Kg	5	4.00

## Sample: 395914 - N-Wall

Laboratory: Analysis: QC Batch:	Midland TPH DRO - NEW 122545	Da	nalytical Method: ate Analyzed:	S 8015 D 2015-06-23	Prep Method: Analyzed By:	$\dot{SC}$
Prep Batch:	103612	Sa	mple Preparation:	2015-06-19	Prepared By:	$\mathbf{SC}$
			RL			
Parameter	F	lag Cert	t Result	Units	Dilution	$\operatorname{RL}$
DRO	Qr,	Qs,U 5	<50.0	m mg/Kg	1	50.0

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Report Date: June 23, 201 7250715053	V	Work Order: 30137	Page Number: 7 of 28				
Surrogate Fla	g Cert	Result	Units	Dilution	Spike Amount	Percent Recovery	Recovery Limits
n-Tricosane		61.2	m mg/Kg	1	50.0	122	70 - 130
Sample:395914 - N-WaLaboratory:MidlandAnalysis:TPH GROQC Batch:122489Prep Batch:103596	11	Date An	al Method: alyzed: Preparation:	S 8015 D 2015-06-20 2015-06-19		Prep Meth Analyzed I Prepared I	By: AK
Parameter	Flag	Cert	Re	RL sult	Units	Dilution	$\operatorname{RL}$
GRO	Qs,U	5		4.00	mg/Kg	1	4.00

Surrogate	Flag	Cert	Result	Units	Dilution	Spike Amount	Percent Recovery	Recovery Limits
Trifluorotoluene (TFT)	0		2.31	mg/Kg	1	2.00	116	70 - 130
4-Bromofluorobenzene (4-BFB)			2.02	$\mathrm{mg/Kg}$	1	2.00	101	70 - 130

#### Sample: 395915 - W-Wall

Laboratory:MidlandAnalysis:BTEXQC Batch:122488Prep Batch:103596		Date Ana	l Method: lyzed: reparation:	S 8021E 2015-06 2015-06	-20		Prep Methoo Analyzed By Prepared By	r: AK
				RL				
Parameter	Flag	Cert		Result	Unit	s	Dilution	$\operatorname{RL}$
Benzene	U	5	<	0.0200	mg/Kg	r S	1	0.0200
Toluene		5	0	.0221	$\mathrm{mg/Kg}$	r S	1	0.0200
Ethylbenzene	Qs	5	0	.0389	$mg/K_{2}$	5	1	0.0200
Xylene		5	0	.0681	$mg/K_s$	5	1	0.0200
Surrogate	Fla	g Cert	Result	Units	Dilution	Spike Amount	Percent Recovery	Recovery Limits
Trifluorotoluene (TFT)		~	1.84	mg/Kg	1	2.00	92	70 - 130
4-Bromofluorobenzene (4-BFB)			1.95	mg/Kg	1	2.00	98	70 - 130

Report Date: J 7250715053	eport Date: June 23, 2015 250715053			Work Order 3013		11		Page Numb	er: 8 of 28
Sample: 3959	15 - W-Wall								
v	fidland								
*	hloride (Titratic	on)		lytical Met		M 4500-Cl B		Prep Metho	,
•	22419			e Analyzed		015-06-18		Analyzed E	•
Prep Batch: 10	03564		Sam	ple Prepar	ation: 20	015-06-18		Prepared B	by: AK
					$\operatorname{RL}$				
Parameter		Flag	Cert		Result	Uni		Dilution	RL
Chloride		U			<20.0	mg/F	Χg	5	4.00
Sample: 3959	15 - W-Wall								
Laboratory: M	Iidland								
v	PH DRO - NEV	V		alytical Me		5 8015 D		Prep Methe	
•	22545			e Analyze		2015-06-23		Analyzed E	•
Prep Batch: 10	03612		San	nple Prepa	ration: 2	2015-06-19		Prepared B	y: SC
					$\operatorname{RL}$				
Parameter		Flag	Cert		Result	Un		Dilution	RL
DRO		$_{\rm Qr,Qs,U}$	5		<50.0	mg/I	Хg	1	50.0
						ç	Spike	Percent	Recovery
Surrogate	Flag	Cert	Result	Units	Dilı	ition A:	mount	Recovery	Limits
n-Tricosane			53.9	m mg/Kg		1	50.0	108	70 - 130
Analysis: T QC Batch: 12	<b>15 - W-Wall</b> Iidland PH GRO 22489 03596		Date An	al Method alyzed: Preparation	2015-	06-20		Prep Method Analyzed By: Prepared By:	: AK
				т	RL	TT -			л
Parameter GRO		Flag	Cert	ŀ	Result 9.34	Uni mg/ŀ		Dilution 1	$\frac{\text{RL}}{4.00}$
GIU		Qs	5		J.J4	iiig/r	<b>x</b> g	1	4.00
a .			~ ·		<b>TT 1</b> .		Spike	Percent	Recovery
Surrogate		Fl	ag Cert	Result	Units	Dilution	Amount	Recovery	Limits
Trifluorotoluene				2.30	mg/Kg	1	2.00	115	70 - 130
1-Bromotluorob	enzene (4-BFB)			2.12	$\mathrm{mg/Kg}$	1	2.00	106	70 - 130

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Sample: 395916 - E-Wall								
Laboratory:MidlandAnalysis:BTEXQC Batch:122488Prep Batch:103596		Analytical Date Anal Sample Pr	lyzed:	S 8021E 2015-06 : 2015-06	-20		Prep Metho Analyzed B Prepared B	y: AK
				$\operatorname{RL}$				
Parameter	Flag	Cert		Result	Units	5	Dilution	$\operatorname{RL}$
Benzene	U	5	<	(0.0200	mg/Kg		1	0.0200
Toluene		5	(	0.0231	mg/Kg		1	0.0200
Ethylbenzene	Qs	5	(	0.0528	mg/Kg		1	0.0200
Xylene		5	(	0.0585	mg/Kg	5	1	0.0200
Common and a		O and	Dervik	TT :	Dilation	Spike	Percent	Recovery
Surrogate	Flag	g Cert	Result	Units	Dilution	Amount	<i>.</i>	Limits
Trifluorotoluene (TFT)			1.87	mg/Kg	1	2.00	94	70 - 130
4-Bromofluorobenzene (4-BFB)			1.95	m mg/Kg	1	2.00	98	70 - 130

#### Sample: 395916 - E-Wall

Laboratory: Analysis: QC Batch: Prep Batch:	Midland Chloride (Titration) 122419 103564		ytical Method: Analyzed: ble Preparation:	SM 4500-Cl B 2015-06-18 2015-06-18	Prep Method: Analyzed By: Prepared By:	ÁK
			RL			
Parameter	Flag	Cert	Result	Units	Dilution	$\operatorname{RL}$
Chloride	U		<20.0	mg/Kg	5	4.00

#### Sample: 395916 - E-Wall

Laboratory:	Midland							
Analysis:	TPH DRO - N	ΈW	Anal	lytical Meth	od: S 8015	5 D	Prep Me	thod: N/A
QC Batch:	122545			e Analyzed:	2015-0	6-23	Analyzeo	l By: SC
Prep Batch:	103612				tion: 2015-0	06-19	Prepared	l By: SC
					RL			
Parameter		Flag	Cert	Re	$\operatorname{sult}$	Units	Dilution	$\operatorname{RL}$
DRO		$_{ m Qr,Qs,U}$	5	<;	50.0	mg/Kg	1	50.0
Surrogate	Flag	Cert	Result	Units	Dilution	Spike Amount	Percent Recovery	Recovery Limits
	riag	Cert			Dilution		ĩ	
n-Tricosane			64.6	m mg/Kg	1	50.0	129	70 - 130

Report Date: June 23, 2015 7250715053		Work Order: 15061711 30137 #4						Page Numb	per: 10 of 28
Sample: 395916 - E-Wall									
Laboratory:MidlandAnalysis:TPH GROQC Batch:122489Prep Batch:103596	Analytical Method:S 8015 DDate Analyzed:2015-06-20Sample Preparation:2015-06-19						Prep Method: S 503 Analyzed By: AK Prepared By: AK		
					$\operatorname{RL}$				
Parameter	Flag		Cert		Result	Uni	ts	Dilution	$\operatorname{RL}$
GRO	$_{\rm Qs}$		5		8.14	mg/K	g	1	4.00
							Spike	Percent	Recovery
Surrogate		Flag	Cert	Result	Units	Dilution	Amount	Recovery	Limits
Trifluorotoluene (TFT)				2.33	mg/Kg	1	2.00	116	70 - 130
4-Bromofluorobenzene (4-BFB)				2.13	$\mathrm{mg/Kg}$	1	2.00	106	70 - 130

#### Sample: 395917 - S-Wall

Laboratory: Midland								
Analysis: BTEX		Analytica	l Method:	S 8021E	3		Prep Method	l: S 5035
QC Batch: 122488		Date Ana	lyzed:	2015-06	-20		Analyzed By	: AK
Prep Batch: 103596		Sample Preparation:		2015-06	-19		Prepared By	: AK
				$\operatorname{RL}$				
Parameter	Flag	Cert	]	Result	Units	5	Dilution	$\operatorname{RL}$
Benzene	U	5	<	0.0200	mg/Kg	r	1	0.0200
Toluene	U	5	<	0.0200	m mg/Kg	r S	1	0.0200
Ethylbenzene	$_{\rm Qs,U}$	5	<	0.0200	$\mathrm{mg/Kg}$	r	1	0.0200
Xylene	U	5	<	0.0200	mg/Kg	s	1	0.0200
						Spike	Percent	Recovery
Surrogate	Fla	g Cert	Result	Units	Dilution	Amount	Recovery	Limits
Trifluorotoluene (TFT)			2.01	mg/Kg	1	2.00	100	70 - 130
4-Bromofluorobenzene (4-BFB)			2.03	$\mathrm{mg/Kg}$	1	2.00	102	70 - 130

#### Sample: 395917 - S-Wall

Laboratory:	Midland				
Analysis:	Chloride (Titration)	Analytical Method:	SM 4500-Cl B	Prep Method:	N/A
QC Batch:	122475	Date Analyzed:	2015-06-19	Analyzed By:	AK
Prep Batch:	103564	Sample Preparation:	2015-06-18	Prepared By:	AK

continued ...

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sample 395917 co	ntinued							
					RL			
Parameter		Flag	Cert	Res	sult	Units	Dilution	RL
					RL			
Parameter		Flag	Cert	Res		Units	Dilution	RI
Chloride		U		<2	20.0	m mg/Kg	5	4.00
v		W	Date	lytical Meth e Analyzed: ple Preparat	2015-0	06-23	Prep Meth Analyzed 1 Prepared I	By: SC
Parameter		Flag	Cert	Bo	RL sult	Units	Dilution	RI
DRO		Qr,Qs,U	5		50.0	mg/Kg	1	50.0
burrogate	Flag	Cert	Result	Units	Dilution	Spike Amount	Percent Recovery	Recovery Limits
n-Tricosane	0		56.2	mg/Kg	1	50.0	112	70 - 130
·	lland H GRO 489		Date Ana	l Method: lyzed: 'reparation:	S 8015 D 2015-06-20 2015-06-19		Prep Methoo Analyzed By Prepared By	v: AK
					RL			
Parameter GRO		Flag	Cert	Res	sult	Units	Dilution	RI
		Qs,U	5	- 1	.00	mg/Kg	1	4.00

Result

2.47

2.13

Units

mg/Kg

mg/Kg

Dilution

1

1

Amount

2.00

2.00

Recovery

124

106

Limits

70 - 130

70 - 130

Flag

 $\operatorname{Cert}$ 

Surrogate

Trifluorotoluene (TFT)

4-Bromofluorobenzene (4-BFB)

	V	Vork Order 30137		1		Page Numb	per: 12 of 28
	•	l Method:	S 8021I			Prep Metho	
	Date Ana	lyzed: reparation:	2015-06			Analyzed B	
rep Batch: 103596			2015-06	-19		Prepared B	y: AK
			BL				
Flag	Cert			Units	3	Dilution	$\operatorname{RL}$
U	5	<	0.0200	mg/Kg	r	1	0.0200
U	5	<	0.0200	mg/Kg	r S	1	0.0200
$_{\rm Qs,U}$	5	<	0.0200	m mg/Kg	5	1	0.0200
U	5	<	0.0200	mg/Kg	r S	1	0.0200
					Spike	Percent	Recovery
Fla	g Cert	Result	Units	Dilution	Amount	Recovery	Limits
		1.94	mg/Kg	1	2.00	97	70 - 130
		2.03	mg/Kg	1	2.00	102	70 - 130
ı)	Ana	lytical Met	hod: SN	A 4500-Cl B		Prep Met	hod: N/A
Analysis: Chloride (Titration) QC Batch: 122475					Analyzed By: AK		
	U Qs,U U Fla	U 5 U 5 Qs,U 5 U 5 Flag Cert	U 5 <	U 5 <0.0200 U 5 <0.0200 Qs,U 5 <0.0200 U 5 <0.0200 Flag Cert Result Units 1.94 mg/Kg 2.03 mg/Kg	Flag         Cert         Result         Units           U         5         <0.0200	FlagCertResultUnitsU5<0.0200	$\begin{array}{ c c c c c } \hline Flag & Cert & Result & Units & Dilution \\ \hline U & 5 & <0.0200 & mg/Kg & 1 \\ U & 5 & <0.0200 & mg/Kg & 1 \\ \hline Q_{S,U} & 5 & <0.0200 & mg/Kg & 1 \\ \hline U & 5 & <0.0200 & mg/Kg & 1 \\ \hline S & <0.0200 & mg/Kg & 1 \\ \hline Flag & Cert & Result & Units & Dilution & Amount & Recovery \\ \hline 1.94 & mg/Kg & 1 & 2.00 & 97 \\ \hline 2.03 & mg/Kg & 1 & 2.00 & 102 \\ \hline \end{array}$

Prep Batch:	103564		Sample F	Preparation:	2015-06-18	Preparec	d By: AK
				RL			
Parameter		Flag	Cert	Result	Units	Dilution	$\operatorname{RL}$
Chloride		U		<20.0	mg/Kg	5	4.00

#### Sample: 395918 - RP

Laboratory: Analysis: QC Batch: Prep Batch:	Midland TPH DRO - NE 122545 103612	ΣW	Date	lytical Meth e Analyzed: ple Preparat	2015-0	)6-23	Prep Me Analyzec Preparec	l By: SC
					RL			
Parameter		Flag	Cert	Re	sult	Units	Dilution	$\operatorname{RL}$
DRO		$_{\rm Qr,Qs,U}$	5	<:	50.0	m mg/Kg	1	50.0
C A	ות	a -		TT •		Spike	Percent	Recovery
Surrogate	Flag	Cert	Result	Units	Dilution	Amount	Recovery	Limits
n-Tricosane			58.0	m mg/Kg	1	50.0	116	70 - 130

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Sample: 395918 - RP									
Laboratory:MidlandAnalysis:TPH GROQC Batch:122489Prep Batch:103596	Analytical Method:S 8015 DDate Analyzed:2015-06-20Sample Preparation:2015-06-19						Prep Metho Analyzed B Prepared B	y: AK	
					$\operatorname{RL}$				
Parameter	Flag		Cert		Result	Uni	ts	Dilution	$\operatorname{RL}$
GRO	$_{\rm Qs,U}$		5		<4.00	mg/K	g	1	4.00
							Spike	Percent	Recovery
Surrogate		Flag	Cert	Result	Units	Dilution	Amount	Recovery	Limits
Trifluorotoluene (TFT)				2.42	mg/Kg	1	2.00	121	70 - 130
4-Bromofluorobenzene (4-BFB)				2.08	mg/Kg	1	2.00	104	70 - 130

### Sample: 395919 - STP

Analysis:BTEX QC Batch:Analytical Method:S $8021B$ Prep Method:S $5035$ Analyzed By:QC Batch: $122488$ Date Analyzed: $2015-06-20$ Analyzed By:AKPrep Batch: $103596$ Sample Preparation: $2015-06-19$ Prepared By:AKParameterFlagCertResultUnitsDilutionRLBenzene $5$ $0.0248$ mg/Kg1 $0.0200$ Toluene $5$ $0.777$ mg/Kg1 $0.0200$ Ethylbenzene $q_s$ $5$ $1.13$ mg/Kg1 $0.0200$ Xylene $q_s$ $5$ $1.22$ mg/Kg1 $0.0200$ Ethylbenzene $q_s$ $5$ $1.22$ mg/Kg1 $0.0200$ XyleneFlagCertResultUnitsDilutionAmountRecoveryLimitsSurrogateFlagCertResultUnitsDilutionAmountRecoveryLimits	Laboratory:	Midland									
Prep Batch: 103596Sample Preparation: 2015-06-19Prepared By: AKRLRLRLParameterFlagCertResultUnitsDilutionRLBenzene $5$ 0.0248mg/Kg10.0200Toluene $5$ 0.7777mg/Kg10.0200Ethylbenzene $Qs$ $5$ 1.13mg/Kg10.0200Xylene $2qs$ $5$ 1.13mg/Kg10.0200SurrogateFlagCertResultUnitsDilutionAmountRecoveryLimits	Analysis:		Ar	nalytical	Method:	S 8021B			Prep Method	: S 5035	
$\begin{array}{c c c c c c c c c c c c c c c c c c c $	QC Batch:	122488		Da	Date Analyzed:		2015-06-	20		Analyzed By:	AK
$\begin{array}{c c c c c c c c c c c c c c c c c c c $	Prep Batch:	103596		Sa	Sample Preparation:		2015-06-	19		Prepared By:	AK
Benzene $5$ $0.0248$ $mg/Kg$ $1$ $0.0200$ Toluene $5$ $0.777$ $mg/Kg$ $1$ $0.0200$ Ethylbenzene $Qs$ $5$ $1.13$ $mg/Kg$ $1$ $0.0200$ Xylene $5$ $1.22$ $mg/Kg$ $1$ $0.0200$ SurrogateFlagCertResultUnitsDilutionAmountRecovery											
Toluene5 $0.777$ mg/Kg1 $0.0200$ EthylbenzeneQs5 $1.13$ mg/Kg1 $0.0200$ Xylene5 $1.22$ mg/Kg1 $0.0200$ SurrogateFlagCertResultUnitsDilutionAmountRecovery	Parameter		Flag		Cert	F	Result	Units		Dilution	$\operatorname{RL}$
Ethylbenzene XyleneQs51.13mg/Kg10.0200SurrogateFlagCertResultUnitsDilutionAmountRecoveryLimits	Benzene				5	0.	0248	mg/Kg		1	0.0200
Xylene51.22mg/Kg10.0200SurrogateFlagCertResultUnitsDilutionAmountRecoveryLimits	Toluene				5	(	).777	$\mathrm{mg/Kg}$		1	0.0200
Surrogate Flag Cert Result Units Dilution Amount Recovery Limits	Ethylbenzene	<b>;</b>	$_{\rm Qs}$		5		1.13	$\mathrm{mg/Kg}$		1	0.0200
Surrogate Flag Cert Result Units Dilution Amount Recovery Limits	Xylene				5		1.22	mg/Kg		1	0.0200
<u> </u>									Spike	Percent	Recovery
	Surrogate			Flag	Cert	Result	Units	Dilution	Amount	Recovery	Limits
Trifluorotoluene (TFT) $1.71 \text{ mg/Kg} 1 2.00 86 70 - 130$	Trifluorotolue	ene (TFT)				1.71	mg/Kg	1	2.00	86	70 - 130
$\begin{array}{cccccccccccccccccccccccccccccccccccc$	4-Bromofluor	obenzene (4-BFB)	Qsr	Qsr		3.35	$\mathrm{mg/Kg}$	1	2.00	168	70 - 130

#### Sample: 395919 - STP

Laboratory:	Midland				
Analysis:	Chloride (Titration)	Analytical Method:	SM 4500-Cl B $$	Prep Method:	N/A
QC Batch:	122418	Date Analyzed:	2015-06-18	Analyzed By:	AK
Prep Batch:	103564	Sample Preparation:	2015-06-18	Prepared By:	AK

continued ...

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sample 395919 continued								
Parameter	Flag	Cert	R	RL esult	Unit	S	Dilution	RL
Parameter Fla		Cert	D	RL esult	Unit		Dilution	$\operatorname{RL}$
Chloride	8			588	mg/K		5	4.00
Sample: 395919 - STP Laboratory: Midland Analysis: TPH DRO - N QC Batch: 122545 Prep Batch: 103612	EW	Dat	ılytical Met e Analyzed ıple Prepar	: 20	8015 D 15-06-23 15-06-19		Prep Meth Analyzed F Prepared E	By: SC
D	El	Cart	Л	RL esult	TT:+	_		DI
Parameter DRO	Flag <sub>Qr,Qs</sub>	Cert 5		50.0	Unit mg/K		Dilution 1	RL 50.0
Surrogate Flag	Cert	Result	Units	Dilut	ion An	pike nount	Percent Recovery	Recovery Limits
n-Tricosane		60.6	m mg/Kg	1	Ę	50.0	121	70 - 130
Sample: 395919 - STP Laboratory: Midland Analysis: TPH GRO QC Batch: 122489 Prep Batch: 103596		Date An	al Method: alyzed: Preparation	2015-06	6-20		Prep Method Analyzed By Prepared By	: AK
Parameter	Flag	Cert	R	RL esult	Unit	S	Dilution	$\operatorname{RL}$
GRO	Qs	5		<b>314</b>	mg/K		1	4.00
Surrogate Trifluorotoluene (TFT)		Flag Cert	Result 2.00	Units	Dilution	Spike Amount	Percent Recovery	Recovery Limits
Triffuorotoluene (TET)			2 111	$\mathrm{mg/Kg}$	1	2.00	100	70 - 130

Report Date: June 23, 7250715053	2015	Work Order 30137		Page Number: 1	5 of 28
Method B	lanks				
Method Blank (1)	QC Batch: 122418				
QC Batch: 122418 Prep Batch: 103564		Date Analyzed: QC Preparation:	2015-06-18 2015-06-18	Analyzed By: Prepared By:	AK AK
Parameter	Flag	Cert	MDL Result	Units	$\operatorname{RL}$
Chloride			<3.85	mg/Kg	4
Method Blank (1)	QC Batch: 122419				
QC Batch: 122419 Prep Batch: 103564		Date Analyzed: QC Preparation:	2015-06-18 2015-06-18	Analyzed By: Prepared By:	AK AK
Parameter	Flag	Cert	MDL Result	Units	RL
Chloride			<3.85	mg/Kg	4
Method Blank (1)	QC Batch: 122475				
QC Batch: 122475 Prep Batch: 103564		Date Analyzed: QC Preparation:	2015-06-19 2015-06-18	Analyzed By: Prepared By:	AK AK
Parameter	Flag	Cert	MDL Result	Units	RL
Chloride			<3.85	m mg/Kg	4

Method Blank (1)	QC Batch: 122488

QC Batch:	122488	Date Analyzed:	2015-06-20	Analyzed By:	AK
Prep Batch:	103596	QC Preparation:	2015-06-19	Prepared By:	AK

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					MDL				
Parameter	Flag		Cert		Result		Units	RL	
Benzene			5		< 0.00533		mg/Kg	0.02	
Toluene			5		$<\!0.00645$		m mg/Kg	0.02	
Ethylbenzene			5		< 0.0116		m mg/Kg	0.02	
Xylene			5		< 0.00874	1	mg/Kg	0.02	
						Spike	Percent	Recovery	
Surrogate	Flag	Cert	Result	Units	Dilution	Amount	Recovery	Limits	
			2.00	mg/Kg	1	2.00	100	70 - 130	
Trifluorotoluene (TFT)						0.00		70 190	
Trifluorotoluene (TFT) 4-Bromofluorobenzene (4-BFB) Method Blank (1) QC Bat	ch: 122489		2.08	mg/Kg	1	2.00	104	70 - 130	
4-Bromofluorobenzene (4-BFB)	ch: 122489		2.08 analyzed: eparation:	mg/Kg 2015-06-2 2015-06-2	20	2.00	104 Analyzed Prepared	l By: AK	
4-Bromofluorobenzene (4-BFB) Method Blank (1) QC Bat QC Batch: 122489	ch: 122489		nalyzed:	2015-06-2	20	2.00	Analyzed	l By: AK	
4-Bromofluorobenzene (4-BFB) Method Blank (1) QC Bat QC Batch: 122489 Prep Batch: 103596			nalyzed:	2015-06-2	20 19	2.00	Analyzed	l By: AK	
4-Bromofluorobenzene (4-BFB) Method Blank (1) QC Bat QC Batch: 122489	ch: 122489 Flag		nalyzed: eparation:	2015-06-2	20 19 MDL		Analyzed Prepared	l By: AK By: AK	
4-Bromofluorobenzene (4-BFB) Method Blank (1) QC Bat QC Batch: 122489 Prep Batch: 103596 Parameter			analyzed: eparation: Cert	2015-06-2	20 19 MDL Result		Analyzed Prepared Units	l By: AK By: AK RI 4	
4-Bromofluorobenzene (4-BFB) Method Blank (1) QC Bat QC Batch: 122489 Prep Batch: 103596 Parameter GRO			analyzed: eparation: Cert	2015-06-2	20 19 MDL Result		Analyzed Prepared Units mg/Kg	l By: AK By: AK RL	
4-Bromofluorobenzene (4-BFB) Method Blank (1) QC Bat QC Batch: 122489 Prep Batch: 103596 Parameter	Flag	QC Pr	analyzed: eparation: Cert 5	2015-06-2 2015-06-2	$20 \\ 19 \\ MDL \\ Result \\ < 2.32$	Spike	Analyzed Prepared Units mg/Kg Percent	l By: AK By: AK RL 4 Recovery	

## Method Blank (1) QC Batch: 122545

QC Batch: Prep Batch:	$122545 \\ 103612$		Date Analyzed: QC Preparation:				v	ed By: SC ed By: SC	
1				Ū	Ĩ		MDL	Ĩ	v
Parameter			Fla	g	Cert		Result	Units	$\operatorname{RL}$
DRO					5		<7.41	m mg/Kg	50
Surrogate		Flag	Cert	Result	Units	Dilution	Spike Amount	Percent Recovery	Recovery Limits
n-Tricosane				57.1	mg/Kg	1	50.0	114	70 - 130

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# Laboratory Control Spikes

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

QC Batch: 122418 Prep Batch: 103564												
										area By		
				LCS			Spike	Ma	trix		Rec.	
Param		F	C I	Result	Units	Dil.	Amount	Res	sult R	ec.	Limit	
Chloride				2350	mg/Kg	5	2500	<1	.9.2 9	94 8	85 - 115	
Percent recovery is based on t	he spike	resu	lt. RPD	is based	on the sp	pike and sp	oike duplica	ate resu	lt.			
			LCSD			Spike	Matrix		Rec.		RPD	
Param	$\mathbf{F}$	$\mathbf{C}$	Result	Units	Dil.	Amount	Result	Rec.	Limit	RPD	Limit	
Chloride			2350	mg/Kg	5	2500	<19.2	94	85 - 115	0	20	
					-							

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

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

QC Batch: Prep Batch:	122419 103564											
				LCS			Spike	Matrix		Rec.		
Param		$\mathbf{F}$	С	Result	Units	Dil.	Amount	Result	Rec.	Limit		
Chloride				2520	mg/Kg	5	2500	<19.2	101	85 - 115		
Percent recov	Percent recovery is based on the spike result. RPD is based on the spike and spike duplicate result.											

			LCSD			Spike	Matrix		Rec.		RPD
Param	$\mathbf{F}$	$\mathbf{C}$	Result	Units	Dil.	Amount	Result	Rec.	Limit	RPD	Limit
Chloride			2430	mg/Kg	5	2500	<19.2	97	85 - 115	4	20

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

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

QC Batch:	122475	Date Analyzed:	2015-06-19	Analyzed By:	AK
Prep Batch:	103564	QC Preparation:	2015-06-18	Prepared By:	AK

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				LCS			Spike	e N	Iatrix		Rec.
Param		$\mathbf{F}$	$\mathbf{C}$	Result	Units	Dil.	Amour	nt F	$\operatorname{Result}$	Rec.	Limit
Chloride				2560	mg/Kg	5	2500	<	<19.2	102	85 - 115
Percent recovery is based on the	spike	resu	lt. RPI	D is based	on the sp	pike and	spike dupl	icate res	sult.		
			LCSI	)		Spike	Matrix		Rec		RPD
Param	F	С	Resul			Amoun		Rec.	Lim		
Chloride			2370	mg/K	g 5	2500	<19.2	95	85 - 1	15 8	20
Laboratory Control Spike (L QC Batch: 122488	CS-1	L)	Da	te Analyz	ed: 201	5-06-20			А	analyzed B	By: AK
Prep Batch: 103596				C Preparat		5-06-19				Prepared B	•
Param		F	С	LCS Result	Units	Dil.	Spike Amount		atrix esult	Rec.	Rec. Limit
Benzene		Г	5	1.99	mg/Kg	<u> </u>	2.00		.00533	100	70 - 130
Foluene			5	1.88	mg/Kg	1	2.00 2.00		.00645	94	70 - 130
Ethylbenzene			5	1.76	mg/Kg	1	2.00		0.0116	88	70 - 130
			5	5.80	mg/Kg	1	6.00		.00874	97	70 - 130
			0								
Yelene Percent recovery is based on the	spike	resu		) is based	on the sp	pike and	spike dupl	icate res	sult.		
Kylene	spike	resu			on the sp	pike and Spike	spike dupl Matrix	icate res	sult. Red	с.	RPD
Xylene Percent recovery is based on the Param	spike F	resu	llt. RPI LCSD Result			Spike Amount	Matrix Result	Rec.	Rec . Lim	it RPI	) Limit
Kylene         Percent recovery is based on the         Param         Benzene	-		lt. RPI LCSD Result 1.97	Units mg/Kg	Dil.	Spike Amount 2.00	Matrix Result <0.00533	Rec. 3 98	Red . Lim 70 - 1	$\begin{array}{cc} \text{it} & \text{RPI} \\ 130 & 1 \end{array}$	$\frac{1}{20}$
Kylene         Percent recovery is based on the         Param         Benzene         Coluene	-	С	lt. RPI LCSD Result 1.97 1.91	Units mg/Kg mg/Kg	Dil.	Spike Amount 2.00 2.00	Matrix Result <0.00533 <0.00644	Rec. 3 98 5 96	Rec Lim 70 - 1 70 - 1	it RPD 130 1 130 2	D Limit 20 20
Kylene         Percent recovery is based on the         Param         Benzene         Coluene         Cthylbenzene	-	5 5 5	lt. RPI LCSD Result 1.97 1.91 1.78	Units mg/Kg mg/Kg mg/Kg	Dil. 1 1	Spike Amount 2.00 2.00 2.00	Matrix Result <0.00533 <0.00644 <0.0116	Rec. 3 98 5 96 5 89	Red Lim 70 - 1 70 - 1 70 - 1	it RPD 130 1 130 2 130 1	$\begin{array}{c c} \hline & \text{Limit} \\ \hline & 20 \\ & 20 \\ & 20 \end{array}$
Cylene         Percent recovery is based on the         Param         Benzene         Coluene         Cthylbenzene         Kylene	F	C 5 5 5 5	lt. RPI LCSD Result 1.97 1.91 1.78 5.83	Units mg/Kg mg/Kg mg/Kg mg/Kg	Dil. 1 1 1 1	Spike Amount 2.00 2.00 2.00 6.00	Matrix Result <0.00533 <0.00644 <0.0116 <0.00874	Rec. 3 98 5 96 5 89 4 97	Red Lim 70 - 1 70 - 1 70 - 1 70 - 1	it RPD 130 1 130 2 130 1	D Limit 20 20
Cylene         Percent recovery is based on the         Param         Benzene         Coluene         Cthylbenzene         Kylene	F	C 5 5 5 5	lt. RPI LCSD Result 1.97 1.91 1.78 5.83	Units mg/Kg mg/Kg mg/Kg mg/Kg	Dil. 1 1 1 1	Spike Amount 2.00 2.00 2.00 6.00	Matrix Result <0.00533 <0.00644 <0.0116 <0.00874	Rec. 3 98 5 96 5 89 4 97	Red Lim 70 - 1 70 - 1 70 - 1 70 - 1	it RPD 130 1 130 2 130 1	D Limit 20 20 20
Xylene         Percent recovery is based on the         Param         Benzene         Coluene         Ethylbenzene         Xylene         Percent recovery is based on the	F	C 5 5 5 5	lt. RPI LCSD Result 1.97 1.91 1.78 5.83 lt. RPI	Units mg/Kg mg/Kg mg/Kg D is based	Dil. 1 1 1 1 0 the sp	Spike Amount 2.00 2.00 2.00 6.00	Matrix Result <0.00533 <0.00644 <0.0116 <0.00874 spike dupl S	Rec. 3 98 5 96 5 89 4 97	Red Lim 70 - 1 70 - 1 70 - 1 70 - 1	it RPD 130 1 130 2 130 1	$\begin{array}{c c} \hline & \text{Limit} \\ \hline & 20 \\ & 20 \\ & 20 \end{array}$
Kylene	F	C 5 5 5 5	lt. RPI LCSD Result 1.97 1.91 1.78 5.83 lt. RPI L Re	Units mg/Kg mg/Kg mg/Kg mg/Kg D is based CS L0 esult Ro	Dil. 1 1 1 1 on the sp CSD esult	Spike           Amount           2.00           2.00           2.00           6.00	Matrix Result <0.00533 <0.00644 <0.0116 <0.00874 spike dupl S Dil. An	$\begin{array}{c} \text{Rec.} \\ 3 & 98 \\ 5 & 96 \\ 5 & 89 \\ 4 & 97 \\ \text{icate res} \\ \text{pike} \end{array}$	Rec Lim 70 - 1 70 - 1 70 - 1 70 - 1 5ult. LCS	it RPE 130 1 130 2 130 1 130 0 LCSD	20 Limit 20 20 20 20 20 Rec.

QC Batch:	122489	Date Analyzed:	2015-06-20	Analyzed By:	AK
Prep Batch:	103596	QC Preparation:	2015-06-19	Prepared By:	AK

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Param		F	C I	LCS Result	Units	Dil.	Spike Amount	R	atrix esult	Re		Rec. Limit
GRO			5	14.6	mg/Kg		20.0		(2.32	73	3	70 - 130
Percent recovery is based on the	spike	resu	lt. RPD	is based o	on the sp	pike and s	pike duplica	ate res	ult.			
			LCSD			Spike	Matrix		Re	ec.		RPD
Param	$\mathbf{F}$	$\mathbf{C}$	Result	Units	Dil.	Amount	Result	Rec.	Lin		RPD	
GRO		5	15.7	mg/Kg	1	20.0	<2.32	78	70 -	130	7	20
Percent recovery is based on the	spike	resu	lt. RPD	is based o	on the s	oike and s	pike duplica	ate res	ult.			
U U	1				-						~ <b>T</b>	
G (			LC			· · .	Spi		LCS	LC		Rec.
Surrogate			Rest 2.4				$\frac{\text{Dil.}  \text{Amo}}{1  2.0}$		Rec. 122	Re 12		Limit 70 - 130
Trifluorotoluene (TFT)			$2.4 \\ 2.1$			ng/Kg ng/Kg	$ \begin{array}{cccccccccccccccccccccccccccccccccccc$		$122 \\ 108$	12		70 - 130
	LCS-1	L)		.0 2	_	0, 0						
Laboratory Control Spike (I QC Batch: 122545	CCS-1	L)	Date	e Analyze	d: 20	15-06-23				•	yzed I	•
4-Bromofluorobenzene (4-BFB) Laboratory Control Spike (I QC Batch: 122545 Prep Batch: 103612	CCS-1	L)	Date		d: 20					•	yzed I ared E	•
Laboratory Control Spike (I QC Batch: 122545	LCS-1	L)	Date QC 1	e Analyze	d: 20	15-06-23	Spike	М	atrix	•	~	v
Laboratory Control Spike (I QC Batch: 122545 Prep Batch: 103612 Param	CS-1	L)	Date QC I	e Analyze Preparati LCS Result	d: 20 on: 20 Units	15-06-23 15-06-19 Dil.	Amount	R	esult	Prepa Re	ared E ec.	By: SC Rec. Limit
Laboratory Control Spike (I QC Batch: 122545	CS-1	,	Date QC I	e Analyze Preparati LCS	d: 20 on: 20	15-06-23 15-06-19 Dil.	-	R		Prepa	ared E ec.	By: SC Rec.
Laboratory Control Spike (I QC Batch: 122545 Prep Batch: 103612 Param		F	Date QC C 5	e Analyze Preparatio LCS Result 239	d: 20 on: 20 Units mg/Kg	15-06-23 15-06-19 Dil.	Amount 250	R <	esult 7.41	Prepa Re	ared E ec.	By: SC Rec. Limit
Laboratory Control Spike (I QC Batch: 122545 Prep Batch: 103612 Param DRO		F	Date QC $\frac{1}{5}$ It. RPD	e Analyze Preparatio LCS Result 239	d: 20 on: 20 Units mg/Kg	15-06-23 15-06-19 Dil. 1 pike and s	Amount 250 pike duplica	R <	esult 7.41 ult.	Prepa Re	ared E ec.	By: SC Rec. Limit 70 - 130
Laboratory Control Spike (I QC Batch: 122545 Prep Batch: 103612 Param DRO Percent recovery is based on the		F	Date QC C 5	e Analyze Preparatio LCS Result 239	d: 20 on: 20 Units mg/Kg	15-06-23 15-06-19 Dil.	Amount 250 pike duplica Matrix	R <	esult 7.41	Prepa Re 9	ec.	By: SC Rec. Limit 70 - 130 RPD
Laboratory Control Spike (I QC Batch: 122545 Prep Batch: 103612 Param DRO Percent recovery is based on the Param	spike	F	Date QC $\stackrel{\circ}{:}$ $\frac{C}{1}$ $\frac{5}{1}$ LCSD	e Analyze Preparatio LCS Result 239 is based o	d: 20 on: 20 Units mg/Kg on the sp Dil.	15-06-23 15-06-19 Dil. Dil. Dike and s Spike	Amount 250 pike duplica	$\frac{R}{<}$ ate res	esult 7.41 ult. Re	Prepa Re 9 ec. nit	ared E ec.	By: SC Rec. Limit 70 - 130 RPD
Laboratory Control Spike (I QC Batch: 122545 Prep Batch: 103612 Param DRO	spike F	F resu C 5	$\begin{array}{c} \text{Date}\\ \text{QC} \\ \\ \\ \hline \\ \\ \\ \\ \\ \\ \\ \\ \\ \\ \\ \\ \\ \\ \\ $	e Analyze Preparati LCS Result 239 is based o Units mg/Kg	d: 20 on: 20 <u>Units</u> mg/Kg on the sp Dil. 1	15-06-23 15-06-19 Dil. 1 pike and s Spike Amount 250	Amount 250 pike duplica Matrix Result <7.41	R ate res Rec. 100	esult (7.41 ult. Re Lin 70 -	Prepa Re 9 ec. nit	ared E ec. 6 RPD	$\begin{array}{rl} \text{Rec.} \\ \text{Limit} \\ \hline 70 - 130 \\ \end{array}$ $\begin{array}{r} \text{RPD} \\ \text{Limit} \end{array}$
Laboratory Control Spike (I QC Batch: 122545 Prep Batch: 103612 Param DRO Percent recovery is based on the Param DRO	spike F	F resu <u>C</u> <sup>5</sup> resu	Date QC $\frac{1}{5}$ It. RPD LCSD Result 249 It. RPD	e Analyze Preparati LCS Result 239 is based o Units mg/Kg is based o	d: 20 on: 20 <u>Units</u> mg/Kg on the sp Dil. 1	15-06-23 15-06-19 Dil. 1 pike and s Spike Amount 250	Amount 250 pike duplica Matrix Result <7.41 pike duplica	R ate res Rec. 100 ate res	esult (7.41 ult. Re Lin 70 - ult.	Prepa Re 9 ec. nit 130	ec. 6 RPD 4	By: SC Rec. Limit 70 - 130 RPD Limit 20
Laboratory Control Spike (I QC Batch: 122545 Prep Batch: 103612 Param DRO Percent recovery is based on the Param DRO	spike F spike	F resu C 5	$\begin{array}{c} \text{Date}\\ \text{QC} \\ \\ \\ \hline \\ \\ \\ \\ \\ \\ \\ \\ \\ \\ \\ \\ \\ \\ \\ $	e Analyze Preparatio LCS Result 239 is based o Units mg/Kg is based o D	d: 20 on: 20 <u>Units</u> mg/Kg on the sp Dil. 1	15-06-23 15-06-19 Dil. 1 pike and s Spike Amount 250	Amount 250 pike duplica Matrix Result <7.41	R ate res Rec. 100	esult 27.41 ult. Re Lin 70 - ult.	Prepa Re 9 ec. nit	ec. 6 RPD 4	$\begin{array}{rl} \text{Rec.} \\ \text{Limit} \\ \hline 70 - 130 \\ \end{array}$ $\begin{array}{r} \text{RPD} \\ \text{Limit} \end{array}$

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Matrix Spike	es										
Matrix Spike (MS-1) S	piked S	Samp	le: 3960	09							
QC Batch: 122418 Prep Batch: 103564				ate Analyz C Preparat		15-06-18 15-06-18			,	yzed By ared By:	
Param		F	С	MS Result	Units	Dil.	Spike Amount	Re	trix sult Rec	. 1	Rec. Limit
Chloride Rememt measurem is based on a	Qs the gr	Qs		19700	mg/Kg		2500		600 124	l 78.	9 - 121
Percent recovery is based on	tne spi	ke re			on the s	-	ріке апрію	cate res			
aram		F (	MS C Rest		Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit	RPD	RPI Limi
Chloride		Г V Qs	$\frac{199}{199}$			2500	16600	132	78.9 - 121	1	$\frac{11111}{20}$
- ( )	piked S	Samp	le: 3960 D		ed: 20	15-06-18			$\operatorname{Anal}^{\circ}$	vzed By	: AK
- ( )	piked \$	Samp	D	11 ate Analyz C Preparat		15-06-18 15-06-18			,	yzed By ared By:	
2C Batch: 122419 Prep Batch: 103564	piked \$	-	D Q	ate Analyz C Preparat MS	ion: 20	15-06-18	Spike	Ma	Prepa	ared By:	AK Rec.
2C Batch: 122419 Prep Batch: 103564 Param	piked \$	Samp F	D	ate Analyz C Preparat MS Result	ion: 20 Units	15-06-18 Dil.	Amount	Res	Prepa trix sult Rec	ared By:	AK Rec. Limit
2C Batch: 122419 Prep Batch: 103564 Param Chloride	-	F	D Q C	ate Analyz C Preparat MS Result 14800	ion: 20 Units mg/Kg	15-06-18 Dil. 5	Amount 2500	Res 122	Prepa trix sult Rec 233 103	ared By:	AK Rec.
2C Batch: 122419 Prep Batch: 103564 Param Chloride	-	F	D Q C	ate Analyz C Preparat MS Result 14800	ion: 20 Units mg/Kg	15-06-18 Dil. 5	Amount 2500	Res 122	Prepa trix sult Rec 233 103	ared By:	AK Rec. Limit
2C Batch: 122419 Prep Batch: 103564 Param Chloride Percent recovery is based on the second	the spi	F ke re	D Q C sult. RH MSI	ate Analyz C Preparat MS Result 14800 PD is based	ion: 20 Units mg/Kg on the s	Dil. Dil. 5 pike and s Spike	Amount 2500 pike duplic Matrix	Res 122 cate res	Prepa trix sult Rec 233 103 ult. Rec.	ared By:	AK Rec. Limit 9 - 12 RPI
2C Batch: 122419 Prep Batch: 103564 Param	-	F ke re	D Q C sult. RI MSI	ate Analyz C Preparat MS Result 14800 PD is based D is Units	Units <u>Units</u> <u>mg/Kg</u> on the s Dil.	$\frac{\text{Dil.}}{5}$ pike and s	Amount 2500 pike duplie	Res 122	Prepa trix sult Rec 233 103 ult.	ared By:	AK Rec. Limit 9 - 12

Matrix Spike (MS-1) Spiked Sample: 395918

QC Batch:	122475	Date Analyzed:	2015-06-19	Analyzed By:	AK
Prep Batch:	103564	QC Preparation:	2015-06-18	Prepared By:	AK

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			MS			Spike	Mat	rix		Rec.	
	F	$\mathbf{C}$	Result	Units	Dil.	Amount	Res	ult l	Rec.	Limit	
			2370	mg/Kg	5	2500	<19	9.2	95 7	78.9 - 121	
e spike	e rest	ult. RP	D is based	on the s	spike and	spike dupli	cate res	ult.			
		MSD			Spike	Matrix		Rec.		RPD	
F	С										
		2370	mg/Kg	5	2500	<19.2	95	78.9 - 1	21 0	20	
iked S	Samp	Da	te Analyze								
	_		MS			Spike			_	Rec.	
	F	С								Limit	
		5								70 - 130	
										70 - 130	
Qs	Qs									70 - 130 70 - 130	
e spike	e rest									10 100	
		MSD			Spike	Matrix				RPD	
F	С										
	5									20	
										20	
	5	$\begin{array}{c} 1.63 \\ 5.35 \end{array}$	mg/Kg	1	$\begin{array}{c} 2.00 \\ 6.00 \end{array}$	$0.0413 \\ 0.0429$	79 88	70 - 1 70 - 1		$\begin{array}{c} 20 \\ 20 \end{array}$	
	5	0.50	mg/Kg	1					30 14	20	
e spike	e rest	ılt. RPI	D is based	on the s	spike and	spike dupli	cate resi				
e spike	e resi			on the s ISD	spike and		bike	MS	MSD	Rec.	
e spike	e rest		MS N		Units	S			MSD Rec.	Limit	
e spike	e resi	R	MS M esult Re 1.81 1	ISD esult 92	-	S	pike	MS			
	iked S	e spike resu iked Samp F Qs Qs e spike resu F C	e spike result. RPI iked Sample: 3959 Da QC F C s qs $qs$ $sse spike result. RPIF$ C Result s 1.74 s 1.67	$\begin{array}{c c c c c c c c c c c c c c c c c c c $	$\begin{array}{c ccccccccccccccccccccccccccccccccccc$	$\begin{array}{c ccccccccccccccccccccccccccccccccccc$	$\begin{array}{c c c c c c c c c c c c c c c c c c c $	$\begin{array}{c ccccccccccccccccccccccccccccccccccc$	$\begin{array}{c ccccccccccccccccccccccccccccccccccc$	$\begin{array}{c ccccccccccccccccccccccccccccccccccc$	

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			Ν	мs			Spike	Ma	atrix		Rec.
Param	F	С	$R\epsilon$	esult	Units	Dil.	Amount	$R\epsilon$	$\operatorname{sult}$	Rec.	Limit
GRO	Qs Qs	5	1	1.8 1	mg/Kg	1	20.0	1	1.6	1	70 - 130
Percent recovery is based on t	the spike res	ult. R	RPD is	based on	the spi	ike and sp	ike duplica	ate resu	ılt.		
			ISD			Spike	Matrix		Rec.		RPD
Param	F (	C Re	esult	Units	Dil.	Amount	Result	Rec.	Limit	: RPI	) Limit
GRO	Qs Qs	5 1	3.2	mg/Kg	1	20.0	11.6	8	70 - 13	BO 11	20
Percent recovery is based on t	the spike res	ult. R	RPD is	based on	the spi	ike and sp	ike duplica	ate resu	ılt.		
			MS	MSI	C		$\operatorname{Sp}$	ike	MS	MSD	Rec.
Surrogate			Result				Dil. Amo	$\operatorname{ount}$	Rec.	Rec.	Limit
Trifluorotoluene (TFT)			2.26	2.45	ó m	g/Kg	1 2	2	113	122	70 - 130
	B)		2.03	2.15	5m	g/Kg	1 2	2	102	108	70 - 130
- ( , , .	piked Sampl			nalwzed		5-06-23			Λ.	nalvzed	But SC
Matrix Spike (MS-1) Sj QC Batch: 122545	,		Date A	Analyzed: eparatior	2018	5-06-23 5-06-19				nalyzed l repared I	
Matrix Spike (MS-1) Sj QC Batch: 122545	,		Date A	eparatior	2018		Spike	Ma	Pı		By: SC
Matrix Spike (MS-1) Sp QC Batch: 122545 Prep Batch: 103612	,		Date A QC Pr	eparatior IS	2018		Spike Amount				
Matrix Spike (MS-1) Sp QC Batch: 122545 Prep Batch: 103612 Param	piked Sampl		Date A QC Pr M	eparatior IS sult	2013 n: 2013	5-06-19	-	Re	Pı ıtrix	repared I	By: SC Rec. Limit
Matrix Spike (MS-1) Sp QC Batch: 122545 Prep Batch: 103612 Param DRO	piked Sampl	C 5	Date A QC Pr M Res 21	eparation IS sult 13 n	2014 n: 2014 Units ng/Kg	5-06-19 Dil.	Amount 250	Re <7	Pr atrix sult 7.41	repared I Rec.	By: SC Rec. Limit
Matrix Spike (MS-1) Sp QC Batch: 122545	piked Sampl	C 5	Date A QC Pr M Res 21	eparation IS sult 13 n based on	2014 n: 2014 Units ng/Kg	5-06-19 Dil.	Amount 250	Re <7	Pr atrix sult 7.41	Rec. 85	By: SC Rec. Limit 70 - 130
Matrix Spike (MS-1) Sp QC Batch: 122545 Prep Batch: 103612 Param DRO	piked Sampl	C 5	Date A QC Pr M Res 21 RPD is	eparation IS <u>sult</u> 13 n based on	2013 n: 2013 Units ng/Kg the spi	Dil. Dil. ike and sp Spike	Amount 250 ike duplica Matrix	Re <7	Pr atrix sult 7.41 dlt.	Rec. 85	By: SC Rec. Limit 70 - 130 RPD
Matrix Spike (MS-1) Sp QC Batch: 122545 Prep Batch: 103612 Param DRO Percent recovery is based on the space of the space o	piked Sampl F the spike res	$\frac{C}{5}$ ult. R	Date A QC Pr M Res 21 RPD is MSD	eparation IS <u>sult</u> 13 n based on	2013 n: 2013 Units ng/Kg . the spi s Dil.	Dil. Dil. ike and sp Spike	Amount 250 ike duplica Matrix	Re <7 ate resu	Pr atrix sult 7.41 ilt. Rec.	Rec. 85	By: SC Rec. Limit 70 - 130 RPD D Limit
Matrix Spike (MS-1) Sp QC Batch: 122545 Prep Batch: 103612 Param DRO Percent recovery is based on the Param DRO	piked Sampl F the spike res F Qr,Qs Qr,Qi	$\frac{C}{5}$ ult. R	Date A QC Pr M Res 21 RPD is MSD Result 163	eparation IS sult $13$ n based on t Units mg/K	$2013$ n: 2013 $\frac{\text{Units}}{\text{ng/Kg}}$ the spin- s Dil. $\frac{\text{s}}{\text{g}} = 1$	Dil. 1 ike and sp Spike Amoun 250	Amount 250 ike duplica Matrix t Result <7.41	$\frac{\text{Re}}{<7}$ ate resu Rec. 65	Pr ttrix sult 7.41 ilt. Rec. Limi 70 - 13	Rec. 85	By: SC Rec. Limit 70 - 130 RPD D Limit
Matrix Spike (MS-1) Sp QC Batch: 122545 Prep Batch: 103612 Param DRO Percent recovery is based on the Param DRO Param DRO Percent recovery is based on the	piked Sampl F the spike res F Qr,Qs Qr,Qi	$\frac{C}{5}$ ult. R	Date A QC Pr M Res 21 RPD is MSD Result 163	eparation IS sult $13$ n based on t Units mg/K	$2013$ n: 2013 $\frac{\text{Units}}{\text{ng/Kg}}$ the spin- s Dil. $\frac{\text{s}}{\text{g}} = 1$	Dil. 1 ike and sp Spike Amoun 250 ike and sp	Amount 250 ike duplica Matrix t Result <7.41	Rec. Ate resu Rec. 65 Ate resu MS	Production $r$	Rec. 85	By: SC Rec. Limit 70 - 130 RPD D Limit
Matrix Spike (MS-1) Sp QC Batch: 122545 Prep Batch: 103612 Param DRO Percent recovery is based on the Param DRO	piked Sampl F the spike res F Qr,Qs Qr,Qs the spike res	$\frac{C}{5}$ ult. R	Date A QC Pr M Res 21 RPD is MSD Result 163 RPD is	eparation IS sult $13$ n based on t Units mg/K	$2013$ n: 2013 $\frac{\text{Units}}{\text{ng/Kg}}$ the spin- s Dil. $\frac{\text{s}}{\text{g}} = 1$ the spin- its	Dil. 1 ike and sp Spike Amoun 250	Amount 250 ike duplica Matrix t Result <7.41 ike duplica	Rec. Rec. 65 ate resu	Production $r$	Rec. 85	By: SC Rec. Limit 70 - 130 RPD D Limit 20

Report Date: June 23, 2015	Work Order: 15061711	Page Number: 23 of 28
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# **Calibration Standards**

## Standard (ICV-1)

QC Batch:	122418			Date A	Analyzed:	2015-06-18		Analy	zed By: AK
					ICVs	ICVs	ICVs	Percent	
					True	Found	Percent	Recovery	Date
Param		Flag	Cert	Units	Conc.	Conc.	Recovery	Limits	Analyzed
Chloride				mg/Kg	100	100	100	85 - 115	2015-06-18

## Standard (CCV-1)

QC Batch:	122418			Date A	Analyzed:	2015-06-18		Analy	zed By: AK
					$\mathrm{CCVs}$	$\mathrm{CCVs}$	$\mathrm{CCVs}$	Percent	
					True	Found	Percent	Recovery	Date
Param		Flag	Cert	Units	Conc.	Conc.	Recovery	Limits	Analyzed
Chloride				m mg/Kg	100	100	100	85 - 115	2015-06-18

### Standard (ICV-1)

QC Batch:	122419	Date Analyz			Analyzed:	2015-06-18		Analy	zed By: AK
					ICVs	ICVs	ICVs	Percent	
					True	Found	Percent	Recovery	Date
Param		Flag	Cert	Units	Conc.	Conc.	Recovery	Limits	Analyzed
Chloride				m mg/Kg	100	100	100	85 - 115	2015-06-18

### Standard (CCV-1)

QC Batch:	122419			Date A	Analyzed:	2015-06-18		Analy	zed By: AK
					CCVs True	$\operatorname{CCVs}$ Found	CCVs Percent	Percent Recovery	Date
_			~						
Param		Flag	Cert	Units	Conc.	Conc.	Recovery	Limits	Analyzed
Chloride				mg/Kg	100	100	100	85 - 115	2015-06-18

.

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Standard (ICV-1)	)							
QC Batch: 122475			Date A	nalyzed: 20	015-06-19		Analy	zed By: AK
Param	Flag	Cert	Units	ICVs True Conc.	ICVs Found Conc.	ICVs Percent Recovery	Percent Recovery Limits	Date Analyzed
Chloride	0		m mg/Kg	100	100	100	85 - 115	2015-06-19
Standard (CCV-1	)							
QC Batch: 122475			Date A	nalyzed: 20	015-06-19		Analy	zed By: AK
				CCVs	$\mathrm{CCVs}$	CCVs	Percent	
Param	Flag	Cert	Units	True Conc.	Found Conc.	Percent Recovery	Recovery Limits	Date Analyzed
			mg/Kg	100	100	100	85 - 115	2015-06-19
Chloride Standard (CCV-2	2)		0, 0					
Standard (CCV-2				nalyzed: 20	015-06-20		Analy	zed By: AK
Standard (CCV-2				CCVs	CCVs	CCVs Percent	Percent	
Standard (CCV-2 QC Batch: 122488		Cert		•		CCVs Percent Recovery	Percent Recovery Limits	zed By: AK Date Analyzed
Standard (CCV-2 QC Batch: 122488 Param Benzene		Cert 5	Date A Units mg/kg	CCVs True Conc. 0.100	CCVs Found Conc. 0.0986	Percent Recovery 99	Percent Recovery Limits 80 - 120	Date Analyzed 2015-06-20
Standard (CCV-2 QC Batch: 122488 Param Benzene Toluene		5 5	Date A Units mg/kg mg/kg	CCVs True Conc. 0.100 0.100	CCVs Found Conc. 0.0986 0.0920	Percent Recovery 99 92	Percent Recovery Limits 80 - 120 80 - 120	Date Analyzed 2015-06-20 2015-06-20
Standard (CCV-2 QC Batch: 122488 Param Benzene Foluene Ethylbenzene		5	Date A Units mg/kg	CCVs True Conc. 0.100	CCVs Found Conc. 0.0986	Percent Recovery 99	Percent Recovery Limits 80 - 120	Date Analyzed 2015-06-20 2015-06-20 2015-06-20
Standard (CCV-2 QC Batch: 122488 Param Benzene Toluene Ethylbenzene Xylene Standard (CCV-3	Flag	5 5 5	Date A Units mg/kg mg/kg mg/kg mg/kg	CCVs True Conc. 0.100 0.100 0.100 0.300	CCVs Found Conc. 0.0986 0.0920 0.0857 0.282	Percent Recovery 99 92 86	Percent Recovery Limits 80 - 120 80 - 120 80 - 120 80 - 120	Date Analyzed 2015-06-20 2015-06-20 2015-06-20 2015-06-20
Standard (CCV-2 QC Batch: 122488 Param Benzene Toluene Ethylbenzene Xylene Standard (CCV-3	Flag	5 5 5	Date A Units mg/kg mg/kg mg/kg mg/kg	CCVs True Conc. 0.100 0.100 0.100 0.300	CCVs Found Conc. 0.0986 0.0920 0.0857 0.282	Percent Recovery 99 92 86 94	Percent Recovery Limits 80 - 120 80 - 120 80 - 120 80 - 120 80 - 120	Date Analyzed 2015-06-20
	Flag	5 5 5	Date A Units mg/kg mg/kg mg/kg mg/kg	CCVs True Conc. 0.100 0.100 0.100 0.300 nalyzed: 20 CCVs	CCVs Found Conc. 0.0986 0.0920 0.0857 0.282 015-06-20 CCVs	Percent Recovery 99 92 86 94 94	Percent Recovery Limits 80 - 120 80 - 120 80 - 120 80 - 120 Analy Percent	Date Analyzed 2015-06-20 2015-06-20 2015-06-20 2015-06-20
Standard (CCV-2 QC Batch: 122488 Param Benzene Foluene Ethylbenzene Xylene Standard (CCV-3 QC Batch: 122488	Flag	5 5 5	Date A Units mg/kg mg/kg mg/kg mg/kg	CCVs True Conc. 0.100 0.100 0.100 0.300 nalyzed: 20 CCVs True	CCVs Found Conc. 0.0986 0.0920 0.0857 0.282 015-06-20 CCVs Found	Percent Recovery 99 92 86 94 94	Percent Recovery Limits 80 - 120 80 - 120 80 - 120 80 - 120 Analy Percent Recovery	Date Analyzed 2015-06-20 2015-06-20 2015-06-20 2015-06-20 zonts-06-20
Standard (CCV-2 QC Batch: 122488 Param Benzene Foluene Ethylbenzene Xylene Standard (CCV-3 QC Batch: 122488	Flag	5 5 5 Cert	Date A Units mg/kg mg/kg mg/kg mg/kg Date A Units	CCVs True Conc. 0.100 0.100 0.100 0.300 nalyzed: 20 CCVs True Conc.	CCVs Found Conc. 0.0986 0.0920 0.0857 0.282 015-06-20 CCVs Found Conc.	Percent Recovery 99 92 86 94 94 CCVs Percent Recovery	Percent Recovery Limits 80 - 120 80 - 120 80 - 120 80 - 120 80 - 120 Analy Percent Recovery Limits	Date Analyzed 2015-06-20 2015-06-20 2015-06-20 2015-06-20 zo15-06-20
Standard (CCV-2 QC Batch: 122488 Param Benzene Toluene Ethylbenzene Xylene Standard (CCV-3 QC Batch: 122488 Param Benzene	Flag	5 5 5 Cert	Date A Units mg/kg mg/kg mg/kg mg/kg Date A Units mg/kg	CCVs True Conc. 0.100 0.100 0.100 0.300 nalyzed: 20 CCVs True Conc. 0.100	CCVs Found Conc. 0.0986 0.0920 0.0857 0.282 015-06-20 CCVs Found Conc. 0.0978	Percent Recovery 99 92 86 94 94 CCVs Percent Recovery 98	Percent Recovery Limits 80 - 120 80 - 120 80 - 120 80 - 120 Analy Percent Recovery Limits 80 - 120	Date Analyzed 2015-06-20 2015-06-20 2015-06-20 2015-06-20 zed By: AK Date Analyzed 2015-06-20
Standard (CCV-2 QC Batch: 122488 Param Benzene Toluene Ethylbenzene Xylene Standard (CCV-3	Flag	5 5 5 Cert	Date A Units mg/kg mg/kg mg/kg mg/kg Date A Units	CCVs True Conc. 0.100 0.100 0.100 0.300 nalyzed: 20 CCVs True Conc.	CCVs Found Conc. 0.0986 0.0920 0.0857 0.282 015-06-20 CCVs Found Conc.	Percent Recovery 99 92 86 94 94 CCVs Percent Recovery	Percent Recovery Limits 80 - 120 80 - 120 80 - 120 80 - 120 80 - 120 Analy Percent Recovery Limits	Date Analyzed 2015-06-20 2015-06-20 2015-06-20 2015-06-20 zo15-06-20

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Standard (C	CCV-2)							
QC Batch:	122489		Date	Analyzed:	2015-06-20		Analy	zed By: AK
				CCVs	$\operatorname{CCVs}$	CCVs	Percent	
				True	Found	Percent	Recovery	Date
Param	Flag	Cert	Units	Conc.	Conc.	Recovery	Limits	Analyzed
GRO		5	mg/Kg	1.00	0.940	94	80 - 120	2015-06-20
Standard (C	CCV-3)							
QC Batch:	122489		Date	Analyzed:	2015-06-20		Analy	zed By: AK
				CCVs	CCVs	$\operatorname{CCVs}$	Percent	
				True	Found	Percent	Recovery	Date
Param	Flag	Cert	Units	Conc.	Conc.	Recovery	Limits	Analyzed
GRO	0	5	mg/Kg	1.00	0.900	90	80 - 120	2015-06-2
Standard (C	,		Date	Analyzed:	2015-06-23		Analy	yzed By: SC
				CCVs	CCVs	CCVs	Percent	
				True	Found	Percent	Recovery	Date
Param	Flag	Cert	Units	Conc.	Conc.	Recovery	Limits	Analyzed
DRO		5	mg/Kg	250	275	110	80 - 120	2015-06-2
Standard (C	CCV-2)							
QC Batch:	122545		Date	Analyzed:	2015-06-23		Analy	yzed By: SC
				CCVs	CCVs	$\mathrm{CCVs}$	Percent	
				True	Found	Percent	Recovery	Date
					-	D	T · · ·	A 1 1
Param DRO	Flag	Cert	Units mg/Kg	Conc. 250	Conc. 243	Recovery 97	Limits 80 - 120	Analyzed 2015-06-2

## Standard (CCV-3)

QC Batch: 122545

Date Analyzed: 2015-06-23

Analyzed By: SC

.

Report Date: 7250715053	Report Date: June 23, 2015 7250715053			Work Order: 15061711 30137 #4				mber: 26 of 28
				CCVs True	CCVs Found	CCVs Percent	Percent Recovery	Date
Param	Flag	Cert	Units	Conc.	Conc.	Recovery	Limits	Analyzed
DRO		5	m mg/Kg	250	249	100	80 - 120	2015-06-23

Report Date: June 23, 2015 7250715053

Work Order: 15061711  $30137 \ #4$ 

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# Appendix

## **Report Definitions**

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

## Laboratory Certifications

	Certifying	Certification	Laboratory
С	Authority	Number	Location
-	NCTRCA	WFWB384444Y0909	TraceAnalysis
-	DBE	VN 20657	TraceAnalysis
-	HUB	1752439743100-86536	TraceAnalysis
-	WBE	237019	TraceAnalysis
1	L-A-B	L2418	Lubbock
2	Kansas	Kansas E-10317	Lubbock
3	LELAP	LELAP-02003	Lubbock
4	NELAP	T104704219-15-11	Lubbock
5	NELAP	T104704392-14-8	Midland
6		2014-018	Lubbock

# Standard Flags

- F Description
- B Analyte detected in the corresponding method blank above the method detection limit
- H Analyzed out of hold time
- J Estimated concentration
- Jb The analyte is positively identified and the value is approximated between the SDL and MQL. Sample contains less then ten times the concentration found in the method blank. The result should be considered non-detect to the SDL.
- Je Estimated concentration exceeding calibration range.
- MI1 Split peak or shoulder peak
- MI2 Instrument software did not integrate
- MI3 Instrument software misidentified the peak
- MI4 Instrument software integrated improperly
- MI5 Baseline correction
- Qc Calibration check outside of laboratory limits.
- Qr RPD outside of laboratory limits
- Qs Spike recovery outside of laboratory limits.

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F Description

Qsr Surrogate recovery outside of laboratory limits.U The analyte is not detected above the SDL

# Attachments

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



Received by OCD: 4/12/2023 7:12:17 AM

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Released to Imaging: 4/13/2023 8:35:21 AM


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Lubbock, Texas 79424 El Paso, Texas 79922 Texas 79703 Midland. Texas 75006 Carroliton.

800-378-1296

972-242 -7750 E-Mail: lab@traceanalysis.com WEB: www.traceanalysis.com

Certifications

WBE HUB NCTRCA DBE NELAP DoD LELAP Oklahoma ISO 17025 Kansas

# Analytical and Quality Control Report

Karolanne Toby APEX/Titan 2351 W. Northwest Hwy. Suite 3321 Dallas, Tx, 75220

Report Date: June 23, 2015

FAX 915 • 585 • 4944

FAX 432 • 689 • 6313

Work Order: 15061709 

915-585-3443

432-689-6301

**Project Name:** 30137 #5 7250715061 Project Number:

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
395908	N-Wall	soil	2015-06-15	13:30	2015-06-17
395909	E-Wall	soil	2015-06-15	13:33	2015-06-17
395910	S-Wall	soil	2015-06-15	13:36	2015-06-17
395911	W-Wall	soil	2015-06-15	13:40	2015-06-17
395912	RP	soil	2015-06-15	13:45	2015-06-17
395913	$\operatorname{STP}$	soil	2015-06-15	13:50	2015-06-17

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.

TraceAnalysis, Inc. uses the attached chain of custody (COC) as the laboratory check-in documentation which includes sample receipt, temperature, sample preservation method and condition, collection date and time, testing requested, company, sampler, contacts and any special remarks.

This report consists of a total of 32 pages and shall not be reproduced except in its entirety, without written approval of TraceAnalysis, Inc.

Blain Lefturich

Dr. Blair Leftwich, Director James Taylor, Assistant Director Brian Pellam, Operations Manager

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Sample $395910$ (S-Wall)	
Sample 395911 (W-Wall)	
Sample 395912 (RP)	
Sample 395913 (STP)	
Method Blanks	15
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QC Batch 122430 - Method Blank (1)	15
QC Batch 122488 - Method Blank (1)	15
QC Batch 122489 - Method Blank (1)	15
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QC Batch 122539 - LCS (1)	19
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QC Batch 122545 - LCS (1)	21
Matrix Spikes	<b>22</b>
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QC Batch 122430 - MS (1)	
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QC Batch 122430 - CCV $(1)$	-
QC Batch 122488 - CCV (1)	-
QC Batch 122488 - CCV (2)	
QC Batch 122488 - CCV (3)	
QC Batch 122489 - CCV (1)	27

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QC Batch 122489 - CCV $(2)$	2	8
QC Batch 122489 - CCV (3)	2	8
QC Batch 122539 - CCV (1)	2	8
QC Batch 122539 - CCV (2)	2	8
QC Batch 122540 - CCV (1)	2	9
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# Case Narrative

Samples for project 30137 #5 were received by TraceAnalysis, Inc. on 2015-06-17 and assigned to work order 15061709. Samples for work order 15061709 were received intact at a temperature of 2.1 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	103596	2015-06-19 at 08:14	122488	2015-06-20 at 12:17
BTEX	S 8021B	103647	2015-06-22 at $15:12$	122539	2015-06-23 at $07:18$
Chloride (Titration)	SM 4500-Cl B $$	103564	2015-06-18 at $08:35$	122419	2015-06-18 at $09:55$
Chloride (Titration)	SM 4500-Cl B $$	103564	2015-06-18 at $08:35$	122430	2015-06-18 at $11:20$
TPH DRO - NEW	S 8015 D	103612	2015-06-19 at $15:26$	122545	2015-06-23 at $09:48$
TPH GRO	S 8015 D	103596	2015-06-19 at $08:14$	122489	2015-06-20 at $12:28$
TPH GRO	S 8015 D	103647	2015-06-22 at 15:12	122540	2015-06-23 at $07:21$

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 15061709 since the sample was chosen at random. Therefore, the validity of the analytical data reported has been determined by the laboratory control sample (LCS) and the method blank (MB). These quality control measures are performed with each preparation batch to ensure data integrity.

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

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Report Date: June 23, 2015

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7250715061		30137	7 #5	
Analy	vtical Report			
Sample: 39	95908 - N-Wall			
Laboratory: Analysis: QC Batch:	Midland BTEX 122539	Analytical Method: Date Analyzed:	S 8021B 2015-06-23	Prep Method: S 5035 Analyzed By: AK

Work Order: 15061709

Prep Batch: 103647	Sample Preparation: 2015-06-22						Prepared B	y: AK
				$\operatorname{RL}$				
Parameter	Flag	Cert		Result	Unit	S	Dilution	$\operatorname{RL}$
Benzene	U	5	<	< 0.0200	mg/Kg	r S	1	0.0200
Toluene	U	5	<	< 0.0200	$\mathrm{mg/Kg}$	5	1	0.0200
Ethylbenzene	U	5	<	< 0.0200	$\mathrm{mg/Kg}$	S	1	0.0200
Xylene	U	5	<	< 0.0200	mg/Kg	r	1	0.0200
						Spike	Percent	Recovery
Surrogate	Flag	Cert	Result	Units	Dilution	Amount	Recovery	Limits
Trifluorotoluene (TFT)			1.91	mg/Kg	1	2.00	96	70 - 130
4-Bromofluorobenzene (4-BFB)			1.99	$\mathrm{mg/Kg}$	1	2.00	100	70 - 130

#### Sample: 395908 - N-Wall

Laboratory:	Midland					
Analysis:	Chloride (Titration)	Anal	ytical Method:	SM 4500-Cl B $$	Prep Method:	N/A
QC Batch:	122430	Date	Analyzed:	2015-06-18	Analyzed By:	AK
Prep Batch:	103564	Samp	ole Preparation:	2015-06-18	Prepared By:	AK
			$\operatorname{RL}$			
Parameter	Flag	Cert	Result	Units	Dilution	$\operatorname{RL}$
Chloride			193	mg/Kg	5	4.00

#### Sample: 395908 - N-Wall

Midland					
ГРН DRO - NEW	Analy	tical Method:	S 8015 D	Prep Method:	N/A
122545	Date	Analyzed:	2015-06-23	Analyzed By:	$\mathbf{SC}$
103612	Samp	le Preparation:	2015-06-19	Prepared By:	$\mathbf{SC}$
		$\operatorname{RL}$			
$\operatorname{Flag}$	Cert	Result	Units	Dilution	$\operatorname{RL}$
$_{ m Qr,Qs,U}$	5	<50.0	mg/Kg	1	50.0
1	FPH DRO - NEW 22545 103612 Flag	IPH DRO - NEW     Analy       122545     Date       103612     Samp       Flag     Cert	TPH DRO - NEW       Analytical Method:         122545       Date Analyzed:         103612       Sample Preparation:         RL       Flag         Cert       Result	TPH DRO - NEWAnalytical Method:S 8015 D122545Date Analyzed:2015-06-23103612Sample Preparation:2015-06-19RLFlagCertResultUnits	TPH DRO - NEWAnalytical Method:S 8015 DPrep Method:122545Date Analyzed:2015-06-23Analyzed By:103612Sample Preparation:2015-06-19Prepared By:RLFlagCertResultUnitsDilution

Report Date: June 23, 2015 7250715061			V	Vork Order 30137	Page Number: 7 of 32				
				<b>T</b> T •	Dil		Spike	Percent	Recovery
	lag Ce	ert	Result	Units		$\frac{1}{1}$	Amount	Recovery	Limits
n-Tricosane <sub>Qsr</sub> c	2sr		69.3	mg/Kg		1	50.0	139	70 - 130
Sample: 395908 - N-Wa	.11								
Laboratory: Midland Analysis: TPH GRO			Applytic	al Method:	S 8015	с D		Prep Metho	d: S 5035
QC Batch: 122540			Date An		2015-0			Analyzed By	
Prep Batch: 103647				Preparation				Prepared By	
					RL				
Parameter	Flag		Cert	R	esult	Ur	its	Dilution	$\operatorname{RL}$
GRO	Qs,U		5	<	<4.00	mg/	Kg	1	4.00
							Spike	Percent	Recovery
Surrogate		Flag	Cert	Result	Units	Dilution	Amount	Recovery	Limits
Trifluorotoluene (TFT)				2.42	mg/Kg	1	2.00	121	70 - 130
4-Bromofluorobenzene (4-B	FB)			2.10	$\mathrm{mg/Kg}$	1	2.00	105	70 - 130

#### Sample: 395909 - E-Wall

Laboratory:MidlandAnalysis:BTEXQC Batch:122488Prep Batch:103596		Date Ana	l Method: lyzed: reparation:	S 8021E 2015-06 2015-06	-20		Prep Method Analyzed By Prepared By	: AK
				$\operatorname{RL}$				
Parameter	Flag	Cert	]	Result	Units	3	Dilution	$\operatorname{RL}$
Benzene	U	5	<(	0.0200	mg/Kg	S	1	0.0200
Toluene	U	5	<(	0.0200	$\mathrm{mg/Kg}$	S	1	0.0200
Ethylbenzene	Qs,U	5	<(	0.0200	mg/Kg	S	1	0.0200
Xylene	U	5	<	0.0200	mg/Kg	5	1	0.0200
Surrogate	Fla	g Cert	Result	Units	Dilution	Spike Amount	Percent Recovery	Recovery Limits
Trifluorotoluene (TFT)		-	2.08	mg/Kg	1	2.00	104	70 - 130
4-Bromofluorobenzene (4-BFB)			2.14	mg/Kg	1	2.00	107	70 - 130

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Sample: 39	5909 - E-Wall								
Laboratory: Analysis: QC Batch: Prep Batch:	Midland Chloride (Titratio 122419 103564	on)	Date	ytical Met Analyzed ple Prepar	: 2	SM 4500-C1 2015-06-18 2015-06-18	В	Prep Met Analyzed Prepared	By: AK
Parameter		Flag	Cert	I	RL Result	Ur	nits	Dilution	$\operatorname{RL}$
Chloride		U			<20.0	mg/		5	4.00
Sample: 39 Laboratory: Analysis: QC Batch: Prep Batch:	<b>5909 - E-Wall</b> Midland TPH DRO - NEV 122545 103612	V	Dat	lytical Me e Analyze ple Prepa	d:	S 8015 D 2015-06-23 2015-06-19		Prep Met Analyzed Prepared	By: SC
			_		RL				
$\frac{\text{Parameter}}{\text{DRO}}$		Flag	Cert		$\frac{\text{Result}}{<50.0}$		nits 'V.a	Dilution	RL 50.0
DRU		$_{\rm Qr,Qs,U}$	5		< 30.0	mg/	ng	1	50.0
Surrogate	Flag	Cert	Result	Units	Dil	lution A	Spike Amount	Percent Recovery	Recovery Limits
n-Tricosane			61.1	mg/Kg		1	50.0	122	70 - 130
Sample: 39 Laboratory: Analysis: QC Batch: Prep Batch:	<b>5909 - E-Wall</b> Midland TPH GRO 122489 103596		Date Ana	al Method alyzed: Preparatio:	2015	15 D -06-20 -06-19		Prep Metho Analyzed E Prepared B	By: AK
Parameter		Flag	Cert	T	RL Result	Ur	nits	Dilution	$\operatorname{RL}$
GRO		Qs,U	5		<4.00	mg/		1	4.00
Surrogate Trifluorotolue 4-Bromofluor	ene (TFT) obenzene (4-BFB)	Fla	g Cert	Result 2.46 2.13	Units mg/Kg mg/Kg		Spike Amount 2.00 2.00	Percent Recovery 123 106	Recovery Limits 70 - 130 70 - 130
	obenizene (4-DFD)			2.10	mg/ ng	, <u>1</u>	2.00	100	10 - 100

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Method: S 5035 vzed By: AK ared By: AK		
n RL		
$\frac{11}{1}$ 0.0200		
1  0.0200 1  0.0200		
1  0.0200 1  0.0200		
1  0.0200		
cent Recovery very Limits		
$\frac{1}{10000000000000000000000000000000000$		
70 - 130 70 - 130		
0		

Analysis: QC Batch:	Chloride (Titration) 122419	Dat	lytical Method: e Analyzed:	SM 4500-Cl B 2015-06-18	Prep Method: Analyzed By:	ÁK
Prep Batch:	103564	San	ple Preparation:	2015-06-18	Prepared By:	AK
			RL			
Parameter	Fla	g Cert	Result	Units	Dilution	$\operatorname{RL}$
Chloride	U		<20.0	mg/Kg	5	4.00

#### Sample: 395910 - S-Wall

Laboratory: Analysis: QC Batch: Prep Batch:	Midland TPH DRO 122545 103612	) - NEW		Date	ytical Methoc Analyzed: ole Preparatic	2015-06-	-23	Prep Met Analyzed Prepared	v
					R	L			
Parameter		]	Flag	Cert	Resu	lt	Units	Dilution	$\operatorname{RL}$
DRO		Q	r,Qs,U	5	<50	.0	mg/Kg	1	50.0
Surrogate		Flag	Cert	Result	Units	Dilution	Spike Amount	Percent Recovery	Recovery Limits
n-Tricosane	$1_{\rm Qsr}$	$_{\rm Qsr}$		135	m mg/Kg	1	100	135	70 - 130

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Sample: 395910 - S-Wall									
Laboratory:MidlandAnalysis:TPH GROQC Batch:122489Prep Batch:103596			Date An	al Methoo alyzed: Preparatio	2015-0	6-20		Prep Metho Analyzed B Prepared B	y: AK
					$\operatorname{RL}$				
Parameter	Flag		Cert		Result	Unit	s	Dilution	$\operatorname{RL}$
GRO	$_{\rm Qs,U}$		5		<4.00	mg/K	g	1	4.00
							Spike	Percent	Recovery
Surrogate		Flag	Cert	Result	Units	Dilution	Amount	Recovery	Limits
Trifluorotoluene (TFT)				2.42	mg/Kg	1	2.00	121	70 - 130
4-Bromofluorobenzene (4-BFB)				2.06	$\mathrm{mg/Kg}$	1	2.00	103	70 - 130

#### Sample: 395911 - W-Wall

Laboratory: Midland								
Analysis: BTEX		Analytica	l Method:	S 8021E	3		Prep Method	l: S 5035
QC Batch: 122488		Date Ana	lyzed:	2015-06	-20		Analyzed By	: AK
Prep Batch: 103596		Sample P	reparation:	2015-06	-19		Prepared By	: AK
				RL				
Parameter	Flag	Cert		Result	Unit	s	Dilution	$\operatorname{RL}$
Benzene	U	5	<	0.0200	mg/K	g	1	0.0200
Toluene	U	5	<	0.0200	mg/K	g	1	0.0200
Ethylbenzene	$_{\rm Qs,U}$	5	<	0.0200	mg/K	g	1	0.0200
Xylene	U	5	<	0.0200	mg/K	g	1	0.0200
						Spike	Percent	Recovery
Surrogate	Fla	g Cert	Result	Units	Dilution	Amount	Recovery	Limits
Trifluorotoluene (TFT)			1.79	mg/Kg	1	2.00	90	70 - 130
4-Bromofluorobenzene (4-BFB)			1.90	$\mathrm{mg/Kg}$	1	2.00	95	70 - 130

#### Sample: 395911 - W-Wall

Laboratory:	Midland				
Analysis:	Chloride (Titration)	Analytical Method:	SM 4500-Cl B	Prep Method:	N/A
QC Batch:	122419	Date Analyzed:	2015-06-18	Analyzed By:	AK
Prep Batch:	103564	Sample Preparation:	2015-06-18	Prepared By:	AK

continued ...

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sample 39591	11 continued								
Parameter		Flag	Cert	Ι	RL Result	Uni	ts	Dilution	RL
					RL				
Parameter		Flag	Cert	I	Result	Uni	ts	Dilution	RL
Chloride		U			<20.0	mg/K		5	4.00
Sample: 39 Laboratory: Analysis: QC Batch: Prep Batch:	<b>5911 - W-Wall</b> Midland TPH DRO - NE 122545 103612	W	Dat	ılytical Me e Analyzeo ıple Prepa	d: 2	5 8015 D 2015-06-23 2015-06-19		Prep Meth Analyzed Prepared	By: SC
Tep Daten.	105012		Dan	ipie i repa	1401011. 2	2010-00-13		i icparcu .	By. 50
Parameter		Flag	Cert		RL Result	Uni	ts	Dilution	RL
DRO		Qr,Qs,U	5		<50.0	mg/k		1	50.0
						S	pike	Percent	Recovery
Surrogate	Flag	Cert	Result	Units	Dilu		nount	Recovery	Limits
n-Tricosane			63.8	mg/Kg	-	1	50.0	128	70 - 130
Sample: 39 Laboratory: Analysis: QC Batch: Prep Batch:	<b>5911 - W-Wall</b> Midland TPH GRO 122489 103596		Date An	al Method alyzed: Preparation	2015-0	06-20		Prep Metho Analyzed By Prepared By	y: AK
Parameter		Flag	Cert	т	RL Result	Uni	ta	Dilution	RL
GRO		F lag <sub>Qs,U</sub>	5 5		< 4.00	mg/K		1	4.00
Surrogate Trifluorotolu	ene (TFT)	Fla	g Cert	Result 2.23	Units mg/Kg	Dilution 1	Spike Amount 2.00	Percent Recovery 112	Recovery Limits 70 - 130
	chonzono (4 BFB)	\ \		1.00	mg/Kg	1	$\frac{2.00}{2.00}$	112	70 - 130

mg/Kg

1

2.00

100

70 - 130

1.99

4-Bromofluorobenzene (4-BFB)

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Sample: 39	5912 - RP									
Laboratory:	Midland									
Analysis:	BTEX				l Method:				Prep Method	
QC Batch:	122488			Date Ana	•		-06-20		Analyzed By	
Prep Batch:	103596			sample P	reparatior	n: 2015	-06-19		Prepared By	: AK
						RL				
Parameter		Flag		Cert		Result	Unit		Dilution	$\operatorname{RL}$
Benzene		U		5		< 0.0200	mg/K		1	0.0200
Toluene		U		5		< 0.0200	mg/K		1	0.0200
Ethylbenzene	<del>j</del>	$_{\rm Qs,U}$		5		< 0.0200	mg/K		1	0.0200
Xylene		U		5	<	< 0.0200	mg/K	g	1	0.0200
								Spike	Percent	Recovery
Surrogate			Flag	Cert	Result	Unit	s Dilution	Amount		Limits
Trifluorotolu	one (TFT)		riag	Cert	1.90	mg/k		2.00	<u>95</u>	70 - 130
	cobenzene (4-BFB)				2.01	mg/F		2.00 2.00	100	70 - 130
Sample: 39	5912 - RP									
Laboratory:	Midland									
Analysis:	Chloride (Titrati	on)			lytical Me		SM 4500-Cl B $$		Prep Meth	,
QC Batch:	122419				e Analyzeo		2015-06-18		Analyzed I	
Prep Batch:	103564			Sam	ple Prepa	ration:	2015-06-18		Prepared B	By: AK
						$\operatorname{RL}$				
Parameter		Flag		Cert		Result	Uni	te	Dilution	RL
Chloride		Thas		0010		<b>5630</b>	mg/k		5	4.00
						0000		6	0	1.00
Sample: 39	5912 - RP									
Laboratory:	Midland									
Analysis:	TPH DRO - NEV	W		Δn	alytical M	ethod	S 8015 D		Prep Meth	od: N/A
QC Batch:	122545	•			te Analyze		2015-06-23		Analyzed I	,
Prep Batch:	103612				nple Prepa		2015-06-19		Prepared E	v
i top Daton.	100012			Jan	upic i icpa		2010-00-10		r reparcu r	<i>y</i> . 50

					RL			
Parameter		Flag	Cert	Re	esult	Units	Dilution	$\operatorname{RL}$
DRO		$_{ m Qr,Qs,U}$	5	<	50.0	mg/Kg	1	50.0
Surrogate	Flag	Cert	Result	Units	Dilution	Spike Amount	Percent Recovery	Recovery Limits
n-Tricosane			50.3	mg/Kg	1	50.0	101	70 - 130

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Sample: 395912 - RP									
Laboratory:MidlandAnalysis:TPH GROQC Batch:122489Prep Batch:103596			Date An	al Methoc alyzed: Preparatic	2015-0	6-20		Prep Metho Analyzed B Prepared B	y: AK
					$\operatorname{RL}$				
Parameter	Flag		Cert		Result	Uni	ts	Dilution	$\operatorname{RL}$
GRO	$_{\rm Qs,U}$		5		<4.00	mg/K	g	1	4.00
							Spike	Percent	Recovery
Surrogate		Flag	Cert	Result	Units	Dilution	Amount	Recovery	Limits
Trifluorotoluene (TFT)				2.36	mg/Kg	1	2.00	118	70 - 130
4-Bromofluorobenzene (4-BFB)				2.07	$\mathrm{mg/Kg}$	1	2.00	104	70 - 130

### Sample: 395913 - STP

Laboratory: Midland								
Analysis: BTEX		Analytica	al Method:	S 8021E	3		Prep Method	: S 5035
QC Batch: 122488		Date Ana	alyzed:	2015-06	-20		Analyzed By	: AK
Prep Batch: 103596		Sample P	reparation:	2015-06	-19		Prepared By	AK
				$\operatorname{RL}$				
Parameter	Flag	Cert		Result	Unit	s	Dilution	$\operatorname{RL}$
Benzene	U	5	<	0.0200	mg/K	g	1	0.0200
Toluene	U	5	<	0.0200	mg/K	g	1	0.0200
Ethylbenzene	$_{\rm Qs,U}$	5	<	0.0200	mg/K	g	1	0.0200
Xylene	U	5	<	0.0200	mg/K	g	1	0.0200
						Spike	Percent	Recovery
Surrogate	Flag	g Cert	Result	Units	Dilution	Amount	Recovery	Limits
Trifluorotoluene (TFT)			1.86	mg/Kg	1	2.00	93	70 - 130
4-Bromofluorobenzene (4-BFB)			1.95	mg/Kg	1	2.00	98	70 - 130

#### Sample: 395913 - STP

Laboratory:	Midland				
Analysis:	Chloride (Titration)	Analytical Method:	SM 4500-Cl B $$	Prep Method:	N/A
QC Batch:	122419	Date Analyzed:	2015-06-18	Analyzed By:	AK
Prep Batch:	103564	Sample Preparation:	2015-06-18	Prepared By:	AK

continued ...

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sample 395913 continue	ed								
Parameter	Flag		Cert	Ι	RL Result	Uni	ts	Dilution	RL
Parameter	Flag		Cert	I	RL Result	Uni	ts	Dilution	RL
Chloride	U				<20.0	mg/K	g	5	4.00
Sample: 395913 - ST Laboratory: Midland Analysis: TPH DR QC Batch: 122545 Prep Batch: 103612	C <b>P</b> O - NEW		Dat	alytical Me e Analyzee uple Prepa	d: 2	8015 D 015-06-23 015-06-19		Prep Met Analyzed Prepared	By: SC
Parameter	Flag		Cert		RL Result	Uni	ts	Dilution	RL
DRO	Qr,Qs,		5		<50.0	mg/k		1	50.0
Surrogate	Flag Cer	rt	Result	Units	Dilu		pike nount	Percent Recovery	Recovery Limits
n-Tricosane			62.3	mg/Kg	1		50.0	125	70 - 130
Sample: 395913 - ST Laboratory: Midland Analysis: TPH GR QC Batch: 122489 Prep Batch: 103596			Date An	al Method alyzed: Preparatio	2015-0	6-20		Prep Metho Analyzed B Prepared B	y: AK
Parameter	Flag		Cert	I	RL Result	Uni	ts	Dilution	RL
GRO	Qs,U		5		<4.00	mg/K	g	1	4.00
Surrogate Trifluorotoluene (TFT)		Flag	Cert	Result 2.32	Units mg/Kg	Dilution 1	Spike Amount 2.00	Percent Recovery 116	Recovery Limits 70 - 130
4-Bromofluorobenzene				2.04	mg/Kg	1	2.00	102	70 - 130

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Method B	lanks					
Method Blank (1)	QC Batch: 122419					
QC Batch: 122419 Prep Batch: 103564		Date Analyzed: QC Preparation:	2015-06-18 2015-06-18		alyzed By: Al pared By: Al	
Parameter	Flag	Cert	MD Resu		F	RL
Chloride			<3.8	5 mg/Kg		4
Method Blank (1)	QC Batch: 122430					
QC Batch: 122430		Date Analyzed:	2015-06-18	Ana	alyzed By: AI	Κ

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QU Datch.	122430		Date Analyzed.	2010-00-10	Analyzeu Dy.	AN
Prep Batch:	103564		QC Preparation:	2015-06-18	Prepared By:	AK
				MDL		
Parameter		Flag	Cert	Result	Units	$\operatorname{RL}$
Chloride				<3.85	m mg/Kg	4

#### Method Blank (1) QC Batch: 122488

QC Batch: 122488 Prep Batch: 103596			analyzed: eparation:	2015-06-20015-06-20015-000000000000000000000000000000000			Analyzed Prepared	
					MDL			
Parameter	Flag		Cert		Result		Units	$\operatorname{RL}$
Benzene			5		< 0.00533	1	ng/Kg	0.02
Toluene			5		$<\!0.00645$	1	m mg/Kg	0.02
Ethylbenzene			5		< 0.0116	1	m mg/Kg	0.02
Xylene			5		< 0.00874	1	mg/Kg	0.02
						Spike	Percent	Recovery
Surrogate	Flag	Cert	Result	Units	Dilution	Amount	Recovery	Limits
Trifluorotoluene (TFT)			2.00	$\mathrm{mg/Kg}$	1	2.00	100	70 - 130
4-Bromofluorobenzene (4-BFB)			2.08	m mg/Kg	1	2.00	104	70 - 130

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Method Blank (1) QC Batch: 1	22489							
QC Batch: 122489		Date A	nalyzed:	2015-06-2	20		Analyzed	l By: AK
Prep Batch: 103596		QC Pre	eparation:	2015-06-1	9		Prepared	By: AK
					MDL			
Parameter	Flag		Cert		Result		Units	$\operatorname{RL}$
GRO			5		<2.32		mg/Kg	4
						Spike	Percent	Recovery
Surrogate	Flag	Cert	Result	Units	Dilution	Amount	Recovery	Limits
Trifluorotoluene (TFT)			2.41	mg/Kg	1	2.00	120	70 - 130
4-Bromofluorobenzene (4-BFB)			2.06	mg/Kg	1	2.00	103	70 - 130
Method Blank (1) QC Batch: 1	22539							
QC Batch: 122539		Date A	nalyzed:	2015-06-2	3		Analyzeo	l By: AK
Prep Batch: 103647			eparation:	2015-06-2	22		Prepared	
					MDL			
Parameter	Flag		Cert		Result		Units	$\operatorname{RL}$
Benzene			5		< 0.00533		mg/Kg	0.02
<b>m</b> 1					0 0 0 0 1 5		/ = =	0.00

Toluene			5		< 0.00645	1	m mg/Kg	0.02
Ethylbenzene			5		< 0.0116	1	m mg/Kg	0.02
Xylene			5		< 0.00874	]	mg/Kg	0.02
						Spike	Percent	Recovery
Surrogate	Flag	Cert	Result	Units	Dilution	Amount	Recovery	Limits
Trifluorotoluene (TFT)			1.82	mg/Kg	1	2.00	91	70 - 130
4-Bromofluorobenzene (4-BFB)			1.88	mg/Kg	1	2.00	94	70 - 130

## Method Blank (1) QC Batch: 122540

QC Batch: 122540 Prep Batch: 103647		Date Analyzed: QC Preparation:		Analyzed By: Prepared By:	
1		<b>v</b>		1 0	
			MDL		
Parameter	Flag	Cert	Result	Units	$\operatorname{RL}$
GRO		5	<2.32	m mg/Kg	4

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							Spike	Percent		overy
Surrogate		Fla	g Cert	Result	Units	Dilution	Amount	Recovery	Lin	nits
Trifluorotoluene (TFT				2.33	m mg/Kg	1	2.00	116		130
4-Bromofluorobenzene	(4-BFB)			1.99	$\mathrm{mg/Kg}$	1	2.00	100	70 -	130
Method Blank (1)	oc f	Batch: 1225	45							
Method Blank (1) QC Batch: 122545 Prep Batch: 103612	QC E	Batch: 1225	Date A	Analyzed: reparation:	2015-06- 2015-06-	19		Analyze Prepare	•	SC SC
QC Batch: 122545 Prep Batch: 103612	QC E		Date A QC Pr	reparation:		19 MDL		Prepare	•	SC
QC Batch: 122545 Prep Batch: 103612 Parameter	QC E	Batch: 1225 Flag	Date A QC Pr			19 MDL Result		Prepare	•	SC RL
QC Batch: 122545 Prep Batch: 103612	QC E		Date A QC Pr	reparation:		19 MDL		Prepare	•	SC
QC Batch: 122545 Prep Batch: 103612 Parameter	QC E		Date A QC Pr	reparation: Cert		19 MDL Result <7.41	Spike mount	Prepare	d By:	SC RL

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# Laboratory Control Spikes

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

QC Batch: 122419			Analyze		5-06-18				lyzed By	
Prep Batch: 103564		QC I	Preparati	on: 201	5-06-18			Prep	ared By	r: AK
			LCS			Spike	Ma	atrix		Rec.
Param	$\mathbf{F}$	C F	Result	Units	Dil.	Amount	$R\epsilon$	esult R	lec.	Limit
Chloride			2520	$\mathrm{mg/Kg}$	5	2500	<	19.2 1	.01	85 - 115
Percent recovery is based on the spike	e resu	lt. RPD	is based o	on the sp	pike and sp	oike duplica	ate resi	ılt.		
		LCSD			Spike	Matrix		Rec.		RPD
Param F	$\mathbf{C}$	Result	Units	Dil.	Amount	Result	Rec.	Limit	RPD	Limit
Chloride		2430	mg/Kg	5	2500	<19.2	97	85 - 115	4	20

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

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

QC Batch: Prep Batch:	$\frac{122430}{103564}$			ate Analyz C Prepara		06-18 06-18			•	By: AK By: AK
				LCS			Spike	Matrix		Rec.
Param		$\mathbf{F}$	$\mathbf{C}$	Result	Units	Dil.	Amount	Result	Rec.	Limit
Chloride				2320	mg/Kg	5	2500	<19.2	93	85 - 115
Percent recov	very is based on the spi	ke resu	ılt. RI	PD is based	on the spik	ke and sj	oike duplicate	e result.		

			LCSD			Spike	Matrix		Rec.		RPD
Param	$\mathbf{F}$	$\mathbf{C}$	Result	Units	Dil.	Amount	Result	Rec.	Limit	RPD	Limit
Chloride			2420	$\mathrm{mg/Kg}$	5	2500	<19.2	97	85 - 115	4	20

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

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

QC Batch:	122488	Date Analyzed:	2015-06-20	Analyzed By:	AK
Prep Batch:	103596	QC Preparation:	2015-06-19	Prepared By:	AK

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Dama	E	C	LCS	TT :4	ו:ח	Spike	Matrix	D	Rec.	
Param	F	С	Result	Units	Dil.	Amount	Result	Rec.	Limit	
Benzene		5	1.99	m mg/Kg	1	2.00	< 0.00533	100	70 - 130	
Toluene		5	1.88	m mg/Kg	1	2.00	$<\!0.00645$	94	70 - 130	
Ethylbenzene		5	1.76	m mg/Kg	1	2.00	< 0.0116	88	70 - 130	
Xylene		5	5.80	m mg/Kg	1	6.00	< 0.00874	97	70 - 130	

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

			LCSD			Spike	Matrix		Rec.		RPD
Param	F	$\mathbf{C}$	Result	Units	Dil.	Amount	Result	Rec.	Limit	RPD	Limit
Benzene		5	1.97	mg/Kg	1	2.00	< 0.00533	98	70 - 130	1	20
Toluene		5	1.91	$\mathrm{mg/Kg}$	1	2.00	$<\!0.00645$	96	70 - 130	2	20
Ethylbenzene		5	1.78	$\mathrm{mg/Kg}$	1	2.00	< 0.0116	89	70 - 130	1	20
Xylene		5	5.83	$\mathrm{mg/Kg}$	1	6.00	< 0.00874	97	70 - 130	0	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)	1.90	1.84	mg/Kg	1	2.00	95	92	70 - 130
4-Bromofluorobenzene (4-BFB)	1.93	1.87	$\mathrm{mg/Kg}$	1	2.00	96	94	70 - 130

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

QC Batch:	122489	Date Analyzed:	2015-06-20		Analyzed B	y: AK
Prep Batch:	103596	QC Preparation:	2015-06-19		Prepared By	y: AK
		LCS		$\operatorname{Spike}$	Matrix	Rec.

Param	$\mathbf{F}$	$\mathbf{C}$	Result	Units	Dil.	Amount	Result	Rec.	Limit
GRO		5	14.6	m mg/Kg	1	20.0	$<\!2.32$	73	70 - 130

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

	LCSD		$\operatorname{Sp}$	ike	Matrix		$\operatorname{Re}$	с.	RPD
Param F	C Result	Units	Dil. Amo	$\operatorname{ount}$	Result	Rec.	Lin	nit RH	PD Limit
GRO	5 15.7	m mg/Kg	1 20	.0	$<\!2.32$	78	70 -	130 7	7 20
Percent recovery is based on the spike r	esult. RPD i	s based on	the spike a	nd spik	ke duplic	ate res	ult.		
	LCS	5 LCSD			$\operatorname{Spi}$	ke	LCS	LCSD	Rec.
Surrogate	Resu	lt Result	Units	Dil	. Amo	ount	Rec.	Rec.	Limit
Trifluorotoluene (TFT)	2.43	3 2.40	mg/Kg	; 1	2.0	)0	122	120	70 - 130
4-Bromofluorobenzene (4-BFB)	2.16	5 2.13	mg/Kg	; 1	2.0	00	108	106	70 - 130

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Laboratory Control Spike (L	CS-1	1)								
QC Batch: 122539			Dat	e Analyze	ed: 20	15-06-23			Analyze	d By: Al
Prep Batch: 103647			QC	Preparat	ion: 20	15-06-22			Prepare	d By: Al
				LCS			Spike	Matri	ix	Rec.
Param		F	C I	Result	Units	Dil.	Amount	Resu	lt Rec.	Limi
Benzene			5	1.89	mg/Kg	1	2.00	< 0.005	533 94	70 - 13
Toluene			5	1.80	$\mathrm{mg/Kg}$	1	2.00	< 0.006	645 90	70 - 13
Ethylbenzene			5	1.73	$\mathrm{mg/Kg}$	1	2.00	< 0.01		70 - 13
Xylene			5	5.64	$\mathrm{mg/Kg}$	1	6.00	< 0.008	874 94	70 - 13
Percent recovery is based on the	spike	e resu	ılt. RPD	is based	on the s	pike and s	spike duplica	te result		
2	Б	C	LCSD	TT •/	D'1	Spike	Matrix	D	Rec.	RP
Param	F	С	Result	Units		Amount	Result	Rec.		RPD Lin
Benzene		5	1.93	mg/Kg		2.00	< 0.00533		70 - 130	2 20
Foluene		5	1.81	mg/Kg		2.00	< 0.00645		70 - 130	1 20
Ethylbenzene		5	1.74	mg/Kg		2.00	< 0.0116		70 - 130	1 20
Xylene		5	5.70	mg/Kg	1	6.00	< 0.00874	95	70 - 130	1 20
Percent recovery is based on the	spike	e resu	ılt. RPD	is based	on the s	pike and s	spike duplica	te result		
			L	CS LO	CSD		Spil	ke L	CS LCSE	) Rec.
Surrogate			Res	sult Re	esult	Units	Dil. Amo		ec. Rec.	Limi
Trifluorotoluene (TFT)			1.			ng/Kg	1 2.0		03 88	70 - 13
4-Bromofluorobenzene (4-BFB)						ng/Kg	1 2.0		02 88	70 - 13
Laboratory Control Spike (L QC Batch: 122540 Prep Batch: 103647	LCS-:	1)		e Analyze Preparat		15-06-23 15-06-22			Analyze Prepare	
QC Batch: 122540	JCS-:	1)	QC	Preparat LCS			Spike	Mati	Prepare	
QC Batch: 122540 Prep Batch: 103647 Param		1) F	QC	Preparat LCS Result	ion: 20 Units	15-06-22 Dil.	Amount	Resi	Prepare rix ilt Rec.	d By: Al Rec. Limi
QC Batch: 122540 Prep Batch: 103647			QC	Preparat LCS	ion: 20	15-06-22 Dil.	-		Prepare rix ilt Rec.	d By: Al Rec.
QC Batch: 122540 Prep Batch: 103647 Param		F	QC C 5	Preparat LCS Result 15.5	ion: 20 Units mg/Kg	15-06-22 Dil. g 1	Amount 20.0	Resu <2.3	Prepare rix alt Rec. 32 78	d By: Al Rec. Limi
QC Batch: 122540 Prep Batch: 103647 Param GRO		F	QC C 5	Preparat LCS Result 15.5 D is based	ion: 20 Units mg/Kg	15-06-22 Dil. g 1	Amount 20.0	Resu <2.3	Prepare rix alt Rec. 32 78	d By: Al Rec. Limi
QC Batch: 122540 Prep Batch: 103647 Param GRO		F	$\frac{C}{\frac{5}{1}}$	Preparat LCS Result 15.5 ) is based	Units Mg/Kg on the s	$\frac{\text{Dil.}}{\text{g}  1}$ pike and s	Amount 20.0 spike duplica Matrix	Resu <2.3	Prepare rix <u>alt Rec.</u> 32 78 Rec.	d By: Al Rec. Limi 70 - 13
QC Batch: 122540 Prep Batch: 103647 Param GRO Percent recovery is based on the	spike	F e resu	QC <u>5</u> llt. RPD LCSD	Preparat LCS Result 15.5 ) is based	Units <u>Units</u> <u>mg/Kg</u> on the s <u>b</u> Dil.	Dil. g 1 pike and s Spike	Amount 20.0 spike duplica Matrix	$\frac{\text{Resu}}{<2.3}$ te result Rec.	Prepare rix <u>alt Rec.</u> 32 78 Rec.	d By: Al Rec. Limi 70 - 1: RP

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control spikes continued													
			LO		CSD			Spike		LCS		CSD	Rec.
Surrogate			Res	sult R	esult	Units	Dil.	Amou	nt	Rec.	R	lec.	Limit
			L	CS L	CSD			Spike	е	LCS	LC	CSD	Rec.
Surrogate			Res	sult R	esult	Units	Dil.	Amou	$\operatorname{nt}$	Rec.	R	lec.	Limit
Trifluorotoluene (TFT)			2.	34 2	2.35	mg/Kg	1	2.00		117	1	18	70 - 130
4-Bromofluorobenzene (4-BFB)			2.	09 2	2.12	$\mathrm{mg/Kg}$	1	2.00		104	1	.06	70 - 130
Laboratory Control Spike (L QC Batch: 122545	CS-1	)	Dat	e Analyz	æd: É	2015-06-23	3				Ana	lyzed l	By: SC
QC Batch: 122545	CS-1	)		e Analyz Prepara		2015-06-23 2015-06-19						lyzed l bared H	v
QC Batch: 122545	CS-1	)		v				Spike	М			v	v
QC Batch: 122545 Prep Batch: 103612 Param		) F	$\rm QC$	Prepara		2015-06-19	)	Spike			Prep	v	By: SC
QC Batch: 122545 Prep Batch: 103612		,	$\rm QC$	Prepara LCS	tion: 2	2015-06-19 ts Dil	)	-	R	atrix	Prep R	pared I	By: SC Rec.
QC Batch: 122545 Prep Batch: 103612 Param		F	QC C 5	Prepara LCS Result 239	tion: 2 Unit mg/l	$\frac{1}{2015-06-19}$	) 	Amount 250	R.	atrix esult 7.41	Prep R	ec.	By: SC Rec. Limit
QC Batch: 122545 Prep Batch: 103612 Param DRO		F	QC C 5	Prepara LCS Result 239	tion: 2 Unit mg/l	$\frac{1}{2015-06-19}$	) . A	Amount 250	R.	atrix esult 7.41	Prep R	ec.	By: SC Rec. Limit
QC Batch: 122545 Prep Batch: 103612 Param DRO		F	$\frac{C}{\frac{5}{1}}$	Prepara LCS Result 239 is based	tion: 2 Unit mg/l on the	$\frac{1}{2015-06-19}$ $\frac{1}{2015-06-19}$ $\frac{1}{2015-06-19}$ $\frac{1}{2015-06-19}$ $\frac{1}{2015-06-19}$	) I spike	Amount 250 e duplicat fatrix	R.	atrix esult 7.41 ult.	Prep R g ec.	ec.	By: SC Rec. Limit 70 - 130 RPD

	LCS	LCSD			Spike	LCS	LCSD	Rec.
Surrogate	Result	$\operatorname{Result}$	Units	Dil.	Amount	Rec.	Rec.	$\operatorname{Limit}$
n-Tricosane	58.5	61.9	m mg/Kg	1	50.0	117	124	70 - 130

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Matrix Spikes	5										
Matrix Spike (MS-1) Spik	ked Sample	e: 39601	1								
QC Batch: 122419 Prep Batch: 103564			ate Analyz C Prepara		)15-06-18 )15-06-18				•	zed By: red By:	
Param Chloride	F	С	MS Result	Units	Dil.	Spike Amount	Res	trix sult	Rec.	Ι	Rec.
Percent recovery is based on the	e spike rest	ılt. RP	14800 D is based	mg/Kg l on the s		2500 pike dupli		233 sult.	103	78.	9 - 121
								_			חחח
	F C	MSD Resul 15000	t Units	Dil.	Spike Amount 2500	Matrix Result 12233	Rec.	Re Lin 78.9 -	nit	RPD 1	
Chloride		Resul 15000	t Units ) mg/Kg	g 5	Amount 2500	Result 12233	112	Lin 78.9 -	nit		Limi
Chloride Percent recovery is based on the		Resul 15000 ılt. RP	t Units ) mg/Kg D is based	g 5	Amount 2500	Result 12233	112	Lin 78.9 -	nit		Limit
Chloride Percent recovery is based on the <b>Matrix Spike (MS-1)</b> Spil QC Batch: 122430	e spike rest	Resul 15000 1lt. RP e: 39575 Da	t Units ) mg/Kg D is based	$\frac{5}{5}$ l on the state of th	Amount 2500	Result 12233	112	Lim 78.9 - sult.	hit 121 Analy		Limit 20
Chloride Percent recovery is based on the <b>Matrix Spike (MS-1)</b> Spik QC Batch: 122430 Prep Batch: 103564 Param	e spike rest	Resul 15000 1lt. RP e: 39575 Da	t Units <u>mg/Ka</u> D is based 0 0 ate Analyz C Preparat MS Result	$\frac{5}{5}$ for the state of the	Amount 2500 spike and s 015-06-18 015-06-18 Dil.	Result 12233 pike dupli Spike Amount	112 cate res Ma Res	Lim 78.9 - sult. trix sult	nit 121 Analy Prepa Rec.	1 zed By: red By:	20 AK AK Rec.
Chloride Percent recovery is based on the <b>Matrix Spike (MS-1)</b> Spil QC Batch: 122430 Prep Batch: 103564 Param Chloride	e spike rest ked Sample F	Resul 15000 11. RP :: 39575 Da Q6 C	t Units <u>mg/Ka</u> D is based 0 ate Analyz C Preparat <u>MS</u> <u>Result</u> 10100	$\frac{g  5}{c}$ l on the s ded: 20 tion: 20 Units mg/Kg	Amount 2500 spike and s 015-06-18 015-06-18 Dil. 5 1	Result 12233 pike dupli Spike Amount 2500	112 cate res Ma Res 74	Lim 78.9 - sult. trix sult 40	nit 121 Analy Prepa	1 zed By: red By:	Limit 20 AK AK Rec.
QC Batch: 122430	e spike rest ked Sample F	Resul 15000 11. RP :: 39575 Da Q6 C	t Units <u>mg/Ka</u> D is based 0 0 ate Analyz C Preparat <u>MS</u> <u>Result</u> 10100 D is based	$\frac{g  5}{1 \text{ on the s}}$ ed: 20 tion: 20 Units mg/Kg	Amount 2500 spike and s 015-06-18 015-06-18 Dil. 5 1	Result 12233 pike dupli Spike Amount 2500	112 cate res Ma Res 74	Lim 78.9 - sult. trix sult 40	nit 121 Analy Prepa Rec. 106 c.	1 zed By: red By:	Limit 20 AK AK Rec.

e: 395908
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QC Batch:	122488	Date Analyzed:	2015-06-20	Analyzed By:	AK
Prep Batch:	103596	QC Preparation:	2015-06-19	Prepared By:	AK

Xylene

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				MS			Spike	Ma	trix		Rec.
Param		$\mathbf{F}$	$\mathbf{C}$	Result	Units	Dil.	Amount	Re	sult	Rec.	Limit
Benzene			5	1.51	mg/Kg	; 1	2.00	< 0.0	0533	76	70 - 130
Toluene			5	1.53	mg/Kg	1	2.00	0.0	628	73	70 - 130
Ethylbenzene	$_{\rm Qs}$	$_{\rm Qs}$	5	1.42	mg/Kg	1	2.00	0.0	413	69	70 - 130
Xylene			5	4.64	mg/Kg	1	6.00	0.0	429	77	70 - 130
Percent recovery is based on	the spike	e res	ult. RPE	is based	on the s	spike and s	spike duplica	ate resu	ılt.		
			MSD			Spike	Matrix		Rec.		RPD
Param	$\mathbf{F}$	$\mathbf{C}$	Result	Units	Dil.	Amount	Result	Rec.	Limit	RPD	Limit
Benzene		5	1.74	mg/Kg	1	2.00	< 0.00533	87	70 - 130	) 14	20
Toluene		5	1.67	mg/Kg	1	2.00	0.0628	80	70 - 130	) 9	20
Ethylbenzene		5	1.63	mg/Kg	1	2.00	0.0413	79	70 - 130	) 14	20

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

5.35

 $\mathbf{5}$ 

mg/Kg

	MS	MSD			Spike	MS	MSD	Rec.
Surrogate	Result	Result	Units	Dil.	Amount	Rec.	Rec.	Limit
Trifluorotoluene (TFT)	1.81	1.92	mg/Kg	1	2	90	96	70 - 130
4-Bromofluorobenzene (4-BFB)	1.92	1.97	$\mathrm{mg/Kg}$	1	2	96	98	70 - 130

1

6.00

0.0429

88

70 - 130

14

20

#### Matrix Spike (xMS-1) Spiked Sample: 395908

QC Batch:	122489	Date Analyzed:	2015-06-20	Analyzed By:	AK
Prep Batch:	103596	QC Preparation:	2015-06-19	Prepared By:	AK

				MS			Spike	Matrix		Rec.
Param		$\mathbf{F}$	$\mathbf{C}$	Result	Units	Dil.	Amount	Result	Rec.	Limit
GRO	Qs	$_{\rm Qs}$	5	11.8	m mg/Kg	1	20.0	11.6	1	70 - 130

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

2.03

			MSD			Spike	Matrix		Rec.		RPD
Param	$\mathbf{F}$	$\mathbf{C}$	Result	Units	Dil.	Amount	Result	Rec.	Limit	RPI	D Limit
GRO	s Qs	5	13.2	mg/Kg	1	20.0	11.6	8	70 - 130	) 11	20
Percent recovery is based on the spike result. RPD is based on the spike and spike duplicate result.											
			MS	MSI	)		$S_{I}$	oike	MS	MSD	Rec.
Surrogate			Resu	lt Resu	lt	Units I	Dil. An	nount	Rec.	Rec.	Limit
Trifluorotoluene (TFT)			2.26	5 2.45	5 r	ng/Kg	1	2	113	122	70 - 130

2.15

mg/Kg

1

2

102

108

70 - 130

4-Bromofluorobenzene (4-BFB)

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Matrix Spike (MS-1) Spiked	ł Sa	mple	: 39592	2								
QC Batch: 122539 Prep Batch: 103647				te Analyz C Prepara		)15-06-23 )15-06-22				nalyzed By repared By		
				MS			Spike	Ma	trix		Rec.	
Param		F	$\mathbf{C}$	Result	Units	Dil.	Amount	Res	sult	Rec.	Limit	
Benzene			5	1.78	mg/Kg	1	2.00	< 0.0	0533	89	70 - 130	
Foluene			5	1.72	mg/Kg	1	2.00	< 0.0	0645	86	70 - 130	
Ethylbenzene			5	1.70	mg/Kg	1	2.00	<0.0	0116	85	70 - 130	
Xylene			5	5.63	mg/Kg	1	6.00	< 0.0	0874	94	70 - 130	
Percent recovery is based on the s	spike	e resu	lt. RP	D is based	l on the	spike and s	spike duplica	ate resu	ılt.			
_	_	~	MSD			Spike	Matrix	_	Rec		RPD	
Param	F	С	Result		Dil.	Amount	Result	Rec.	Limi		Limit	
Benzene		5	1.66	mg/Kg		2.00	< 0.00533	83	70 - 1		20	
Foluene		5	1.59	mg/Kg		2.00	< 0.00645	80	70 - 1		20	
Ethylbenzene		5	1.59	mg/Kg		2.00	< 0.0116	80	70 - 1		20	
Kylene		5	5.25	mg/Kg	s 1	6.00	< 0.00874	88	70 - 1	30 7	20	
Surrogate Trifluorotoluene (TFT)				1.84		Units mg/Kg	1	ount 2	Rec. 92		Limit 70 - 130	
-Bromofluorobenzene (4-BFB)				1.92	1.96	$\mathrm{mg/Kg}$	1 1	2	96	98	70 - 130	
Matrix Spike (MS-1) Spiked QC Batch: 122540 Prep Batch: 103647	l Sa	mple		2 ute Analyz C Prepara		)15-06-23 )15-06-22				nalyzed By repared By		
								М	atrix		Rec.	
		F	С	MS Result	Units		Spike Amount	Re	esult	Rec.	Limit	
		F	C 5		Units mg/K		-	Re				
GRO	spike		5	Result 14.8	mg/K	g 1	Amount 20.0	Re <2	esult 2.32		Limit	
GRO Percent recovery is based on the s	-	e resu	5 lt. RP MS	Result 14.8 D is based D	mg/Kl on the s	g 1 spike and s Spike	Amount 20.0 spike duplica Matrix	Re <2 ate resu	esult 2.32 1lt. Rec.	74	Limit 70 - 130 RPD	
GRO Percent recovery is based on the s Param	F	e resu	<sup>5</sup> lt. RP MS Resu	Result 14.8 D is based D It Unit	mg/K l on the s	g 1 spike and s Spike . Amount	Amount 20.0 spike duplica Matrix t Result	Re <2 ate resu Rec.	esult 2.32 ılt. Rec. Limi	74 t RPD	Limit 70 - 130 RPD Limit	
GRO Percent recovery is based on the s Param GRO Qs	F Q:	e resu	<sup>5</sup> lt. RP MS Resu 13.3	Result14.8D is basedDltUnit8mg/H	$\frac{\text{mg/K}}{\text{l on the s}}$	g 1 spike and s Spike Amount 20.0	Amount 20.0 spike duplica Matrix t Result <2.32	$\frac{\text{Re}}{<2}$ ate resu $\frac{\text{Rec.}}{69}$	esult 2.32 1lt. Rec. Limi 70 - 13	74 t RPD	Limit 70 - 130 RPD	
Param GRO Percent recovery is based on the s Param GRO <sub>Qs</sub> Percent recovery is based on the s	F Q:	e resu	<sup>5</sup> lt. RP MS Resu 13.3	Result14.8D is basedDltUnit8mg/H	$\frac{\text{mg/K}}{\text{l on the s}}$	g 1 spike and s Spike Amount 20.0	Amount 20.0 spike duplica Matrix t Result <2.32 spike duplica	$\frac{\text{Re}}{<2}$ ate resu $\frac{\text{Rec.}}{69}$	esult 2.32 ilt. Rec. Limi 70 - 13 ilt.	74 t RPD	Limit 70 - 130 RPD Limit	

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matrix spikes continued										
a .		MS		<b>TT 1</b>	<b>D</b> .1	Spike			SD	Rec.
Surrogate		Resu	lt Result	Units	Dil.	Amour	nt R	ec. Re	ec.	Limit
		MS	MSD			Spike	N	AS MS	SD	Rec.
Surrogate		Resu		Units	Dil.	Amour		ec. Re		Limit
Trifluorotoluene (TFT)		2.49	2.48	mg/Kg	1	2	1	24 12	24	70 - 130
4-Bromofluorobenzene (4-BFB)		2.20	2.21	mg/Kg	1	2	1	10 11	10	70 - 130
Matrix Spike (MS-1) Spike QC Batch: 122545 Prep Batch: 103612	ed Sample	Date	Analyzed: reparation:	2015-06-2 2015-06-1	-				yzed H ared E	•
QC Batch: 122545 Prep Batch: 103612 Param	ed Sample F	Date QC P	reparation:		9	Spike mount	Matr Resu	Prepa	ared E	•
QC Batch: 122545 Prep Batch: 103612 Param	-	Date QC P I C Re	reparation: MS esult Ui	2015-06-1	9 1. A	1		Prepa ix lt Re	ared E ec.	By: SC Rec. Limit
QC Batch: 122545 Prep Batch: 103612	F	Date QC P C Re 5 2	reparation: MS esult Un 213 mg	2015-06-1 nits Di /Kg 1	9 1. A	mount 250	Resu <7.4	Prepa ix <u>lt Re</u> <u>1 85</u>	ared E ec.	By: SC Rec.
QC Batch: 122545 Prep Batch: 103612 Param DRO	F	Date QC P $\frac{C}{5} \frac{R}{2}$	AS esult Un 13 mg based on t	$2015-06-1$ $\frac{1}{\text{Mg}}$ $\frac{1}{\text{Mg}}$ $\frac{1}{\text{Mg}}$	9 1. A d spike	mount 250 duplicate	Resu <7.4	Prepa ix lt Re 1 85	ared E ec.	By: SC Rec. Limit 70 - 130
QC Batch: 122545 Prep Batch: 103612 Param DRO Percent recovery is based on the s	F spike resu	Date QC P $\frac{C}{\frac{5}{2}}$ Ilt. RPD is MSI	reparation: MS sult Un 113 mg based on t	2015-06-1 hits Di $/Kg$ 1 he spike an Spike S	9 1. A d spike	mount 250 duplicate Matrix	Result.	Prepa ix <u>lt Re</u> <u>1 8</u> ;	ec.	By: SC Rec. Limit 70 - 130 RPD
QC Batch: 122545 Prep Batch: 103612 Param DRO Percent recovery is based on the second	F	Date QC P $\frac{C}{5} \frac{R}{2}$	reparation: MS sult Units MS mg	2015-06-1 hits Di $/Kg$ 1 he spike an Sj Dil. An	9 1. A d spike pike	mount 250 duplicate Matrix	Resu <7.4 result. Rec.	Prepa ix lt Re 1 85	ared E ec.	By: SC Rec. Limit 70 - 130 RPD
QC Batch: 122545 Prep Batch: 103612 Param DRO Percent recovery is based on the second	F spike resu F	Date QC P C Re 5 2 dt. RPD is MSI C Resu 5 163	reparation: MS esult Un 13 mg based on tion of the Units mg/Kg	$2015-06-1$ $\frac{\text{mits}}{/\text{Kg}} \qquad 1$ $\frac{\text{Mg}}{\text{he spike an}}$ $\frac{\text{Sp}}{\text{Dil. Am}}$ $\frac{1}{1} \qquad 2$	9 <u>1. A</u> d spike pike pike 250	mount 250 duplicate Matrix Result 1 <7.41		Prepa ix <u>lt Re</u> <u>1 8</u>	ec. 5 RPI	By: SC Rec. Limit 70 - 130 RPD Limit
QC Batch: 122545 Prep Batch: 103612 Param DRO Percent recovery is based on the second	F spike resu F .Qs Qr,Qs spike resu	Date QC P $\frac{1}{C}$ Re $\frac{5}{2}$ dt. RPD is MSI <u>C</u> Resu $\frac{5}{163}$ dt. RPD is	reparation: MS esult Un 13 mg based on tion of the Units mg/Kg	$2015-06-1$ $\frac{\text{mits}}{/\text{Kg}} \qquad 1$ $\frac{\text{Mg}}{\text{he spike an}}$ $\frac{\text{Sp}}{\text{Dil. Am}}$ $\frac{1}{1} \qquad 2$	9 <u>1. A</u> d spike pike <u>1. A</u> <u>250</u> d spike	mount 250 duplicate Matrix Result 1 <7.41 duplicate	Resu <7.4 result. Rec. 65 result.	Prepa ix <u>lt Re</u> <u>1 85</u>	RPI	By: SC Rec. Limit 70 - 130 RPD Limit 20
QC Batch: 122545 Prep Batch: 103612 Param DRO Percent recovery is based on the second	F spike resu F	Date QC P C Re 5 2 dt. RPD is MSI C Resu 5 163	reparation: MS esult Units 13 mg based on the 14 Units mg/Kg 5 based on the	$2015-06-1$ $\frac{\text{Mits}  \text{Di}}{/\text{Kg}  1}$ $\frac{\text{Mits}  \text{Mits}  \text{Mits}}{\text{Mits}  \text{Mits}}$ $\frac{\text{Mits}  \text{Mits}}{1  2}$ $\frac{\text{Mits}  \text{Mits}  \text{Mits}}{1  2}$ $\frac{\text{Mits}  \text{Mits}  \text{Mits}}{1  2}$	9 1. A d spike pike pount 250 d spike S	mount 250 duplicate Matrix Result 1 <7.41		Prepa ix <u>lt Re</u> <u>1 8</u>	ec. 5 RPI 27	By: SC Rec. Limit 70 - 130 RPD Limit

# **Calibration Standards**

## Standard (ICV-1)

QC Batch:	122419			Date A	Analyzed:	2015-06-18		Analy	Analyzed By: AK		
					ICVs	ICVs	ICVs	Percent			
					True	Found	Percent	Recovery	Date		
Param		Flag	Cert	Units	Conc.	Conc.	Recovery	Limits	Analyzed		
Chloride				mg/Kg	100	100	100	85 - 115	2015-06-18		

## Standard (CCV-1)

QC Batch:	122419	Date Analyzed				2015-06-18		Analy	Analyzed By: AK		
					$\mathrm{CCVs}$	$\rm CCVs$	$\mathrm{CCVs}$	Percent			
					True	Found	Percent	Recovery	Date		
Param		Flag	Cert	Units	Conc.	Conc.	Recovery	Limits	Analyzed		
Chloride				m mg/Kg	100	100	100	85 - 115	2015-06-18		

### Standard (ICV-1)

QC Batch:	122430			Date A	Analyzed:	2015-06-18		Analy	zed By: AK
					ICVs	ICVs	ICVs	Percent	
					True	Found	Percent	Recovery	Date
Param		Flag	Cert	Units	Conc.	Conc.	Recovery	Limits	Analyzed
Chloride				m mg/Kg	100	100	100	85 - 115	2015-06-18

### Standard (CCV-1)

QC Batch:	122430		Date			2015-06-18		Analy	Analyzed By: AK		
					CCVs True	CCVs Found	CCVs Percent	Percent Recovery	Date		
_			-					0			
Param		Flag	Cert	Units	Conc.	Conc.	Recovery	Limits	Analyzed		
Chloride				mg/Kg	100	100	100	85 - 115	2015-06-18		

Report Date: June 23, 2015 7250715061	Work Order: 15061709 30137 #5	Page Number: 27 of 32
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#### Standard (CCV-1)

QC Batch: 122488			Date An	alyzed: 20		Analyzed By: AK		
				$\mathrm{CCVs}$	$\mathrm{CCVs}$	CCVs	Percent	
				True	Found	Percent	Recovery	Date
Param	Flag	Cert	Units	Conc.	Conc.	Recovery	Limits	Analyzed
Benzene		5	mg/kg	0.100	0.0984	98	80 - 120	2015-06-20
Toluene		5	mg/kg	0.100	0.0928	93	80 - 120	2015-06-20
Ethylbenzene		5	m mg/kg	0.100	0.0874	87	80 - 120	2015-06-20
Xylene		5	mg/kg	0.300	0.287	96	80 - 120	2015-06-20

### Standard (CCV-2)

QC Batch: 122488			Date An	alyzed: 20	Analyzed By: AK			
				$\mathrm{CCVs}$	CCVs	CCVs	Percent	
				True	Found	Percent	Recovery	Date
Param	Flag	Cert	Units	Conc.	Conc.	Recovery	Limits	Analyzed
Benzene		5	mg/kg	0.100	0.0986	99	80 - 120	2015-06-20
Toluene		5	m mg/kg	0.100	0.0920	92	80 - 120	2015-06-20
Ethylbenzene		5	m mg/kg	0.100	0.0857	86	80 - 120	2015-06-20
Xylene		5	mg/kg	0.300	0.282	94	80 - 120	2015-06-20

## Standard (CCV-3)

QC Batch: 122488			Analyz	zed By: AK				
				$\mathrm{CCVs}$	CCVs	CCVs	Percent	
				True	Found	Percent	Recovery	Date
Param	Flag	Cert	Units	Conc.	Conc.	Recovery	Limits	Analyzed
Benzene		5	mg/kg	0.100	0.0978	98	80 - 120	2015-06-20
Toluene		5	m mg/kg	0.100	0.0933	93	80 - 120	2015-06-20
Ethylbenzene		5	m mg/kg	0.100	0.0887	89	80 - 120	2015-06-20
Xylene		5	m mg/kg	0.300	0.289	96	80 - 120	2015-06-20

#### Standard (CCV-1)

QC Batch: 122489

Date Analyzed: 2015-06-20

Analyzed By: AK

Report Date: June 23, 2015 7250715061				Work Order 3013	Page Number: 28 of 32			
Param GRO	Flag	Cert 5	Units mg/Kg	CCVs True Conc. 1.00	CCVs Found Conc. 0.881	CCVs Percent Recovery 88	Percent Recovery Limits 80 - 120	Date Analyzed 2015-06-20
		5		1.00	0.001	00	00 - 120	2010-00-20
Standard (	CCV-2)							
QC Batch:	122489		Dat	e Analyzed:	2015-06-20		Analy	zed By: AK
D		C t	TT •/	CCVs True	CCVs Found	CCVs Percent	Percent Recovery	Date
Param	Flag		Units	Conc. 1.00	Conc. 0.940	Recovery 94	Limits 80 - 120	Analyzed 2015-06-20
Standard ((		5	mg/Kg			01		
Standard ((		5			2015-06-20 CCVs Found	CCVs Percent		zed By: AK Date
<b>Standard ((</b> QC Batch: Param		Cert	Dat	e Analyzed: CCVs True Conc.	2015-06-20 CCVs Found Conc.	CCVs Percent Recovery	Analy Percent Recovery Limits	zed By: AK Date Analyzed
GRO Standard ( QC Batch: Param GRO Standard (	122489 Flag		Dat	e Analyzed: CCVs True	2015-06-20 CCVs Found	CCVs Percent	Analy Percent Recovery	zed By: AK Date
<b>Standard ((</b> QC Batch: Param GRO	122489 Flag CCV-1)	Cert	Dat Units mg/Kg	e Analyzed: CCVs True Conc.	2015-06-20 CCVs Found Conc. 0.900	CCVs Percent Recovery	Analy Percent Recovery Limits 80 - 120	zed By: AK Date Analyzed
Standard ( QC Batch: Param GRO Standard ( QC Batch:	122489 Flag CCV-1)	Cert 5	Dat Units mg/Kg Dat	e Analyzed: CCVs True Conc. 1.00 e Analyzed: CCVs True	2015-06-20 CCVs Found Conc. 0.900 2015-06-23 CCVs Found	CCVs Percent Recovery 90 CCVs Percent	Analy Percent Recovery Limits 80 - 120 Analy Percent Recovery	zed By: AK Date Analyzed 2015-06-20 zed By: AK Date
Standard ( QC Batch: Param GRO Standard ( QC Batch: Param	122489 Flag CCV-1)	Cert 5	Dat <u>Units</u> <u>mg/Kg</u> Dat	e Analyzed: CCVs True Conc. 1.00 e Analyzed: CCVs True s Conc.	2015-06-20 CCVs Found Conc. 0.900 2015-06-23 CCVs Found Conc.	CCVs Percent Recovery 90 CCVs Percent Recovery	Analy Percent Recovery Limits 80 - 120 Analy Percent Recovery Limits	zed By: AK Date Analyzed 2015-06-20 zed By: AK Date Analyzed
Standard ( QC Batch: Param GRO Standard ( QC Batch: Param Benzene	122489 Flag CCV-1)	Cert 5	Dat Units mg/Kg Dat Cert Unit 5 mg/H	e Analyzed: CCVs True Conc. 1.00 e Analyzed: cCVs True s Conc. cg 0.100	2015-06-20 CCVs Found Conc. 0.900 2015-06-23 CCVs Found Conc. 0.0958	CCVs Percent Recovery 90 CCVs Percent Recovery 96	Analy Percent Recovery Limits 80 - 120 Analy Percent Recovery Limits 80 - 120	zed By: AK Date Analyzed 2015-06-20 zed By: AK Date Analyzed 2015-06-23
Standard ( QC Batch: Param GRO Standard (	122489 Flag CCV-1) 122539	Cert 5	Dat <u>Units</u> <u>mg/Kg</u> Dat	e Analyzed: CCVs True Conc. 1.00 e Analyzed: CCVs True s Conc. 3 0.100 3 0.100	2015-06-20 CCVs Found Conc. 0.900 2015-06-23 CCVs Found Conc. 0.0958 0.0891	CCVs Percent Recovery 90 CCVs Percent Recovery	Analy Percent Recovery Limits 80 - 120 Analy Percent Recovery Limits	zed By: AK Date Analyzed 2015-06-20 zed By: AK Date Analyzed

## Standard (CCV-2)

QC Batch: 122539

Date Analyzed: 2015-06-23

Analyzed By: AK

Report Date: June 7250715061	23, 2015		We	Page Number: 29 of 32				
				CCVs	CCVs	CCVs	Percent	
				True	Found	Percent	Recovery	Date
Param	Flag	Cert	Units	Conc.	Conc.	Recovery	Limits	Analyzed
Benzene		5	mg/kg	0.100	0.0950	95	80 - 120	2015-06-23
Toluene		5	mg/kg	0.100	0.0905	90	80 - 120	2015-06-23
Ethylbenzene		5	mg/kg	0.100	0.0861	86	80 - 120	2015-06-23
Xylene		5	mg/kg	0.300	0.283	94	80 - 120	2015-06-23

#### Standard (CCV-1)

QC Batch:	122540	Date A			2015-06-23		Analyzed By: AK		
				CCVs	CCVs	CCVs Demost	Percent	Data	
				True	Found	Percent	Recovery	Date	
Param	Flag	Cert	Units	Conc.	Conc.	Recovery	Limits	Analyzed	
GRO		5	m mg/Kg	1.00	0.968	97	80 - 120	2015-06-23	

#### Standard (CCV-2)

QC Batch:	122540		Date	Analyzed:	2015-06-23	Analyzed By: AK		
				CCVs True	$\operatorname{CCVs}$ Found	CCVs Percent	Percent Recovery	Date
Param	Flag	Cert	Units	Conc.	Conc.	Recovery	Limits	Analyzed
GRO		5	m mg/Kg	1.00	0.964	96	80 - 120	2015-06-23

## Standard (CCV-1)

QC Batch:	C Batch: 122545			Analyzed:	2015-06-23		Analy	Analyzed By: SC	
				$\mathrm{CCVs}$	$\mathrm{CCVs}$	$\mathrm{CCVs}$	Percent		
				True	Found	Percent	Recovery	Date	
Param	Flag	Cert	Units	Conc.	Conc.	Recovery	Limits	Analyzed	
DRO		5	m mg/Kg	250	275	110	80 - 120	2015-06-23	

#### Standard (CCV-2)

QC Batch: 122545

Date Analyzed: 2015-06-23

Analyzed By: SC

Report Date: 7250715061	June 23, 2015	<b>)</b>		Work Order 30137	Page Number: 30 of 32			
				CCVs True	CCVs Found	CCVs Percent	Percent Recovery	Date
Param	Flag	Cert	Units	Conc.	Conc.	Recovery	Limits	Analyzed
DRO		5	m mg/Kg	250	243	97	80 - 120	2015-06-23

Report Date: June 23, 2015 7250715061

Work Order: 15061709  $30137 \ \#5$ 

Page Number: 31 of 32  $\,$ 

# Appendix

## **Report Definitions**

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

## Laboratory Certifications

	Certifying	Certification	Laboratory
$\mathbf{C}$	Authority	Number	Location
-	NCTRCA	WFWB384444Y0909	TraceAnalysis
-	DBE	VN 20657	TraceAnalysis
-	HUB	1752439743100-86536	TraceAnalysis
-	WBE	237019	TraceAnalysis
1	L-A-B	L2418	Lubbock
2	Kansas	Kansas E-10317	Lubbock
3	LELAP	LELAP-02003	Lubbock
4	NELAP	T104704219-15-11	Lubbock
5	NELAP	T104704392-14-8	Midland
6		2014-018	Lubbock

# Standard Flags

- F Description
- B Analyte detected in the corresponding method blank above the method detection limit
- H Analyzed out of hold time
- J Estimated concentration
- Jb The analyte is positively identified and the value is approximated between the SDL and MQL. Sample contains less then ten times the concentration found in the method blank. The result should be considered non-detect to the SDL.
- Je Estimated concentration exceeding calibration range.
- MI1 Split peak or shoulder peak
- MI2 Instrument software did not integrate
- MI3 Instrument software misidentified the peak
- MI4 Instrument software integrated improperly
- MI5 Baseline correction
- Qc Calibration check outside of laboratory limits.
- Qr RPD outside of laboratory limits
- Qs Spike recovery outside of laboratory limits.

Report Date: June 23, 2015 7250715061	Work Order: 15061709 30137 #5	Page Number: 32 of 32

FDescriptionQsrSurrogate recovery outside of laboratory limits.

U The analyte is not detected above the SDL

# **Result Comments**

1 Analyst double spiked surrogate.

# Attachments

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

•



# Analytical Report 522956

for APEX/Titan

**Project Manager: Karolanne Toby** 

**30137 Pipeline Release** 

725010112096

28-JAN-16

Collected By: Client





## 1211 W. Florida Ave, Midland TX 79701

Xenco-Houston (EPA Lab code: TX00122): Texas (T104704215-15-19), Arizona (AZ0765), Florida (E871002), Louisiana (03054) Oklahoma (9218)

Xenco-Dallas (EPA Lab code: TX01468): Texas (T104704295) Xenco-Odessa (EPA Lab code: TX00158): Texas (T104704400) Xenco-San Antonio: Texas (T104704534-15-1) Xenco Phoenix (EPA Lab Code: AZ00901): Arizona(AZ0757) Xenco-Phoenix Mobile (EPA Lab code: AZ00901): Arizona (AZM757) Xenco-Atlanta (EPA Lab Code: GA00046): Florida (E87429), North Carolina (483), South Carolina (98015), Kentucky (85), DoD ( L10-135) Texas (T104704477), Louisiana (04176), USDA (P330-07-00105)

Xenco-Lakeland: Florida (E84098)





28-JAN-16

Project Manager: **Karolanne Toby APEX/Titan** 505 N. Big Spring Ste. 301 A Midland, TX 79701

Reference: XENCO Report No(s): **522956 30137 Pipeline Release** Project Address: NM

#### Karolanne Toby:

We are reporting to you the results of the analyses performed on the samples received under the project name referenced above and identified with the XENCO Report Number(s) 522956. All results being reported under this Report Number apply to the samples analyzed and properly identified with a Laboratory ID number. Subcontracted analyses are identified in this report with either the NELAC certification number of the subcontract lab in the analyst ID field, or the complete subcontracted report attached to this report.

Unless otherwise noted in a Case Narrative, all data reported in this Analytical Report are in compliance with NELAC standards. The uncertainty of measurement associated with the results of analysis reported is available upon request. Should insufficient sample be provided to the laboratory to meet the method and NELAC Matrix Duplicate and Matrix Spike requirements, then the data will be analyzed, evaluated and reported using all other available quality control measures.

The validity and integrity of this report will remain intact as long as it is accompanied by this letter and reproduced in full, unless written approval is granted by XENCO Laboratories. This report will be filed for at least 5 years in our archives after which time it will be destroyed without further notice, unless otherwise arranged with you. The samples received, and described as recorded in Report No. 522956 will be filed for 60 days, and after that time they will be properly disposed without further notice, unless otherwise arranged with you. We reserve the right to return to you any unused samples, extracts or solutions related to them if we consider so necessary (e.g., samples identified as hazardous waste, sample sizes exceeding analytical standard practices, controlled substances under regulated protocols, etc).

We thank you for selecting XENCO Laboratories to serve your analytical needs. If you have any questions concerning this report, please feel free to contact us at any time.

Respectfully,

Huns hoah

Kelsey Brooks Project Manager

Recipient of the Prestigious Small Business Administration Award of Excellence in 1994. Certified and approved by numerous States and Agencies. A Small Business and Minority Status Company that delivers SERVICE and QUALITY

Houston - Dallas - Odessa - San Antonio - Tampa - Lakeland - Atlanta - Phoenix - Oklahoma - Latin America







# Sample Cross Reference 522956



## APEX/Titan, Midland, TX

30137 Pipeline Release

Sample Id	Matrix	Date Collected	Sample Depth	Lab Sample Id
CS-1	S	01-14-16 11:06	- 6 ft	522956-001
CS-2	S	01-14-16 11:12	- 6 ft	522956-002
CS-3	S	01-14-16 11:18	- 10 ft	522956-003
CS-4	S	01-14-16 11:24	- 6 ft	522956-004
CS-5	S	01-14-16 11:30	- 6 ft	522956-005
CS-6	S	01-14-16 11:36	- 6 ft	522956-006
CS-7	S	01-14-16 11:42	- 6 ft	522956-007
CS-8	S	01-14-16 11:48	- 6 ft	522956-008
CS-9	S	01-14-16 11:59	- 10 ft	522956-009
CS-10	S	01-14-16 12:00	- 6 ft	522956-010
CS-11	S	01-14-16 12:03	- 6 ft	522956-011
CS-12	S	01-14-16 12:06	- 10 ft	522956-012
CS-13	S	01-14-16 12:12	- 6 ft	522956-013
CS-14	S	01-14-16 12:18	- 6 ft	522956-014
SP-1	S	01-14-16 12:40		522956-015
SP-2	S	01-14-16 12:50		522956-016
SP-3	S	01-14-16 12:59		522956-017


CASE NARRATIVE



Client Name: APEX/Titan Project Name: 30137 Pipeline Release

 Project ID:
 725010112096

 Work Order Number(s):
 522956

BORATORIES

Report Date:28-JAN-16Date Received:01/15/2016

Sample receipt non conformances and comments:

Sample receipt non conformances and comments per sample:

None



Project Id: 725010112096

Contact: Karolanne Toby Project Location: NM Certificate of Analysis Summary 522956

APEX/Titan, Midland, TX Project Name: 30137 Pipeline Release



Date Received in Lab:Fri Jan-15-16 08:40 amReport Date:28-JAN-16Project Manager:Kelsey Brooks

	Lab Id:	522956-0	001	522956-0	02	522956-0	03	522956-(	004	522956-0	05	522956-	006
Analysis Paguastad	Field Id:	CS-1		CS-2		CS-3		CS-4		CS-5		CS-6	
Analysis Requested	Depth:	6 ft		6 ft		10 ft		6 ft		6 ft		6 ft	
	Matrix:	SOIL	,	SOIL		SOIL		SOIL		SOIL		SOIL	,
	Sampled:	Jan-14-16	11:06	Jan-14-16 1	1:12	Jan-14-16 1	1:18	Jan-14-16	11:24	Jan-14-16 1	1:30	Jan-14-16	11:36
BTEX by EPA 8021B	Extracted:	Jan-18-16	09:00	Jan-18-16 0	9:00	Jan-18-16 (	9:00	Jan-18-16 (	09:00	Jan-18-16 0	9:00	Jan-18-16	09:00
	Analyzed:	Jan-18-16	18:57	Jan-18-16 1	2:58	Jan-18-16 1	1:50	Jan-18-16	9:12	Jan-18-16 1	2:07	Jan-18-16	13:14
	Units/RL:	mg/kg	RL	mg/kg	RL	mg/kg	RL	mg/kg	RL	mg/kg	RL	mg/kg	RL
Benzene		0.0142	0.00101	ND	0.000990	ND	0.000998	0.00150	0.000990	ND	0.000990	ND	0.00101
Toluene		0.0637	0.00202	ND	0.00198	ND	0.00200	ND	0.00198	ND	0.00198	ND	0.00202
Ethylbenzene		0.0147	0.00101	ND	0.000990	ND	0.000998	ND	0.000990	ND	0.000990	ND	0.00101
m,p-Xylenes		0.122	0.00202	ND	0.00198	ND	0.00200	0.312	0.00198	ND	0.00198	ND	0.00202
o-Xylene		0.0198	0.00101	ND	0.000990	ND	0.000998	0.193	0.000990	ND	0.000990	ND	0.00101
Total Xylenes		0.142	0.00101	ND	0.000990	ND	0.000998	0.505	0.000990	ND	0.000990	ND	0.00101
Total BTEX		0.234	0.00101	ND	0.000990	ND	0.000998	0.507	0.000990	ND	0.000990	ND	0.00101
Inorganic Anions by EPA 300/300.1	Extracted:	Jan-22-16	10:00	Jan-22-16 1	0:00	Jan-22-16 1	0:00	Jan-22-16	10:00	Jan-22-16 1	0:00	Jan-22-16	10:00
	Analyzed:	Jan-26-16	20:02	Jan-26-16 2	0:28	Jan-27-16 1	5:41	Jan-26-16 2	20:53	Jan-26-16 2	1:06	Jan-26-16	21:19
	Units/RL:	mg/kg	RL	mg/kg	RL	mg/kg	RL	mg/kg	RL	mg/kg	RL	mg/kg	RL
Chloride		56.5	2.00	13.7	2.00	6.74	2.00	9.42	2.00	ND	2.00	ND	2.00
TPH by SW 8015B	Extracted:	Jan-19-16	11:30	Jan-19-16 1	1:30	Jan-19-16 1	1:30	Jan-19-16	1:30	Jan-19-16 1	1:30	Jan-19-16	11:30
	Analyzed:	Jan-20-16	02:53	Jan-20-16 0	3:27	Jan-20-16 0	3:59	Jan-21-16	4:12	Jan-20-16 0	5:02	Jan-20-16	05:35
	Units/RL:	mg/kg	RL	mg/kg	RL	mg/kg	RL	mg/kg	RL	mg/kg	RL	mg/kg	RL
C6-C10 Gasoline Range Hydrocarbons		24.3	14.9	ND	15.0	ND	15.0	149	15.0	ND	15.0	ND	14.9
C10-C28 Diesel Range Organics		ND	14.9	40.7	15.0	ND	15.0	300	15.0	101	15.0	ND	14.9
Total TPH		24.3	14.9	40.7	15.0	ND	15.0	449	15.0	101	15.0	ND	14.9

This analytical report, and the entire data package it represents, has been made for your exclusive and confidential use. The interpretations and results expressed throughout this analytical report represent the best judgment of XENCO Laboratories. XENCO Laboratories assumes no responsibility and makes no warranty to the end use of the data hereby presented. Our liability is limited to the amount invoiced for this work order unless otherwise agreed to in writing.

Houston - Dallas - San Antonio - Atlanta - Tampa - Boca Raton - Latin America - Odessa - Corpus Christi

Huns Boah

Kelsey Brooks Project Manager

Page 5 of 24



Project Id:725010112096Contact:Karolanne TobyProject Location:NM

### Certificate of Analysis Summary 522956

APEX/Titan, Midland, TX Project Name: 30137 Pipeline Release



Date Received in Lab:Fri Jan-15-16 08:40 amReport Date:28-JAN-16Project Manager:Kelsey Brooks

	Lab Id:	522956-0	007	522956-0	08	522956-0	009	522956-0	10	522956-0	11	522956-0	012
Analysis Requested	Field Id:	CS-7		CS-8		CS-9		CS-10		CS-11		CS-12	2
Analysis Kequestea	Depth:	6 ft		6 ft		10 ft		6 ft		6 ft		10 ft	
	Matrix:	SOIL		SOIL		SOIL		SOIL		SOIL		SOIL	
	Sampled:	Jan-14-16	11:42	Jan-14-16 1	1:48	Jan-14-16	1:59	Jan-14-16 1	2:00	Jan-14-16 1	2:03	Jan-14-16	12:06
BTEX by EPA 8021B	Extracted:	Jan-18-16	09:00	Jan-18-16 0	9:00	Jan-18-16 (	)9:00	Jan-18-16 0	9:00	Jan-18-16 (	9:00	Jan-18-16	09:00
	Analyzed:	Jan-18-16	15:24	Jan-18-16 1	5:41	Jan-18-16 1	5:57	Jan-18-16 1	6:14	Jan-18-16 1	6:30	Jan-18-16	16:47
	Units/RL:	mg/kg	RL	mg/kg	RL	mg/kg	RL	mg/kg	RL	mg/kg	RL	mg/kg	RL
Benzene		ND	0.00100	ND	0.00100	ND	0.000996	ND	0.000994	ND	0.00100	ND	0.00101
Toluene		ND	0.00201	ND	0.00200	ND	0.00199	ND	0.00199	ND	0.00200	ND	0.00202
Ethylbenzene		ND	0.00100	ND	0.00100	ND	0.000996	ND	0.000994	ND	0.00100	ND	0.00101
m,p-Xylenes		ND	0.00201	ND	0.00200	ND	0.00199	ND	0.00199	ND	0.00200	ND	0.00202
o-Xylene		ND	0.00100	ND	0.00100	ND	0.000996	ND	0.000994	ND	0.00100	ND	0.00101
Total Xylenes		ND	0.00100	ND	0.00100	ND	0.000996	ND	0.000994	ND	0.00100	ND	0.00101
Total BTEX		ND	0.00100	ND	0.00100	ND	0.000996	ND	0.000994	ND	0.00100	ND	0.00101
Inorganic Anions by EPA 300/300.1	Extracted:	Jan-22-16	10:00	Jan-22-16 1	0:00	Jan-22-16 1	0:00	Jan-22-16 1	0:00	Jan-22-16 1	0:00	Jan-22-16	10:00
	Analyzed:	Jan-27-16	16:18	Jan-26-16 2	2:10	Jan-26-16 1	6:23	Jan-26-16 2	2:22	Jan-26-16 1	7:55	Jan-26-16	18:59
	Units/RL:	mg/kg	RL	mg/kg	RL	mg/kg	RL	mg/kg	RL	mg/kg	RL	mg/kg	RL
Chloride		2.84	2.00	5.66	2.00	ND	2.00	2.63	2.00	ND	2.00	7.29	2.00
TPH by SW 8015B	Extracted:	Jan-19-16	11:30	Jan-20-16 0	9:00	Jan-20-16 (	)9:00	Jan-20-16 0	9:00	Jan-20-16 0	9:00	Jan-20-16	09:00
	Analyzed:	Jan-20-16	06:09	Jan-21-16 0	1:27	Jan-21-16 (	01:51	Jan-21-16 0	2:16	Jan-21-16 (	2:41	Jan-21-16	03:08
	Units/RL:	mg/kg	RL	mg/kg	RL	mg/kg	RL	mg/kg	RL	mg/kg	RL	mg/kg	RL
C6-C10 Gasoline Range Hydrocarbons		ND	15.0	ND	15.0	ND	15.0	ND	15.0	ND	15.0	ND	14.9
C10-C28 Diesel Range Organics		ND	15.0	ND	15.0	ND	15.0	ND	15.0	ND	15.0	ND	14.9
Total TPH		ND	15.0	ND	15.0	ND	15.0	ND	15.0	ND	15.0	ND	14.9

This analytical report, and the entire data package it represents, has been made for your exclusive and confidential use. The interpretations and results expressed throughout this analytical report represent the best judgment of XENCO Laboratories. XENCO Laboratories assumes no responsibility and makes no warranty to the end use of the data hereby presented. Our liability is limited to the amount invoiced for this work order unless otherwise agreed to in writing.

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Kelsey Brooks Project Manager

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Project Id: 725010112096

Project Id:725010112096Contact:Karolanne TobyProject Location:NM

Certificate of Analysis Summary 522956

APEX/Titan, Midland, TX Project Name: 30137 Pipeline Release



Date Received in Lab:Fri Jan-15-16 08:40 amReport Date:28-JAN-16Project Manager:Kelsey Brooks

	Lab Id:	522956-0	013	522956-0	14	522956-0	015	522956-0	16	522956-0	17	
A se al se la Danas a da d	Field Id:	CS-13		CS-14		SP-1		SP-2		SP-3		
Analysis Requested	Depth:	6 ft		6 ft								
	Matrix:	SOIL		SOIL		SOIL		SOIL		SOIL		
	Sampled:	Jan-14-16 1	2:12	Jan-14-16 1	2:18	Jan-14-16 1	12:40	Jan-14-16 1	2:50	Jan-14-16 1	2:59	
BTEX by EPA 8021B	Extracted:	Jan-18-16 (	)9:00	Jan-18-16 0	9:00	Jan-18-16 (	)9:00	Jan-18-16 0	9:00	Jan-18-16 (	9:00	
	Analyzed:	Jan-19-16 (	)9:47	Jan-18-16 1	7:20	Jan-18-16 1	7:35	Jan-18-16 1	7:51	Jan-18-16 1	8:41	
	Units/RL:	mg/kg	RL	mg/kg	RL	mg/kg	RL	mg/kg	RL	mg/kg	RL	
Benzene		ND	0.00101	ND (	0.000992	ND	0.000996	ND (	).000996	ND	0.00101	
Toluene		ND	0.00202	ND	0.00198	ND	0.00199	ND	0.00199	ND	0.00201	
Ethylbenzene		ND	0.00101	ND (	0.000992	ND	0.000996	ND (	).000996	ND	0.00101	
m,p-Xylenes		ND	0.00202	ND	0.00198	ND	0.00199	ND	0.00199	ND	0.00201	
o-Xylene		ND	0.00101	ND (	0.000992	ND	0.000996	ND (	0.000996	ND	0.00101	
Total Xylenes		ND	0.00101	ND (	0.000992	ND	0.000996	ND (	0.000996	ND	0.00101	
Total BTEX		ND	0.00101	ND (	0.000992	ND	0.000996	ND (	).000996	ND	0.00101	
Inorganic Anions by EPA 300/300.1	Extracted:	Jan-22-16 1	10:00	Jan-22-16 1	0:00	Jan-22-16 1	0:00	Jan-22-16 1	0:00	Jan-22-16 1	0:00	
	Analyzed:	Jan-26-16 1	18:20	Jan-26-16 1	8:33	Jan-26-16 1	8:46	Jan-26-16 1	9:37	Jan-27-16 2	1:15	
	Units/RL:	mg/kg	RL	mg/kg	RL	mg/kg	RL	mg/kg	RL	mg/kg	RL	
Chloride		2.47	2.00	5.75	2.00	364	100	141	40.0	37.0	10.0	
TPH by SW 8015B	Extracted:	Jan-20-16 (	09:00	Jan-20-16 0	9:00	Jan-20-16 0	)9:00	Jan-20-16 0	9:00	Jan-20-16 0	9:00	
	Analyzed:	Jan-21-16 (	)3:37	Jan-21-16 0	3:34	Jan-21-16 1	3:42	Jan-21-16 0	4:47	Jan-21-16 (	5:21	
	Units/RL:	mg/kg	RL	mg/kg	RL	mg/kg	RL	mg/kg	RL	mg/kg	RL	
C6-C10 Gasoline Range Hydrocarbons		ND	15.0	ND	15.0	ND	15.0	ND	15.0	ND	15.0	
C10-C28 Diesel Range Organics		ND	15.0	ND	15.0	ND	15.0	ND	15.0	ND	15.0	
Total TPH		ND	15.0	ND	15.0	ND	15.0	ND	15.0	ND	15.0	

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# **Flagging Criteria**



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- X In our quality control review of the data a QC deficiency was observed and flagged as noted. MS/MSD recoveries were found to be outside of the laboratory control limits due to possible matrix /chemical interference, or a concentration of target analyte high enough to affect the recovery of the spike concentration. This condition could also affect the relative percent difference in the MS/MSD.
- **B** A target analyte or common laboratory contaminant was identified in the method blank. Its presence indicates possible field or laboratory contamination.
- **D** The sample(s) were diluted due to targets detected over the highest point of the calibration curve, or due to matrix interference. Dilution factors are included in the final results. The result is from a diluted sample.
- E The data exceeds the upper calibration limit; therefore, the concentration is reported as estimated.
- F RPD exceeded lab control limits.
- J The target analyte was positively identified below the quantitation limit and above the detection limit.
- U Analyte was not detected.
- L The LCS data for this analytical batch was reported below the laboratory control limits for this analyte. The department supervisor and QA Director reviewed data. The samples were either reanalyzed or flagged as estimated concentrations.
- **H** The LCS data for this analytical batch was reported above the laboratory control limits. Supporting QC Data were reviewed by the Department Supervisor and QA Director. Data were determined to be valid for reporting.
- K Sample analyzed outside of recommended hold time.
- **JN** A combination of the "N" and the "J" qualifier. The analysis indicates that the analyte is "tentatively identified" and the associated numerical value may not be consistent with the amount actually present in the environmental sample.
- \*\* Surrogate recovered outside laboratory control limit.
- **BRL** Below Reporting Limit.
- RL Reporting Limit
- MDL Method Detection LimitSDL Sample Detection LimitLOD Limit of DetectionPQL Practical Quantitation LimitMQL Method Quantitation LimitLOQ Limit of Quantitation
- **DL** Method Detection Limit
- NC Non-Calculable
- + NELAC certification not offered for this compound.
- \* (Next to analyte name or method description) = Outside XENCO's scope of NELAC accreditation

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5332 Blackberry Drive, San Antonio TX 78238	(210) 509-3334	(210) 509-3335
1211 W Florida Ave, Midland, TX 79701	(432) 563-1800	(432) 563-1713
2525 W. Huntington Dr Suite 102, Tempe AZ 85282	(602) 437-0330	



Work Orde Lab Batch #:		6, <b>Sample:</b> 522956-003 / SMP	Batch		: 7250101120 : Soil	)96			
Units:	mg/kg	Date Analyzed: 01/18/16 11:50	zed: 01/18/16 11:50 SURROGATE RECOVERY STUDY						
	BTEX	X by EPA 8021B	Amount Found [A]	True Amount [B]	Recovery %R	Control Limits %R	Flags		
		Analytes			[D]				
1,4-Difluorobe	enzene		0.0321	0.0300	107	80-120			
4-Bromofluoro	obenzene		0.0296	0.0300	99	80-120			
Lab Batch #:	985838	Sample: 522956-005 / SMP	Batch	n: 1 Matrix	: Soil				
Units:	mg/kg	Date Analyzed: 01/18/16 12:07	SU	RROGATE R	ECOVERY	STUDY			
	BTEX	X by EPA 8021B Analytes	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags		
1,4-Difluorobe	nzene	Analytes	0.0323	0.0300	108	80-120			
4-Bromofluoro			0.0323	0.0300	100	80-120	<u> </u>		
Lab Batch #:		Sample: 522956-002 / SMP	Batch			00-120			
Units:	mg/kg	Date Analyzed: 01/18/16 12:58		RROGATE R		STUDY			
	DØD		Amount	True		Control			
	BIE2	X by EPA 8021B Analytes	Found [A]	Amount [B]	Recovery %R [D]	Limits %R	Flags		
1,4-Difluorobe	nzene	Anarytes	0.0352	0.0300	117	80-120			
4-Bromofluoro			0.0332	0.0300	99	80-120			
Lab Batch #:		Sample: 522956-006 / SMP	Batch			80-120			
Units:	mg/kg	<b>Date Analyzed:</b> 01/18/16 13:14		RROGATE R		STUDY			
	BTE	X by EPA 8021B Analytes	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags		
1,4-Difluorobe	enzene		0.0345	0.0300	115	80-120			
4-Bromofluoro	benzene		0.0294	0.0300	98	80-120			
Lab Batch #:	985838	Sample: 522956-007 / SMP	Batch	n: 1 Matrix	: Soil	1	1		
Units:	mg/kg	Date Analyzed: 01/18/16 15:24	SU.	RROGATE R	ECOVERYS	STUDY			
	BTEX	X by EPA 8021B Analytes	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flag		
			0.0340	0.0200	113	80-120			
1,4-Difluorobe	enzene		0.0540	0.0300	115	80-120			

\* Surrogate outside of Laboratory QC limits

\*\* Surrogates outside limits; data and surrogates confirmed by reanalysis

\*\*\* Poor recoveries due to dilution

Surrogate Recovery [D] = 100 \* A / B



Work Orde Lab Batch #:		6, Sample: 522956-008 / SMP	Batch		7250101120 Soil	)96	
Units:	mg/kg	Date Analyzed: 01/18/16 15:41	SU	STUDY			
	BTE	X by EPA 8021B	Amount Found [A]	True Amount [B]	Recovery %R	Control Limits %R	Flags
		Analytes			[D]		
1,4-Difluorober	nzene		0.0340	0.0300	113	80-120	
4-Bromofluoro	benzene		0.0295	0.0300	98	80-120	
Lab Batch #:	985838	Sample: 522956-009 / SMP	Batch	n: 1 Matrix	: Soil		
Units:	mg/kg	Date Analyzed: 01/18/16 15:57	SU	RROGATE R	ECOVERY	STUDY	
	BTEX	X by EPA 8021B Analytes	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
1,4-Difluorober	nzene		0.0345	0.0300	115	80-120	
4-Bromofluoro			0.0299	0.0300	100	80-120	
Lab Batch #:		Sample: 522956-010 / SMP	Batch				
Units:	mg/kg	<b>Date Analyzed:</b> 01/18/16 16:14		RROGATE R	ECOVERY	STUDY	
	BTE	X by EPA 8021B	Amount	True		Control	
	DIE2	Analytes	Found [A]	Amount [B]	Recovery %R [D]	Limits %R	Flags
1,4-Difluorober	nzene		0.0335	0.0300	112	80-120	
4-Bromofluoro	benzene		0.0295	0.0300	98	80-120	
Lab Batch #:	985838	Sample: 522956-011 / SMP	Batch				
Units:	mg/kg	Date Analyzed: 01/18/16 16:30	SU	RROGATE R	ECOVERY	STUDY	
	BTEX	X by EPA 8021B Analytes	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
1,4-Difluorober	nzene		0.0355	0.0300	118	80-120	
4-Bromofluoro	benzene		0.0303	0.0300	101	80-120	
Lab Batch #:	985838	Sample: 522956-012 / SMP	Batch	n: 1 Matrix	: Soil		
U <b>nits:</b>	mg/kg	Date Analyzed: 01/18/16 16:47	SU	RROGATE R	ECOVERY	STUDY	
	BTEX	X by EPA 8021B Analytes	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flage
			0.000		112	00.120	
1,4-Difluorober	nzene		0.0336	0.0300	112	80-120	1

\* Surrogate outside of Laboratory QC limits

\*\* Surrogates outside limits; data and surrogates confirmed by reanalysis

\*\*\* Poor recoveries due to dilution

Surrogate Recovery [D] = 100 \* A / B



Work Orders		6, Sample: 522956-014 / SMP	Batch		7250101120 Soil	)96			
	g/kg	Date Analyzed: 01/18/16 17:20	SURROGATE RECOVERY STUDY						
	BTEX	X by EPA 8021B	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags		
1,4-Difluorobenze		Analytes	0.0250	0.0200		00.100			
4-Bromofluorober			0.0359	0.0300	120	80-120 80-120			
Lab Batch #: 98		Sample: 522956-015 / SMP	Batch			80-120			
	g/kg	Date Analyzed: 01/18/16 17:35		RROGATE R		STUDY			
	BTE	X by EPA 8021B Analytes	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags		
1,4-Difluorobenze	ene		0.0283	0.0300	94	80-120			
4-Bromofluorober			0.0241	0.0300	80	80-120			
Lab Batch #: 98		Sample: 522956-016 / SMP	Batch			00 120			
	g/kg	Date Analyzed: 01/18/16 17:51		RROGATE R		STUDY			
	BTE	X by EPA 8021B Analytes	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags		
1,4-Difluorobenze	ene		0.0312	0.0300	104	80-120			
4-Bromofluorober			0.0273	0.0300	91	80-120			
Lab Batch #: 98	35838	Sample: 522956-017 / SMP	Batch						
Units: m	g/kg	Date Analyzed: 01/18/16 18:41	SU	RROGATE R	ECOVERY	STUDY			
	втех	X by EPA 8021B Analytes	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags		
1,4-Difluorobenze	ene		0.0276	0.0300	92	80-120			
4-Bromofluorober	nzene		0.0241	0.0300	80	80-120			
Lab Batch #: 98	85838	Sample: 522956-001 / SMP	Batch	n: 1 Matrix:	Soil				
U <b>nits:</b> m	g/kg	Date Analyzed: 01/18/16 18:57	SU	RROGATE R	ECOVERYS	STUDY			
	BTE	X by EPA 8021B Analytes	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags		
1,4-Difluorobenze	ene		0.0268	0.0300	89	80-120			
,									

\* Surrogate outside of Laboratory QC limits

\*\* Surrogates outside limits; data and surrogates confirmed by reanalysis

\*\*\* Poor recoveries due to dilution

Surrogate Recovery [D] = 100 \* A / B



Work Ord Lab Batch #	lers: 52295 : 985838	6, Sample: 522956-004 / SMP	Batch		: 7250101120 : Soil	)96					
Units:	mg/kg	<b>Date Analyzed:</b> 01/18/16 19:12									
	втех	X by EPA 8021B	Amount Found [A]	True Amount [B]	Recovery %R	Control Limits %R	Flags				
		Analytes			[D]						
1,4-Difluorob	enzene		0.0263	0.0300	88	80-120					
4-Bromofluor	obenzene		0.0351	0.0300	117	80-120					
Lab Batch #	: 985838	Sample: 522956-013 / SMP	Batch	n: 1 Matrix	: Soil	·					
U <b>nits:</b>	mg/kg	Date Analyzed: 01/19/16 09:47	SU	RROGATE R	ECOVERY S	STUDY					
	BTEX	X by EPA 8021B Analytes	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags				
1,4-Difluorob	enzene	Analytes	0.0340	0.0300	113	80-120					
4-Bromofluor			0.0311	0.0300	104	80-120					
Lab Batch #		Sample: 522956-001 / SMP	Batch		_	00 120					
Units:	mg/kg	Date Analyzed: 01/20/16 02:53	SU	RROGATE R		STUDY					
	TPH	I by SW 8015B Analytes	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags				
1-Chloroocta	ne	· · · · · · · · · · · · · · · · · · ·	87.5	99.6	88	70-135					
o-Terphenyl			46.6	49.8	94	70-135					
Lab Batch #	: 986082	Sample: 522956-002 / SMP	Batch		-	70-155					
Units:	mg/kg	Date Analyzed: 01/20/16 03:27		RROGATE R		STUDY					
	TPH	I by SW 8015B Analytes	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags				
1-Chlorooctar	ne		103	99.9	103	70-135					
o-Terphenyl			54.5	50.0	109	70-135					
Lab Batch #	: 986082	Sample: 522956-003 / SMP	Batch	n: 1 Matrix	: Soil						
U <b>nits:</b>	mg/kg	Date Analyzed: 01/20/16 03:59	SU	RROGATE R	ECOVERY S	STUDY					
	TPH by SW 8015B Analytes			True Amount [B]	Recovery %R [D]	Control Limits %R	Flags				
			106	99.7	106	70-135					
1-Chlorooctar	le		100	33.1	100	10155					

\* Surrogate outside of Laboratory QC limits

\*\* Surrogates outside limits; data and surrogates confirmed by reanalysis

\*\*\* Poor recoveries due to dilution

Surrogate Recovery [D] = 100 \* A / B



Work Ord Lab Batch #:	<b>ers :</b> 52295 986082	6, Sample: 522956-005 / SMP	Bate	-	: 7250101120 : Soil	)96			
Units:	mg/kg	Date Analyzed: 01/20/16 05:02	SU	JRROGATE R	ECOVERY	STUDY			
	TPH	I by SW 8015B	Amount Found [A]	True Amount [B]	Recovery %R	Control Limits %R	Flags		
		Analytes			[D]				
1-Chlorooctan	e		88.8	99.8	89	70-135			
o-Terphenyl			47.1	49.9	94	70-135			
Lab Batch #:	986082	Sample: 522956-006 / SMP	Batc	h: 1 Matrix	: Soil				
Units:	mg/kg	Date Analyzed: 01/20/16 05:35	SURROGATE RECOVERY STUDY						
	TPE	I by SW 8015B	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags		
1-Chlorooctan		Analytes	01.4	00.6		70.125	ļ		
o-Terphenyl	C		91.4	99.6	92	70-135			
Lab Batch #:	086082	Sample: 522956-007 / SMP	48.7	49.8	98 98	70-135	ı		
		•							
Units:	mg/kg	Date Analyzed: 01/20/16 06:09	SU	Y STUDY					
	TPE	I by SW 8015B	Amount Found [A]	True Amount [B]	Recovery %R	Control Limits %R	Flags		
		Analytes			[D]				
1-Chlorooctan	e		93.1	99.8	93	70-135			
o-Terphenyl			49.9	49.9	100	70-135			
Lab Batch #:	986086	Sample: 522956-008 / SMP	Batc	h: 1 Matrix	: Soil				
Units:	mg/kg	Date Analyzed: 01/21/16 01:27	SU	JRROGATE R	ECOVERY	STUDY			
	TPE	I by SW 8015B Analytes	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags		
1-Chlorooctan	e		115	99.9	115	70-135			
o-Terphenyl			47.7	50.0	95	70-135			
Lab Batch #:	986086	Sample: 522956-009 / SMP	Batc						
Units:	mg/kg	<b>Date Analyzed:</b> 01/21/16 01:51	SU	JRROGATE R	ECOVERY	STUDY			
	TPH by SW 8015B			True Amount [B]	Recovery %R	Control Limits %R	Flags		
		Analytes			[D]		1		
1-Chlorooctan	e	Analytes	115	100	[ <b>D</b> ]	70-135			

\* Surrogate outside of Laboratory QC limits

\*\* Surrogates outside limits; data and surrogates confirmed by reanalysis

\*\*\* Poor recoveries due to dilution

Surrogate Recovery [D] = 100 \* A / B



Project Name: 30137 Pipeline Release

	<b>ders :</b> 52295 #: 986086	6, Sample: 522956-010 / SMP	Project ID: 725010112096 MP Batch: 1 Matrix: Soil							
Units:	mg/kg	Date Analyzed: 01/21/16 02:16		RROGATE R		STUDY				
	TPH	I by SW 8015B	Amount Found [A]	True Amount [B]	Recovery %R	Control Limits %R	Flags			
		Analytes			[D]		1			
1-Chlorooct	ane		106	99.8	106	70-135				
o-Terphenyl			44.0	49.9	88	70-135				
Lab Batch	#: 986086	Sample: 522956-011 / SMP	Batcl	n: 1 Matrix	: Soil					
Units:	mg/kg	Date Analyzed: 01/21/16 02:41	SU	RROGATE R	RECOVERY	STUDY				
	TPH	I by SW 8015B	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags			
1 (11)		Analytes	102	100		70.107				
1-Chlorooct			102	100	102	70-135				
o-Terphenyl		g 1 522057 012 / SMD	42.7	50.0	85	70-135				
	#: 986086	Sample: 522956-012 / SMP	Batcl							
Units:	mg/kg	Date Analyzed: 01/21/16 03:08	SU	RROGATE R	RECOVERY	STUDY				
	TPE	H by SW 8015B	Amount Found [A]	True Amount [B]	Recovery %R	Control Limits %R	Flags			
		Analytes			[D]		1			
1-Chlorooct	ane		104	99.6	104	70-135				
o-Terphenyl			44.1	49.8	89	70-135				
Lab Batch	#: 986086	Sample: 522956-014 / SMP	Batcl	n: 1 Matrix	: Soil					
Units:	mg/kg	Date Analyzed: 01/21/16 03:34	SU	RROGATE R	RECOVERY	STUDY				
	TPE	I by SW 8015B Analytes	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags			
1-Chlorooct	200	Anarytes	106	100		70.125				
o-Terphenyl			106	100 50.0	106	70-135				
	#: 986086	Sample: 522956-013 / SMP	55.7 Batcl		111 r. Soil	70-135				
Units:	mg/kg	<b>Date Analyzed:</b> 01/21/16 03:37								
omis:	mg/kg	Date Analyzeu: 01/21/10/05:57	SU	RROGATE R	ECOVERY S	STUDY				
	TPH by SW 8015B			True Amount [B]	Recovery %R [D]	Control Limits %R	Flags			
		Analytes				1				
1-Chlorooct	ane	Analytes	105	99.9	105	70-135				

\* Surrogate outside of Laboratory QC limits

\*\* Surrogates outside limits; data and surrogates confirmed by reanalysis

\*\*\* Poor recoveries due to dilution

Surrogate Recovery [D] = 100 \* A / B



Project Name: 30137 Pipeline Release

	<b>:ders :</b> 52295 #: 986086	6, Sample: 522956-016 / SMP	Batel		: 7250101120 :: Soil	096	
Units:	mg/kg	Date Analyzed: 01/21/16 04:47	SU	RROGATE R	ECOVERY	STUDY	
	TPH	I by SW 8015B	Amount Found [A]	True Amount [B]	Recovery %R	Control Limits %R	Flags
		Analytes			[D]		
1-Chlorooct	tane		84.4	99.9	84	70-135	
o-Terpheny	1		44.6	50.0	89	70-135	
Lab Batch	<b>#:</b> 986086	Sample: 522956-017 / SMP	Batcl	h: 1 Matrix	: Soil		
Units:	mg/kg	Date Analyzed: 01/21/16 05:21	SU	RROGATE R	ECOVERY	STUDY	
	TPH	H by SW 8015B Analytes	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
1-Chlorooct	tono	Analytes		100		70.125	
			85.2	100	85	70-135	<u>.</u>
o-Terpheny		Samely 522057 015 / SMD	44.4	50.0	89	70-135	<u>.</u>
	#: 986086	Sample: 522956-015 / SMP	Batcl				
Units:	mg/kg	Date Analyzed: 01/21/16 13:42	SU	RROGATE R	ECOVERY	STUDY	
	TPH	H by SW 8015B	Amount Found [A]	True Amount [B]	Recovery %R	Control Limits %R	Flags
		Analytes			[D]		
1-Chlorooct	tane		93.8	99.9	94	70-135	
o-Terpheny	1		49.5	50.0	99	70-135	
Lab Batch	#: 986082	Sample: 522956-004 / SMP	Batcl	h: 1 Matrix	: Soil		
Units:	mg/kg	Date Analyzed: 01/21/16 14:12	SU	RROGATE R	ECOVERY	STUDY	
	TPH	I by SW 8015B	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
1.011		Analytes					l
1-Chlorooct			125	100	125	70-135	I
o-Terpheny			63.6	50.0	127	70-135	L
	#: 985838	Sample: 703579-1-BLK / BL			: Solid		
Units:	mg/kg	Date Analyzed: 01/18/16 09:05	SU	RROGATE R	ECOVERY	STUDY	-
	BTE	X by EPA 8021B	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
		Analytes		1		1	1
1,4-Difluoro	abanzana	Analytes	0.0337	0.0300	112	80-120	

\* Surrogate outside of Laboratory QC limits

\*\* Surrogates outside limits; data and surrogates confirmed by reanalysis

\*\*\* Poor recoveries due to dilution

Surrogate Recovery [D] = 100 \* A / B



Project Name: 30137 Pipeline Release

	rders : 52295 #: 986082	6, Sample: 703714-1-BLK / B	LK Batc		: 7250101120 :: Solid	)96	
Units:	mg/kg	Date Analyzed: 01/19/16 13:06	SU	RROGATE R	ECOVERY	STUDY	
	TPH	I by SW 8015B	Amount Found [A]	True Amount [B]	Recovery %R	Control Limits %R	Flags
		Analytes			[D]		
1-Chlorooct	tane		91.7	100	92	70-135	
o-Terpheny	1		48.2	50.0	96	70-135	
Lab Batch	#: 986086	Sample: 703716-1-BLK / B	LK Batc	h: 1 Matrix	: Solid	·	
Units:	mg/kg	Date Analyzed: 01/20/16 09:11	SU	RROGATE R	ECOVERY	STUDY	
	TPH	I by SW 8015B	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
4 611		Analytes					
1-Chlorooct			110	100	110	70-135	
o-Terpheny			45.9	50.0	92	70-135	
	#: 985838	<b>Sample:</b> 703579-1-BKS / B	KS Batcl	h: 1 Matrix	: Solid		
Units:	mg/kg	Date Analyzed: 01/18/16 08:15	SU	RROGATE R	<b>ECOVERY</b>	STUDY	
	BTE	X by EPA 8021B	Amount Found [A]	True Amount [B]	Recovery %R	Control Limits %R	Flags
		Analytes			[D]		
1,4-Difluor	obenzene		0.0334	0.0300	111	80-120	
4-Bromoflu	orobenzene		0.0334	0.0300	111	80-120	
Lab Batch	#: 986082	Sample: 703714-1-BKS / B	KS Batc	h: 1 Matrix	: Solid		
Units:	mg/kg	Date Analyzed: 01/19/16 13:37	SU	RROGATE R	ECOVERY	STUDY	
	TPF	I by SW 8015B Analytes	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
1 Chlorocat	tono	Analytes	07.5	100		70.125	
1-Chlorooct			97.5	100	98	70-135	
o-Terpheny	#: 986086	Sample: 703716-1-BKS / B	48.3	50.0 h: 1 Matrix	97	70-135	
		-					
Units:	mg/kg	Date Analyzed: 01/20/16 09:38	SU	RROGATE R	ECOVERY	STUDY	
	TPH	I by SW 8015B	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
		Analytes					
1-Chlorooct			127	100	127	70-135	
o-Terpheny	1		49.6	50.0	99	70-135	

\* Surrogate outside of Laboratory QC limits

\*\* Surrogates outside limits; data and surrogates confirmed by reanalysis

\*\*\* Poor recoveries due to dilution

Surrogate Recovery [D] = 100 \* A / B



Project Name: 30137 Pipeline Release

	<b>ders :</b> 52295 #: 985838	6, Sample: 703579-1-BSD / BS	SD Batc		: 7250101120 :: Solid	)96	
Units:	mg/kg	Date Analyzed: 01/18/16 08:32	SU	RROGATE R	ECOVERY	STUDY	
	BTE	X by EPA 8021B	Amount Found [A]	True Amount [B]	Recovery %R	Control Limits %R	Flags
		Analytes			[D]		
1,4-Difluoro	obenzene		0.0338	0.0300	113	80-120	
4-Bromoflu	orobenzene		0.0326	0.0300	109	80-120	
Lab Batch	#: 986082	Sample: 703714-1-BSD / BS	SD Batcl	h: 1 Matrix	: Solid		
Units:	mg/kg	Date Analyzed: 01/19/16 14:04	SU	RROGATE R	ECOVERY	STUDY	
	TPH	H by SW 8015B	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
1 (11)		Analytes		100		50.105	
1-Chlorooct			93.6	100	94	70-135	
o-Terpheny			46.4	50.0	93	70-135	
	#: 986086	<b>Sample:</b> 703716-1-BSD / BS	SD Bate	h: 1 Matrix	: Solid		
Units:	mg/kg	Date Analyzed: 01/20/16 10:06	SU	RROGATE R	ECOVERY	STUDY	
	TPH	I by SW 8015B	Amount Found [A]	True Amount [B]	Recovery %R	Control Limits %R	Flags
		Analytes			[D]		
1-Chlorooct	ane		135	100	135	70-135	
o-Terpheny	l		57.3	50.0	115	70-135	
Lab Batch	#: 985838	Sample: 522956-002 S / MS	Batcl	h: 1 Matrix	: Soil		
Units:	mg/kg	Date Analyzed: 01/18/16 13:30	SU	RROGATE R	ECOVERY	STUDY	
	BTE	X by EPA 8021B Analytes	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
1.4-Difluoro	benzene	Anarytes	0.0335	0.0300	112	80-120	
4-Bromoflu			0.0335	0.0300	112	80-120	
	#: 986082	Sample: 522956-007 S / MS				00-120	
Units:	mg/kg	<b>Date Analyzed:</b> 01/20/16 06:41		RROGATE R		STUDY	
	TPH	I by SW 8015B	Amount Found [A]	True Amount [B]	Recovery %R	Control Limits %R	Flags
		Analytes			[D]		
1-Chlorooct			98.1	99.7	98	70-135	
o-Terpheny	l		48.7	49.9	98	70-135	

\* Surrogate outside of Laboratory QC limits

\*\* Surrogates outside limits; data and surrogates confirmed by reanalysis

\*\*\* Poor recoveries due to dilution

Surrogate Recovery [D] = 100 \* A / B



Project Name: 30137 Pipeline Release

Work Or Lab Batch :	<b>ders :</b> 52295 #: 986086	6, Sample: 522956-010 S / MS	5 Batcl	-	: 7250101120 : Soil	)96	
Units:	mg/kg	Date Analyzed: 01/21/16 05:57		RROGATE R		STUDY	
	TPH	I by SW 8015B Analytes	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
1-Chloroocta	ane		103	99.6	103	70-135	
o-Terphenyl			49.9	49.8	100	70-135	
Lab Batch		Sample: 522956-002 SD / N				10 100	
U <b>nits:</b>	mg/kg	<b>Date Analyzed:</b> 01/18/16 13:45		RROGATE R	ECOVERY	STUDY	
	BTE	X by EPA 8021B	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
140.0	1	Analytes	0.0051	0.0200		00.100	
1,4-Difluoro			0.0351	0.0300	117	80-120	
4-Bromofluo		C	0.0349	0.0300	116	80-120	
Lab Batch		Sample: 522956-007 SD / N	ASD Batcl	h: 1 Matrix	: Soll		
U <b>nits:</b>	mg/kg	<b>Date Analyzed:</b> 01/20/16 07:13	SU	<b>RROGATE R</b>	ECOVERY	STUDY	
	TPH	I by SW 8015B	Amount Found [A]	True Amount [B]	Recovery %R	Control Limits %R	Flags
		Analytes			[D]		
1-Chloroocta	ane		105	100	105	70-135	
o-Terphenyl			51.4	50.0	103	70-135	
ab Batch	#: 986086	Sample: 522956-010 SD / N	ASD Bate	h: 1 Matrix	: Soil		
U <b>nits:</b>	mg/kg	Date Analyzed: 01/21/16 08:14	SU	RROGATE R	ECOVERY	STUDY	
	TPH	I by SW 8015B Analytes	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
1-Chloroocta	ane		103	99.7	103	70-135	
o-Terphenyl			50.8	49.9	102	70-135	

\* Surrogate outside of Laboratory QC limits

- \*\* Surrogates outside limits; data and surrogates confirmed by reanalysis
- \*\*\* Poor recoveries due to dilution
- Surrogate Recovery [D] = 100 \* A / B



### **BS / BSD Recoveries**

#### PILA FOLSE F

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#### **Project Name: 30137 Pipeline Release**

Work Order #: 5229	956							Proj	ject ID: 🤇	725010112	096	
Analyst: SYG		D	ate Prepar	ed: 01/18/201	6			Date A	nalyzed: (	01/18/2016		
Lab Batch ID: 985838	Sample: 703579-1-1	BKS	Batcl	<b>h #:</b> 1					Matrix: S	Solid		
Units: mg/kg			BLAN	K/BLANK	SPIKE / ]	BLANK S	SPIKE DUP	LICATE	RECOVI	ERY STUI	DY	
	by EPA 8021B	Blank Sample Result [A]	Spike Added	Blank Spike Result	Blank Spike %R	Spike Added	Blank Spike Duplicate	Blk. Spk Dup. %R	RPD %	Control Limits %R	Control Limits %RPD	Flag
Analytes			[B]	[C]	[D]	[E]	Result [F]	[G]				
Benzene		< 0.00100	0.100	0.0805	81	0.100	0.0820	82	2	70-130	35	
Toluene		< 0.00200	0.100	0.0810	81	0.100	0.0812	81	0	70-130	35	
Ethylbenzene		< 0.00100	0.100	0.0842	84	0.100	0.0839	84	0	71-129	35	
m,p-Xylenes		< 0.00200	0.200	0.172	86	0.200	0.171	86	1	70-135	35	
o-Xylene		< 0.00100	0.100	0.0852	85	0.100	0.0849	85	0	71-133	35	
Analyst: MNR		D	ate Prepar	ed: 01/22/201	6	•		Date A	nalyzed: (	01/26/2016		
Lab Batch ID: 986585	Sample: 703750-1-1	BKS	Batcl	<b>h #:</b> 1					Matrix: S	Solid		
Units: mg/kg			BLAN	K/BLANK	SPIKE / ]	BLANK S	SPIKE DUP	LICATE	RECOVI	ERY STU	DY	
Inorganic Ani Analytes	ons by EPA 300/300.1	Blank Sample Result [A]	Spike Added [B]	Blank Spike Result [C]	Blank Spike %R [D]	Spike Added [E]	Blank Spike Duplicate Result [F]	Blk. Spk Dup. %R [G]	RPD %	Control Limits %R	Control Limits %RPD	Flag
Chloride		<2.00	50.0	49.1	98	50.0	48.0	96	2	90-110	20	

Relative Percent Difference RPD =  $200^{*}|(C-F)/(C+F)|$ Blank Spike Recovery [D] =  $100^{*}(C)/[B]$ Blank Spike Duplicate Recovery [G] =  $100^{*}(F)/[E]$ All results are based on MDL and Validated for QC Purposes



### **BS / BSD Recoveries**

# FILA FORM

#### **Project Name: 30137 Pipeline Release**

Work Order #: 4	522956							Pro	ect ID:	725010112	096	
Analyst: PJB		D	ate Prepai	ed: 01/19/20	16			Date A	nalyzed: (	01/19/2016		
Lab Batch ID: 986	082 Sample: 703714-1	-BKS	Batc	<b>h #:</b> 1					Matrix:	Solid		
Units: mg/	kg		BLAN	K /BLANK	SPIKE /	BLANK	SPIKE DUP	LICATE	RECOV	ERY STU	DY	
Analytes	PH by SW 8015B	Blank Sample Result [A]	Spike Added [B]	Blank Spike Result [C]	Blank Spike %R [D]	Spike Added [E]	Blank Spike Duplicate Result [F]	Blk. Spk Dup. %R [G]	RPD %	Control Limits %R	Control Limits %RPD	Flag
C6-C10 Gasoline	e Range Hydrocarbons	<15.0	1000	802	80	1000	840	84	5	70-135	35	
C10-C28 Diesel	Range Organics	<15.0	1000	982	98	1000	973	97	1	70-135	35	
Analyst: PJB		D	ate Prepai	red: 01/20/20	16	1		Date A	nalyzed:	01/20/2016	4	
Lab Batch ID: 986	086 Sample: 703716-1	-BKS	Bate	<b>h #:</b> 1					Matrix:	Solid		
Units: mg/	kg		BLAN	K /BLANK	SPIKE /	BLANK	SPIKE DUP	LICATE	RECOV	ERY STUI	DY	
Analytes	PH by SW 8015B	Blank Sample Result [A]	Spike Added [B]	Blank Spike Result [C]	Blank Spike %R [D]	Spike Added [E]	Blank Spike Duplicate Result [F]	Blk. Spk Dup. %R [G]	RPD %	Control Limits %R	Control Limits %RPD	Flag
C6-C10 Gasoline	e Range Hydrocarbons	<15.0	1000	801	80	1000	879	88	9	70-135	35	
C10-C28 Diesel	Range Organics	<15.0	1000	1040	104	1000	1140	114	9	70-135	35	

Relative Percent Difference RPD =  $200^{*}|(C-F)/(C+F)|$ Blank Spike Recovery [D] =  $100^{*}(C)/[B]$ Blank Spike Duplicate Recovery [G] =  $100^{*}(F)/[E]$ All results are based on MDL and Validated for QC Purposes



### Form 3 - MS / MSD Recoveries

#### **Project Name: 30137 Pipeline Release**



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Work Order # :	522956						Project II	<b>):</b> 725010	0112096			
Lab Batch ID:	985838	QC- Sample ID:	522956	-002 S	Ba	tch #:	1 Matrix	<b>k:</b> Soil				
Date Analyzed:	01/18/2016	Date Prepared:	01/18/2	016	Ar	alyst: S	SYG					
<b>Reporting Units:</b>	mg/kg		Μ	ATRIX SPIK	E / MAT	RIX SPI	KE DUPLICA	TE REC	OVERY	STUDY		
	BTEX by EPA 8021B	Parent Sample Result	Spike Added	Spiked Sample Result [C]	Spiked Sample %R	Spike Added	Duplicate Spiked Sample Result [F]	Spiked Dup. %R	RPD %	Control Limits %R	Control Limits %RPD	Flag
	Analytes	[A]	[B]	[0]	[D]	[E]		[G]			/0142	
Benzene		<0.000992	0.0992	0.0836	84	0.0992	0.0837	84	0	70-130	35	
Toluene		<0.00198	0.0992	0.0796	80	0.0992	0.0803	81	1	70-130	35	
Ethylbenzene		<0.000992	0.0992	0.0802	81	0.0992	0.0817	82	2	71-129	35	
m,p-Xylenes		<0.00198	0.198	0.163	82	0.198	0.166	84	2	70-135	35	
o-Xylene		<0.000992	0.0992	0.0795	80	0.0992	0.0800	81	1	71-133	35	
Lab Batch ID:	986082	QC- Sample ID:	522956	-007 S	Ba	tch #:	1 Matrix	<b>k:</b> Soil				
Data Analyzadı	01/20/2016	Date Prepared:	01/19/2	016	٨٣	al-at. I	DID					
Jate Analyzeu:	01/20/2010	Date I reparcu.	01/1//2	010	PN1	alyst: F	JD					
U U	mg/kg	Date i repareu.				•	KE DUPLICA	TE REC	OVERY	STUDY		
·		Parent Sample	M Spike	ATRIX SPIK Spiked Sample Result	E / MAT Spiked Sample	RIX SPI Spike	KE DUPLICA Duplicate Spiked Sample	Spiked Dup.	RPD	Control Limits	Control Limits %RPD	Flag
Ū.	mg/kg	Parent	Μ	ATRIX SPIK	E / MAT Spiked	RIX SPI	KE DUPLICA Duplicate	Spiked		Control		Flag
Reporting Units:	mg/kg TPH by SW 8015B	Parent Sample Result	M Spike Added	ATRIX SPIK Spiked Sample Result	E / MAT Spiked Sample %R	RIX SPI Spike Added	KE DUPLICA Duplicate Spiked Sample	Spiked Dup. %R	RPD	Control Limits	Limits	Flag
Reporting Units: C6-C10 Gasolin	mg/kg TPH by SW 8015B Analytes	Parent Sample Result [A]	M Spike Added [B]	IATRIX SPIK Spiked Sample Result [C]	E / MAT Spiked Sample %R [D]	RIX SPI Spike Added [E]	KE DUPLICA Duplicate Spiked Sample Result [F]	Spiked Dup. %R [G]	RPD %	Control Limits %R	Limits %RPD	Flag
C6-C10 Gasolin C10-C28 Diese	mg/kg TPH by SW 8015B Analytes ne Range Hydrocarbons	Parent Sample Result [A] <15.0	M Spike Added [B] 997 997	ATRIX SPIK Spiked Sample Result [C] 782 918	E / MAT Spiked Sample %R [D] 78 92	RIX SPI Spike Added [E] 1000	KE DUPLICA Duplicate Spiked Sample Result [F] 724	<b>Spiked</b> <b>Dup.</b> % <b>R</b> [G] 72 96	<b>RPD</b> %	Control Limits %R 70-135	Limits %RPD 35	Flag
Reporting Units: C6-C10 Gasolin C10-C28 Diese Lab Batch ID:	mg/kg TPH by SW 8015B Analytes ne Range Hydrocarbons I Range Organics	Parent Sample Result [A]           <15.0	M Spike Added [B] 997 997 522956	ATRIX SPIK Spiked Sample Result [C] 782 918 -010 S	E / MAT Spiked Sample %R [D] 78 92 Ba	RIX SPI Spike Added [E] 1000 1000	KE DUPLICA Duplicate Spiked Sample Result [F] 724 962 1 Matrix	<b>Spiked</b> <b>Dup.</b> % <b>R</b> [G] 72 96	<b>RPD</b> %	Control Limits %R 70-135	Limits %RPD 35	Flag
Reporting Units: C6-C10 Gasolin C10-C28 Diese Lab Batch ID: Date Analyzed:	mg/kg TPH by SW 8015B Analytes ne Range Hydrocarbons I Range Organics 986086	Parent Sample Result [A]           <15.0	M Spike Added [B] 997 997 522956 01/20/2	ATRIX SPIK Spiked Sample Result [C] 782 918 -010 S 016	E / MAT Spiked Sample %R [D] 78 92 Ba Ar	RIX SPI Spike Added [E] 1000 1000 itch #: nalyst: F	KE DUPLICA Duplicate Spiked Sample Result [F] 724 962 1 Matrix	Spiked           Dup.           %R           [G]           72           96           k:           Soil	<b>RPD</b> %	Control Limits %R 70-135 70-135	Limits %RPD 35	Flag
	mg/kg TPH by SW 8015B Analytes ne Range Hydrocarbons I Range Organics 986086 01/21/2016	Parent Sample Result [A] <15.0 <15.0 QC- Sample ID: Date Prepared: Parent Sample	M Spike Added [B] 997 997 522956 01/20/2 M Spike	ATRIX SPIK Spiked Sample Result [C] 782 918 -010 S 016 ATRIX SPIK Spiked Sample Result	E / MAT Spiked Sample %R [D] 78 92 Ba Ar E / MAT Spiked Sample	RIX SPI Spike Added [E] 1000 1000 itch #: nalyst: F RIX SPI Spike	KE DUPLICA Duplicate Spiked Sample Result [F] 724 962 1 Matrix JB KE DUPLICA Duplicate Spiked Sample	Spiked Dup. %R [G] 72 96 k: Soil TE REC Spiked Dup.	RPD         %           8         5           OVERY         RPD	Control Limits %R 70-135 70-135 STUDY Control Limits	Limits %RPD 35 35 35 Control Limits	
C6-C10 Gasolin C10-C28 Diese Lab Batch ID: Date Analyzed:	mg/kg TPH by SW 8015B Analytes ne Range Hydrocarbons I Range Organics 986086 01/21/2016 mg/kg	Parent Sample Result [A] <15.0 <15.0 QC- Sample ID: Date Prepared: Parent	M Spike Added [B] 997 522956 01/20/2 M	ATRIX SPIK Spiked Sample Result [C] 782 918 -010 S 016 ATRIX SPIK Spiked Sample	E / MAT Spiked Sample %R [D] 78 92 Ba Ar E / MAT Spiked	RIX SPI Spike Added [E] 1000 1000 itch #: nalyst: F RIX SPI	KE DUPLICA Duplicate Spiked Sample Result [F] 724 962 1 Matrix JB KE DUPLICA Duplicate	Spiked Dup. %R [G] 72 96 k: Soil TE REC Spiked	RPD         %           8         5           OVERY	Control Limits %R 70-135 70-135 STUDY Control	Limits %RPD 35 35 Control	
Reporting Units: C6-C10 Gasolin C10-C28 Diese Lab Batch ID: Date Analyzed: Reporting Units:	mg/kg TPH by SW 8015B Analytes ne Range Hydrocarbons 1 Range Organics 986086 01/21/2016 mg/kg TPH by SW 8015B	Parent Sample Result [A] <15.0 <15.0 QC- Sample ID: Date Prepared: Parent Sample Result	M Spike Added [B] 997 522956 01/20/2 M Spike Added	ATRIX SPIK Spiked Sample Result [C] 782 918 -010 S 016 ATRIX SPIK Spiked Sample Result	E / MAT Spiked Sample %R [D] 78 92 Ba Ar E / MAT Spiked Sample %R	RIX SPI Spike Added [E] 1000 1000 itch #: nalyst: F RIX SPI Spike Added	KE DUPLICA Duplicate Spiked Sample Result [F] 724 962 1 Matrix JB KE DUPLICA Duplicate Spiked Sample	Spiked Dup. %R [G] 72 96 k: Soil K: Soil TE REC Spiked Dup. %R	RPD         %           8         5           OVERY         RPD	Control Limits %R 70-135 70-135 STUDY Control Limits	Limits %RPD 35 35 35 Control Limits	Flag

Matrix Spike Percent Recovery  $[D] = 100^{*}(C-A)/B$ Relative Percent Difference RPD =  $200^{*}|(C-F)/(C+F)|$  Matrix Spike Duplicate Percent Recovery [G] = 100\*(F-A)/E

ND = Not Detected, J = Present Below Reporting Limit, B = Present in Blank, NR = Not Requested, I = Interference, NA = Not Applicable N = See Narrative, EQL = Estimated Quantitation Limit, NC = Non Calculable - Sample amount is > 4 times the amount spiked.

Page 21 of 24





Received by OCD: 4/12/2023 7:12:17 AM



## **XENCO** Laboratories



Prelogin/Nonconformance Report- Sample Log-In

Client: APEX/Titan	Acceptable Temperature Ran	ae: 0 - 6 deaC
Date/ Time Received: 01/15/2016 08:40:00 AM	Air and Metal samples Accep	
Work Order #: 522956	Temperature Measuring device	ce used:r8
Sample Recei	pt Checklist	Comments
#1 *Temperature of cooler(s)?	2.9	
#2 *Shipping container in good condition?	Yes	
#3 *Samples received on ice?	Yes	
#4 *Custody Seals intact on shipping container/ cooler?	N/A	
#5 Custody Seals intact on sample bottles?	N/A	
#6 *Custody Seals Signed and dated?	N/A	
#7 *Chain of Custody present?	Yes	
#8 Sample instructions complete on Chain of Custody?	Yes	
#9 Any missing/extra samples?	No	
#10 Chain of Custody signed when relinquished/ received?	Yes	
#11 Chain of Custody agrees with sample label(s)?	Yes	
#12 Container label(s) legible and intact?	Yes	
#13 Sample matrix/ properties agree with Chain of Custody?	Yes	
#14 Samples in proper container/ bottle?	Yes	
#15 Samples properly preserved?	Yes	
#16 Sample container(s) intact?	Yes	
#17 Sufficient sample amount for indicated test(s)?	Yes	
#18 All samples received within hold time?	Yes	
#19 Subcontract of sample(s)?	No	
#20 VOC samples have zero headspace (less than 1/4 inch l	oubble)? N/A	
#21 <2 for all samples preserved with HNO3,HCL, H2SO4? If samples for the analysis of HEM or HEM-SGT which are verif analysts.		
#22 >10 for all samples preserved with NaAsO2+NaOH, ZnA	.c+NaOH? N/A	

#### \* Must be completed for after-hours delivery of samples prior to placing in the refrigerator

Analyst:

PH Device/Lot#:

Date: 01/15/2016

Checklist completed by: Carley Owens Carley Owens Checklist reviewed by: M. Moral Kelsey Brooks Kelsey Brooks

Date: 01/15/2016

# Analytical Report 526802

for APEX/Titan

**Project Manager: Karolanne Toby** 

30137 #3, #4, #5

725010112096

#### 16-MAR-16

Collected By: Client





#### 1211 W. Florida Ave, Midland TX 79701

Xenco-Houston (EPA Lab code: TX00122): Texas (T104704215-15-19), Arizona (AZ0765), Florida (E871002), Louisiana (03054) Oklahoma (9218)

Xenco-Dallas (EPA Lab code: TX01468): Texas (T104704295) Xenco-Odessa (EPA Lab code: TX00158): Texas (T104704400) Xenco-San Antonio: Texas (T104704534-15-1) Xenco Phoenix (EPA Lab Code: AZ00901): Arizona(AZ0757) Xenco-Phoenix Mobile (EPA Lab code: AZ00901): Arizona (AZM757) Xenco-Atlanta (EPA Lab Code: GA00046): Florida (E87429), North Carolina (483), South Carolina (98015), Kentucky (85), DoD ( L10-135) Texas (T104704477), Louisiana (04176), USDA (P330-07-00105)

Xenco-Lakeland: Florida (E84098)





16-MAR-16

Project Manager: **Karolanne Toby APEX/Titan** 505 N. Big Spring Ste. 301 A Midland, TX 79701

Reference: XENCO Report No(s): **526802 30137 #3, #4, #5** Project Address: NM

#### Karolanne Toby:

We are reporting to you the results of the analyses performed on the samples received under the project name referenced above and identified with the XENCO Report Number(s) 526802. All results being reported under this Report Number apply to the samples analyzed and properly identified with a Laboratory ID number. Subcontracted analyses are identified in this report with either the NELAC certification number of the subcontract lab in the analyst ID field, or the complete subcontracted report attached to this report.

Unless otherwise noted in a Case Narrative, all data reported in this Analytical Report are in compliance with NELAC standards. The uncertainty of measurement associated with the results of analysis reported is available upon request. Should insufficient sample be provided to the laboratory to meet the method and NELAC Matrix Duplicate and Matrix Spike requirements, then the data will be analyzed, evaluated and reported using all other available quality control measures.

The validity and integrity of this report will remain intact as long as it is accompanied by this letter and reproduced in full, unless written approval is granted by XENCO Laboratories. This report will be filed for at least 5 years in our archives after which time it will be destroyed without further notice, unless otherwise arranged with you. The samples received, and described as recorded in Report No. 526802 will be filed for 60 days, and after that time they will be properly disposed without further notice, unless otherwise arranged with you. We reserve the right to return to you any unused samples, extracts or solutions related to them if we consider so necessary (e.g., samples identified as hazardous waste, sample sizes exceeding analytical standard practices, controlled substances under regulated protocols, etc).

We thank you for selecting XENCO Laboratories to serve your analytical needs. If you have any questions concerning this report, please feel free to contact us at any time.

Respectfully,

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Kelsey Brooks Project Manager

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### Sample Cross Reference 526802



#### APEX/Titan, Midland, TX

30137 #3, #4, #5

Sample Id	Matrix	Date Collected	Sample Depth	Lab Sample Id
CS-1 (2015) (RE)	S	03-14-16 10:49	- 10 ft	526802-001
S-Wall (RE)	S	03-14-16 11:35	- 8 ft	526802-002
CS-2 (2015) (RE)	S	03-14-16 11:52	- 14 ft	526802-003
R.P. (RE)	S	03-14-16 12:04	- 13 ft	526802-004
SP-4	S	03-14-16 14:00		526802-005
SP-5	S	03-14-16 12:40		526802-006
SP-6	S	03-14-16 12:45		526802-007



CASE NARRATIVE



Client Name: APEX/Titan Project Name: 30137 #3, #4, #5

 Project ID:
 725010112096

 Work Order Number(s):
 526802

ATORIES

Report Date:16-MAR-16Date Received:03/15/2016

Sample receipt non conformances and comments:

Sample receipt non conformances and comments per sample:

None



Project Id:725010112096Contact:Karolanne TobyProject Location:NM

### Certificate of Analysis Summary 526802

APEX/Titan, Midland, TX Project Name: 30137 #3, #4, #5



Date Received in Lab:Tue Mar-15-16 08:40 amReport Date:16-MAR-16Project Manager:Kelsey Brooks

	Lab Id:	526802-0	001	526802-0	02	526802-0	003	526802-0	04	526802-0	05	526802-	006
	Field Id:	CS-1 (2015		S-Wall (R	-	CS-2 (2015)		R.P. (RE		SP-4		SP-5	
Analysis Requested	Depth:	10 ft	· · ·	8 ft		14 ft	()	13 ft	.)	51 1		51 5	
	Matrix:	SOIL		SOIL		SOIL		SOIL		SOIL		SOIL	
	Sampled:	Mar-14-16	10:49	Mar-14-16 1	1:35	Mar-14-16	11:52	Mar-14-16	2:04	Mar-14-16	14:00	Mar-14-16	12:40
BTEX by EPA 8021B	Extracted:	Mar-15-16	14:00			Mar-15-16	14:00			Mar-15-16	14:00	Mar-15-16	14:00
	Analyzed:	Mar-15-16	18:42			Mar-15-16	18:58			Mar-16-16	15:08	Mar-16-16	11:08
	Units/RL:	mg/kg	RL			mg/kg	RL			mg/kg	RL	mg/kg	RL
Benzene		ND	0.00150			ND	0.00149			ND	0.0299	ND	0.00150
Toluene		ND	0.00200			ND	0.00199			1.95	0.0399	0.0137	0.00200
Ethylbenzene		ND	0.00200			ND	0.00199			2.77	0.0399	0.0174	0.00200
m,p-Xylenes		ND	0.00200			ND	0.00199			11.2	0.0399	0.126	0.00200
o-Xylene		ND	0.00299			ND	0.00298			3.30	0.0599	ND	0.00299
Total Xylenes		ND	0.00200			ND	0.00199			14.5	0.0399	0.126	0.00200
Total BTEX		ND	0.00150			ND	0.00149			19.2	0.0299	0.157	0.00150
Inorganic Anions by EPA 300/300.1	Extracted:			Mar-15-16 1	4:00	Mar-15-16	14:00	Mar-15-16 1	4:00	Mar-15-16	14:00	Mar-15-16	14:00
	Analyzed:			Mar-15-16 1	4:43	Mar-15-16	14:24	Mar-15-16 1	4:44	Mar-15-16	15:04	Mar-15-16	15:24
	Units/RL:			mg/kg	RL	mg/kg	RL	mg/kg	RL	mg/kg	RL	mg/kg	RL
Chloride				254	20.0	343	100	403	100	107	100	344	100
TPH by SW 8015B	Extracted:	Mar-15-16	09:00			Mar-15-16	09:00			Mar-15-16	09:00	Mar-15-16	09:00
	Analyzed:	Mar-15-16	18:02			Mar-15-16	18:29			Mar-15-16	19:21	Mar-15-16	19:49
	Units/RL:	mg/kg	RL			mg/kg	RL			mg/kg	RL	mg/kg	RL
C6-C10 Gasoline Range Hydrocarbons		ND	25.0			ND	24.9			583	24.9	215	25.0
C10-C28 Diesel Range Hydrocarbons		34.3	25.0			135	24.9			122	24.9	561	25.0
Total TPH		34.3	25.0			135	24.9			705	24.9	829	25.0

This analytical report, and the entire data package it represents, has been made for your exclusive and confidential use. The interpretations and results expressed throughout this analytical report represent the best judgment of XENCO Laboratories. XENCO Laboratories assumes no responsibility and makes no warranty to the end use of the data hereby presented. Our liability is limited to the amount invoiced for this work order unless otherwise agreed to in writing.

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Kelsey Brooks Project Manager

Page 5 of 17



Project Id:725010112096Contact:Karolanne TobyProject Location:NM

Certificate of Analysis Summary 526802

APEX/Titan, Midland, TX Project Name: 30137 #3, #4, #5



Date Received in Lab:Tue Mar-15-16 08:40 amReport Date:16-MAR-16Project Manager:Kelsey Brooks

	Lab Id:	526802-007			
	Field Id:	SP-6			
Analysis Requested	Depth:	51 0			
	-	<b>101</b>			
	Matrix:	SOIL			
	Sampled:	Mar-14-16 12:45			
BTEX by EPA 8021B	Extracted:	Mar-15-16 14:00			
	Analyzed:	Mar-16-16 14:52			
	Units/RL:	mg/kg RL			
Benzene		ND 0.00150			
Toluene		0.0140 0.00200			
Ethylbenzene		0.0193 0.00200			
m,p-Xylenes		0.211 0.00200			
o-Xylene		0.0221 0.00300			
Total Xylenes		0.233 0.00200			
Total BTEX		0.266 0.00150			
Inorganic Anions by EPA 300/300.1	Extracted:	Mar-15-16 14:00			
	Analyzed:	Mar-15-16 15:45			
	Units/RL:	mg/kg RL			
Chloride		207 100			
TPH by SW 8015B	Extracted:	Mar-15-16 09:00			
	Analyzed:	Mar-15-16 20:14			
	Units/RL:	mg/kg RL			
C6-C10 Gasoline Range Hydrocarbons		198 24.9			
C10-C28 Diesel Range Hydrocarbons		229 24.9			
Total TPH		455 24.9			

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Huns Boah

Kelsey Brooks Project Manager



# **Flagging Criteria**



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- X In our quality control review of the data a QC deficiency was observed and flagged as noted. MS/MSD recoveries were found to be outside of the laboratory control limits due to possible matrix /chemical interference, or a concentration of target analyte high enough to affect the recovery of the spike concentration. This condition could also affect the relative percent difference in the MS/MSD.
- **B** A target analyte or common laboratory contaminant was identified in the method blank. Its presence indicates possible field or laboratory contamination.
- **D** The sample(s) were diluted due to targets detected over the highest point of the calibration curve, or due to matrix interference. Dilution factors are included in the final results. The result is from a diluted sample.
- E The data exceeds the upper calibration limit; therefore, the concentration is reported as estimated.
- F RPD exceeded lab control limits.
- J The target analyte was positively identified below the quantitation limit and above the detection limit.
- U Analyte was not detected.
- L The LCS data for this analytical batch was reported below the laboratory control limits for this analyte. The department supervisor and QA Director reviewed data. The samples were either reanalyzed or flagged as estimated concentrations.
- **H** The LCS data for this analytical batch was reported above the laboratory control limits. Supporting QC Data were reviewed by the Department Supervisor and QA Director. Data were determined to be valid for reporting.
- **K** Sample analyzed outside of recommended hold time.
- **JN** A combination of the "N" and the "J" qualifier. The analysis indicates that the analyte is "tentatively identified" and the associated numerical value may not be consistent with the amount actually present in the environmental sample.
- \*\* Surrogate recovered outside laboratory control limit.
- **BRL** Below Reporting Limit.
- RL Reporting Limit
- MDL Method Detection LimitSDL Sample Detection LimitLOD Limit of DetectionPQL Practical Quantitation LimitMQL Method Quantitation LimitLOQ Limit of Quantitation
- **DL** Method Detection Limit
- NC Non-Calculable
- + NELAC certification not offered for this compound.
- \* (Next to analyte name or method description) = Outside XENCO's scope of NELAC accreditation

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9701 Harry Hines Blvd , Dallas, TX 75220	(214) 902 0300	(214) 351-9139
5332 Blackberry Drive, San Antonio TX 78238	(210) 509-3334	(210) 509-3335
1211 W Florida Ave, Midland, TX 79701	(432) 563-1800	(432) 563-1713
2525 W. Huntington Dr Suite 102, Tempe AZ 85282	(602) 437-0330	



Project Name: 30137 #3, #4, #5

		Sample: 526802-001 / SMP	Batcl				
U <b>nits:</b>	mg/kg	Date Analyzed: 03/15/16 18:02	SU	RROGATE R	ECOVERY	STUDY	
	TPH	I by SW 8015B	Amount Found [A]	True Amount [B]	Recovery %R	Control Limits %R	Flags
		Analytes			[D]		
1-Chlorooctane	e		115	100	115	70-130	
o-Terphenyl			56.7	50.0	113	70-130	
Lab Batch #:	990381	Sample: 526802-003 / SMP	Batel	h: 1 Matrix	: Soil		
Units:	mg/kg	Date Analyzed: 03/15/16 18:29	SU	RROGATE R	ECOVERY	STUDY	
	TPH	I by SW 8015B	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flage
1-Chlorooctane		Analytes	116	00.7		70.120	
o-Terphenyl	<i></i>		116 57.3	99.7	116	70-130	
Lab Batch #:	990323	Sample: 526802-001 / SMP	Batcl			/0-150	
Units:	mg/kg	<b>Date Analyzed:</b> 03/15/16 18:42		RROGATE R		STUDY	
C11145+		Date 11111/2001 00/10/10 10:12	50	KKUGAIE R	LCOVERY		
	BTE	X by EPA 8021B Analytes	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
1,4-Difluorobe		Analytes	0.0207	0.0200		00.120	
4-Bromofluoro			0.0287	0.0300	96	80-120	
Lab Batch #:		Sample: 526802-003 / SMP	0.0294 Batcl	0.0300 h: 1 Matrix		80-120	
Units:	mg/kg	<b>Date Analyzed:</b> 03/15/16 18:58		RROGATE R			
emus.	ing ng	Duc muly2cu. 00/10/10/10.00	50	KKUGAIE K		STUDY	
	BTE	X by EPA 8021B Analytes	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flag
1,4-Difluorobe	nzene		0.0285	0.0300	95	80-120	
4-Bromofluoro	benzene		0.0306	0.0300	102	80-120	
Lab Batch #:	990381	Sample: 526802-005 / SMP	Batcl	h: 1 Matrix	: Soil	I	1
Units:	mg/kg	Date Analyzed: 03/15/16 19:21	SU	RROGATE R	ECOVERY	STUDY	
	TPH	I by SW 8015B	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flag
		Analytes					
1-Chlorooctane	e		123	99.7	123	70-130	
o-Terphenyl			57.1	49.9	114	70-130	

\* Surrogate outside of Laboratory QC limits

\*\* Surrogates outside limits; data and surrogates confirmed by reanalysis

\*\*\* Poor recoveries due to dilution

Surrogate Recovery [D] = 100 \* A / B



Project Name: 30137 #3, #4, #5

Work Order Lab Batch #: 9		Sample: 526802-006 / SMP	Batc		: 7250101120 : Soil	170	
Units: r	ng/kg	<b>Date Analyzed:</b> 03/15/16 19:49	SU	RROGATE R		STUDY	
	TPH	I by SW 8015B	Amount Found [A]	True Amount [B]	Recovery %R	Control Limits %R	Flags
		Analytes			[D]		
1-Chlorooctane			116	99.8	116	70-130	
o-Terphenyl			56.4	49.9	113	70-130	
Lab Batch #: 9	90381	Sample: 526802-007 / SMP	Batc	h: 1 Matrix	: Soil		
Units: r	ng/kg	Date Analyzed: 03/15/16 20:14	SU	RROGATE R	ECOVERY	STUDY	
	TPH	I by SW 8015B	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
1-Chlorooctane		Analytes	114	99.7	114	70-130	
o-Terphenyl			54.7	49.9	114	70-130	
Lab Batch #: 9	90323	Sample: 526802-006 / SMP	Batc		_	70-130	
	ng/kg	Date Analyzed: 03/16/16 11:08		RROGATE R		STUDY	
	0 0			1		1	
	BTE	X by EPA 8021B	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flage
		Analytes					
1,4-Difluorobenz			0.0342	0.0300	114	80-120	
4-Bromofluorob			0.0338	0.0300	113	80-120	
Lab Batch #: 9		Sample: 526802-007 / SMP	Batc				
Units: r	ng/kg	Date Analyzed: 03/16/16 14:52	SU	RROGATE R	ECOVERY	STUDY	
	BTE	K by EPA 8021B	Amount Found [A]	True Amount [B]	Recovery %R	Control Limits %R	Flags
		Analytes			[D]		
1,4-Difluorobenz			0.0278	0.0300	93	80-120	
4-Bromofluorobe			0.0325	0.0300	108	80-120	
Lab Batch #: 9	990323	Sample: 526802-005 / SMP	Batc	h: 1 Matrix	: Soil		
Units: r	ng/kg	Date Analyzed: 03/16/16 15:08	SU	RROGATE R	ECOVERY	STUDY	
	BTEX	X by EPA 8021B	Amount Found [A]	True Amount [B]	Recovery %R	Control Limits %R	Flag
		Analytes			[D]		
1,4-Difluorobenz			0.0242	0.0300	81	80-120	
4-Bromofluorob	enzene		0.0294	0.0300	98	80-120	

\* Surrogate outside of Laboratory QC limits

\*\* Surrogates outside limits; data and surrogates confirmed by reanalysis

\*\*\* Poor recoveries due to dilution

Surrogate Recovery [D] = 100 \* A / B



Project Name: 30137 #3, #4, #5

Units:	#: 990381 mg/kg	Sample: 706407-1-BLK / B Date Analyzed: 03/15/16 08:42		RROGATE R	ECOVEDY		
omts.	ing/kg	Date Mary2ed: 05/15/10 00.42	50	KRUGAIE R	LCOVERY	STUDY	
	TPH	I by SW 8015B	Amount Found [A]	True Amount [B]	Recovery %R	Control Limits %R	Flage
		Analytes			[D]		
1-Chlorooct	ane		92.7	100	93	70-130	
o-Terpheny			45.7	50.0	91	70-130	
Lab Batch	#: 990323	Sample: 706394-1-BLK / B	LK Bate	h: 1 Matrix	: Solid	<u>.</u>	
Units:	mg/kg	Date Analyzed: 03/15/16 14:26	SU	RROGATE R	RECOVERY	STUDY	
	BTEX	K by EPA 8021B Analytes	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
1,4-Difluoro	banzana	Analytes	0.0274	0.0300	91	80-120	
4-Bromoflu							
Lab Batch		Sample: 706407-1-BKS / B	0.0287 KS Bate	0.0300 h: 1 Matrix	96 A: Solid	80-120	
Units:	mg/kg	<b>Date Analyzed:</b> 03/15/16 09:14					
Units:	iiig/Kg	Date Analyzeu: 05/15/10 09.14	SU	RROGATE R	RECOVERY	STUDY	
	TPH	I by SW 8015B	Amount Found [A]	True Amount [B]	Recovery %R	Control Limits %R	Flag
		Analytes			[D]		
1-Chlorooct	ane		115	100	115	70-130	
o-Terpheny	l		50.0	50.0	100	70-130	
Lab Batch	#: 990323	Sample: 706394-1-BKS / B	KS Bate	h: 1 Matrix	: Solid		
Units:	mg/kg	Date Analyzed: 03/15/16 13:05	SU	RROGATE R	RECOVERY	STUDY	
	BTEX	X by EPA 8021B Analytes	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flag
1,4-Difluoro	benzene	-	0.0274	0.0300	91	80-120	
4-Bromoflu	orobenzene		0.0313	0.0300	104	80-120	
	#: 990381	Sample: 706407-1-BSD / B	SD Bate		: Solid	I	<u> </u>
Lab Batch	mg/kg	Date Analyzed: 03/15/16 09:48	SU	RROGATE R	RECOVERY	STUDY	
Lab Batch Units:						Control	
		I by SW 8015B	Amount Found [A]	True Amount [B]	Recovery %R [D]	Limits %R	Flag
	TPE	I by SW 8015B Analytes	Found	Amount	•	Limits	Flags

\* Surrogate outside of Laboratory QC limits

\*\* Surrogates outside limits; data and surrogates confirmed by reanalysis

\*\*\* Poor recoveries due to dilution

Surrogate Recovery [D] = 100 \* A / B



Project Name: 30137 #3, #4, #5

Work Ord Lab Batch #:		2, Sample: 706394-1-BSD / B	SD Batc		: 7250101120 : Solid	)96	
Units:	mg/kg	Date Analyzed: 03/15/16 13:21	SU	RROGATE R	ECOVERY	STUDY	
	BTEX	X by EPA 8021B	Amount Found [A]	True Amount [B]	Recovery %R	Control Limits %R	Flags
		Analytes			[D]		
1,4-Difluorobe	enzene		0.0267	0.0300	89	80-120	
4-Bromofluor	obenzene		0.0300	0.0300	100	80-120	
Lab Batch #:	990323	Sample: 526801-001 S / MS	B Batcl	h: 1 Matrix	: Soil		
Units:	mg/kg	Date Analyzed: 03/15/16 13:38	SU	RROGATE R	ECOVERYS	STUDY	
	BTE	X by EPA 8021B Analytes	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
1,4-Difluorobe	nzene	Anaryus	0.0262	0.0300	87	80-120	
4-Bromofluoro			0.0202	0.0300	99	80-120	
Lab Batch #:		Sample: 526801-001 S / MS				80-120	
Units:	mg/kg	Date Analyzed: 03/15/16 13:58		RROGATE R		STUDV	
	88		50			51001	
	TPH	I by SW 8015B	Amount Found [A]	True Amount [B]	Recovery %R	Control Limits %R	Flags
		Analytes			[D]		
1-Chlorooctan	e		128	99.8	128	70-130	
o-Terphenyl			57.5	49.9	115	70-130	
Lab Batch #:	990323	Sample: 526801-001 SD / M	ISD Batcl	h: 1 Matrix	: Soil		
Units:	mg/kg	Date Analyzed: 03/15/16 13:53	SU	RROGATE R	ECOVERY	STUDY	
	BTE	X by EPA 8021B Analytes	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
1,4-Difluorobe	enzene		0.0275	0.0300	92	80-120	
4-Bromofluoro	obenzene		0.0336	0.0300	112	80-120	
Lab Batch #:		Sample: 526801-001 SD / N					
Units:	mg/kg	Date Analyzed: 03/15/16 14:25	SU	RROGATE R	ECOVERYS	STUDY	
	TPF	I by SW 8015B	Amount Found [A]	True Amount [B]	Recovery %R	Control Limits %R	Flags
		Analytes			[D]		
1-Chlorooctan	e		129	100	129	70-130	
o-Terphenyl			55.7	50.0	111	70-130	

\* Surrogate outside of Laboratory QC limits

\*\* Surrogates outside limits; data and surrogates confirmed by reanalysis

\*\*\* Poor recoveries due to dilution

Surrogate Recovery [D] = 100 \* A / B



### **BS / BSD Recoveries**





Work Order #: 526802							Pro	ject ID:	725010112	096	
Analyst: PJB	D	ate Prepai	red: 03/15/20	16			Date A	nalyzed:	03/15/2016		
Lab Batch ID: 990323 Sample: 706394-1	-BKS	Bate	<b>h #:</b> 1					Matrix:	Solid		
Units: mg/kg		BLAN	K /BLANK	SPIKE / 2	BLANK	SPIKE DUP	LICATE	RECOV	ERY STUI	DY	
BTEX by EPA 8021B Analytes	Blank Sample Result [A]	Spike Added [B]	Blank Spike Result [C]	Blank Spike %R [D]	Spike Added [E]	Blank Spike Duplicate Result [F]	Blk. Spk Dup. %R [G]	RPD %	Control Limits %R	Control Limits %RPD	Flag
Benzene	<0.00150	0.100	0.0840	84	0.100	0.0827	83	2	70-130	35	
Toluene	<0.00200	0.100	0.0831	83	0.100	0.0829	83	0	70-130	35	
Ethylbenzene	<0.00200	0.100	0.0877	88	0.100	0.0850	85	3	71-129	35	
m,p-Xylenes	<0.00200	0.200	0.184	92	0.200	0.178	89	3	70-135	35	-
o-Xylene	< 0.00300	0.100	0.0854	85	0.100	0.0831	83	3	71-133	35	
Analyst: MNR	D	ate Prepai	red: 03/15/20	16	1		Date A	nalyzed:	03/15/2016	1	
Lab Batch ID: 990333 Sample: 706395-1	-BKS	Bate	<b>h #:</b> 1					Matrix:	Solid		
Units: mg/kg		BLAN	K /BLANK	SPIKE /	BLANK	SPIKE DUP	LICATE	RECOV	ERY STUI	DY	
Inorganic Anions by EPA 300/300.1	Blank Sample Result [A]	Spike Added [B]	Blank Spike Result [C]	Blank Spike %R [D]	Spike Added [E]	Blank Spike Duplicate Result [F]	Blk. Spk Dup. %R [G]	RPD %	Control Limits %R	Control Limits %RPD	Flag
Analytes											<u> </u>
Chloride	<2.00	50.0	48.1	96	50.0	48.0	96	0	90-110	20	

Relative Percent Difference RPD =  $200^{*}|(C-F)/(C+F)|$ Blank Spike Recovery [D] =  $100^{*}(C)/[B]$ Blank Spike Duplicate Recovery [G] =  $100^{*}(F)/[E]$ All results are based on MDL and Validated for QC Purposes



### **BS / BSD Recoveries**



Project Name: 30137 #3, #4, #5

Work Order	#: 526802							Pro	ect ID: 7	7250101120	096	
Analyst:	ARM	Da	ate Prepai	red: 03/15/201	.6			Date A	nalyzed: (	3/15/2016		
Lab Batch ID:	990381 Sample: 706407-1-E	BKS	Bate	<b>h #:</b> 1					Matrix: S	Solid		
Units:	mg/kg		BLAN	K /BLANK S	SPIKE / 1	BLANK S	SPIKE DUPI	LICATE	RECOVI	ERY STUE	ΟY	
	TPH by SW 8015B	Blank Sample Result [A]	Spike Added	Blank Spike Result	Blank Spike %R	Spike Added	Blank Spike Duplicate	Blk. Spk Dup. %R	RPD %	Control Limits %R	Control Limits %RPD	Flag
Analy	tes		[ <b>B</b> ]	[C]	[D]	[E]	Result [F]	[G]				
C6-C10 Ga	asoline Range Hydrocarbons	<25.0	1000	818	82	1000	875	88	7	75-125	35	
C10-C28 E	Diesel Range Hydrocarbons	<25.0	1000	851	85	1000	920	92	8	75-125	35	

Relative Percent Difference RPD =  $200^{*}|(C-F)/(C+F)|$ Blank Spike Recovery [D] =  $100^{*}(C)/[B]$ Blank Spike Duplicate Recovery [G] =  $100^{*}(F)/[E]$ All results are based on MDL and Validated for QC Purposes

Received by	OCD:	4/12/2023	7:12:17 AM

RATORIES





Project Name: 30137 #3, #4, #5

Work Order #: 526802 Lab Batch #: 990333 **Date Analyzed:** 03/15/2016 QC-Repo

### Project ID: 725010112096

<b>Date Analyzed:</b> 03/15/2016 <b>Date</b>	Prepared: 03/1	5/2016	A	Analyst: M	INR	
<b>QC- Sample ID:</b> 526801-005 S	<b>Batch #:</b> 1			Matrix: S	oil	
Reporting Units: mg/kg	MATI	RIX / MA	TRIX SPIKE	RECO	VERY STU	DY
Inorganic Anions by EPA 300	Parent Sample Result [A]	Spike Added [B]	Spiked Sample Result [C]	%R [D]	Control Limits %R	Flag
Analytes			5.47		00.120	
Chloride	65.5	500	547	96	80-120	
Lab Batch #: 990333						
Date Analyzed: 03/15/2016 Date	Prepared: 03/1	5/2016	A	Analyst: M	INR	
<b>QC- Sample ID:</b> 526802-002 S	Batch #: 1			Matrix: S	oil	
Reporting Units: mg/kg	MATI	RIX / MA	TRIX SPIKE	RECO	VERY STU	DY
Inorganic Anions by EPA 300 Analytes	Parent Sample Result [A]	Spike Added [B]	Spiked Sample Result [C]	%R [D]	Control Limits %R	Flag
Chloride	254	500	747	99	80-120	

Matrix Spike Percent Recovery [D] = 100\*(C-A)/B Relative Percent Difference [E] = 200\*(C-A)/(C+B)All Results are based on MDL and Validated for QC Purposes

BRL - Below Reporting Limit



#### Form 3 - MS / MSD Recoveries



#### Project Name: 30137 #3, #4, #5

Work Order # :	526802						Project II	<b>):</b> 725010	0112096			
Lab Batch ID:	990323	QC- Sample ID:	526801	-001 S	Ba	tch #:	1 Matrix	<b>k:</b> Soil				
Date Analyzed:	03/15/2016	Date Prepared:	03/15/2	016	An	alyst: F	уB					
<b>Reporting Units:</b>	mg/kg		Ν	IATRIX SPIK	E / MAT	RIX SPI	KE DUPLICA	TE REC	OVERY	STUDY		
	BTEX by EPA 8021B	Parent Sample Result	Spike Added	Spiked Sample Result [C]	Spiked Sample %R	Spike Added	Duplicate Spiked Sample Result [F]	Spiked Dup. %R	RPD %	Control Limits %R	Control Limits %RPD	Flag
	Analytes	[A]	[B]	[0]	[D]	[E]	Kesun [F]	[G]	/0	701	70KI D	
Benzene		<0.00144	0.0962	0.0939	98	0.0962	0.0616	64	42	70-130	35	XF
Toluene		0.00209	0.0962	0.0978	99	0.0962	0.0651	65	40	70-130	35	XF
Ethylbenzene		<0.00192	0.0962	0.108	112	0.0962	0.0719	75	40	71-129	35	F
m,p-Xylenes		0.00228	0.192	0.227	117	0.192	0.153	79	39	70-135	35	F
o-Xylene		<0.00288	0.0962	0.108	112	0.0962	0.0717	75	40	71-133	35	F
Lab Batch ID:	990381	QC- Sample ID:	526801	-001 S	Ba	tch #:	1 Matrix	<b>x:</b> Soil				
Date Analyzed:	03/15/2016	Date Prepared:	03/15/2	016	An	alyst: A	ARM					
<b>Reporting Units:</b>	mg/kg		N	IATRIX SPIK	E / MAT	RIX SPI	KE DUPLICA	TE REC	OVERY	STUDY		
	TPH by SW 8015B	Parent Sample Result	Spike	Spiked Sample Result	Sample	-	Duplicate Spiked Sample		RPD	Control Limits	Control Limits	Flag
	Analytes	[A]	Added [B]	[C]	%R [D]	Added [E]	Result [F]	%R [G]	%	%R	%RPD	
C6-C10 Gasoli	ne Range Hydrocarbons	<25.0	998	921	92	1000	926	93	1	75-125	35	

<25.0

998

1070

Matrix Spike Percent Recovery  $[D] = 100^{\circ}(C-A)/B$ Relative Percent Difference RPD =  $200^{\circ}[(C-F)/(C+F)]$ 

C10-C28 Diesel Range Hydrocarbons

Matrix Spike Duplicate Percent Recovery [G] = 100\*(F-A)/E

107

1000

1040

ND = Not Detected, J = Present Below Reporting Limit, B = Present in Blank, NR = Not Requested, I = Interference, NA = Not Applicable N = See Narrative, EQL = Estimated Quantitation Limit, NC = Non Calculable - Sample amount is > 4 times the amount spiked.

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3

35

75-125



Final 1.000

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.

Received by OCD: 4/12/2023 7:12:17 AM



### **XENCO Laboratories**



Prelogin/Nonconformance Report- Sample Log-In

Client: APEX/Titan	Acceptable Temperature Range: 0 - 6 degC
Date/ Time Received: 03/15/2016 08:40:00 AM	Air and Metal samples Acceptable Range: Ambient
Work Order #: 526802	Temperature Measuring device used : r8
Sample Rece	pt Checklist Comments
#1 *Temperature of cooler(s)?	2.9
#2 *Shipping container in good condition?	Yes
#3 *Samples received on ice?	Yes
#4 *Custody Seals intact on shipping container/ cooler?	N/A
#5 Custody Seals intact on sample bottles?	N/A
#6 *Custody Seals Signed and dated?	N/A
#7 *Chain of Custody present?	Yes
#8 Sample instructions complete on Chain of Custody?	Yes
#9 Any missing/extra samples?	Νο
#10 Chain of Custody signed when relinquished/ received?	Yes
#11 Chain of Custody agrees with sample label(s)?	Yes
#12 Container label(s) legible and intact?	Yes
#13 Sample matrix/ properties agree with Chain of Custody?	Yes
#14 Samples in proper container/ bottle?	Yes
#15 Samples properly preserved?	Yes
#16 Sample container(s) intact?	Yes
#17 Sufficient sample amount for indicated test(s)?	Yes
#18 All samples received within hold time?	Yes
#19 Subcontract of sample(s)?	Νο
#20 VOC samples have zero headspace (less than 1/4 inch	bubble)? N/A
#21 <2 for all samples preserved with HNO3,HCL, H2SO4? samples for the analysis of HEM or HEM-SGT which are verif analysts.	
#22 >10 for all samples preserved with NaAsO2+NaOH, ZnA	c+NaOH? N/A

#### \* Must be completed for after-hours delivery of samples prior to placing in the refrigerator

Analyst:

PH Device/Lot#:

Date: 03/15/2016

 Checklist completed by:
 Carley Owens

 Carley Owens
 Carley Owens

 Checklist reviewed by:
 Mass Moath

 Kelsey Brooks
 Kelsey Brooks

Date: 03/15/2016



APPENDIX E

Initial C-141 Documentation

Received by OCD:	4/	12/2	023	7 <b>:1</b>	2:17	AM
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ceived by OCD: 4/12/2023 7:12:17 AM	Page 184 of
	NM OIL CONSERVATION ARTESIA DISTRICT
District II Energy M	tate of New Mexico FEB <b>2 4</b> 2015 Form C-141 Revised August 8, 2011
District IV 1220	Conservation Division 0 South St. Francis Dr.
1220 C. Dt. Press in D. Conta E. MD. Office	anta Fe, NM 87505
	cation and Corrective Action
NAB1506228797	<b>OPERATOR</b> Initial Report Final Report
Name of Company Enterprise Field Services LLC PO Box 4324, Houston, TX 77210	Contact         Dina Babinski           Telephone No.         210-528-3824
Facility Name Pipeline ROW, 30137 Gathering Late.	
Surface Owner State of New Mexico Mineral	Owner NA - Pipeline Lease No. NA
LOC	ATION OF RELEASE
Unit LetterSectionTownshipRangeFeet from theO1319S28E97	North/South Line         Feet from the         East/West Line         County           South         562         West         Eddy
Latitude: <u>N</u>	· .
NA           Type of Release Natural Gas, Pipeline Liquids	TURE OF RELEASE           Volume of Release: 1581 MCF,         Volume Recovered: N/A
Source of Release Pipeline Leak.	3 BBL Liquids         Date and Hour of Occurrence         Date and Hour of Discovery           02/15/2015 @ 09:10 MST         02/15/2015 @ 09:10 MST
Was Immediate Notice Given?	If YES, To Whom?
By Whom? Dina Babinski	Date and Hour 02/15/2015 @ 12:43 MST
Was a Watercourse Reached?	If YES, Volume Impacting the Watercourse.
If a Watercourse was Impacted, Describe Fully.*	
Describe Cause of Problem and Remedial Action Taken.*	
Pipeline leak was detected by pipeline technician. Pipeline seg	ment was clamped and blown down, and leaking portion was repaired.
Describe Area Affected and Cleanup Action Taken.* Liquid spill occurred within pipeline ROW. Cleanup activities a cleanup is satisfactory.	are currently being performed and additional sampling has been requested to confirm
I hereby certify that the information given above is true and com- regulations all operators are required to report and/or file certain public health or the environment. The acceptance of a C-141 rep should their operations have failed to adequately investigate and	plete to the best of my knowledge and understand that pursuant to NMOCD rules and release notifications and perform corrective actions for releases which may endanger port by the NMOCD marked as "Final Report" does not relieve the operator of liability remediate contamination that pose a threat to ground water, surface water, human health I report does not relieve the operator of responsibility for compliance with any other
	OIL CONSERVATION DIVISION
Signature: Ivan W. Zirbes	Approved by Districe Supervisor Mile Branciscon
Title: Sr. Director, Field Environmental	Approval Date: 3315 Expiration Date: NA
E-mail Address: snolan@eprod.com	Conditions of Approval:
Date: 2-24-2015 Phone: 713-381-6595	Remediation per O.C.D. Rules & Guidelines
Attach Additional Sheets If Necessary	LATER THAN: 413115 2RP-2846

Received the Ocopted 2023 Inital Raport only		eived 8/7/15 IOCD Dist 2	Page 185 of 189
District II Energy Mineral	of New Mexico Is and Natural Resource		Form C-141 Revised August 8, 2011
District IV 1220 Sou	ervation Division th St. Francis Dr. Fe, NM 87505	Submit 1 Cop a	y to appropriate District Office in ccordance with 19,15,29 NMAC.
fAB1432841543 Release Notification		Action	· · · · · · · · · · · · · · · · · · ·
nMLB1521930490	OPERATOR	_	
Name of Company Enterprise Field Services LLC		erguson	ial Report - Final Report
PO Box 4324, Houston, TX 77210	Telephone No. 210-528		
Facility Name Pipeline ROW, 30137 Gathering Lateral	Facility Type: Gas Gas		
Surface Owner State of New Mexico Mineral Owner	NA - Pipeline	Lease 1	No. NA
LOCATIO	ON OF RELEASE		
Unit LetterSectionTownshipRangeFeet from theNorO1319S28E97	th/South Line Feet from th South 562	ne East/West Line West	County Eddy
Latitude: <u>N 32.65386</u>	<u>6</u> Longitude: <u><i>W-104</i>.</u>	<u>12857</u>	
	E OF RELEASE		
Type of Release Natural Gas, Pipeline Liquids	Volume of Release: 1,25 2 BBL Liquids		Recovered: N/A
Source of Release <i>Pipeline Leak</i> .	Date and Hour of Occurr 04/29/2015 @ 10:05 ML		Hour of Discovery 15 @ 10:05 MDT
Was Immediate Notice Given?	If YES, To Whom?		
By Whom? Osman De Leon	Date and Hour 04/29/2		· · · · · · · · · · · · · · · · · · ·
Was a Watercourse Reached?	If YES, Volume Impacti		
If a Watercourse was Impacted, Describe Fully.*			
Describe Cause of Problem and Remedial Action Taken *			
Pipeline leak was detected by pumper passing by. Pipeline segment was standard One-Call.	as clamped and blown down,	and leaking portion v	was repaired following
Describe Area Affected and Cleanup Action Taken.* Liquid spill occurred within pipeline ROW. Clean-up activities will be Response and Remediation Plan according to housekeeping standards documentation, and will make available to NMOCD upon request.	. Enterprise will maintain re	cords of sampling res	ults and disposal
I hereby certify that the information given above is true and complete to regulations all operators are required to report and/or file certain release public health or the environment. The acceptance of a C-141 report by t should their operations have failed to adequately investigate and remedia or the environment. In addition, NMOCD acceptance of a C-141 report federal, state, or local laws and/or regulations.	notifications and perform con he NMOCD marked as "Fina tte contamination that pose a does not relieve the operator	rective actions for rele al Report" does not reli threat to ground water of responsibility for co	eases which may endanger eve the operator of liability , surface water, human health ompliance with any other
Signature: Jon Kuldo		NSERVATION	
Printed Name: Jon E. Fields	Approved by District Super	visor: Accepted as	Initial Report only
Title: Director, Field Environmental	Approval Date: 8/7/15	Expiration I	Date:
E-mail Address: jefields@eprod.com	Conditions of Approval: Re OCD Rules and Gui		Attached
Date: <u>J-/J-70/5</u> Phone: 713-381-6684 * Attach Additional Sheets If Necessary			2RP-3191

eived by OCD: 4/12/2023 7:12:17 AREV	/ISED		Rec'd 8/12	/2015 Page 186 0
District I 625 N. French Dr., Hobbs, NM 88240 <u>District II</u>		of New Mexico Is and Natural Resources	NMOCD	Dist 2 Form C-3 Revised August 8, 2
301 W. Grand Avenue, Artesia, NM 88210 Vistrict III		ervation Division		
000 Rio Brazos Road, Aztec, NM 87410 vistrict IV		th St. Francis Dr.	Sublint 1 C	ppy to appropriate District Offic accordance with 19.15.29 NM
220 S. St. Francis Dr., Santa Fe, NM 87505		Fe, NM 87505		
AB1432841543 Relea		on and Corrective	Action	
MLB1521930490		OPERATOR	🛛 In	itial Report 🛛 Final Re
Name of Company Enterprise Field Service.		Contact Dina Fe		
PO Box 4324, Houston, Facility Name Pipeline ROW, 30137 Ga		Telephone No. 210-528-		·····
		Facility Type: Gas Gath	ering Pipeline	
urface Owner State of New Mexico	Mineral Owner	NA - Pipeline	Lease	e No. NA
		ON OF RELEASE		
Init LetterSectionTownshipRangeH01319S28E	Feet from the Nort	h/South Line Feet from the <b>South</b> 562	East/West Line	e County <i>Eddy</i>
La	ititude: <u>N 32.65386</u>	Longitude: <u>W-104.1</u> 2		
		E OF RELEASE		
ype of Release Natural Gas, Pipeline Liquids		Volume of Release: 1,257 8.5 BBL Liquids (updated		e Recovered: N/A
ource of Release Pipeline Leak.		Date and Hour of Occurre	nce Date ar	d Hour of Discovery
/as Immediate Notice Given?		04/29/2015 @ 10:05 MD1 If YES, To Whom?	04/29/2	015 @ 10:05 MDT
	No 🔲 Not Required	Mike Bratcher – NMOCL	) District 2	
K-N 100 1				
y Whom? Osman De Leon /as a Watercourse Reached?		Date and Hour 04/29/20 If YES, Volume Impacting	15@ 12:43 MDT	
y Whom? Osman De Leon Vas a Watercourse Reached?		Date and Hour 04/29/20	15@ 12:43 MDT	
y Whom? Osman De Leon Vas a Watercourse Reached?		Date and Hour 04/29/20	15@ 12:43 MDT	
y Whom? Osman De Leon Vas a Watercourse Reached? Yes X M 'a Watercourse was Impacted, Describe Fully.*	No	Date and Hour 04/29/20	15@ 12:43 MDT	
y Whom? Osman De Leon Vas a Watercourse Reached? Yes X M a Watercourse was Impacted, Describe Fully.*	No	Date and Hour 04/29/20	15@ 12:43 MDT	······································
y Whom? Osman De Leon /as a Watercourse Reached?	Vo 'aken.*	Date and Hour 04/29/20 If YES, Volume Impacting	15 @ 12:43 MDT g the Watercourse.	
y Whom? Osman De Leon Vas a Watercourse Reached? a Watercourse was Impacted, Describe Fully.* escribe Cause of Problem and Remedial Action T ipeline leak was detected by pumper passing by. andard One-Call.	No 'aken.* <b>Pipeline segment wa</b>	Date and Hour 04/29/20 If YES, Volume Impacting	15 @ 12:43 MDT g the Watercourse.	
y Whom? Osman De Leon 'as a Watercourse Reached? a Watercourse was Impacted, Describe Fully.* escribe Cause of Problem and Remedial Action T peline leak was detected by pumper passing by. andard One-Call. escribe Area Affected and Cleanup Action Taken. quid spill occurred within pipeline ROW. Clean.	Vo 'aken.* Pipeline segment wa * -up activities will be o	Date and Hour 04/29/20 If YES, Volume Impacting s clamped and blown down, a	15 @ 12:43 MDT g the Watercourse. and leaking portion b Enterprise's Gen	a was repaired following
y Whom? Osman De Leon 'as a Watercourse Reached? Yes X M a Watercourse was Impacted, Describe Fully.* escribe Cause of Problem and Remedial Action T peline leak was detected by pumper passing by. undard One-Call. escribe Area Affected and Cleanup Action Taken. quid spill occurred within pipeline ROW. Clean- esponse and Remediation Plan (dated March 9, 2)	No aken.* Pipeline segment wa .* -up activities will be a 2015). Operations pe	Date and Hour 04/29/20 If YES, Volume Impacting s clamped and blown down, a carried out in accordance with rsonnel originally estimated a	15 @ 12:43 MDT g the Watercourse. and leaking portion b Enterprise's Gen approximately 2 bh	a was repaired following neral release Notification,
Whom? Osman De Leon as a Watercourse Reached? Yes N a Watercourse was Impacted, Describe Fully.* escribe Cause of Problem and Remedial Action T peline leak was detected by pumper passing by. andard One-Call. escribe Area Affected and Cleanup Action Taken. quid spill occurred within pipeline ROW. Clean- sponse and Remediation Plan (dated March 9, 2 pound within pipeline right-of-way. After further peline liquids. NMOCD Reference 2RP-3191.	Vo 'aken.* Pipeline segment wa * -up activities will be of 2015). Operations per investigation and exc	Date and Hour 04/29/20 If YES, Volume Impacting as clamped and blown down, a carried out in accordance with rsonnel originally estimated a cavation, it was determined th	15 @ 12:43 MDT g the Watercourse. and leaking portion the Enterprise's Gen approximately 2 bb bat the liquid spill	a was repaired following neral release Notification, l pipeline liquids spilled to the volume is approximately 8.5 bbl
Whom? Osman De Leon as a Watercourse Reached? Yes N a Watercourse was Impacted, Describe Fully.* escribe Cause of Problem and Remedial Action T peline leak was detected by pumper passing by. andard One-Call. Escribe Area Affected and Cleanup Action Taken. quid spill occurred within pipeline ROW. Clean- sponse and Remediation Plan (dated March 9, 2 pound within pipeline right-of-way. After further peline liquids. NMOCD Reference 2RP-3191. ereby certify that the information given above is	Vo 'aken.* Pipeline segment wa * -up activities will be of 2015). Operations per investigation and exc true and complete to	Date and Hour 04/29/20 If YES, Volume Impacting as clamped and blown down, a carried out in accordance with rsonnel originally estimated a cavation, it was determined the	15 @ 12:43 MDT g the Watercourse. and leaking portion the Enterprise's Gen approximately 2 bb bat the liquid spill understand that put	a was repaired following neral release Notification, I pipeline liquids spilled to the wolume is approximately 8.5 bbi
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# NM OIL CONSERVATION

Page 187 of 189

District I			ARTESIA DISTRICT
1625 N. French Dr., Hobbs, NM 88240 <u>District II</u> 1301 W. Grand Avenue, Artesia, NM 88210		New Mexico and Natural Resources	JUN 1.0 2015 Form C-141 Revised August 8, 2011
District III District III District III District IV 1220 S. St. Francis Dr., Santa Fe, NM 87505	1220 South	rvation Division h St. Francis Dr. e, NM 87505	Supple CEIVED appropriate District Office ir accordance with 19,15,29 NMAC
FAB143284154.3 R	elease Notification	n and Corrective Ad	ction
NAB1516226673		<b>OPERATOR</b>	🛛 Initial Report 🛛 Final Repo
Name of Company Enterprise Field Se		Contact Dina Fergu	ison
PO Box 4324, Hou		Telephone No. 210-528-382	
Facility Name Pipeline ROW, 301.		Facility Type: Gas Gatheri	ing Pipeune
Surface Owner State of New Mexic	o Mineral Owner	NA - Pipeline	Lease No. NA
	LOCATIO	N OF RELEASE	
Unit Letter Section Township Ran		South Line Feet from the	East/West Line County
<u>0 13 19S 28</u> .		South 388	West Eddy
	Latitude: <u>N 32.653899</u>	Longitude: <u>W-104.1291</u>	<u>86</u>
		OF RELEASE	
Type of Release Natural Gas, Pipeline Liq	uids	Volume of Release: 1,574 M 3 BBL Liquids	CF, Volume Recovered: N/A
Source of Release Pipeline Leak.	······································	Date and Hour of Occurrence	e Date and Hour of Discovery
	······	06/08/2015 @ 8:50 MDT	06/08/2015 @ 9:38 MDT
Was Immediate Notice Given?	No Not Required	If YES, To Whom? Mike Bratcher NMOCD D	District 2
By Whom? Osman De Leon		Date and Hour 06/08/2015	@. 9:38 MDT
Was a Watercourse Reached?		If YES, Volume Impacting th	
Yes	-		
If a Watercourse was Impacted, Describe Fu	{]v.≠		
Describe Cause of Problem and Remedial A	·		
Describe Cause of Problem and Remedial A	ction Taken.*	t was clamped and blown down	t, and leaking portion will be repaired following
Describe Cause of Problem and Remedial A <b>Pipeline leak was detected by an Enterprise</b> <b>standard One-Call.</b> Describe Area Affected and Cleanup Action <i>Liquid spill occurred within pipeline ROW.</i> <b>Response and Remediation Plan according</b> <b>documentation, and will make available to</b> I hereby certify that the information given al regulations all operators are required to repo public health or the environment. The accept should their operations have failed to adequator or the environment. In addition, NMOCD accepts of the second	ction Taken.* Inspector. Pipeline segment Taken.* Clean-up activities will be c as defined in the housekeep NMOCD upon request. NOVE is true and complete to t rt and/or file certain release n tance of a C-141 report by th tely investigate and remediat coeptance of a C-141 report d	arried out in accordance with E ing standards. Enterprise will n he best of my knowledge and un totifications and perform correct e NMOCD marked as "Final Re ce contamination that pose a thre	Enterprise's General release Notification, maintain records of sampling results and disposal inderstand that pursuant to NMOCD rules and tive actions for releases which may endanger eport" does not relieve the operator of liability eat to ground water, surface water, human health
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eived by OCD: 4/12/2023 7:12:17 AM		NM OIL CONSERVATION ARTESIA DISTRICT	Page 188 of
625 N. French Dr., Hopps, NM 88240	e of New Mexico rals and Natural Resource		Form C-141 vised August 8, 2011
District III         Oil Col           000 Rio Brazos Road, Aztec, NM 87410         1220 St           District IV         1220 St	nservation Division outh St. Francis Dr. a Fe, NM 87505	Sulnet Ceantry appropriat	te District Office in h 19.15.29 NMAC.
	tion and Corrective	Action	and the second
NAB1519449044	OPERATOR	Initial Report	Final Report
Name of Company Enterprise Field Services LLC	Contact Dina F	erguson	
PO Box 4324, Houston, TX 77210           Facility Name         Pipeline ROW, 30137 Gathering Lateral	Telephone No. 210-528           Facility Type:         Gas Gas		
Surface Owner State of New Mexico Mineral Own	······	Lease No. NA	
	ION OF RELEASE	E-Alling County	
Unit LetterSectionTownshipRangeFeet from theN01319S28E70	Iorth/South Line Feet from th South 388	te East/West Line County West Eddy	ي. بري
Latitude: <u>N 32,653</u>	899 Longitude: <u><i>W-104.</i></u>	129186	
	RE OF RELEASE	tern <u>aldelinings</u> y	. •
Type of Release Natural Gas, Pipeline Liquids	Volume of Release: 1,52 3 BBL Liquids		
Source of Release Pipeline Leak.	Date and Hour of Occur 07/02/2015 @ 8:50 MD		
Was Immediate Notice Given?	If YES, To Whom?		
Yes No Not Requ			-mail)
By Whom? Osman De Leon Was a Watercourse Reached?	If YES, Volume Impact	2015 @ 13:16 MDT <b>* [] 8/15</b>	434110
🗌 Yes 🛛 No			-
If a Watercourse was Impacted, Describe Fully.*	J	· · · · · · · · · · · · · · · · · · ·	. :
Describe Cause of Problem and Remedial Action Taken.*			
Pipeline leak was detected by an Enterprise Inspector. Pipeline seg standard One-Call.	ment was clamped and blown o	down, and leaking portion was repa	ired following
Describe Area Affected and Cleanup Action Taken.*			
Liquid spill occurred within pipeline ROW. Clean-up activities will			
Response and Remediation Plan (dated March 9, 2015) as defined a and disposal documentation, and will make available to NMOCD u		Enterprise will maintain records of	f sampling results
I hereby certify that the information given above is true and complete regulations all operators are required to report and/or file certain rele-	to the best of my knowledge as		
public health or the environment. The acceptance of a C-141 report l	by the NMOCD marked as "Fina	al Report" does not relieve the opera	tor of liability
should their operations have failed to adequately investigate and remore the environment. In addition, NMOCD acceptance of a C-141 rep			
federal, state, or local laws and/or regulations.	on does not reneve the operator		
J + 11	OIL CO	ONSERVATION DIVISION	N
Signature: Jon Vuldo	Signed B	V Phily Desonses	
Printed Name: Jon E. Fields	Approved by District Supe	rvisor:	-
Title: Director, Fleld Environmental	Approval Date: 1113	Expiration Date: N	A-
E-mail Address: jeflelds@eprod.com	Conditions of Approval	Attached	
	Conditions of Approval	INAL Attached	

District I 1625 N. French Dr., Hobbs, NM 88240 Phone:(575) 393-6161 Fax:(575) 393-0720 District II

811 S. First St., Artesia, NM 88210 Phone:(575) 748-1283 Fax:(575) 748-9720

District III

1000 Rio Brazos Rd., Aztec, NM 87410 Phone:(505) 334-6178 Fax:(505) 334-6170

District IV 1220 S. St Francis Dr., Santa Fe, NM 87505 Phone: (505) 476-3470 Fax: (505) 476-3462

### **State of New Mexico Energy, Minerals and Natural Resources Oil Conservation Division** 1220 S. St Francis Dr. Santa Fe, NM 87505

CONDITIONS

Operator:	OGRID:
ENTERPRISE PRODUCTS OPERATING, LLC	374092
P.O. BOX 4324	Action Number:
HOUSTON, TX 77210	206593
	Action Type:
	[IM-SD] Incident File Support Doc (ENV) (IM-BNF)

#### CONDITIONS

Created By		Condition Date
amaxwell	None	4/13/2023

Action 206593