District I 1625 N. French Dr., Hobbs, NM 88240 District II 811 S. First St., Artesia, NM 88210 District III 1000 Rio Brazos Road, Aztec, NM 87410 District IV 1220 S. St. Francis Dr., Santa Fe, NM 87505

State of New Mexico Energy Minerals and Natural Resources Department

Oil Conservation Division 1220 South St. Francis Dr. Santa Fe, NM 87505 Form C-141 Revised August 24, 2018 Submit to appropriate OCD District office

Incident ID	
District RP	
Facility ID	
Application ID	

Closure

The responsible party must attach information demonstrating they have complied with all applicable closure requirements and any conditions or directives of the OCD. This demonstration should be in the form of a comprehensive report (electronic submittals in .pdf format are preferred) including a scaled site map, sampling diagrams, relevant field notes, photographs of any excavation prior to backfilling, laboratory data including chain of custody documents of final sampling, and a narrative of the remedial activities. Refer to 19.15.29.12 NMAC.

Closure Report Attachment Checklist: Each of the following items must be included in the closure report.

A scaled site and sampling diagram as described in 19.15.29.11 NMAC

Photographs of the remediated site prior to backfill or photos of the liner integrity if applicable (Note: appropriate OCD District office must be notified 2 days prior to liner inspection)

Laboratory analyses of final sampling (Note: appropriate ODC District office must be notified 2 days prior to final sampling)

Description of remediation activities

I hereby certify that the information given above is true and complete to the best of my knowledge and understand that pursuant to OCD 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 OCD does not relieve the operator of liability should their operations have failed to adequately investigate and remediate contamination that pose a threat to groundwater, surface water, human health or the environment. In addition, OCD acceptance of a C-141 report does not relieve the operator of responsibility for compliance with any other federal, state, or local laws and/or regulations. The responsible party acknowledges they must substantially restore, reclaim, and re-vegetate the impacted surface area to the conditions that existed prior to the release or their final land use in accordance with 19.15.29.13 NMAC including notification to the OCD when reclamation and re-vegetation are complete.

Printed Nar	ne: <u>Robert Dunaway</u>	Title: Senior Environmental Engineer
Signature:	Kim	Date: 4/19/23
email:	rhdunaway@eprod.com	Telephone: 575-628-6802

Received by OCD.	: 4/19/2023 7:30:52 AM state of New Mexico			Page 2 of 190
			Incident ID	
Page 2	Oil Conservation Division		District RP	
			Facility ID	
			Application ID	
OCD Only Received by:	OCD	Date: _	4/19/2023	
remediate contami	by the OCD does not relieve the responsible party of liabi ination that poses a threat to groundwater, surface water, h ce with any other federal, state, or local laws and/or regul	uman he	ld their operations have failed alth, or the environment nor do	to adequately investigate and bes not relieve the responsible
Closure Approved	by: Ashley Maxwell	Dates	4/19/2023	
Printed Name:	Ashley Maxwell	Title	Environmental Special	ist



CORRECTIVE ACTION REPORT

Property:

30137 Pipeline Releases SW¼ SE ¼, 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-3193 (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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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	Ť
	<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.



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Corrective Action Report	Page 9
30137 Pipeline Releases	

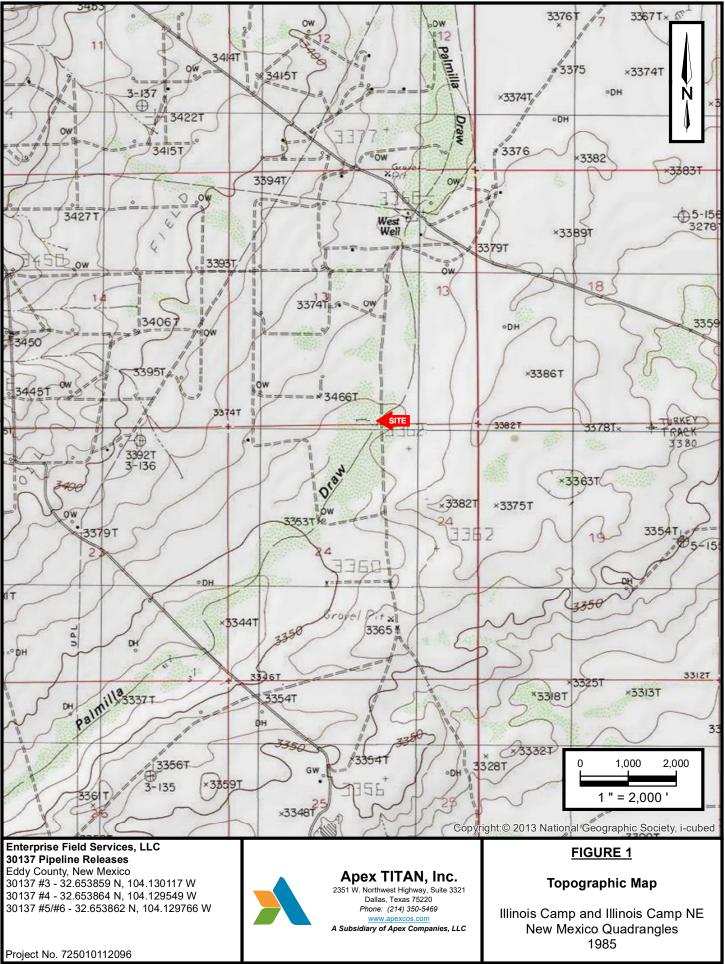
- The primary objective of the corrective actions completed at the Site was to reduce the concentration of COCs in the on-Site soils to below the New Mexico EMNRD OCD *RRALs* using the New Mexico EMNRD OCD's *Guidelines for Remediation of Leaks, Spills and Releases* as guidance.
- On-Site remediation 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



P:\Drafting\2016\725010112096\Figure 1.mxd 5/6/2016 NAD 1983 2011 StatePlane New Mexico East FIPS 3001 Ft US Projected Coordinate System



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



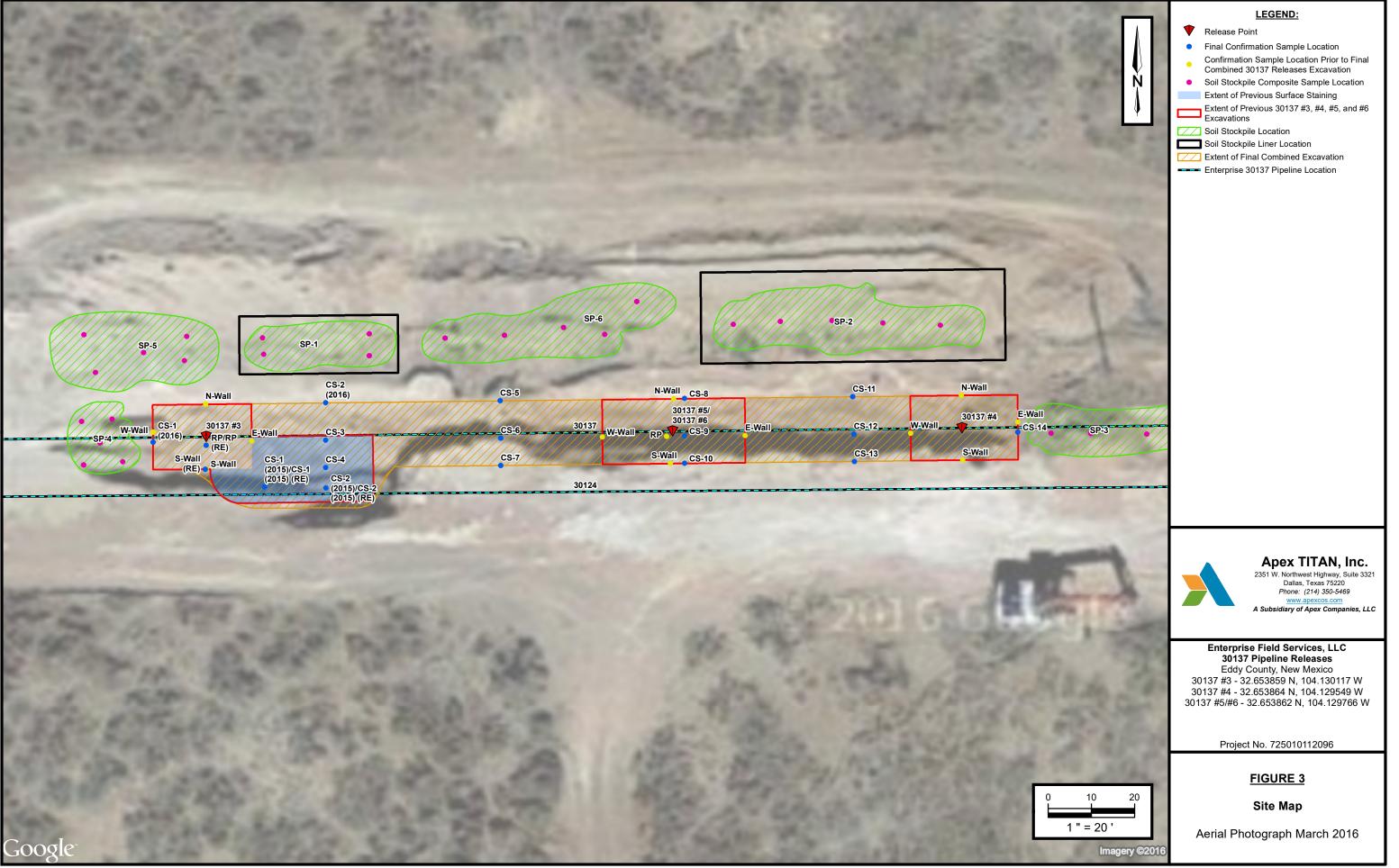
Apex TITAN, Inc. 2351 W. Northwest Highway, Suite 3321 Dallas, Texas 75220 Phone: (214) 350-5469 www.apexcos.com A Subsidiary of Apex Companies, LLC FIGURE 2

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



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: 4/19/2023 8:21:30 AM Page 17 of 190



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 NALYTICAL RI	ESULTS					
				30137 Pip	eline Releases	\$					
		Ormalia Danith	Demonstra	Talaana	Educility	Yelener	Total	TPH	TPH	TPH	Oblasia
Sample I.D.	Sample Date	Sample Depth (feet bgs)	Benzene (mg/Kg)	Toluene (mg/Kg)	Ethylbenzene (mg/Kg)	Xylenes (mg/Kg)	BTEX	GRO	DRO	GRO/DRO	Chlorid
		((3 3/	(3 3/	(3, 3,	(3' 3'	(mg/Kg)	(mg/Kg)	(mg/Kg)	(mg/Kg)	(mg/Kg
ew Mexico Oil Consei	rvation Division (NM	MOCD) Recommend	ded Remediati	on Action Leve	els (RRALs) (To	tal Ranking Sco	ore: 10)			•	<u> </u>
		,			. ,.	-	,		-		
	Conservation Divisioned Remediation Action	· · ·			NE		50	NE	NE	1,000	500
BKG-1	6/16/2015	6	<0.0200	<0.0200	<0.0200	<0.0200	<0.0200	<4.00	<50.0	<54.0	98.0
BKG-2	6/16/2015	6	<0.0200	<0.0200	0.0517	<0.0200	0.0517	<4.00	<50.0	<54.0	<20.0
		30137 #3	EXCAVATION	CONFIRMATI	ON SOIL SAMPI		L RESULTS	•	•	•	•
W-Wall	2/25/2015	8	0.0665	0.304	0.0500	0.851	1.27	14.5	<50.0	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 ^{Je}	5.54	47.6 ^{.je}	82,5	2,420	<50.0	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)	2/25/2015	2	112	378 ^{.)e}	82.3	346 ^{Je}	918	15,200	320	15,520	3,160
CS-2 (2015) (RE)	3/14/2016	14	< 0.00149	< 0.00199	< 0.00199	< 0.00199	< 0.00149	<24.9	135	135	343
CS-2 (2016)	1/14/2016 2/25/2015	6 8	<0.000990	< 0.00198	<0.000990	<0.000990	<0.000990	<15.0	40.7	40.7	13.7
E-Wall CS-3	1/14/2016	8	0.0214 <0.000998	<0.00200	<0.000998	<0.000998	<0.000998	<15.0	61.1 <15.0	183	1,530 6,74
CS-3 CS-4	1/14/2016	6	<0.000998 0.00150	<0.00200	<0.000998	<0.000998 0.505	<0.000998 0.507	<15.0 149	<15.0 300	<15.0 449	9.42
N-Wall	2/25/2015	8	0.00150	0.0436	<0.000990	0.0334	0.307	<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	11,100
S-Wall (RE)	3/14/2016	8	NS	NS	NS	NS	NS	NS	NS	NS	254
RP	2/25/2015	10	0.0461	<0.0200	0.254	0.511	0.811	90.7	292	383	9,000
R.P. (RE)	3/14/2016	13	NS	NS	NS	NS	NS	NS	NS	NS	403
		30137 #4	EXCAVATION	CONFIRMATI	ON SOIL SAMPI		L RESULTS			-	
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	1/14/2016	6	< 0.000992	<0.00198	<0.000992	< 0.000992	<0.000992	<15.0	<15.0	<15.0	5.75
S-Wall	6/15/2015	6	<0.0200	<0.0200	<0.0200	<0.0200	<0.0200	<4.00	<50.0	<54.0	<20.0
RP	6/15/2015	8	<0.0200	<0.0200	<0.0200	<0.0200	<0.0200	<4.00	<50.0	<54.0	<20.0
		30137 #5	EXCAVATION	CONFIRMATI	ON SOIL SAMPI	E ANALYTICA	L RESULTS				
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	6/15/2015	10	<0.000996	<0.0200 <0.00199	<0.000006	<0.0200	<0.0200	<4.00	<50.0	454.00	5,630
CS-9	1/14/2016	10 6	<0.000996	<0.00199	<0.000996	<0.000996	<0.000996	<15.0	<15.0	<15.0	<2.00
S-Wall CS-10	6/15/2015 1/14/2016	6	<0.000994	<0.00199	<0.000994	<0.000994	<0.000994	<15.0	<15.0	<15.0	2.63
03-10	1/14/2010	0			<0.000994			<10.0	<10.0	< 10.0	2.03
en l	2/25/2045	NIA	1.88		SAMPLE ANAL	129					
SP STP-2	2/25/2015 6/16/2015	NA NA		63.2			224 66.0	3,150	571 676	3,721	1,530
J1F-2	0/10/2015	INA	4,22 30137 #4 STC	20.4	SAMPLE ANAL	34.0 [%]		1,190'*	575	1,765	98.0
STP	6/15/2015	NA	0.0248	0.777	1.13	1.22		314	<50.0	314	588
					SAMPLE ANAL						
STP	6/15/2015	NA	<0.0200	<0.0200	<0.0200	<0.0200	<0.0200	<4.00	<50.0	<54.00	<20.0
		F	<pre>FINAL 30137 ST <0.000996</pre>	-	IPLE SOIL ANA	-	-	45.0	45.0	45.0	
00.4	4/44/0010		 < < < < < < < < 	< 0.00199	< 0.000996	< 0.000996	< 0.000996	<15.0	<15.0	<15.0	364
SP-1	1/14/2016	NA			-0.000000	-0.000000	-0.000000	.45 0	.45.0	.45.0	4 4 4
SP-2	1/14/2016	NA	<0.000996	<0.00199	<0.000996	< 0.000996	<0.000996	<15.0	<15.0	<15.0	141
SP-2 SP-3	1/14/2016 1/14/2016	NA NA	<0.000996 <0.00101	<0.00199 <0.00201	<0.00101	<0.00101	<0.00101	<15.0	<15.0	<15.0	37.0
SP-2	1/14/2016	NA	<0.000996	<0.00199	1		1		1	1	

: 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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800-378-1296

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 Oklahoma ISO 17025 Kansas

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 Lefturich

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)
Aethod Blanks
QC Batch 119724 - Method Blank (1)
QC Batch 119733 - Method Blank (1)
QC Batch 119741 - Method Blank (1)
QC Batch 119761 - Method Blank (1)
QC Batch 119764 - Method Blank (1)
\overrightarrow{QC} Batch 119791 - Method Blank $\overrightarrow{(1)}$
\overrightarrow{QC} Batch 119849 - Method Blank $\overbrace{1}$
Laboratory Control Spikes
QC Batch $119724 - LCS(1) \dots \dots$
QC Batch 119733 - LCS (1)
QC Batch 119741 - LCS (1)
•
QC Batch 119764 - LCS (1)
QC Batch 119791 - LCS (1)
QC Datch 119849 - LCS (1)
Matrix Spikes
QC Batch 119724 - MS (1)
QC Batch 119733 - MS (1)
QC Batch 119741 - MS (1)
QC Batch 119761 - MS (1)

26. QC Batch 119764 - MS (1) 26QC Batch 119791 - MS (1) 27QC Batch 119849 - MS (1) 27**Calibration Standards** 29 29QC Batch 119724 - CCV (1) QC Batch 119724 - CCV (2) 2929QC Batch 119733 - CCV (1) 2929QC Batch 119741 - CCV (1) 30

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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	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

Page Number: 6 of 34

Sample: 387688 -	CS-1							
Laboratory: Midlan	d							
Analysis: BTEX		Analytical		S 80211	В		Prep Metho	
QC Batch: 119761		Date Anal	•	2015-03			Analyzed B	<i>v</i>
Prep Batch: 101285		Sample Pi	reparation:	2015-03	3-03		Prepared By	y: AK
				RL				
Parameter	Flag	Cert	F	Result	Units		Dilution	RI
Benzene		1		4.08	mg/Kg		1	0.0200
Toluene	Je	1		25.3	$\mathrm{mg/Kg}$		1	0.0200
Ethylbenzene		1		5.54	$\mathrm{mg/Kg}$		1	0.0200
Xylene	Je	1		47.6	mg/Kg		1	0.0200
						Spike	Percent	Recovery
Surrogate	Flag	g Cert	Result	Units	Dilution	Amount		Limits
Trifluorotoluene (TF		,	1.58	mg/Kg	1	2.00	79	70 - 130
4-Bromofluorobenzen			6.72	mg/Kg	1	2.00	336	70 - 130
Sample: 387688 -	CS-1							
Laboratory: Midlan								
	le (Titration)		ytical Met		M 4500-Cl B		Prep Met	,
QC Batch: 119733			Analyzed		015-03-03		Analyzed	
Prep Batch: 101275		Samj	ole Prepara	ation: 20	015-03-03		Prepared	By: EM
				RL				
Parameter	Flag	Cert	F	Result	Units		Dilution	RI
Chloride	Qs			383	mg/Kg		5	4.00

Work Order: 15022625

 $30137 \ \#3$

Analytical Report

Laboratory:	Midland					
Analysis:	Chloride (Titration)	Analytic	al Method:	SM 4500-Cl B	Prep Method:	N/A
QC Batch:	119733	Date An		2015-03-03	Analyzed By:	EM
Prep Batch:	101275		Preparation:	2015-03-03	Prepared By:	$\mathbf{E}\mathbf{M}$
			RL			
Parameter	Flag	Cert	Result	Units	Dilution	RL
				/		
Chloride Sample: 38	Qs 7688 - CS-1		383	mg/Kg	5	4.00
Sample: 38 Laboratory: Analysis:	7688 - CS-1 Midland TPH DRO - NEW	v	ical Method:	S 8015 D	Prep Method:	N/A
Sample: 38 Laboratory: Analysis: QC Batch:	7688 - CS-1 Midland TPH DRO - NEW 119724	Date A	ical Method: nalyzed:	S 8015 D 2015-03-03	Prep Method: Analyzed By:	N/A SC
Sample: 38 Laboratory: Analysis: QC Batch:	7688 - CS-1 Midland TPH DRO - NEW	Date A	ical Method:	S 8015 D	Prep Method:	4.00 N/A SC SC
Sample: 38 Laboratory: Analysis: QC Batch:	7688 - CS-1 Midland TPH DRO - NEW 119724	Date A	ical Method: nalyzed:	S 8015 D 2015-03-03	Prep Method: Analyzed By:	N/A SC
	7688 - CS-1 Midland TPH DRO - NEW 119724	Date A	ical Method: nalyzed: Preparation:	S 8015 D 2015-03-03	Prep Method: Analyzed By:	N/A SC

Report Date: March 9, 2015 7250715022.001			V	Work Orde: 3013		25		Page Num	umber: 7 of 34	
Surrogate Flag	Cer	- ·	Result	Units	Dilu		Spike .mount	Percent Recovery	Recovery Limits	
n-Tricosane	Cer	U .	82.7	mg/Kg			100	83	70 - 130	
Sample: 387688 - CS-1										
Laboratory:MidlandAnalysis:TPH GROQC Batch:119791Prep Batch:101317			Date An	al Method: alyzed: Preparation	2015-0	3-05		Prep Metho Analyzed B Prepared B	y: AK	
					RL					
Parameter	Flag		Cert		Result	Un		Dilution		
GRO			1		2420	mg/l	<u>ng</u>	50	4.00	
Surrogate		Flag	Cert	Result	Units	Dilution	Spike Amount	Percent Recovery	Recovery Limits	
Trifluorotoluene (TFT)		1 103	Cert	86.2	mg/Kg	50	100	86	70 - 130	
4-Bromofluorobenzene (4-BF	В)			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	v: AK
					RL				
Parameter	Flag		Cert	R	Result	Units		Dilution	RL
Benzene			1		112	mg/Kg		20	0.0200
Toluene	Je		1		378	$\mathrm{mg/Kg}$		20	0.0200
Ethylbenzene			1		82.3	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	$\mathrm{mg/Kg}$	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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Report Date: 7250715022.00	March 9, 2015 01		Work Order: 15022625 30137 #3					Page Num	ber: 8 of 34
Sample: 387	7689 - CS-2								
Analysis: QC Batch:	Midland Chloride (Titration 119733 101275	n)	Date	ytical Met Analyzed: ple Prepara	20	И 4500-Cl В 15-03-03 15-03-03		Prep Met Analyzed Prepared	By: EM
					RL				
Parameter Chloride		Flag	Cert		tesult 3160	Uni mg/k		Dilution 5	$\frac{\text{RL}}{4.00}$
		Qs			0100	IIIg/ I	5	0	1.00
Sample: 387	7689 - CS-2								
Analysis: QC Batch:	Midland TPH DRO - NEW 119724 101249	T	Dat	alytical Me e Analyzec nple Prepar	l: 2	8015 D 015-03-03 015-03-02		Prep Met Analyzed Prepared	By: SC
_				_	RL				
Parameter		Flag	Cert	R	Result	Uni		Dilution	RL
DRO			1		320	mg/k	g	1	50.0
Surrogate	Flag	Cert	Result	Units	Dilu		bpike nount	Percent Recovery	Recovery Limits
n-Tricosane			96.7	mg/Kg	1		100	97	70 - 130
Analysis:	Midland TPH GRO 119849		Date An	al Method: alyzed: Preparatior	2015-0	3-09		Prep Metho Analyzed B Prepared B	y: AK
Parameter		Flag	Cert	F	RL Result	Uni	te	Dilution	RL
$\frac{1}{\text{GRO}}$		Qs	1		5200	mg/k		100	4.00
Surrogate Trifluorotoluer	no (TET)	Flag		Result	Units	Dilution 100	Spike Amount 200	Percent Recovery 92	Recovery Limits 70 - 130
	benzene (4-BFB)			$\frac{185}{248}$	m mg/Kg $ m mg/Kg$	$100 \\ 100$	200 200	$\frac{92}{124}$	70 - 130 70 - 130
	Doursene (4-DI D)			240	mg/ ng	100	200	124	10 - 100

Work Order: 15022625 30137 #3					Page Number: 9		
	Analytica	Analytical Method:		8		Prep Method	: S 5035
	Date Ana	alyzed:	2015-03-	-04		Analyzed By	: AK
	Sample F	reparation	: 2015-03-	-03		Prepared By:	AK
			RL				
Flag	Cert		Result	Units		Dilution	RL
-	1	0	0.0270	mg/Kg		1	0.0200
	1	0	0.0436	mg/Kg		1	0.0200
U	1	<	0.0200	$\mathrm{mg/Kg}$		1	0.0200
	1	0	0.0334	mg/Kg		1	0.0200
					Spike	Percent	Recovery
\mathbf{F}	lag Cert	Result	Units	Dilution		Recovery	Limits
		1.79	mg/Kg	1	2.00	90	70 - 130
		2.23	mg/Kg	1	2.00	112	70 - 130
_	U	Date Ana Sample F Flag Cert 1 U 1 1	Date Analyzed: Sample PreparationFlagCert10 U 10 U 00 U 0 U 0	Date Analyzed: 2015-03 Sample Preparation: 2015-03 Flag Cert RL 1 0.0270 1 0.0436 0 1 <0.0200	Date Analyzed: 2015-03-04 Sample Preparation: 2015-03-03 RL RE 1 0.0270 mg/Kg 1 0.0436 mg/Kg 1 0.0334 mg/Kg 1 0.0334 mg/Kg 1 0.0334 10/Kg 1 1.79 mg/Kg	$\begin{array}{c c c c c c c c c c c c c c c c c c c $	Date Analyzed:2015-03-04Analyzed By Prepared By:Sample Preparation:2015-03-03Prepared By:FlagCertResultUnitsDilution10.0270mg/Kg110.0436mg/Kg11<0.0200

Sample: 387690 - N- Wall

Laboratory: Analysis: QC Batch: Prep Batch:	Midland Chloride (Titration) 119733 101275	Date	tical Method: Analyzed: e 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	RL
Chloride	Qs		383	m mg/Kg	5	4.00

Sample: 387690 - N- Wall

Laboratory:	Midland							
Analysis:	TPH DRO - NE	W	Ana	lytical Metho	Prep Me	thod: N/A		
QC Batch:	119724				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	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

Report Date: March 9, 2015 7250715022.001			W		er: 1502262 37 #3	5		Page Numb	er: 10 of 34
Sample: 387690 - N- Wall									
Laboratory:MidlandAnalysis:TPH GROQC Batch:119764Prep Batch:101285	Analytical Method:S 8015 DDate Analyzed:2015-03-04Sample Preparation:2015-03-03						Prep Metho Analyzed B Prepared B	y: AK	
					RL				
Parameter	Flag		Cert		Result	Unit	s	Dilution	RL
GRO	U		1		<4.00	mg/K	g	1	4.00
Surrogate		Flag	Cert	Result	Units	Dilution	Spike Amount	Percent Recovery	Recovery Limits
Trifluorotoluene (TFT)		1 145	0.010	1.82	mg/Kg	1	2.00	91	70 - 130
4-Bromofluorobenzene (4-BFB)				1.96	mg/Kg	1	2.00	98	70 - 130

Sample: 387691 - E- Wall

Laboratory: Midland									
Analysis: BTEX		Ar	nalytical	Method:	S 8021B			Prep Method	l: S 5035
QC Batch: 119761		Dε	te Anal	yzed:	2015-03-	04		Analyzed By	: AK
Prep Batch: 101285		Sa	mple Pr	eparation:	2015-03-	03		Prepared By	: AK
					RL				
Parameter	Flag		Cert	F	Result	Units		Dilution	RL
Benzene			1	0.	0214	mg/Kg		1	0.0200
Toluene			1	().163	m mg/Kg		1	0.0200
Ethylbenzene			1	().746	$\mathrm{mg/Kg}$		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)	$_{\rm Qsr}$	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:	$\mathbf{E}\mathbf{M}$
Prep Batch:	101275	Sample Preparation:	2015-03-03	Prepared By:	$\mathbf{E}\mathbf{M}$

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sample 38769	91 continued							
Parameter		Flag	Cert	Res	RL ult	Units	Dilution	RL
Parameter		Flag	Cert	Res		Units	Dilution	RL
Chloride		Qs		15	30	m mg/Kg	5	4.00
Sample: 38 Laboratory: Analysis: QC Batch: Prep Batch:	7691 - E- Wall Midland TPH DRO - NE 119724 101249	W	Date	ytical Metho Analyzed: ple Preparat	2015-0	03-03	Prep Met Analyzed Prepared	By: SC
Parameter		Flag	Cert	Res	RL ult	Units	Dilution	RL
DRO			1	61	1.1	m mg/Kg	1	50.0
Surrogate n-Tricosane	Flag	Cert	Result 94.5	Units mg/Kg	Dilution 1	Spike Amount 100	Percent Recovery 94	Recovery Limits 70 - 130
Sample: 38 Laboratory: Analysis: QC Batch: Prep Batch:	7691 - E- Wall Midland TPH GRO 119764 101285		Date Ana	l Method: lyzed: reparation:	S 8015 D 2015-03-04 2015-03-03		Prep Metho Analyzed B Prepared B	y: AK
i tep Datell.	101200		Semple 1	-	2015-05-05		r repared D	y. 1111
Parameter GRO		Flag	Cert	Res		Units mg/Kg	Dilution 1	RL 4.00

0110			1		144	1116/116		1	4.00
							Spike	Percent	Recovery
Surrogate		Flag	Cert	Result	Units	Dilution	Amount	Recovery	Limits
Trifluorotoluene (TFT)				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	I	Date Ana	l Method: lyzed: reparation	2015-03	-04		Prep Metho Analyzed B Prepared B	y: AK
				RL				
Parameter	Flag	Cert		Result	Units		Dilution	RL
Benzene		1	().0665	mg/Kg		1	0.0200
Toluene		1		0.304	mg/Kg		1	0.0200
Ethylbenzene		1	0	0.0500	mg/Kg		1	0.0200
Xylene		1		0.851	mg/Kg		1	0.0200
Surrogate	Flag	Cert	Result	Units	Dilution	Spike Amount	Percent Recovery	Recovery Limits
Trifluorotoluene (TFT)	1 1ag	0010	1.64	mg/Kg	1	2.00	82	70 - 130
4-Bromofluorobenzene (4-BFB)			2.23	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	cal Method: nalyzed: 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	RL
Chloride	Qs		3080	mg/Kg	5	4.00

Sample: 387692 - W- Wall

Laboratory:	Midland							
Analysis:	TPH DRO - NE	EW	Ana	lytical Metho	od: S 8015	5 D	Prep Me	thod: N/A
QC Batch:	119724		Date	e Analyzed:	2015-0)3-03	Analyzed	l By: SC
Prep Batch:	101249		Sam	ple Preparat	ion: 2015-0)3-02	Prepared	By: SC
]	RL			
Parameter		Flag	Cert	Res	ult	Units	Dilution	RL
DRO		U	1	<5	0.0	mg/Kg	1	50.0
						Spike	Percent	Recovery
Surrogate	Flag	Cert	Result	Units	Dilution	Amount	Recovery	Limits
n-Tricosane	1108	2010	94.1	mg/Kg	1	100	94	70 - 130
ii iiicobaiic			01.1	1118/118	1	100	51	10 100

Report Date: March 9, 2015 7250715022.001			W		er: 1502262 37 #3	5		Page Number: 13 of			
Sample: 387692 - W- Wall											
Laboratory:MidlandAnalysis:TPH GROQC Batch:119849Prep Batch:101336			Date An	al Methoo alyzed: Preparatio	2015-0	03-09		Prep Metho Analyzed B Prepared B	y: AK		
					RL						
Parameter	Flag		Cert		Result	Unit	s	Dilution	RL		
GRO	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	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

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
					RL				
Parameter	Flag		Cert	F	Result	Units		Dilution	RL
Benzene			1	0.	0494	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	().556	mg/Kg		1	0.0200
							Spike	Percent	Recovery
Surrogate		Flag	Cert	Result	Units	Dilution	Amount	Recovery	Limits
Trifluorotoluene (TFT)				1.70	mg/Kg	1	2.00	85	70 - 130
4-Bromofluorobenzene (4-BFB)	Qsr	Qsr		2.72	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:	$\mathbf{E}\mathbf{M}$
Prep Batch:	101275	Sample Preparation:	2015-03-03	Prepared By:	$\mathbf{E}\mathbf{M}$

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sample 387693	continued									
					RL					
Parameter		Flag	Cert	Res	sult	Units	Dilution	RI		
					RL					
Parameter		Flag	Cert	Rea		Units	Dilution	RI		
Chloride		Qs		111	100	m mg/Kg	5	4.00		
Sample: 387693 - S- WallLaboratory:MidlandAnalysis:TPH DRO - NEWQC Batch:119724Prep Batch:101249		Analytical Method:S 8015 DDate Analyzed:2015-03-03Sample Preparation:2015-03-02				Prep Method: N/A Analyzed By: SC Prepared By: SC				
Parameter		Flag	Cert	Res	RL	Units	Dilution	RI		
DRO		1 145	1		2.1	mg/Kg	1	50.0		
Surrogate	Flag	Cert	Result	Units	Dilution	Spike Amount	Percent Recovery	Recovery Limits		
n-Tricosane			91.4	$\mathrm{mg/Kg}$	1	100	91	70 - 130		
Laboratory: 1 Analysis: 7 QC Batch: 1	693 - S- Wall Midland TPH GRO 119764 101285		Date Ana	reparation:	S 8015 D 2015-03-04 2015-03-03 BL		Prep Method Analyzed By Prepared By:	: AK		
Parameter		Flag	Cert	Res	RL sult	Units	Dilution	RI		
GRO		8	1		L20	mg/Kg	1	4.00		

Surrogate		Flag	Cert	Result	Units	Dilution	Spike Amount	Percent Recovery	Recovery Limits
Trifluorotoluene (TFT)		0		1.68	mg/Kg	1	2.00	84	70 - 130
4-Bromofluorobenzene (4-BFB)	Qsr	Qsr		3.36	$\mathrm{mg/Kg}$	1	2.00	168	70 - 130

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Sample: 387694 - RP										
Laboratory: Midland										
Analysis: BTEX			v	l Method:	S 8021B			Prep Method		
QC Batch: 119761			Date Anal	v	2015-03-			Analyzed By		
Prep Batch: 101285		S	Sample Pi	reparation	2015-03-	-03		Prepared By:	AK	
					RL					
Parameter	Flag		Cert		Result	Units		Dilution	RL	
Benzene	-		1	0	0.0461	mg/Kg		1	0.0200	
Toluene	U		1	<	0.0200	mg/Kg		1	0.0200	
Ethylbenzene			1		0.254	m mg/Kg		1	0.0200	
Xylene			1		0.511	mg/Kg		1	0.0200	
							Spike	Percent	Recovery	
Surrogate	Fl	ag	Cert	Result	Units	Dilution	Amount	Recovery	Limits	
Trifluorotoluene (TFT)				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	tical Method: Analyzed: le 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	RL
Chloride	Qs		9000	m mg/Kg	5	4.00

Sample: 387694 - RP

Laboratory:	Midland							
Analysis:	TPH DRO - N	EW	Ana	lytical Metho	od: S 8015	5 D	Prep Me	thod: N/A
QC Batch:	119724		Date	e Analyzed:	2015-0	3-03	Analyzeo	l By: SC
Prep Batch:	101249		Sam	ple Preparati	ion: 2015-0	3-02	Prepared	l By: SC
				Ι	RL			
Parameter		Flag	Cert	Res	ult	Units	Dilution	RL
DRO			1	2	92	mg/Kg	1	50.0
						Spike	Percent	Recovery
Surrogate	Flag	Cert	Result	Units	Dilution	Amount	Recovery	Limits
n-Tricosane			106	m mg/Kg	1	100	106	70 - 130

Report Date: March 9, 2015 7250715022.001		Work Order: 15022625 30137 #3						Page Number: 16 of 34		
Sample: 387694 - RP										
Laboratory: Midland										
Analysis: TPH GRO		А	nalytica	al Method	: S 8015	D		Prep Metho	d: S 5035	
QC Batch: 119764		Γ	Date Ana	lyzed:	2015-03	3-04		Analyzed By	V: AK	
Prep Batch: 101285		\mathbf{S}	ample P	reparation	n: 2015-03	3-03		Prepared By	r: AK	
					RL					
Parameter	Flag		Cert	Η	Result	Units	5	Dilution	RL	
GRO			1		90.7	mg/Kg	5	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	mg/Kg	1	2.00	162	70 - 130	

Sample: 387695 - SP

Laboratory: Midland Analysis: BTEX QC Batch: 119761 Prep Batch: 101285		D	ate Analy	Method: yzed: eparation:	S 8021B 2015-03- 2015-03-	04		Prep Method Analyzed By: Prepared By:	AK
Flep Datch: 101265		56	imple r fo	eparation:	2010-00-	03		Frepared by:	AK
					RL				
Parameter	Flag		Cert	R	Result	Units		Dilution	RL
Benzene			1		1.88	mg/Kg		5	0.0200
Toluene			1		63.2	$\mathrm{mg/Kg}$		5	0.0200
Ethylbenzene			1		30.1	$\mathrm{mg/Kg}$		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	mg/Kg	5	10.0	77	70 - 130
4-Bromofluorobenzene (4-BFB)	Qsr	Qsr		23.4	m 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{EM}

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sample 387695 continued .								
Parameter	Flag	Cert	Res	RL ult	Uni	ts	Dilution	RL
Parameter	Flag	Cert	Res	RL	Uni	te	Dilution	RL
Chloride	Qs	Cert		30	mg/k		5	4.00
Sample: 387695 - SP								
Laboratory: Midland Analysis: TPH DRO - QC Batch: 119724	- NEW		alytical Meth te Analyzed:		015 D 5-03-03		Prep Met Analyzed	,
Prep Batch: 101249		Sar	nple Prepara		5-03-02		Prepared	By: SC
Parameter	Flag	Cert	Res		Uni		Dilution	RI
DRO		1	Į	71	mg/k	Kg	1	50.0
Surrogate F1	ag Cert	Result	Units	Dilution		Spike mount	Percent Recovery	Recovery Limits
n-Tricosane		106	mg/Kg	1		100	106	70 - 130
Sample: 387695 - SPLaboratory:MidlandAnalysis:TPH GROQC Batch:119791Prep Batch:101317		Date Ar	cal Method: nalyzed: Preparation:	S 8015 D 2015-03-0 2015-03-0)5		Prep Metho Analyzed E Prepared B	By: AK
Parameter	Flag	Cert	Res	RL ult	Uni	ts	Dilution	RI
GRO	- 0	1		.50	mg/k		50	4.00
Surrogate	F	lag Cert			Dilution	Spike Amount	Percent Recovery	Recovery Limits
Trifluorotoluene (TFT)			82.6 r	ng/Kg	50	100	83	70 - 130

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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		Flag	or S	Cert		Result		Units		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	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	$\frac{\mathrm{RL}}{4}$

Report Date: March 9, 2015 7250715022.001			Order: 1502262 80137 #3				er: 19 of 34
Method Blank (1) QC	Batch: 119761						
QC Batch: 119761		Date Analyze	ed: 2015-03-	04		Analyzed	l By: AK
Prep Batch: 101285		QC Preparati	ion: 2015-03-	03		Prepared	By: AK
				MDL			
Parameter	Flag	Ce	ert	Result		Units	RL
Benzene	_	1	1	< 0.00533	1	mg/Kg	0.02
Toluene		1	1	< 0.00645		mg/Kg	0.02
Ethylbenzene		1	L	< 0.0116	1	mg/Kg	0.02
Xylene		1	1	< 0.00874		mg/Kg	0.02
					Spike	Percent	Recovery
Surrogate	Flag	Cert Resu	ult Units	Dilution	Amount	Recovery	Limits
Trifluorotoluene (TFT)		1.5	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	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	0010	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	RL
GRO			1	<2.32	mg/Kg	4

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Cumporato	Elam	Cert	Result	Units	Dilution	Spike Amount	Percent	Recovery Limits
Surrogate	Flag	Cert					Recovery 94	$\overline{70 - 130}$
Trifluorotoluene (TFT) 4-Bromofluorobenzene (4-BFB)			$1.88 \\ 1.82$	mg/Kg mg/Kg	1 1	$2.00 \\ 2.00$	$94 \\ 91$	70 - 130 70 - 130
Method Blank (1) QC Batch: QC Batch: 119849	119849		nalyzed:	2015-03-0			Analyzed	v
Prep Batch: 101336 Parameter	Flag	QC Pro	eparation: Cert	2015-03-0	05 MDL Result		Prepared Units	By: AK RL
GRO	1 145				<2.32		mg/Kg	4
			1			Spike	Percent	Recovery
Surrogate	Flag	Cert	Result	Units	Dilution	Amount	Recovery	Limits
Trifluorotoluene (TFT)			1.87	m mg/Kg	1	2.00	94	70 - 130
4-Bromofluorobenzene (4-BFB)			1.82	$\mathrm{mg/Kg}$	1	2.00	91	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		· · · ·	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_{Π} .	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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7250715022.001				30	0137 #3				I age I	uniber.	
Laboratory Control Spike (I	LCS-1	L)									
QC Batch: 119741			Date	Analyzed	l: 201	5-03-03			Ana	lyzed By	y: EM
Prep Batch: 101283			QC]	Preparatio	on: 201	5-03-03			Prep	bared By	: EM
D		D		LCS	T T •/	וית	Spike		atrix		Rec.
Param		F	C 1	Result	Units	Dil.	Amount			Rec.	Limit
Chloride				2500	mg/Kg		2500			100	85 - 115
Percent recovery is based on the	spike	resu	lt. RPD	is based of	on the s	pike and sp	oike duplica	ate res	ult.		
			LCSD			Spike	Matrix		Rec.		RPD
Param	\mathbf{F}	С	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 o	on the s	pike and sr	oike duplica	ate res	ult.		
v	•					. 1					
Laboratory Control Spike (I	CS-1	L)									

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QC Batch:	119761	Date Analyzed:	2015-03-04	Analyzed By:	AK
Prep Batch:	101285	QC Preparation:	2015-03-03	Prepared By:	AK

			LCS			Spike	Matrix		Rec.
Param	\mathbf{F}	\mathbf{C}	Result	Units	Dil.	Amount	Result	Rec.	Limit
Benzene		1	2.09	$\mathrm{mg/Kg}$	1	2.00	< 0.00533	104	70 - 130
Toluene		1	2.02	$\mathrm{mg/Kg}$	1	2.00	$<\!0.00645$	101	70 - 130
Ethylbenzene		1	2.07	$\mathrm{mg/Kg}$	1	2.00	< 0.0116	104	70 - 130
Xylene		1	6.25	mg/Kg	1	6.00	< 0.00874	104	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	\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	mg/Kg	1	2.00	< 0.00645	98	70 - 130	3	20
Ethylbenzene		1	1.99	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.	Limit
Trifluorotoluene (TFT)	1.76	1.78	mg/Kg	1	2.00	88	89	70 - 130
4-Bromofluorobenzene (4-BFB)	2.05	2.08	$\mathrm{mg/Kg}$	1	2.00	102	104	70 - 130

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Laboratory Control Spike (L	CS-1)												
QC Batch: 119764 Prep Batch: 101285					alyzed: aration:		15-03-04 15-03-03						vzed B ared B	
D		F	G	LCS		· ·,	D.1		Spike		Iatrix	D		Rec.
Param GRO		F	С	Resul		Jnits	Dil.	A	mount		$\frac{1}{2.32}$	Re 10		Limit 70 - 130
			1			g/Kg			20.0			п)2	70 - 130
Percent recovery is based on the s	spike	resu	lt. RPI	D is ba	ased on	the s	pike and	spike	duplica	ate res	sult.			
Param	F	С	LCSI Resul		Inits	Dil.	Spike Amoun		latrix lesult	Rec.	Re Lir		RPD	RPD Limit
GRO	-	1	21.9		g/Kg	1	20.0		<2.32	110		130	7	20
Percent recovery is based on the s	snike	resu				the s								
ereent recovery is based on the t	эрикс	1050				-	pine and	spine	-					
			Ι	\mathcal{LCS}	LCSD				Spi		LCS	LC		Rec.
								D:1	Amo	unt	Doo	D /		
			R	esult	Result		Units	Dil.			Rec.		ec.	Limit
Trifluorotoluene (TFT) 4-Bromofluorobenzene (4-BFB)	<u> </u>		R.		Result 1.94 1.92	n	onits ng/Kg ng/Kg	1 1	2.0 2.0	00	98 94	9 9	7	70 - 130 70 - 130
Trifluorotoluene (TFT) 4-Bromofluorobenzene (4-BFB) Laboratory Control Spike (Lo QC Batch: 119791	CS-1)	Ri 1 1 Da	esult 95 89 te Ana	1.94 1.92 alyzed:	201	ng/Kg ng/Kg 15-03-05	1	2.0	00	98 94	9 9 Analy	7 6 vzed B	70 - 130 70 - 130 y: AK
Trifluorotoluene (TFT) 4-Bromofluorobenzene (4-BFB) Laboratory Control Spike (Lo QC Batch: 119791	CS-1)	Ri 1 1 Da	esult 95 89 te Ana	1.94 1.92	201	ng/Kg ng/Kg	1	2.0	00	98 94	9 9 Analy	7 6	70 - 130 70 - 130 y: AK
Trifluorotoluene (TFT) I-Bromofluorobenzene (4-BFB) Laboratory Control Spike (Lo QC Batch: 119791 Prep Batch: 101317	CS-1		R 1 1 Da QC	esult 95 89 te Ana C Prep LCS	1.94 1.92 alyzed: aration:	n m 201 201	ng/Kg ng/Kg 15-03-05 15-03-04	1	2.0 2.0 Spike	00 00 N.	98 94 Iatrix	9 9 Analy Prepa	7 6 vzed B ured B	70 - 130 70 - 130 y: AK y: AK Rec.
Trifluorotoluene (TFT) I-Bromofluorobenzene (4-BFB) Laboratory Control Spike (L4 QC Batch: 119791 Prep Batch: 101317	CS-1	-) F	R 1 1 Da QC	esult 95 89 te Ana C Prep LCS Resu	1.94 1.92 alyzed: aration: blt U	n n 201 201 Jnits	ng/Kg ng/Kg 15-03-05 15-03-04 Dil.	1	2.0 2.0 Spike	00 00 M R	98 94 Iatrix tesult	9 9 Analy Prepa Re	7 6 vzed B ured B	70 - 130 70 - 130 y: AK y: AK Rec. Limit
Trifluorotoluene (TFT) 4-Bromofluorobenzene (4-BFB) Laboratory Control Spike (Lo QC Batch: 119791 Prep Batch: 101317 Param GRO		F	R 1 1 Da QC	esult 95 89 te Ana C Prep LCS Resu 21.3	1.94 1.92 alyzed: aration: S lt U B m	201 201 201 Jnits g/Kg	ng/Kg ng/Kg 15-03-05 15-03-04 Dil. 5 1	1 1 A	2.0 2.0 Spike mount 20.0	00 00 M R <	98 94 Iatrix cesult <2.32	9 9 Analy Prepa	7 6 vzed B ured B	70 - 130 70 - 130 y: AK y: AK Rec. Limit
Irifluorotoluene (TFT) 4-Bromofluorobenzene (4-BFB) Laboratory Control Spike (Lo QC Batch: 119791 Prep Batch: 101317 Param GRO		F	R 1 1 Da QC	esult 95 89 te Ana C Prep LCS Resu 21.3	1.94 1.92 alyzed: aration: S lt U B m	201 201 201 Jnits g/Kg	ng/Kg ng/Kg 15-03-05 15-03-04 Dil. 5 1	1 1 A	2.0 2.0 Spike mount 20.0	00 00 M R <	98 94 Iatrix cesult <2.32	9 9 Analy Prepa Re	7 6 vzed B ured B	70 - 130 70 - 130 y: 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		F	R 1 1 Da QC	te Ana C Prep LCS Resu 21.3 D is ba	1.94 1.92 alyzed: aration: b lt U m ased on	201 201 201 Jnits g/Kg	ng/Kg ng/Kg 15-03-05 15-03-04 Dil. 5 1	1 1 Spike	2.0 2.0 Spike mount 20.0	00 00 M R <	98 94 Iatrix cesult <2.32	9 9 Prepa <u>Re</u> 10	7 6 vzed B ured B	70 - 130 70 - 130 y: 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	spike	F	$\frac{R}{1}$ 1 1 1 0 0 0 0 0 1 1 1 1 1 1 1 1 1 1	esult 95 89 te Ana C Prep LCS Resul 21.3 D is ba D t U	1.94 1.92 alyzed: aration: blt U ased on Units	201 201 201 Jnits g/Kg the sp	ng/Kg ng/Kg 15-03-05 15-03-04 Dil. 5 1 pike and Spike	1 1 spike M t R	2.0 2.0 Spike amount 20.0 duplica Iatrix	00 00 M R ate res	98 94 Iatrix tesult <2.32 sult. Re Lin	9 9 Prepa <u>Re</u> 10	7 6 vzed B ured B ec. 06	70 - 130 70 - 130 y: 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 resu C 1	R 1 1 Da QC LCSI Resul 19.4	esult 95 89 te Ana C Prep LCS Resul 21.3 D is ba D it U mage	1.94 1.92 alyzed: aration: aration: blt U 3 m ased on Juits g/Kg	201 201 201 Jnits <u>g/Kg</u> the sj Dil. 1	ng/Kg ng/Kg 15-03-05 15-03-04 Dil. 5 1 pike and Spike Amoun 20.0	1 1 spike t R <	2.0 2.0 Spike mount 20.0 duplica Iatrix cesult <2.32	00 00 M R ate res Rec. 97	98 94 Iatrix cesult <2.32 sult. Re Lin 70 -	9 9 Prepa Re 10 ec.	7 6 vzed B ured B ec. 06 RPD	70 - 130 70 - 130 y: AK y: AK Rec. Limit 70 - 130 RPD 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 Percent recovery is based on the s	spike F	F resu C 1	R 1 1 Da QC 1 LCSI Resul 19.4 It. RPI	te Ana 	1.94 1.92 alyzed: aration: aration: b t t t t t t t t t t t t t t t t t t	$\frac{n}{201}$ $\frac{201}{201}$ $\frac{Jnits}{g/Kg}$ $\frac{g/Kg}{1}$ $\frac{Dil.}{1}$ $\frac{1}{1}$	ng/Kg ng/Kg 15-03-05 15-03-04 Dil. 5 1 pike and Spike Amoun 20.0 pike and	1 1 spike M t R spike	2.0 2.0 2.0 Spike amount 20.0 duplica Iatrix tesult (2.32 duplica Spi	M R ate res Rec. 97 ate res ke	$\begin{array}{c} 98\\ 94\\ \hline \\ 94\\ \hline \\ 84\\ \hline 84\\ \hline \\ 84\\ \hline \\ 84\\ \hline \\ 84\\ \hline 84\\ \hline$	9 9 Prepa Re 10 ec. nit 130 LC	7 6 vzed B ured B vec. 06 <u>RPD</u> 9 SD	70 - 130 70 - 130 70 - 130 y: AK y: AK Rec. Limit 70 - 130 RPD Limit 20 Rec.
•	spike F	F resu C 1	R 1 1 Da QC 1 t. RP1 LCSI Resul 19.4 t. RP1 I R	te Ana C Prep LCS Resul 21.3 D is ba D is ba D is ba	1.94 1.92 alyzed: aration: aration: blt U 3 m ased on Units g/Kg ased on	Inits 201 201 201 Jnits g/Kg the sp Dil. 1 the sp	ng/Kg ng/Kg 15-03-05 15-03-04 Dil. 5 1 pike and Spike Amoun 20.0	1 1 spike t R <	2.0 2.0 Spike mount 20.0 duplica Iatrix cesult <2.32 duplica	$\frac{M}{R}$ ate res $\frac{Rec.}{97}$ ate res ke punt	$98 \\ 94$ 94 $100 \\ 94$ $100 \\ 94$ $100 \\ 100 \\$	9 9 Prepa Re 10 ec. nit 130	7 6 vzed B ured B ec. 9 8 SD ec.	70 - 130 70 - 130 70 - 130 y: AK y: AK Rec. Limit 70 - 130 RPD Limit 20

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Laboratory Control Spike (I	LCS-1	.)										
QC Batch: 119849			Date	Analyzed	l: 20	15-03-09)				Analyzed	By: AK
Prep Batch: 101336			QC I	Preparatio	on: 20	15-03-05	5]	Prepared	By: AK
				LCS				Spike	N	Iatrix		Rec.
Param		F		Result	Units	Dil		mount	R	lesult	Rec.	Limit
GRO			1	20.6	mg/Kg	g 1		20.0	<	<2.32	103	70 - 130
Percent recovery is based on the	spike	resu	lt. RPD	is based o	n the s	pike and	d spike	duplica	te res	sult.		
			LCSD			Spik	e M	Iatrix		Re	c.	RPD
Param	\mathbf{F}	\mathbf{C}	Result	Units	Dil.	Amou	int R	lesult	$\operatorname{Rec.}$	Lin	nit Rl	PD Limit
GRO		1	21.1	mg/Kg	1	20.0) <	<2.32	106	70 -	130	2 20
Percent recovery is based on the	spike	resu	lt. RPD	is based o	n the s	pike and	d spike	duplica	te res	sult.		
			LC	S LCS	SD			Spil	ke	LCS	LCSD	Rec.
Surrogate			Rest	ilt Res	ult	Units	Dil.	Amo		Rec.	Rec.	Limit
Buildgaid												
Trifluorotoluene (TFT)			1.8	4 1.9	2 n	ng/Kg	1	2.0	0	92	96	70 - 130

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Matrix Spike	es							
Matrix Spike (MS-1)	Spiked Sample	: 387694						
QC Batch: 119724 Prep Batch: 101249		Date Analyz QC Prepara		15-03-03 15-03-02			•	zed By: SC red By: SC
		MS			Spike	Matr	rix	Rec.
Param	F	C Result	Units	Dil.	Amount	Resu		
DRO		1 512	mg/Kg	1	250	292	2 88	70 - 130
Percent recovery is based on	the spike resu	lt. RPD is based	on the $s_{\rm I}$	oike and sp	oike duplica	ate result		
		MCD		а. 1			D	DDD
D	E C	MSD	וית	Spike	Matrix	р	Rec.	RPD L: '
Param	F C	Result Units		Amount	Result			RPD Limit
DRO	1	527 mg/K	-	250	292		70 - 130	3 20
Percent recovery is based on	the spike resu	lt. RPD is based	on the sp	pike and sp	oike duplica	ate result		
	MS	MSD			Spike	MS	MSD	Rec.
Surrogate	Result		Units	Dil.	Amount	Rec.	Rec.	Limit
n-Tricosane	97.1		ng/Kg	1	100	97	101	70 - 130
Matrix Spike (MS-1) S QC Batch: 119733 Prep Batch: 101275	spiked Sample	: 387688 Date Analyz QC Preparat		5-03-03 5-03-03			Analyz Prepar	*
D	F	MS	TT •	D .1	Spike	Matri		Rec.
Param	F	C Result	Units	Dil.	Amount	Result	t Rec.	Limit
Param Chloride	F Qs Qs		Units mg/Kg	Dil.	-			
	Qs Qs	C Result 574	mg/Kg	5	Amount 2500	Result 383	t Rec.	Limit
Chloride	Qs Qs	C Result 574	mg/Kg	5 pike and sp Spike	Amount 2500	Result 383	t Rec.	Limit
Chloride	Qs Qs	C Result 574 lt. RPD is based	mg/Kg on the sp	5 bike and sp	Amount 2500 Dike duplica Matrix	Result 383 ate result	t Rec.	Limit 78.9 - 121

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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 Sample:	387692				
QC Batch: 119741 Prep Batch: 101283		v	015-03-03 015-03-03			Analyzed By: EM Prepared By: EM
		MS		Spike	Matrix	Rec.
Param	F	C Result Unit		Amount		Rec. Limit
Chloride	Qs Qs	1150 mg/K	lg 5	2500	<19.2	46 78.9 - 121
Percent recovery is based	on the spike result	lt. RPD is based on the	spike and s	pike dupli	cate result.	
		MSD	Spike	Matrix	Re	c. RPD
Param	F C	Result Units Dil.	Amount	Result	Rec. Lin	nit RPD Limit
Chloride	Qs Qs	1250 mg/Kg 5	2500	$<\!19.2$	-73 78.9 -	121 8 20
Percent recovery is based	on the spike resu	lt. RPD is based on the	spike and s	pike duplio	cate result.	
Matrix Spike (MS-1)	Spiked Sample:	387690				
QC Batch: 119761 Prep Batch: 101285		v	015-03-04 015-03-03			Analyzed By: AK Prepared By: AK

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			MS			Spike	Matrix		Rec.
Param	\mathbf{F}	С	Result	Units	Dil.	Amount	Result	Rec.	Limit
Benzene		1	1.63	m mg/Kg	1	2.00	0.027	80	70 - 130
Toluene		1	1.68	m mg/Kg	1	2.00	0.0436	82	70 - 130
Ethylbenzene		1	1.81	$\mathrm{mg/Kg}$	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				e Analyz Preparat)15-03-04)15-03-03				Analyzed Prepared	
		F	a	MS	TT 1 .	DU	-		Matrix	Ð	Rec.
Param		F		Result	Units				Result	Rec.	Limit
GRO			1	14.7	mg/K	-	20		<2.32	74	70 - 130
Percent recovery is based on the	spike	e resu	lt. RPD	is based	l on the	spike and	spike du	iplicate r	esult.		
			MSD			Spike	Mat	rix	Rec	c.	RPD
Param	\mathbf{F}	С	Result	Units	5 Dil.	Amount					PD Limit
GRO		1	15.2	mg/K	g 1	20.0	<2.	32 76	70 - 1	130	3 20
Percent recovery is based on the	spike	e resu	lt. RPD	is based	on the	spike and	spike dr	plicate r	esult.		
l'oreent recovery is pased on the	opine	1000				opine and	opine at	-			
_					MSD			Spike	MS	MSD	Rec.
Surrogate					lesult	Units	Dil.	Amount	Rec.	Rec.	Limit
					1 67	mg/Kg	1	2	87	84	70 - 130
()						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 Dat	94 e Analyz	1.88 ed: 20	mg/Kg 015-03-05			97	94 Analyzed	70 - 130 By: AK
, , -	ed Sa	mple	1 : 387700 Dat	94	1.88 ed: 20	mg/Kg			97	94	70 - 130 By: AK
4-Bromofluorobenzene (4-BFB) Matrix Spike (MS-1) Spike QC Batch: 119791 Prep Batch: 101317	ed Sa	-	1 : 387700 Dat QC	94 e Analyz Preparat MS	1.88 ed: 20 tion: 20	mg/Kg 015-03-05 015-03-04	1 Sp	2 ike	97 H H Matrix	94 Analyzed Prepared	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: F	1 : 387700 Dat QC	94 e Analyz Preparat MS Result	1.88 ed: 20 tion: 20 Units	mg/Kg 015-03-05 015-03-04	1 Sp Ame	2 ike	97 H Matrix Result	94 Analyzed Prepared Rec.	70 - 130 l By: AK By: AK Rec. Limit
4-Bromofluorobenzene (4-BFB) Matrix Spike (MS-1) Spike QC Batch: 119791 Prep Batch: 101317 Param GRO		F	1 : 387700 Dat QC 1	94 e Analyz Preparat MS Result 15.6	$\frac{1.88}{\text{red:} 20}$ tion: 20 Units <u>mg/K</u>	mg/Kg 015-03-05 015-03-04 s Dil. g 1	1 Sp Amo 20	2 ike punt	97 A H Matrix Result <2.32	94 Analyzed Prepared	70 - 130 By: AK By: AK Rec.
4-Bromofluorobenzene (4-BFB) Matrix Spike (MS-1) Spike QC Batch: 119791 Prep Batch: 101317 Param GRO		F	1 : 387700 Dat QC 1	94 e Analyz Preparat MS Result 15.6	$\frac{1.88}{\text{red:} 20}$ tion: 20 Units <u>mg/K</u>	mg/Kg 015-03-05 015-03-04 s Dil. g 1	1 Sp Amo 20	2 ike punt	97 A H Matrix Result <2.32	94 Analyzed Prepared Rec.	70 - 130 l By: AK By: AK Rec. Limit
4-Bromofluorobenzene (4-BFB) Matrix Spike (MS-1) Spike QC Batch: 119791 Prep Batch: 101317 Param GRO		F	1 = 387700 Dat QC 	94 e Analyz Preparat MS Result 15.6	$\frac{1.88}{\text{red:} 20}$ tion: 20 Units <u>mg/K</u>	$\frac{\text{mg/Kg}}{\text{015-03-05}}$	1 Sp Amo 20 spike du	2 ike punt 0.0 uplicate r	97 H H Matrix Result <2.32 esult.	94 Analyzed Prepared <u>Rec.</u> 78	70 - 130 l 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		F	1 = 387700 Dat QC 	94 e Analyz Preparat MS Result 15.6 is based	$\frac{1.88}{\text{ed:} 20}$ $\frac{1.88}{\text{tion:} 20}$ $\frac{1.88}{\text{mg/K}}$ $\frac{1.88}{\text{mg/K}}$	mg/Kg 015-03-05 015-03-04 s Dil. g 1	1 Sp Amo 20 spike du Mat	2 ike 5 ount 0.0 uplicate r	97 H	94 Analyzed Prepared <u>Rec.</u> 78 c.	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	spike	F e resu	1 = 387700 Dat QC 	94 e Analyz Preparat MS Result 15.6 is based	$\frac{1.88}{\text{ed:} 20}$ $\frac{1.88}{\text{tion:} 20}$ $\frac{1.88}{\text{mg/K}}$ $\frac{1.88}{\text{mg/K}}$ $\frac{1.88}{\text{mg/K}}$	$\frac{mg/Kg}{015-03-05}$ $\frac{g}{2}$ $\frac{1}{3}$ spike and a Spike	1 Sp Amo 20 spike du Mat:	2 ike ount .0 uplicate r rix ılt Rec	97 Matrix Result <2.32 esult. Rec Lim	94 Analyzed Prepared Rec. 78 c. nit RI	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 GRO	spike F	F e resu C 1	1 387700 Dat QC 1 It. RPD MSD Result 16.6	94 e Analyz Preparat MS Result 15.6 is based Units mg/K	$\frac{1.88}{\text{red:}} = 20$ tion:= 20 $\frac{\text{Units}}{\text{mg/K}}$ l on the s $\frac{\text{s}}{\text{g}} = 1$	$\frac{mg/Kg}{0.00}$	$\frac{1}{1}$ Sp Amo 20 spike du Mat t Resu <2.3	2 ike 5 ount pplicate r rix 1lt Rec 32 83	97 $Matrix$ $Result$ <2.32 $esult.$ Rec 2.52 Rec 2.52 Rec 2.52 Rec 2.52 Rec 2.52	94 Analyzed Prepared Rec. 78 c. nit RI	70 - 130 l 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 Dat QC 1 1 1 MSD Result 16.6 lt. RPD	94 e Analyz Preparat MS Result 15.6 is based Units mg/K	$\frac{1.88}{\text{red:}} = 20$ tion:= 20 $\frac{\text{Units}}{\text{mg/K}}$ l on the s $\frac{\text{s}}{\text{g}} = 1$ l on the s	$\frac{mg/Kg}{0.00}$	$\frac{1}{1}$ Sp Amo 20 spike du Mat t Resu <2.3	2 ike ount plicate r rix <u>nlt Rec</u> 32 83 uplicate r	97 Matrix Result <2.32 esult. Rea To a constraint of the second secon	94 Analyzed Prepared Rec. 78 c. hit RI 130 0	70 - 130 l 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	1 387700 Dat QC 1 1 1 MSD Result 16.6 It. RPD	94 e Analyz Preparat MS Result 15.6 is based Units mg/K is based AS	$\frac{1.88}{\text{red:} 20}$ $\frac{\text{Units}}{\text{mg/K}}$ $\frac{\text{MSD}}{\text{I on the s}}$	$\frac{mg/Kg}{015-03-05}$ $\frac{35}{15-03-04}$ $\frac{35}{2}$ $$	1 Sp Amo 20 spike du Mat t Resu <2.3 spike du	2 ike ount 0.0 uplicate r ilt Rec 32 83 uplicate r Spike	97 $Matrix$ $Result$ <2.32 $esult.$ $Result$ $c.$ Lim $70 - 1$ ms	94 Analyzed Prepared Rec. 78 c. nit RI 130 0 MSD	70 - 130 By: AK By: AK Rec. Limit 70 - 130 PD Limit 5 20 Rec.
4-Bromofluorobenzene (4-BFB) Matrix Spike (MS-1) Spike QC Batch: 119791 Prep Batch: 101317 Param GRO Percent recovery is based on the Param GRO Percent recovery is based on the Surrogate	spike F	F e resu C 1	1 387700 Dat QC 1 1 1 1 MSD Result 16.6 1 1. RPD MSD Result 16.6 1 1 Result 1 1 1 1 1 1 1 1 1 1 1 1 1	94 e Analyz Preparat MS Result 15.6 is based Units mg/K is based IS I sult R	$\frac{1.88}{\text{ed:} 20}$ $\frac{\text{Units}}{\text{mg/K}}$ $\frac{\text{mg/K}}{\text{l on the s}}$ $\frac{\text{s} \text{Dil.}}{\text{g} 1}$ $\frac{\text{s} \text{Dil.}}{\text{l on the s}}$	mg/Kg $015-03-05$ $015-03-04$ g Dil. g 1 spike and s Spike Amount 20.0 spike and s Units	1 Sp Amo 20 spike du Mat t Resu c2.3 spike du Dil.	2 ike ount .0 uplicate r it Rec 32 83 uplicate r Spike Amount	97 Matrix Result <2.32 esult. Esult. TO - 1 esult. MS Rec.	94 Analyzed Prepared Rec. 78 c. hit RI 130 0 MSD Rec.	70 - 130 l By: AK By: AK Rec. Limit 70 - 130 PD Limit 5 20 Rec. Limit
4-Bromofluorobenzene (4-BFB) Matrix Spike (MS-1) Spike QC Batch: 119791	spike F	F e resu C 1	1 387700 Dat QC 1 It. RPD MSD Result 16.6 It. RPD MSD Result 16.7 1 1 1 1 1 1 1 1 1 1 1 1 1	94 e Analyz Preparat MS Result 15.6 is based Units mg/K is based 4S fsult R 68	$\frac{1.88}{\text{ed:} 20}$ $\frac{\text{Units}}{\text{mg/K}}$ $\frac{\text{mg/K}}{\text{l on the s}}$ $\frac{\text{s} \text{Dil.}}{\text{g} 1}$ $\frac{\text{s} \text{Dil.}}{\text{l on the s}}$ $\frac{\text{MSD}}{\text{tesult}}$ $\frac{1.76}{\text{mg/K}}$	$\frac{mg/Kg}{015-03-05}$ $\frac{35}{15-03-04}$ $\frac{35}{2}$ $$	1 Sp Amo 20 spike du Mat t Resu <2.3 spike du	2 ike ount 0.0 uplicate r ilt Rec 32 83 uplicate r Spike	97 $Matrix$ $Result$ <2.32 $esult.$ $Result$ $c.$ Lim $70 - 1$ ms	94 Analyzed Prepared Rec. 78 c. nit RI 130 0 MSD	70 - 130 By: AK By: AK Rec. Limit 70 - 130 PD Limit 5 20 Rec.

Report Date: March 9, 2015 7250715022.001	W	ork Order: 1 30137 #		Page Number: 28 of 34				
Matrix Spike (MS-1) Spiked Sample	387705							
QC Batch: 119849 Prep Batch: 101336	Date An QC Prep	v)15-03-09)15-03-05				nalyzed l repared l	v
	MS			Spike		atrix		Rec.
Param F	C Resu			Amour		esult	Rec.	Limit
GRO	1 15.2	2 mg/K	g 1	20.0	<	2.32	76	70 - 130
Percent recovery is based on the spike resu	lt. RPD is b	based on the s	spike and s	pike dupli	cate res	ult.		
	MSD		Spike	Matrix		Rec		RPD
Param F C		Units Dil.	Amount		Rec.	Lim		-
GRO Qs Qs 1	13.4 r	ng/Kg 1	20.0	<2.32	67	70 - 1	30 13	20
Percent recovery is based on the spike resu	lt. RPD is b	pased on the s	spike and s	pike dupli	cate res	ult.		
	MS	MSD		S	pike	MS	MSD	Rec.
Surrogate	Result	Result	Units	Dil. Ar	nount	Rec.	Rec.	Limit
Trifluorotoluene (TFT)	1.81	1.83	mg/Kg	1	2	90	92	70 - 130
4-Bromofluorobenzene (4-BFB)	1.94		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		Analy	vzed By: SC
				CCVs	CCVs	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			Date	Analyzed:	2015-03-03		Analyzed By: SC		
				CCVs	$\rm CCVs$	CCVs	Percent		
				True	Found	Percent	Recovery	Date	
Param	Flag	Cert	Units	Conc.	Conc.	Recovery	Limits	Analyzed	
DRO		1	m mg/Kg	250	218	87	80 - 120	2015-03-03	

Standard (ICV-1)

QC Batch:	119733	33 Date Analyze				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:	h: 119733		QC Batch: 119733			Date A	analyzed:	2015-03-03		Analy	zed By: EM
					CCVs True	CCVs Found	CCVs Percent	Percent Recovery	Date		
Param		Flag	Cert	Units	Conc.	Conc.	Recovery	Limits	Analyzed		
Chloride		-0		mg/Kg	100	100	100	85 - 115	2015-03-03		

Report Date: March 7250715022.001	n 9, 2015		V		Page Number: 30 of 34			
Standard (ICV-1)								
QC Batch: 119741			Date A	nalyzed: 20	015-03-03		Analyz	zed By: EM
Param Chloride	Flag	Cert	Units mg/Kg	ICVs True Conc. 100	ICVs Found Conc. 101	ICVs Percent Recovery 101	Percent Recovery Limits 85 - 115	Date Analyzed 2015-03-03
Standard (CCV-1)							
QC Batch: 119741			Date A	nalyzed: 20	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	-0		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
				CCVs True	CCVs Found	CCVs Percent	Percent Recovery	Date
Param	Flag	Cert	Units	Conc.	Conc.	Recovery	Limits	Analyzed
Benzene		1	mg/kg	0.100	0.103	103	80 - 120	2015-03-04
Toluene		1	$\mathrm{mg/kg}$	0.100	0.0995	100	80 - 120	2015-03-04
Ethylbenzene		1	mg/kg	0.100	0.101	101	80 - 120	2015-03-04
V 1			/1	0.000	0.004	101	00 100	0015 00

Standard (CCV-2)

Xylene

QC Batch: 119761			Date An	alyzed: 20	15-03-04		Analyzed By: AK			
				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		

0.300

0.304

101

80 - 120

2015-03-04

 $\mathrm{mg/kg}$

1

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Report Date 7250715022.	e: March 9, 2 001	2015		Ţ.	Work Order: 30137			Page Nu:	mber: 31 of 3
Standard (CCV-3)								
QC Batch:	119761			Date A	analyzed: 2	015-03-04		Analy	zed By: AK
					CCVs	CCVs	CCVs	Percent	
					True	Found	Percent	Recovery	Date
Param		Flag	Cert	Units	Conc.	Conc.	Recovery	Limits	Analyzed
Benzene			1	mg/kg	0.100	0.102	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
Xylene			1	mg/kg	0.300	0.302	101	80 - 120	2015-03-0
Standard (CCV-1)								
QC Batch:			Date A	analyzed: 2	015-03-04		Analy	zed By: AK	
					CCVs	CCVs	CCVs	Percent	
							0015	I CICCIII	
							Percent	Recovery	Date
Param	Flag	C	lert	Units	True	Found	Percent Becovery	Recovery Limits	Date Analyzed
GRO	Flag	(Cert 1	Units mg/Kg			Percent Recovery 104	Recovery Limits 80 - 120	Analyzed
GRO Standard (CCV-2)			mg/Kg	True Conc. 1.00	Found Conc.	Recovery	Limits 80 - 120	Analyzed 2015-03-0
Param GRO Standard (QC Batch:	CCV-2)			mg/Kg	True Conc. 1.00	Found Conc. 1.04	Recovery 104	Limits 80 - 120 Analy	Analyzed 2015-03-0
GRO Standard (CCV-2)			mg/Kg	True Conc. 1.00 Analyzed: 2 CCVs	Found Conc. 1.04 2015-03-04 CCVs	Recovery 104 CCVs	Limits 80 - 120 Analy Percent	Analyzed 2015-03-0 zed By: AK
GRO Standard (QC Batch:	CCV-2) 119764		1	mg/Kg Date A	True Conc. 1.00 Analyzed: 2 CCVs True	Found Conc. 1.04 2015-03-04 CCVs Found	Recovery 104 CCVs Percent	Limits 80 - 120 Analy Percent Recovery	Analyzed 2015-03-0 zed By: AK Date
GRO Standard (QC Batch: Param	CCV-2)			mg/Kg	True Conc. 1.00 Analyzed: 2 CCVs	Found Conc. 1.04 2015-03-04 CCVs	Recovery 104 CCVs	Limits 80 - 120 Analy Percent	Analyzed 2015-03-0 zed By: AK
GRO Standard (QC Batch: Param GRO	CCV-2) 119764 Flag		1 Cert	mg/Kg Date A Units	True Conc. 1.00 Analyzed: 2 CCVs True Conc.	Found Conc. 1.04 2015-03-04 CCVs Found Conc.	Recovery 104 CCVs Percent Recovery	Limits 80 - 120 Analy Percent Recovery Limits	Analyzed 2015-03-0 zed By: AK Date Analyzed
GRO Standard (CCV-2) 119764 Flag CCV-3)		1 Cert	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.	Recovery 104 CCVs Percent 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)		1 Cert	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. 1.09 2015-03-04 CCVs	Recovery 104 CCVs Percent 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)	C	1 Cert 1	mg/Kg Date A Units mg/Kg	True Conc. 1.00 Analyzed: 2 CCVs True Conc. 1.00 Analyzed: 2	Found Conc. 1.04 2015-03-04 CCVs Found Conc. 1.09	Recovery 104 CCVs Percent Recovery 109	Limits 80 - 120 Analy Percent Recovery Limits 80 - 120 Analy	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)	C	1 Cert	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	Recovery 104 CCVs Percent Recovery 109 CCVs	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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Report Date: M 7250715022.001	[arch 9, 201	5			er: 15022625 37 #3		Page Number: 32 of		
Standard (CC	V-1)								
QC Batch: 119	791		Date	Analyzed:	2015-03-05		Analy	zed By: AK	
Param	Flag	Cert	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed	
GRO	Flag	1	mg/Kg	1.00	1.04	104	80 - 120	2015-03-05	
Standard (CC	V-2)								
QC Batch: 119	791		Date	Analyzed:	2015-03-05		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 (CC	V-1)								
QC Batch: 119	849		Date	Analyzed:	2015-03-09		Analy	zed By: AK	
Param	Flag	Cert	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent	Percent Recovery Limits	Date Analyzed	
GRO	Flag		mg/Kg	1.00	1.05	Recovery 105	80 - 120	2015-03-09	
Standard (CC QC Batch: 119	,		Date	Analyzed:	2015-03-09		Analy	zed By: AK	
				CCVs	$\rm CCVs$	CCVs	Percent	*	
Param	Flag	Cert	Units	True Conc.	Found Conc.	Percent Recovery	Recovery Limits	Date Analyzed	
GRO		1	$\mathrm{mg/Kg}$	1.00	0.979	98	80 - 120	2015-03-09	

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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

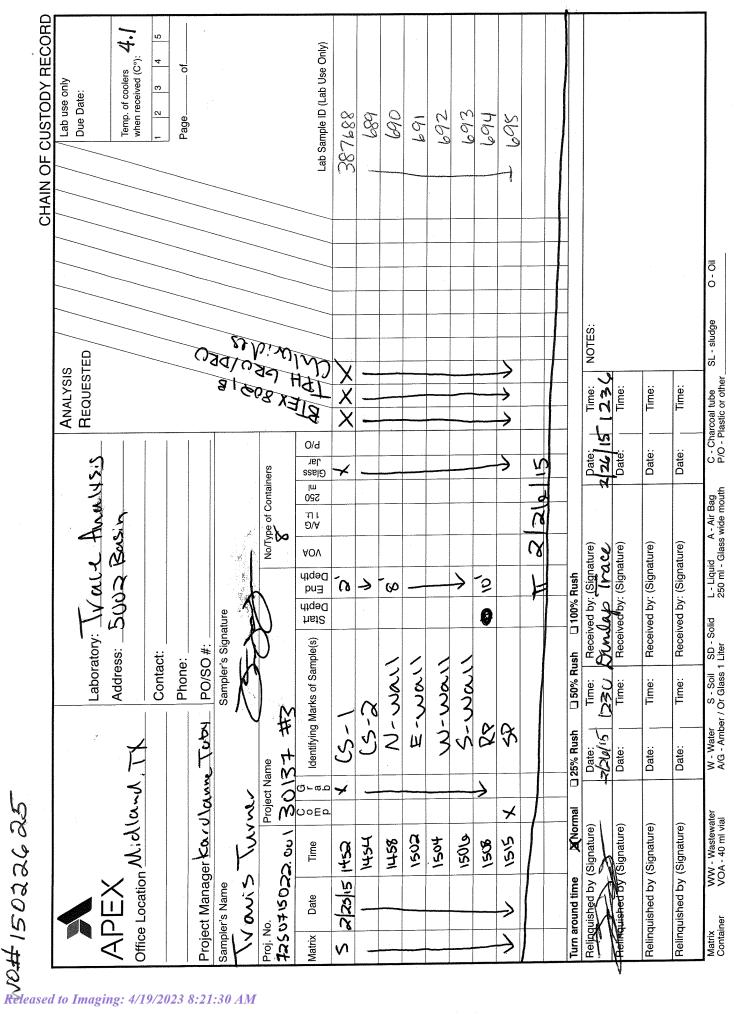
Attachments

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The scanned attachments will follow this page.

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





Apex TITAN, Inc. • 2351 W. Northwest Hwy., Suite 3321 • Dallas, Texas 75220 • Office: 214-350-5469 • Fax 214-350-2914

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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

915-585-3443 FAX 915 • 585 • 4944 432-689-6301 FAX 432 • 689 • 6313 972-242 -7750

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 Lefturich

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

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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.

		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.

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

Sample: 395922 - BKG-1

Laboratory: Analysis: QC Batch: Prep Batch:	Midland BTEX 122539 103647		Γ	Date Ana	l Method: lyzed: reparation)21B 5-06-23 5-06-22			Prep Method Analyzed By Prepared By:	AK
						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		mg/Kg		1	0.0200
Xylene		U		1	<	0.0200		mg/Kg		1	0.0200
Surrogate			Flag	Cert	Result	Unit	s D	ilution	Spike Amount	Percent Recovery	Recovery Limits
Trifluorotolue	ene (TFT)		0		2.03	mg/ł		1	2.00	102	70 - 130
	obenzene (4-BFB)				2.08	mg/ł		1	2.00	104	70 - 130
Sample: 39 Laboratory: Analysis: QC Batch: Prep Batch:	5922 - BKG-1 Midland Chloride (Titratic 122418 103564	m)		Date	ytical Me Analyzed ple Prepar	l:	SM 45 2015-0 2015-0			Prep Methe Analyzed E Prepared E	By: AK
						RL					
		Floor		Cert		Result		Units	;	Dilution	RL
Parameter		Flag									

Sample: 395922 - BKG-1

Laboratory:	Midland						
Analysis:	TPH DRO - NEW	τ	Analytic	al Method:	S 8015 D	Prep Method:	N/A
QC Batch:	122545		Date An	alyzed:	2015-06-23	Analyzed By:	\mathbf{SC}
Prep Batch:	103612		Sample I	Preparation:	2015-06-19	Prepared By:	\mathbf{SC}
				RL			
Parameter		Flag	Cert	Result	Units	Dilution	RL
DRO		$_{\rm Qr,Qs,U}$	1	<50.0	mg/Kg	1	50.0

Report Date: June 23, 7250715022.001	Report Date: June 23, 2015 250715022.001			Work Order: 15061712 30137 #3					Page Number: 6 of 22		
Surrogate	Flag	Ce	rt	Result	Units	Dilu	tion A	Spike Amount	Percent Recovery	Recovery Limits	
n-Tricosane _{Qsr}	Qsr			68.6	mg/Kg		1	50.0	137	70 - 130	
Sample: 395922 - B Laboratory: Midland Analysis: TPH GF QC Batch: 122540 Prep Batch: 103647				Date An	al Method: alyzed: Preparation	2015-0	6-23		Prep Metho Analyzed By Prepared By	v: AK	
						RL					
Parameter		Flag		Cert	F	lesult	Ur	nits	Dilution	RL	
GRO		$_{\rm Qs,U}$		1	•	<4.00	mg/	Kg	1	4.00	
Surrogate			Flag	Cert	Result	Units	Dilution	Spike Amount	Percent Recovery	Recovery Limits	
Trifluorotoluene (TFT)			-		2.54	mg/Kg	1	2.00	127	70 - 130	
	(/					

 mg/Kg

1

2.00

109

70 - 130

Sample: 395923 - BKG-2

4-Bromofluorobenzene (4-BFB)

Laboratory:MidlandAnalysis:BTEXQC Batch:122539Prep Batch:103647		Date Ana	l Method: lyzed: reparation:	S 8021E 2015-06 2015-06	-23		Prep Method Analyzed By Prepared By	: AK
				RL				
Parameter	Flag	Cert]	Result	Unit	s	Dilution	RL
Benzene	U	1	<	0.0200	mg/Kg	g	1	0.0200
Toluene	U	1	<	0.0200	$\mathrm{mg/Kg}$	g	1	0.0200
Ethylbenzene		1	0	0.0517	mg/K_{2}	g	1	0.0200
Xylene	U	1	<	0.0200	mg/K_{s}		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

 \mathbf{RL}

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Dilution

Units

Report Date 7250715022.0	e: June 23, 2015 001		V	Vork Order: 30137 7			Page Nun	nber: 7 of 22
Sample: 39	5923 - BKG-2							
Laboratory:	Midland							
Analysis:	Chloride (Titrat	tion)		ytical Metho		00-Cl B	Prep Me	/
QC Batch:	122418			Analyzed:	2015-06		Analyzed	
Prep Batch:	103564		Samp	ple Preparati	on: 2015-06	5-18	Prepared	By: AK
					RL			
Parameter		Flag	Cert	Res		Units	Dilution	RL
Chloride		$_{\rm Qs,U}$		<2	0.0	m mg/Kg	5	4.00
Laboratory: Analysis: QC Batch: Prep Batch:	Midland TPH DRO - NE 122545 103612	ΣW	Dat	ılytical Meth e Analyzed: ıple Preparat	2015-0	06-23	Prep Me Analyzed Prepared	l By: SC
					RL			
Parameter		Flag	Cert		sult	Units	Dilution	RL
DRO		$_{\mathrm{Qr,Qs,U}}$	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:	Midland							
Analysis:	TPH GRO			al Method:	S 8015 D		Prep Meth	
QC Batch:	122540		Date Ana	•	2015-06-23		Analyzed I	•
Prep Batch:	103647		Sample I	Preparation:	2015-06-22		Prepared E	By: AK
					RL			
D .			~		•		D 11	

GRO	Qs,U		1		<4.00	mg/k	Γg	1	4.00
Surrogate		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	mg/Kg	1	2.00	107	70 - 130

Result

 Cert

Flag

Parameter

Report Date: June 23, 2015 7250715022.001			W	ork Order 3013	r: 15061712 7 #3	2		Page Numl	ber: 8 of 22
Sample: 395924 - STP-2									
Laboratory:MidlandAnalysis:BTEXQC Batch:122539Prep Batch:103647		Da	te Analy	Method: yzed: eparation:	S 8021B 2015-06- 2015-06-			Prep Metho Analyzed By Prepared By	y: AK
					RL				
Parameter	Flag		Cert	F	Result	Units		Dilution	RL
Benzene			1		4.22	mg/Kg		1	0.0200
Toluene			1		20.4	mg/Kg		1	0.0200
Ethylbenzene			1		7.34	m mg/Kg		1	0.0200
Xylene	Je		1		34.0	$\mathrm{mg/Kg}$		1	0.0200
							Spike	Percent	Recovery
Surrogate		Flag	Cert	Result	Units	Dilution	Amount	Recovery	Limits
Trifluorotoluene (TFT)				1.72	mg/Kg	1	2.00	86	70 - 130
4-Bromofluorobenzene (4-BFB)	Qsr	Qsr		6.49	m mg/Kg	1	2.00	324	70 - 130

Sample: 395924 - STP-2

Laboratory: Analysis: QC Batch: Prep Batch:	Midland Chloride (Titration) 122418 103564	Date A	ical Method: nalyzed: 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	RL
Chloride	Qs		98.0	mg/Kg	5	4.00

Sample: 395924 - STP-2

H DRO - NEV	W	Anal	ytical Metho	d: $S 8015$	D	Prep Me	thod: N/A
545		Date	Analyzed:	2015-06	-23	Analyzed	l By: SC
612		Sam	ple Preparati	on: 2015-06	-19	Prepared	By: SC
			F	RL			
	Flag	Cert	Resu	ılt	Units	Dilution	RL
	$_{ m Qr,Qs}$	1	57	75	mg/Kg	1	50.0
Flag	Cert	Result	Units	Dilution	Spike Amount	Percent Recovery	Recovery Limits
×	0.010	81.9		1	50.0	164	70 - 130
	2545 6612 Flag	Flag Qr,Qs Flag Cert	545 Date 5612 Samp Flag Cert Qr,Qs 1 Flag Cert Result Flag Cert Result	2545 Date Analyzed: 2612 Sample Preparation From From From From From From From From	2545 Date Analyzed: 2015-06 2612 Sample Preparation: 2015-06 RL Flag Cert Result Qr,Qs 1 575 Flag Cert Result Units Dilution	2545 Date Analyzed: 2015-06-23 Sample Preparation: 2015-06-19 RL Flag Cert Result Units Qr,Qs 1 575 mg/Kg Flag Cert Result Units Dilution Amount	2545 Date Analyzed: 2015-06-23 Analyzed 2612 Date Analyzed: 2015-06-19 Prepared RL Flag Cert Result Units Dilution Qr,Qs 1 575 mg/Kg 1 Spike Percent Flag Cert Result Units Dilution Amount Recovery

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Report Date: June 23, 2015 7250715022.001			W	Vork Order 3013	r: 15061712 7 #3	2		Page Num	ber: 9 of 22
Sample: 395924 - STP-2									
Laboratory:MidlandAnalysis:TPH GROQC Batch:122540Prep Batch:103647		Γ	Date Ana	l Method lyzed: reparation	2015-00	3-23		Prep Metho Analyzed B Prepared B	y: AK
					RL				
Parameter	Flag		Cert	I	Result	Unit	5	Dilution	RL
GRO	$_{\rm Je,Qs}$		1		1190	m mg/Kg	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	Qsr		25.6	$\mathrm{mg/Kg}$	1	10.0	256	70 - 130

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7250715022.001		30137	7 #3		
Method	Blanks				
Method Blank (1)	QC Batch: 122418				
QC Batch: 122418	3	Date Analyzed:	2015-06-18	Analyzed By:	AK
Prep Batch: 103564	Ł	QC Preparation:	2015-06-18	Prepared By:	AK
			MDL		
Parameter	Flag	Cert	Result	Units	RL
Chloride			<3.85	mg/Kg	4

Work Order: 15061712

Method Blank (1)	QC Batch: 122539
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QC Batch: 122539 Prep Batch: 103647			analyzed: eparation:	2015-06-2 2015-06-2	-		Analyzed Prepared	0
					MDL			
Parameter	Flag		Cert		Result		Units	RL
Benzene			1		< 0.00533	1	mg/Kg	0.02
Toluene			1		$<\!0.00645$	1	m mg/Kg	0.02
Ethylbenzene			1		< 0.0116	1	m mg/Kg	0.02
Xylene			1		< 0.00874]	mg/Kg	0.02
Surrogate	Flag	Cert	Result	Units	Dilution	Spike Amount	Percent Recovery	Recovery Limits
Trifluorotoluene (TFT)	-0		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: 122 Prep Batch: 103		Date Analyzed: QC Preparation:		Analyzed By: Prepared By:	
			MDL		
Parameter	Flag	Cert	Result	Units	RL
GRO		1	<2.32	mg/Kg	4

Report Date: June 23. 7250715022.001	2015		T.	Work Order 30137		2		Page Numb	per: 11 of	22
							Spike	Percent	Recove	ry
Surrogate		Fla	g Cert	Result	Units	Dilution	Amount	Recovery	Limit	3
Trifluorotoluene (TFT)				2.33	mg/Kg	1	2.00	116	70 - 13	60
4-Bromofluorobenzene	(4-BFB)			1.99	$\mathrm{mg/Kg}$	1	2.00	100	70 - 13	0
Method Blank (1)	QC E	Batch: 1225_{4}	45							
Method Blank (1) QC Batch: 122545 Prep Batch: 103612	QC E	3atch: 1225	Date A	Analyzed: reparation:	2015-06-2 2015-06-2	19		Analyze Prepare	v	
QC Batch: 122545	QC E	Batch: 1225	Date A	v		-		•	v	
QC Batch: 122545 Prep Batch: 103612 Parameter	QC E	Batch: 12254 Flag	Date A QC Pr	v		19		Prepare	d By: So	
QC Batch: 122545 Prep Batch: 103612	QC F		Date A QC Pr	reparation:		19 MDL		Prepare	d By: So	С
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: So	C <u>RL</u> 50 ry

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Laboratory Control Spikes

Laboratory Control Spike (LCS-1)

QC Batch: 122418 Prep Batch: 103564	Date Analyzed:2015-06-18Analyzed ByQC Preparation:2015-06-18Prepared By									
The Bateria 100001		Q U	roparati	201	0 00 10			110p	area Dj	v: AK
			LCS			Spike	M	atrix		Rec.
Param	F	С	Result	Units	Dil.	Amount	Re	esult R	.ec.	Limit
Chloride			2350	mg/Kg	5	2500	<	19.2	94 8	85 - 115
Percent recovery is based on the sp	oike re	ult. RPD	is based of	on the sp	pike and sp	ike duplica	ate resi	ult.		
		LCSD			Spike	Matrix		Rec.		RPD
Param	F 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: 122539		Ι	Date Analy	zed: 2015	5-06-23		A	nalyzed	By: AK
Prep Batch: 103647		C	QC Prepara	ation: 201	5-06-22		Р	repared	By: AK
			тос			G .1	NT + 1		D
			LCS			Spike	Matrix		Rec.
Param	\mathbf{F}	\mathbf{C}	Result	Units	Dil.	Amount	Result	Rec.	Limit
Benzene		1	1.89	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		1	1.73	m mg/Kg	1	2.00	< 0.0116	86	70 - 130
Xylene		1	5.64	m 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.

			LCSD			Spike	Matrix		Rec.		RPD
Param	\mathbf{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	mg/Kg	1	6.00	< 0.00874	95	70 - 130	1	20
					-				-		

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

continued ...

Report Date: June 23, 2015 7250715022.001				Wor	rk Order 30137	: 15061712 7#3			Pa	age Numbe	er: 13 of 2
control spikes continued					1 005			<i>a</i>	- 00	1 005	
9			LC Res		LCSD Result	TT:+	Dil.	Spike	LCS	LCSD	Rec.
Surrogate			nes	un	Result	Units	DII.	Amount	Rec.	Rec.	Limit
			LC	CS	LCSD			Spike	LCS	LCSD	Rec.
Surrogate			Res	ult	Result	Units	Dil.	Amount	Rec.	Rec.	Limit
Trifluorotoluene (TFT)			1.8		1.76	m mg/Kg	1	2.00	93	88	70 - 130
4-Bromofluorobenzene (4-BFB)			1.8	83	1.75	mg/Kg	1	2.00	92	88	70 - 130
Laboratory Control Spike (L QC Batch: 122540 Prep Batch: 103647	CS-1)			dyzed: aration:	2015-06-23 2015-06-22				Analyzed Prepared	v
				LCS				Spike	Matrix		Rec.
								10 Io 0			
Param		F				nits Dil	. A	Amount	Result	Rec.	Limit
GRO			$\frac{C}{1}$ It. RPD	Resul 15.5	t Ur mg	-	l spike	-		Rec. 78	Limit 70 - 130
GRO Percent recovery is based on the s Param				Result 15.5 is ba U	t U1 mg ng sed on t nits I	/Kg 1	l spike e M nt R	20.0	<2.32 result. Rec. Lin	78	70 - 130 RPD PD Limit
GRO Percent recovery is based on the s Param GRO	spike F	resul C 1	C I 1 lt. RPD LCSD Result 15.3	Resul 15.5 is ba U mg	t Un mg mg sed on t nits I g/Kg	/Kg 1 he spike and Spike Dil. Amou 1 20.0	l spike e M nt R <	20.0 e duplicate Matrix Result Re <2.32 7	<2.32 result. ec. Lin 6 70 -	78 ec. mit RF	70 - 130 RPD PD Limit
GRO Percent recovery is based on the s Param GRO	spike F	resul C 1	C I 1 1 LCSD Result 15.3 It. RPD	Result 15.5 is ba Ut mg is ba	t Un mg mg sed on th nits D g/Kg sed on th sed on th g/Kg sed on th sed on the sed on	/Kg 1 he spike and Spike Dil. Amou 1 20.0	l spike e M nt R <	20.0 e duplicate Matrix Result Re <2.32 7 e duplicate	<2.32 result. Rec. Lin 6 70 - result.	78 ec. mit RF 130 1	70 - 130 RPD PD Limit 1 20
GRO Percent recovery is based on the s Param GRO Percent recovery is based on the s	spike F	resul C 1	C I 1 lt. RPD LCSD Result 15.3 lt. RPD LC	Result 15.5 is ba Ut mg is ba	t Un mg mg sed on the sed	/Kg 1 he spike and Spike Dil. Amou 1 20.0 he spike and	l spike e M nt F < l spike	20.0 e duplicate Aatrix Result Re <2.32 7 e duplicate Spike	<2.32 result. Rec. Lin 6 70 - result. LCS	78 ec. nit RF 130 1 LCSD	70 - 130 RPD PD Limit 20 Rec.
GRO Percent recovery is based on the s Param GRO Percent recovery is based on the s Surrogate	spike F	resul C 1	C I 1 LCSD Result 15.3 It. RPD LC Res	Result 15.5 is ba Un mg is ba CS ult	t Un mg sed on th nits D g/Kg sed on th LCSD Result	/Kg 1 he spike and Spike Dil. Amou 1 20.0 he spike and Units	l spike e M nt F d spike Dil.	20.0 e duplicate Matrix Result Re <2.32 7 e duplicate Spike Amount	<2.32 result. Rec. Lin 6 70 - result. LCS Rec.	78 ec. <u>mit RF</u> 130 1 LCSD Rec.	70 - 130 PD Limit L 20 Rec. Limit
Param GRO Percent recovery is based on the s Param GRO Percent recovery is based on the s Surrogate Trifluorotoluene (TFT) 4-Bromofluorobenzene (4-BFB)	spike F	resul C 1	C I 1 lt. RPD LCSD Result 15.3 lt. RPD LC	Result 15.5 is ba Ut mg is ba CS ult 34	t Un mg mg sed on the sed	/Kg 1 he spike and Spike Dil. Amou 1 20.0 he spike and	l spike e M nt F < l spike	20.0 e duplicate Aatrix Result Re <2.32 7 e duplicate Spike	<2.32 result. Rec. Lin 6 70 - result. LCS	78 ec. nit RF 130 1 LCSD	70 - 130 RPD PD Limit 20 Rec.
GRO Percent recovery is based on the s Param GRO Percent recovery is based on the s Surrogate Trifluorotoluene (TFT)	spike F spike	C 1 resu	C I 1 1 LCSD Result 15.3 1t. RPD LC Res 2.3 2.0 Date	Result 15.5 is ba Un mg is ba CS ult 34 09 e Ana	t Un mg sed on th nits D g/Kg sed on th LCSD Result 2.35	/Kg 1 he spike and Spike Dil. Amou 1 20.0 he spike and Units mg/Kg	l spike e M nt F < d spike Dil. 1 1	20.0 e duplicate Matrix Result Re <2.32 7 e duplicate Spike Amount 2.00	<2.32 result. Rec. Lin 6 70 - result. LCS Rec. 117	78 ec. <u>mit RF</u> 130 1 LCSD <u>Rec.</u> 118	70 - 130 RPD Limit 20 Rec. Limit 70 - 130 70 - 130 1 By: SC
GRO Percent recovery is based on the s Param GRO Percent recovery is based on the s Surrogate Trifluorotoluene (TFT) 4-Bromofluorobenzene (4-BFB) Laboratory Control Spike (LO QC Batch: 122545 Prep Batch: 103612	spike F spike	C 1 resul	C I 1 LCSD Result 15.3 lt. RPD LC Res 2.3 2.0 Date QC	Result 15.5 is ba Un mg is ba CS ult 34 09 e Ana Prepa LCS	t Un mg sed on th nits D g/Kg sed on th LCSD Result 2.35 2.12	/Kg 1 he spike and Spike Dil. Amou 1 20.0 he spike and Units mg/Kg mg/Kg 2015-06-23 2015-06-19	l spike e M spike Dil. 1 1	20.0 e duplicate Matrix Result Re <2.32 7 e duplicate Spike Amount 2.00 2.00 2.00	<2.32 result. Rec. Lin 6 70 - result. LCS Rec. 117 104 Matrix	78 mit RF 130 1 LCSD Rec. 118 106 Analyzed Prepared	70 - 130 PD Limit 20 Rec. Limit 70 - 130 70 - 130 70 - 130 1 By: SC 1 By: SC 1 By: SC Rec.
GRO Percent recovery is based on the s Param GRO Percent recovery is based on the s Surrogate Trifluorotoluene (TFT) 4-Bromofluorobenzene (4-BFB) Laboratory Control Spike (LO QC Batch: 122545	spike F spike	C 1 resu	C I It. RPD LCSD Result 15.3 It. RPD LC Res 2.3 2.0 Date QC	Result 15.5 is ba Un mg is ba CS ult 34 D9 e Ana Prepa	t Un mg sed on th nits D g/Kg sed on th LCSD Result 2.35 2.12	/Kg 1 he spike and Spike Dil. Amou 1 20.0 he spike and Units mg/Kg mg/Kg 2015-06-23	l spike e M spike Dil. 1 1	20.0 e duplicate Aatrix Result Re <2.32 7 e duplicate Spike Amount 2.00 2.00	<2.32 result. Rec. Lin 6 70 - result. LCS Rec. 117 104	78 ec. mit RF 130 1 LCSD Rec. 118 106	70 - 130 RPD Limit 20 Rec. Limit 70 - 130 70 - 130 70 - 130 1 By: SC 1 By: SC

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control spikes continued											
			LCSD			Spike	Matrix		Rec.		RPD
Param	\mathbf{F}	С	Result	Units	Dil.	Amount	Result	Rec.	Limit	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	cate resu	lt.		
	LO	CS	LCSI)			Spike	LCS	LCS	D	Rec.
Surrogate	Res	sult	Resul	lt U	nits	Dil.	Amount	Rec	. Rec		Limit
n-Tricosane	58	3.5	61.9	mg	g/Kg	1	50.0	117	124	: '	70 - 130

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Matrix Spike	S									
Matrix Spike (MS-1) Sp	oiked Sε	ample	: 396009	1						
QC Batch: 122418				e Analyze		5-06-18			v	zed By: AK
Prep Batch: 103564			QC	Preparat	ion: 201	5-06-18			Prepa	red By: AK
				MS			Spike	Matrix		Rec.
Param		\mathbf{F}	\mathbf{C}	Result	Units	Dil.	Amount	Result	Rec.	Limit
Chloride	$_{\rm Qs}$	$_{\rm Qs}$		19700	mg/Kg	5	2500	16600	124	78.9 - 121
Percent recovery is based on t	he spik	e resu	ılt. RPE	is based	on the sp	pike and s	pike duplie	cate result.		
			MSD			Spike	Matrix]	Rec.	RPD
Param	F	C	Result	t Units	Dil	Amount	Result		imit	RPD Limit

Work Order: 15061712

				MSD			Spike	Matrix		Rec.		RPD
Param		\mathbf{F}	\mathbf{C}	Result	Units	Dil.	Amount	Result	Rec.	Limit	RPD	Limit
Chloride	$_{\rm Qs}$	$_{\rm Qs}$		19900	$\mathrm{mg/Kg}$	5	2500	16600	132	78.9 - 121	1	20

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

Matrix Spike (MS-1) Spiked Sample: 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}	С	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	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	$\mathrm{mg/Kg}$	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 ...

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Report Date: June 23, 20 7250715022.001	15		W	Vork Order: 30137				Pag	ge Numbe	er: 16 of 25
matrix spikes continued							a u	2.60		D
Surrogate			MS Result	MSD Result	Units	Dil.	Spike Amount	MS Rec.	MSD Rec.	Rec. Limit
Surrogate			nesun	itesuit	Onits	DII.	Amount	nec.	nec.	LIIIII
			MS	MSD			Spike	MS	MSD	Rec.
Surrogate			Result		Units	Dil.	Amount	Rec.	Rec.	Limit
Trifluorotoluene (TFT)			1.84	1.89	mg/Kg	1	2	92	94	70 - 130
4-Bromofluorobenzene (4-I	BFB)		1.92	1.96	mg/Kg	1	2	96	98	70 - 130
Matrix Spike (MS-1) QC Batch: 122540 Prep Batch: 103647	Spiked	Sample:	Date A	nalyzed: eparation:	2015-06-23 2015-06-22				Analyzed Prepared	v
		Б	M		., D.1		1	Matrix	D	Rec.
Param		\mathbf{F}	C Res	ult Un				Result	Rec.	Limit
			14	0	/TZ 1			-0.00		
GRO	.,		1 14	0,	~		20.0	<2.32	74	70 - 130
GRO	on the sp	oike resul		0,	~				74	70 - 130
GRO	on the sp	oike resul		0,	~	spike o				
GRO Percent recovery is based o	on the sp	oike resul	t. RPD is	based on th	ne spike and	spike o e Ma	duplicate r	esult. Re	с.	RPD
GRO Percent recovery is based o Param	on the sp $_{Qs}$		lt. RPD is MSD Result	based on th Units I	ne spike and Spike	spike o e Ma nt Re	duplicate r atrix	esult. Re c. Lin	c. nit RP	RPD D Limit
GRO Percent recovery is based o Param GRO	Qs	F C	tt. RPD is MSD Result 13.8	based on th Units I mg/Kg	ne spike and Spike Dil. Amou 1 20.0	spike o e Ma nt Re <	duplicate re atrix esult Rec 2.32 69	esult. Re c. Lin 0 70 -	c. nit RP	RPD D Limit
GRO Percent recovery is based o Param GRO	Qs	F C	tt. RPD is MSD Result 13.8 It. RPD is	based on th Units I mg/Kg based on th	ne spike and Spike Dil. Amou 1 20.0	spike o e Ma nt Re <	duplicate r atrix esult Rec 2.32 69 duplicate r	esult. Re c. Lim 70 - esult.	c. nit RP 130 7	RPD D Limit 20
GRO Percent recovery is based of Param GRO Percent recovery is based of	Qs	F C	t. RPD is MSD Result 13.8 t. RPD is MS	based on th Units I mg/Kg based on th MSD	ne spike and Spike Dil. Amou: 1 20.0 ne spike and	spike of the spike	luplicate r atrix esult Rec 2.32 69 duplicate r Spike	esult. Re c. Lin 70 - esult. MS	c. hit RP 130 7 MSD	RPD D Limit 20 Rec.
GRO Percent recovery is based of Param GRO Percent recovery is based of Surrogate	Qs	F C	It. RPD is MSD Result 13.8 It. RPD is MS Result	based on th Units I mg/Kg based on th MSD c Result	ne spike and Spike Dil. Amou: 1 20.0 ne spike and Units	spike of the spike	luplicate r atrix esult Rec 2.32 69 luplicate r Spike Amount	esult. Re c. Lin 70 - esult. MS Rec.	c. nit RP 130 7 MSD Rec.	RPD D Limit 20 Rec. Limit
GRO Percent recovery is based of Param GRO Percent recovery is based of Surrogate Trifluorotoluene (TFT)	Qs on the sp	F C	t. RPD is MSD Result 13.8 t. RPD is MS	based on th Units I mg/Kg based on th MSD	ne spike and Spike Dil. Amou: 1 20.0 ne spike and	spike of the spike	luplicate r atrix esult Rec 2.32 69 duplicate r Spike	esult. Re c. Lin 70 - esult. MS	c. hit RP 130 7 MSD	RPI D Limi 20 Rec. Limit 70 - 13
GRO Percent recovery is based of Param GRO Percent recovery is based of Surrogate Trifluorotoluene (TFT) 4-Bromofluorobenzene (4-1) Matrix Spike (MS-1) QC Batch: 122545	on the sp BFB)	F C	It. RPD is MSD Result 13.8 It. RPD is MS Result 2.49 2.20 395908 Date A	based on th Units I mg/Kg based on th MSD Result 2.48 2.21	he spike and Spike Dil. Amour 1 20.0 he spike and Units mg/Kg mg/Kg 2015-06-23	spike of market spike spike of market spike spik	duplicate reatrix esult Rea 2.32 69 duplicate re Spike Amount 2	esult. Re C. Lin 70 - esult. MS Rec. 124 110	c. nit RP 130 7 MSD Rec. 124 110	RPD D Limii 20 Rec. Limit 70 - 130 70 - 130
GRO Percent recovery is based of Param GRO Percent recovery is based of Surrogate Trifluorotoluene (TFT) 4-Bromofluorobenzene (4-1) Matrix Spike (MS-1) QC Batch: 122545	on the sp BFB)	F C Qs 1 pike resu	It. RPD is MSD Result 13.8 It. RPD is MS Result 2.49 2.20 395908 Date A	based on th Units I mg/Kg based on th MSD Result 2.48 2.21	he spike and Spike Dil. Amou 1 20.0 he spike and Units mg/Kg mg/Kg	spike of market spike spike of market spike spik	duplicate reatrix esult Rea 2.32 69 duplicate re Spike Amount 2	esult. Re C. Lin 70 - esult. MS Rec. 124 110	c. nit RP 130 7 MSD Rec. 124 110	RPD D Limit 20 Rec. Limit 70 - 130 70 - 130
GRO Percent recovery is based of Param GRO Percent recovery is based of Surrogate Trifluorotoluene (TFT) 4-Bromofluorobenzene (4-1) Matrix Spike (MS-1) QC Batch: 122545 Prep Batch: 103612	on the sp BFB)	F C _{Qs 1} bike result	It. RPD is MSD Result 13.8 It. RPD is MS Result 2.49 2.20 395908 Date A QC Pro-	based on th Units I mg/Kg based on th MSD Result 2.48 2.21 nalyzed: eparation: S	he spike and Spike Dil. Amour 1 20.0 he spike and Units mg/Kg mg/Kg 2015-06-23 2015-06-19	spike of e Ma nt Ro spike of Dil. 1 1 S	duplicate ra atrix esult Rec 2.32 69 duplicate ra Spike Amount 2 2 2	esult. Re c. Lin 70 - esult. MS Rec. 124 110	c. nit RP 130 7 MSD Rec. 124 110 Analyzed Prepared	RPD D Limit 20 Rec. Limit 70 - 130 70 - 130 70 - 130 89: SC By: SC By: SC Rec.
GRO Percent recovery is based of Param GRO Percent recovery is based of Surrogate Trifluorotoluene (TFT) 4-Bromofluorobenzene (4-1 Matrix Spike (MS-1) QC Batch: 122545	on the sp BFB)	F C Qs 1 pike resu	It. RPD is MSD Result 13.8 It. RPD is MS Result 2.49 2.20 395908 Date A QC Pro	based on the Units I mg/Kg based on the MSD Result 2.48 2.21 analyzed: eparation: S ult Units Units I MSD MSD 2.48 2.21	he spike and Spike Dil. Amour 1 20.0 he spike and Units mg/Kg mg/Kg 2015-06-23 2015-06-19 its Dil.	spike of e Ma nt Ro spike of Dil. 1 1 S Ar	duplicate ra atrix esult Rec 2.32 69 duplicate ra Spike Amount 2 2 2	esult. Re 2. Lin 0. 70 - esult. MS Rec. 124 110	c. nit RP 130 7 MSD Rec. 124 110	RPD D Limit 20 Rec. Limit 70 - 130 70 - 130 70 - 130 89: SC By: SC

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matrix spikes continued											
			MSD			Spike	Matrix		Rec.		RPD
Param	\mathbf{F}	С	Result	Units	Dil.	Amount	Result	Rec.	Limit	RPD	Limit
			MSD			Spike	Matrix		Rec.		RPD
Param	\mathbf{F}	С	Result	Units	Dil.	Amount	Result	Rec.	Limit	RPD	Limit
DRO	Qr,Qs Qr,Qs	1	163	mg/Kg	1	250	<7.41	65	70 - 130	27	20
Percent recovery is based on the	e spike resu	lt. I	RPD is b	ased on th	ne spil	te 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 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:	122418		Date Analyzed: 2015-06-18				Analy	zed By: AK	
					CCVs	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 An	alyzed: 20	Analyzed By: AK			
				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	m 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 23, 2015 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	alyzed: 20	Analyzed By: AK			
				CCVs	CCVs	CCVs	Percent	
				True	Found	Percent	Recovery	Date
Param	Flag	Cert	Units	Conc.	Conc.	Recovery	Limits	Analyzed
Benzene		1	mg/kg	0.100	0.0924	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:				Analyzed 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	0.968	97	80 - 120	2015-06-23	

Standard (CCV-2)

QC Batch:	122540	Date Analyzed:			2015-06-23		Analyzed 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	

Report Date: 7250715022.0	June 23, 2015 01				er: 15061712 37 #3		Page Nu	mber: 20 of 22
Standard (C	CV-2)							
QC Batch: 1	22545		Date	Analyzed:	2015-06-23		Anal	yzed By: SC
Param	Flag	Cert	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
DRO	0	1	mg/Kg	250	243	97	80 - 120	2015-06-23
Standard (C	CV-3)							
QC Batch: 1	22545		Date	Analyzed:	2015-06-23		Anal	yzed By: SC
		~		CCVs True	CCVs Found	CCVs Percent	Percent Recovery	Date
Param DRO	Flag	Cert	Units mg/Kg	Conc. 250	Conc. 249	Recovery 100	Limits 80 - 120	Analyzed 2015-06-23

				Inte	round	rercent	necovery
Param	Flag	Cert	Units	Conc.	Conc.	Recovery	Limits
DRO		1	mg/Kg	250	249	100	80 - 120

Report Date: June 23, 2015 7250715022.001 Work Order: 15061712 $30137 \ #3$

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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

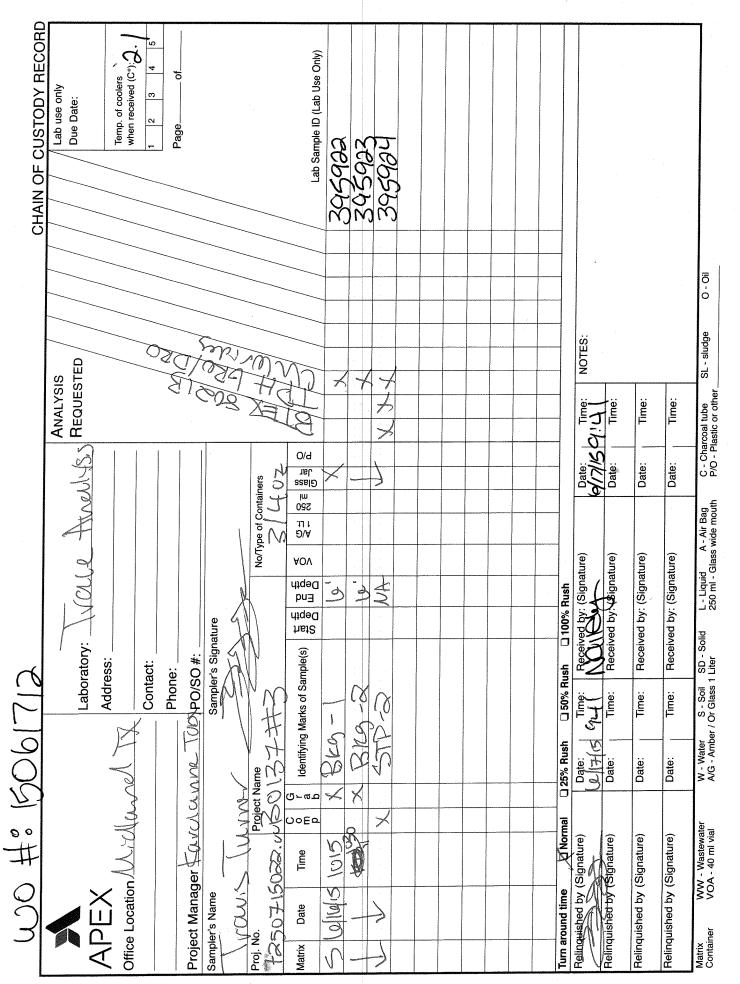
- F Description
- B Analyte detected in the corresponding method blank above the method detection limit
- H Analyzed out of hold time
- J Estimated concentration
- Jb The analyte is positively identified and the value is approximated between the SDL and MQL. Sample contains less then ten times the concentration 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
 800-378-1296
 806-915-915-915-Midland

 Midland
 Texas 79922
 915-432-972-972-E-Mail: lab@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 Left wich

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

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Sample 395917 (S-Wall)	
Sample 395918 (RP)	
Sample 395919 (STP)	
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•	
	-
QC Batch 122475 - Method Blank (1) \ldots	-
QC Batch 122488 - Method Blank (1) \ldots	
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QC Batch 122488 - CCV (3)	
QC Batch 122489 - CCV (2)	
QC Batch 122489 - CCV (3)	
QC Batch 122545 - CCV (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.

		Prep	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
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 Metho	d: S 5035
QC Batch: 122488		Date Ana	lyzed:	2015-06	-20		Analyzed B	y: AK
Prep Batch: 103596		Sample P	reparation	: 2015-06	-19		Prepared By	y: AK
				RL				
Parameter	Flag	Cert		Result	Unit	s	Dilution	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)			1.86	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								

Sample: 395914 - N-Wall

Midland					
Chloride (Titration)	Anal	ytical Method:	SM 4500-Cl B $$	Prep Method	: N/A
122419	Date	Analyzed:	2015-06-18	Analyzed By:	AK
103564	Samj	ole Preparation:	2015-06-18	Prepared By:	AK
		RL			
Flag	Cert	Result	Units	Dilution	RL
U		<20.0	mg/Kg	5	4.00
	122419 103564 Flag	Chloride (Titration)Anal122419Date103564SampFlagCert	Chloride (Titration)Analytical Method: Date Analyzed: Sample Preparation:103564Sample Preparation:FlagCert	Chloride (Titration)Analytical Method:SM 4500-Cl B122419Date Analyzed:2015-06-18103564Sample Preparation:2015-06-18RLFlagCertResultUnits	Chloride (Titration)Analytical Method:SM 4500-Cl BPrep Method122419Date Analyzed:2015-06-18Analyzed By:103564Sample Preparation:2015-06-18Prepared By:RLFlagCertResultUnitsDilution

Sample: 395914 - N-Wall

Midland						
TPH DRO - NE	W	Analytic	eal Method:	S 8015 D	Prep Method:	N/A
122545		Date Ar	nalyzed:	2015-06-23	Analyzed By:	\mathbf{SC}
ep Batch: 103612		Sample	Sample Preparation:		Prepared By:	\mathbf{SC}
			RL			
	Flag	Cert	Result	Units	Dilution	RL
	$_{\rm Qr,Qs,U}$	5	<50.0	mg/Kg	1	50.0
	TPH DRO - NEV 122545	TPH DRO - NEW 122545 103612 Flag	TPH DRO - NEWAnalytic122545Date Ar103612SampleFlagCert	TPH DRO - NEWAnalytical Method:122545Date Analyzed:103612Sample Preparation:RLFlagCertResult	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 7250715053	Work Order: 15061711 30137 #4				Page Number: 7 of 28		
Surrogate Flag	g Cert	Result 61.2	Units mg/Kg	Dilution 1	Spike Amount 50.0	Percent Recovery 122	Recovery Limits 70 - 130
			0/0				
Sample: 395914 - N-Wal	1						
Laboratory:MidlandAnalysis:TPH GROQC Batch:122489Prep Batch:103596		Analytical Method:S 8015 DDate Analyzed:2015-06-20Sample Preparation:2015-06-19			Prep Meth Analyzed I Prepared I	By: AK	
				RL			
Parameter	Flag	Cert	Res	sult	Units	Dilution	RL
GRO	$_{\rm Qs,U}$	5	<4	4.00	mg/Kg	1	4.00

~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~		<i>a</i>				Spike	Percent	Recovery
Surrogate	Flag	Cert	Result	Units	Dilution	Amount	Recovery	Limits
Trifluorotoluene (TFT)			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	: AK
				$\operatorname{RL}$				
Parameter	Flag	Cert	]	Result	Unit	5	Dilution	$\operatorname{RL}$
Benzene	U	5	<	0.0200	mg/Kg	S	1	0.0200
Toluene		5	0	.0221	m mg/Kg	g	1	0.0200
Ethylbenzene	$_{\rm Qs}$	5	0	.0389	mg/Kg		1	0.0200
Xylene		5	0	.0681	mg/Kg	5	1	0.0200
Surrogate	Fla	ıg Cert	Result	Units	Dilution	Spike Amount	Percent Recovery	Recovery Limits
Trifluorotoluene (TFT)		0	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 7250715053	e: June 23, 2015	June 23, 2015         Work Order: 15061711           30137 #4					Page Numb	er: 8 of 28	
Sample: 39	5915 - W-Wall								
Laboratory:	Midland								
Analysis:	Chloride (Titrati	on)	Anal	ytical Met	hod: SI	M 4500-Cl B		Prep Methe	od: N/A
QC Batch:	122419		Date	Analyzed:	: 20	)15-06-18		Analyzed E	By: AK
Prep Batch:	103564		Sam	ple Prepara	ation: 20	)15-06-18		Prepared B	By: AK
					$\operatorname{RL}$				
Parameter		Flag	Cert		Result	Uni		Dilution	RL
Chloride		U		•	<20.0	mg/K	lg	5	4.00
Laboratory: Analysis: QC Batch: Prep Batch:	Midland TPH DRO - NEV 122545 103612	W	Dat	dytical Me e Analyzec pple Prepar	l: 2	S 8015 D 2015-06-23 2015-06-19		Prep Metho Analyzed E Prepared B	By: SC
Parameter		Flag	Cert	]	RL Result	Uni	ts	Dilution	RL
DRO		Qr,Qs,U	5		<50.0	mg/ł	Kg	1	50.0
						S	Spike	Percent	Recovery
Surrogate	Flag	Cert	Result	Units	Dilu	ition Ai	nount	Recovery	Limits
n-Tricosane			53.9	mg/Kg		1	50.0	108	70 - 130
Sample: 39 Laboratory: Analysis: QC Batch: Prep Batch:	<b>5915 - W-Wall</b> Midland TPH GRO 122489 103596		Date An	al Method: alyzed: Preparation	2015-	06-20		Prep Method Analyzed By: Prepared By:	: AK
Parameter		Flag	Cert	Б	RL Result	Uni	te	Dilution	RL
GRO		Qs	5	1	9.34	mg/K		1	4.00
Surrogate		Fla		Result	Units	Dilution	Spike Amount	Percent Recovery	Recovery Limits
Trifluorotolu				2.30	mg/Kg	1	2.00	115	70 - 130
Bromofluor	cohonzono (1 BFB)			9 1 9	ma /Ka	1	2.00	106	70 12

2.12

 $\mathrm{mg/Kg}$ 

1

2.00

106

70 - 130

4-Bromofluorobenzene (4-BFB)

Report Date: June 23, 2015 7250715053	Work Order: 15061711 30137 #4						Page Numb	per: 9 of 28
Sample: 395916 - E-Wall								
Laboratory:MidlandAnalysis:BTEXQC Batch:122488Prep Batch:103596		Date Ana	al Method: alyzed: Preparation	2015-06	-20		Prep Metho Analyzed By Prepared By	y: AK
				RL				
Parameter	Flag	Cert		Result	Units	;	Dilution	$\operatorname{RL}$
Benzene	U	5	<	< 0.0200	mg/Kg		1	0.0200
Toluene		5		0.0231	mg/Kg		1	0.0200
Ethylbenzene	$_{\rm Qs}$	5		0.0528	m mg/Kg		1	0.0200
Xylene		5		0.0585	mg/Kg		1	0.0200
Surrogate	Fl	ag Cert	Result	Units	Dilution	Spike Amount	Percent Recovery	Recovery Limits
Trifluorotoluene (TFT)		~	1.87	mg/Kg	1	2.00	94	70 - 130
4-Bromofluorobenzene (4-BFB)			1.95	mg/Kg	1	2.00	98	70 - 130

#### Sample: 395916 - E-Wall

Laboratory: Analysis: QC Batch: Prep Batch:	Midland Chloride (Titration) 122419 103564	Date	rtical Method: Analyzed: le Preparation:	SM 4500-Cl B 2015-06-18 2015-06-18	Prep Method: Analyzed By: Prepared By:	ÁK
			$\operatorname{RL}$			
Parameter	Flag	Cert	Result	Units	Dilution	$\operatorname{RL}$
Chloride	U		<20.0	m 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		Date	e Analyzed:	2015-0	6-23	Analyzeo	l By: SC
Prep Batch:	103612		Sam	ple Preparat	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
	Flag	Cert			Dilution		ĩ	
n-Tricosane			64.6	m mg/Kg	1	50.0	129	70 - 130

Report Date: June 23, 2015 7250715053	e 23, 2015 Work Order: 15061711 30137 #4						Page Numb	er: 10 of 28	
Sample: 395916 - E-Wall									
Laboratory:MidlandAnalysis:TPH GROQC Batch:122489Prep Batch:103596			Date An	al Methoo alyzed: Preparatio	2015-0	06-20		Prep Metho Analyzed B Prepared B	y: AK
					$\operatorname{RL}$				
Parameter	Flag		Cert		Result	Unit	s	Dilution	$\operatorname{RL}$
GRO	Qs		5		8.14	mg/K	g	1	4.00
C			C I	D li	TT •/	D'1 ('	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 Metho	d: S 5035
QC Batch: 122488		Date Ana		2015-06			Analyzed By	
Prep Batch: 103596		v			-		Prepared By	
				RL				
Parameter	Flag	Cert		$\operatorname{Result}$	Unit	s	Dilution	$\operatorname{RL}$
Benzene	U	5	<	0.0200	mg/Kg	g	1	0.0200
Toluene	U	5	<	0.0200	$\mathrm{mg/Kg}$	g	1	0.0200
Ethylbenzene	$_{\rm Qs,U}$	5	<	0.0200	$mg/K_{2}$	g	1	0.0200
Xylene	U	5	<	0.0200	$mg/K_{s}$	g S	1	0.0200
						Spike	Percent	Recovery
Surrogate	Flag	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	$7 \ continued \ \ldots$								
Parameter		Flag	Cert	Res	RL sult	Units	Dilution	RI	
Parameter		Flag	Cert		RL sult	Units	Dilution	RI	
Chloride		U	Cert		20.0	mg/Kg	5	4.00	
Laboratory: Analysis: QC Batch:	<b>917 - S-Wall</b> Midland TPH DRO - NE 122545 103612	ΞW	Date	lytical Meth e Analyzed: ple Preparat	2015-0	06-23	Prep Met Analyzed Prepared	By: SC	
Parameter		Flag	Cert	Re	RL sult	Units	Dilution	RI	
DRO		Qr,Qs,U	5		50.0	mg/Kg	1	50.0	
Surrogate n-Tricosane	Flag	Cert	Result 56.2	Units mg/Kg	Dilution 1	Spike Amount 50.0	Percent Recovery 112	Recovery Limits 70 - 130	
Laboratory: Analysis:	<b>917 - S-Wall</b> Midland TPH GRO 122489		Analytica Date Ana	ıl Method: ılyzed:	S 8015 D 2015-06-20		Prep Metho Analyzed E		
•	103596			reparation:	2015-06-19		Prepared B	v	
Parameter		Flag	Cert		RL sult	Units	Dilution	RI	
GRO		Qs,U	5		1.00	mg/Kg	1	4.00	

						Spike	Percent	Recovery
Surrogate	Flag	Cert	Result	Units	Dilution	Amount	Recovery	Limits
Trifluorotoluene (TFT)			2.47	mg/Kg	1	2.00	124	70 - 130
4-Bromofluorobenzene (4-BFB)			2.13	m mg/Kg	1	2.00	106	70 - 130

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Sample: 395918 - RP								
Laboratory:MidlandAnalysis:BTEXQC Batch:122488Prep Batch:103596		Analytica Date Ana Sample Pr		S 8021E 2015-06 2015-06	-20		Prep Method Analyzed By: Prepared By:	AK
Parameter	Flag	Cert		RL Result	Units	5	Dilution	RL
Benzene	U	5		0.0200	mg/Kg		1	0.0200
Toluene	U	5	<	0.0200	mg/Kg		1	0.0200
Ethylbenzene	Qs,U	5	<	0.0200	mg/Kg		1	0.0200
Xylene	U	5	<	0.0200	mg/Kg	5	1	0.0200
Surrogate	Flag	g Cert	Result	Units	Dilution	Spike Amount	Percent Recovery	Recovery Limits
Trifluorotoluene (TFT)			1.94	mg/Kg	1	2.00	97	70 - 130
4-Bromofluorobenzene (4-BFB)			2.03	mg/Kg	1	2.00	102	70 - 130
Sample: 395918 - RP Laboratory: Midland								

Analysis:	Chloride (Titration	n)	Analytic	al Method:	SM 4500-Cl B $$	Prep Meth	od: N/A
QC Batch:	122475	,	Date Ana	alyzed:	2015-06-19	Analyzed H	By: AK
Prep Batch:	103564		Sample I	Preparation:	2015-06-18	Prepared E	By: AK
				$\operatorname{RL}$			
Parameter		Flag	Cert	Result	Units	Dilution	$\operatorname{RL}$
Chloride		U		<20.0	m mg/Kg	5	4.00

#### Sample: 395918 - RP

Laboratory: Analysis: QC Batch: Prep Batch:	Midland TPH DRO - NI 122545 103612	EW	Date	lytical Metho e Analyzed: ple Preparat	2015-0	06-23	Prep Me Analyzec Prepared	l By: SC
					RL			
Parameter		Flag	Cert	Res	sult	Units	Dilution	$\operatorname{RL}$
DRO		$_{\rm Qr,Qs,U}$	5	<5	60.0	m mg/Kg	1	50.0
Surrogate	Flag	Cert	Result	Units	Dilution	Spike Amount	Percent Recovery	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			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	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

Laboratory: Midland									
Analysis: BTEX		An	alytical	Method:	S 8021B			Prep Method	: S 5035
QC Batch: 122488		Da	te Anal	yzed:	2015-06-	20		Analyzed By:	: AK
Prep Batch: 103596		Sa	Sample Preparation:		2015-06-	19		Prepared By:	AK
					RL				
Parameter	Flag		Cert	F	Result	Units		Dilution	$\operatorname{RL}$
Benzene			5	0.	0248	mg/Kg		1	0.0200
Toluene			5	(	).777	m mg/Kg		1	0.0200
Ethylbenzene	$_{\rm Qs}$		5		1.13	m mg/Kg		1	0.0200
Xylene			5		1.22	m mg/Kg		1	0.0200
							Spike	Percent	Recovery
Surrogate		Flag	Cert	Result	Units	Dilution	Amount	Recovery	Limits
Trifluorotoluene (TFT)				1.71	mg/Kg	1	2.00	86	70 - 130
4-Bromofluorobenzene (4-BFB)	Qsr	Qsr		3.35	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 ...

Sample: 395919 - STP         Laboratory:       Midland         Analysis:       TPH DRO - NEW       Analytical Method:       S 8015 D       Prep Method:       1         QC Batch:       122545       Date Analyzed:       2015-06-23       Analyzed By:       S         Prep Batch:       103612       Sample Preparation:       2015-06-19       Prepared By:       S         Parameter       Flag       Cert       Result       Units       Dilution         DRO $qr.qs$ 5       <50.0       mg/Kg       1       1         Surogate       Flag       Cert       Result       Units       Dilution       Amount       Recovery       Lim         Sample:       395919 - STP       Sample       Sample Reparation:       2015-06-20       Analyzed By:       A         Analysis:       TPH GRO       Analytical Method:       S 8015 D       Prep Method:       S 2         QC Batch:       122489       Date Analyzed:       2015-06-20       Analyzed By:       A         Prep Batch:       103596       Sample Preparation:       2015-06-19       Prepared By:       A         Parameter       Flag       Cert       Result       Units       Dilution <td< th=""><th>Report Date: 7250715053</th><th>June 23, 2015</th><th></th><th>W</th><th>Vork Order: 30137</th><th></th><th>1</th><th></th><th></th><th>Page Numbe</th><th>er: 14 of 28</th></td<>	Report Date: 7250715053	June 23, 2015		W	Vork Order: 30137		1			Page Numbe	er: 14 of 28	
Parameter         Flag         Cert         Result         Units         Dilution           Parameter         Flag         Cert         Result         Units         Dilution           Chloride $q_*$ 588         mg/Kg         5         5           Sample:         395919 - STP         Laboratory:         Midland         Analysis:         TPH DRO - NEW         Analytical Method:         S 8015 D         Prep Method:         N           QC Batch:         122545         Date Analyzed:         2015-06-23         Analyzed By:         S           Prep Batch:         103612         Sample Preparation:         2015-06-19         Prepared By:         S           Parameter         Flag         Cert         Result         Units         Dilution           DRO $q_r \cdot q_*$ $s$ <50.0         mg/Kg         1         -           Surrogate         Flag         Cert         Result         Units         Dilution         Amalyzed By:         S           Sample:         395919 - STP         Laboratory:         Midland         Amalyzed:         2015-06-20         Analyzed By:         AF           Analysis:         TPH GRO         Analytical Method:         S 8015 D	sample 39591	9 continued										
Parameter       Flag       Cert       Result       Units       Dilution         Chloride $q_{s}$ 588       mg/Kg       5       5         Sample:       395919 - STP       Laboratory:       Midland       Analytical Method:       S 8015 D       Prep Method:       N         QC Batch:       122545       Date Analyzed:       2015-06-23       Analyzed By:       S         Prep Batch:       103612       Sample Preparation:       2015-06-19       Prepared By:       S         Parameter       Flag       Cert       Result       Units       Dilution         DRO $q_{e}, q_{e}$ $s$ <50.0       mg/Kg       1 $\sigma$ Surrogate       Flag       Cert       Result       Units       Dilution       Recovery       Lim         n-Tricosane       60.6       mg/Kg       1       50.0       121       70 -         Sample:       395919 - STP       Laboratory:       Midland       Analysis:       TPH GRO       Analytical Method:       S 8015 D       Prep Method:       S 5         QC Batch:       122489       Date Analyzed:       2015-06-20       Analyzed By:       A         Prep Batch:       103596       <	Parameter		Flag		Cert	Re			Units		Dilution	RL
Chloride $q_e$ 588       mg/Kg       5         Sample:       395919 - STP         Laboratory:       Midland         Analysis:       TPH DRO - NEW       Analytical Method:       S 8015 D       Prep Method:       N         QC Batch:       122545       Date Analyzed:       2015-06-23       Analyzed By:       S         Prep Batch:       103612       Sample Preparation:       2015-06-19       Prepared By:       S         Parameter       Flag       Cert       Result       Units       Dilution         DRO $q \cdot q_*$ $z$ <50.0							RL					
Sample: 395919 - STP         Laboratory:       Midland         Analysis:       TPH DRO - NEW       Analytical Method:       S 8015 D       Prep Method:       I         QC Batch:       122545       Date Analyzed:       2015-06-23       Analyzed By:       S         Prep Batch:       103612       Sample Preparation:       2015-06-19       Prepared By:       S         Parameter       Flag       Cert       Result       Units       Dilution         DRO $q_{r,Q_{P}}$ $s$ <50.0			Flag		Cert	Re						RL
Laboratory:       Midland Analysis:       TPH DRO - NEW QC Batch:       Analytical Method:       S 8015 D 2015-06-23 2015-06-19       Prep Method:       I         QC Batch:       122545 103612       Date Analyzed:       2015-06-23 2015-06-19       Analyzed By:       S         Prep Batch:       103612       Sample Preparation:       2015-06-19       Prepared By:       S         Parameter       Flag       Cert       Result       Units       Dilution         DRO $q_{e}.q_{*}$ $s$ $<50.0$ mg/Kg       1 $<$ Surrogate       Flag       Cert       Result       Units       Dilution       Amount       Recovery       Lim         Sample:       395919 - STP       Laboratory:       Midland       Analytical Method:       S 8015 D       Prep Method:       S 5         QC Batch:       123596       Date Analytical Method:       S 8015 D       Prep Method:       S 5         QC Batch:       103596       Sample Preparation:       2015-06-20       Analyzed By:       AF         Prep Batch:       103596       Sample Preparation:       2015-06-19       Prepared By:       AF         GRO $q_{s}$ s       314       mg/Kg       1	Chloride		$_{\rm Qs}$				588	n	ng/Kg		5	4.00
Analysis:       TPH DRO - NEW       Analytical Method:       S 8015 D       Prep Method:       I         QC Batch:       122545       Date Analyzed:       2015-06-23       Analyzed By:       S         Prep Batch:       103612       Sample Preparation:       2015-06-19       Prepared By:       S         Parameter       Flag       Cert       Result       Units       Dilution         DRO $Qr.Qe$ 5       <50.0	Sample: 395	919 - STP										
QC Batch:       122545       Date Analyzed:       2015-06-23       Analyzed By:       S         Prep Batch:       103612       Sample Preparation:       2015-06-19       Prepared By:       S         Parameter       Flag       Cert       Result       Units       Dilution         DRO $qr.qs$ s $<50.0$ mg/Kg       1         DRO $qr.qs$ s $<50.0$ mg/Kg       1         DRO $qr.qs$ s $<50.0$ mg/Kg       1         DRO $qr.qs$ s $<50.0$ mg/Kg       1 $<$ Surrogate       Flag       Cert       Result       Units       Dilution       Amount       Recovery       Lim         Sample:       395919 - STP       Laboratory:       Midland       Analyzed       S       S         Analysis:       TPH GRO       Analytical Method:       S 8015 D       Prep Method:       S 5         QC Batch:       122489       Date Analyzed:       2015-06-20       Analyzed By:       Af         Prep Batch:       103596       Sample Preparation:       2015-06-19       Prepared By:       Af         Barameter       Flag	Laboratory:	Midland										
Prep Batch:       103612       Sample Preparation:       2015-06-19       Prepared By:       Sample By:       Sample:       Sample By:       Sample By:       Sample By:       Sample By:       Sample By:       Sample:       Sample By:       Sample By:	v		V			•					-	'
RL       RL         Parameter       Flag       Cert       Result       Units       Dilution         DRO $q_r.q_s$ s $<50.0$ mg/Kg       1 $recorr         Surrogate       Flag       Cert       Result       Units       Dilution       Amount       Recovery       Lim         n_rTricosane 60.6       mg/Kg       1       50.0       121       70         Sample:       395919 - STP       Eaboratory:       Midland       Analysis:       TPH GRO       Analytical Method:       S 8015 D       Prep Method:       S 5         QC Batch:       122489       Date Analyzed:       2015-06-20       Analyzed By:       AF         Prep Batch:       103596       Sample Preparation:       2015-06-19       Prepared By:       AF         Parameter       Flag       Cert       Result       Units       Dilution       GRO       q_* s 314       mg/Kg       1 s         Surrogate       Flag       Cert       Result       Units       Dilution       GRO       q_* s 314       mg/Kg       1 s         Surrogate       Flag       Cert       <$	•											
ParameterFlagCertResultUnitsDilutionDRO $Qr,Qs$ 5 $<50.0$ mg/Kg1DRO $Qr,Qs$ 5 $<50.0$ mg/Kg1SurrogateFlagCertResultUnitsDilutionAmountRecoveryLimn-Tricosane $60.6$ mg/Kg1 $50.0$ 1217070Sample: 395919 - STPLaboratory:MidlandAnalysis:TPH GROAnalytical Method:S 8015 DPrep Method:S 5QC Batch:122489Date Analyzed:2015-06-20Analyzed By:AFPrep Batch:103596Sample Preparation:2015-06-19Prepared By:AFParameterFlagCertResultUnitsDilutionGRO $Qs$ $s$ 314mg/Kg1 $ds$ GRO $Qs$ $s$ 2.00mg/Kg1 $ds$ SurrogateFlagCertResultUnitsDilutionTrifluorotoluene (TFT) $2.00$ mg/Kg1 $2.00$ 10070 -	Prep Batch:	103612			San	ple Prepara	ation: 2	2015-06-1	19		Prepared 1	By: SC
$\begin{array}{c ccccccccccccccccccccccccccccccccccc$	D		<b>E</b> 1		Cart	D			TT:+		Dilation	DI
SurrogateFlagCertResultUnitsDilutionAmountRecoveryLimn-Tricosane $60.6$ mg/Kg1 $50.0$ $121$ $70$ -Sample:395919 - STPLaboratory:MidlandAnalysis:TPH GROAnalytical Method:S 8015 DPrep Method:S 5QC Batch: $122489$ Date Analyzed: $2015-06-20$ Analyzed By:AFPrep Batch: $103596$ Sample Preparation: $2015-06-19$ Prepared By:AFGRO $Q_*$ $5$ $314$ mg/Kg $1$ $-1$ SurrogateFlagCertResultUnitsDilutionTrifluorotoluene (TFT) $2.00$ mg/Kg $1$ $2.00$ $100$ $70$ -								n				RL 50.0
SurrogateFlagCertResultUnitsDilutionAmountRecoveryLimn-Tricosane $60.6$ mg/Kg1 $50.0$ $121$ $70$ Sample: 395919 - STPLaboratory:MidlandAnalysis:TPH GROAnalytical Method:S 8015 DPrep Method:S 5QC Batch: $122489$ Date Analyzed: $2015-06-20$ Analyzed By:AFPrep Batch: $103596$ Sample Preparation: $2015-06-19$ Prepared By:AFGROQ*5 $314$ mg/Kg1 $5000$ $1000$ SurrogateFlagCertResultUnitsDilutionTrifluorotoluene (TFT) $2.00$ mg/Kg1 $2.00$ $100$ $70$			Qr,Qs		ъ		.50.0	11	ig/itg		1	50.0
n-Tricosane $60.6$ mg/Kg       1 $50.0$ $121$ $70$ -         Sample: $395919$ - STP         Laboratory:       Midland         Analysis:       TPH GRO       Analytical Method:       S 8015 D       Prep Method:       S 5         QC Batch: $122489$ Date Analyzed: $2015-06-20$ Analyzed By:       AF         Prep Batch: $103596$ Sample Preparation: $2015-06-19$ Prepared By:       AF         Parameter       Flag       Cert       Result       Units       Dilution         GRO $Q^{*}$ $5$ $314$ mg/Kg $1$ Surrogate       Flag       Cert       Result       Units       Dilution         Surrogate       Flag       Cert       Result       Units       Dilution       Amount       Recovery       Lim         Trifluorotoluene (TFT) $2.00$ $mg/Kg$ $1$ $2.00$ $100$ $70$ -									$\operatorname{Sp}$	ike	Percent	Recovery
Sample: 395919 - STP         Laboratory:       Midland         Analysis:       TPH GRO       Analytical Method:       S 8015 D       Prep Method:       S 5         QC Batch:       122489       Date Analyzed:       2015-06-20       Analyzed By:       A F         Prep Batch:       103596       Sample Preparation:       2015-06-19       Prepared By:       A F         Parameter       Flag       Cert       Result       Units       Dilution         GRO $q_8$ $5$ 314       mg/Kg       1       -         Surrogate       Flag       Cert       Result       Units       Dilution       Recovery       Lim         Trifluorotoluene (TFT)       2.00       mg/Kg       1       2.00       100       70 -	Surrogate	Flag	$\operatorname{Cert}$	R	esult	Units	Dilu	tion	Ame	ount	Recovery	Limits
Laboratory:       Midland         Analysis:       TPH GRO       Analytical Method:       S 8015 D       Prep Method:       S 5         QC Batch:       122489       Date Analyzed:       2015-06-20       Analyzed By:       A F         Prep Batch:       103596       Sample Preparation:       2015-06-19       Prepared By:       A F         Parameter       Flag       Cert       Result       Units       Dilution         GRO $Q_8$ 5 <b>314</b> mg/Kg       1       -         Surrogate       Flag       Cert       Result       Units       Dilution       Recovery       Lim         Trifluorotoluene (TFT)       2.00       mg/Kg       1       2.00       100       70 -	n-Tricosane				60.6	mg/Kg	1	1	50	0.0	121	70 - 130
ParameterFlagCertResultUnitsDilutionGROQs5 <b>314</b> mg/Kg11SurrogateFlagCertResultUnitsDilutionAmountRecoveryLimTrifluorotoluene (TFT)2.00mg/Kg12.0010070 -	Laboratory: Analysis: QC Batch:	Midland TPH GRO 122489		Ι	Date An	alyzed:	2015-0	06-20			Analyzed By	v: AK
GRO     Qs     5     314     mg/Kg     1       Surrogate     Flag     Cert     Result     Units     Dilution     Amount     Recovery     Lim       Trifluorotoluene (TFT)     2.00     mg/Kg     1     2.00     100     70 -			-		C .	Ð			<b>TT 1</b> .			DI
SurrogateFlagCertResultUnitsDilutionAmountRecoveryLimTrifluorotoluene (TFT)2.00mg/Kg12.0010070 -			~			Re						RL
SurrogateFlagCertResultUnitsDilutionAmountRecoveryLimTrifluorotoluene (TFT)2.00mg/Kg12.0010070 -	экО		Qs		5		314	n	ng/Kg		1	4.00
Trifluorotoluene (TFT) $2.00 \text{ mg/Kg}$ $1$ $2.00 \text{ for } 70 \text{ -}$	Surrogate			Flao	Cert	Result	Units	Dilut	ion	-		Recovery Limits
		ne (TFT)		1 145	0010						*	70 - 130
t = D(U) U(U) U(U) U(U) U(U) U(U) U(U) U(U)			Qsr	Qsr		7.56	mg/Kg	1		2.00 2.00	378	70 - 130

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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	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		mg/Kg	0.02
Ethylbenzene			5		< 0.0116		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
			2.00	mg/Kg	1	2.00	100	70 - 130
Influorotoluene (IFI)			2.08	$\mathrm{mg/Kg}$	1	2.00	104	70 - 130
4-Bromofluorobenzene (4-BFB)	199490		2.00	0, 0				
4-Bromofluorobenzene (4-BFB) Method Blank (1) QC Batch QC Batch: 122489	ı: 122489		nalyzed:	2015-06-2			Analyzee	
	ı: 122489						Analyzec Preparec	
4-Bromofluorobenzene (4-BFB) Method Blank (1) QC Batch QC Batch: 122489			nalyzed:	2015-06-2				
4-Bromofluorobenzene (4-BFB) Method Blank (1) QC Batch QC Batch: 122489 Prep Batch: 103596 Parameter	122489 Flag		nalyzed:	2015-06-2	19		Prepared	By: AK
4-Bromofluorobenzene (4-BFB) Method Blank (1) QC Batch QC Batch: 122489			nalyzed: eparation:	2015-06-2	19 MDL		Prepared	
4-Bromofluorobenzene (4-BFB) <b>Method Blank (1)</b> QC Batch QC Batch: 122489 Prep Batch: 103596 Parameter			nalyzed: eparation: Cert	2015-06-2	19 MDL Result	Spike	Prepared	By: AK
4-Bromofluorobenzene (4-BFB) <b>Method Blank (1)</b> QC Batch QC Batch: 122489 Prep Batch: 103596 Parameter <u>GRO</u>			nalyzed: eparation: Cert	2015-06-2	19 MDL Result		Prepared Units mg/Kg	By: AK RL 4
4-Bromofluorobenzene (4-BFB) Method Blank (1) QC Batch QC Batch: 122489 Prep Batch: 103596 Parameter	Flag	QC Pro	analyzed: eparation: <u>Cert</u> 5	2015-06-2015-06-2015-06-2015-06-2015-06-2015-06-2015-06-2015-06-2015-06-2015-06-2015-06-2015-06-2015-06-2015-06-2015-06-2015-06-2015-06-2015-06-2015-06-2015-06-20000000000000000000000000000000000	19 MDL Result <2.32	Spike	Prepared Units mg/Kg Percent	By: AK RL 4 Recovery

## Method Blank (1) QC Batch: 122545

QC Batch:	122545			Date A	Analyzed:	2015-06-23		Analyz	ed By: SC
Prep Batch:	103612			QC Pi	reparation:	2015-06-19		Prepare	ed By: SC
							MDL		
Parameter			Fla	g	Cert	1	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		Dat	e Analyzeo	d: 201	5-06-18				yzed By		
Prep Batch: 103564	QC Preparation: 2015-06-18 Prepared By										
			LCS			Spike	Mat	rix		Rec.	
Param	F	$\mathbf{C}$	Result	Units	Dil.	Amount	Res	ult Re	ec.	Limit	
Chloride			2350	mg/Kg	5	2500	<19	9.2 9	4 8	85 - 115	
Percent recovery is base	ed on the spike res	sult. RPD	is based o	on the sp	pike and sp	oike duplica	ate resul	t.			
		LCSD			Spike	Matrix		Rec.		RPD	
Param	F 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									By: AK By: AK
				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	very is based on the spik	æ resi	ılt. RI	PD is based	l on the spil	ke and sp	oike duplicate	e result.		

			LCSD			Spike	Matrix		Rec.		RPD
Param	$\mathbf{F}$	$\mathbf{C}$	Result	Units	Dil.	Amount	Result	Rec.	Limit	RPD	Limit
Chloride			2430	$\mathrm{mg/Kg}$	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:	122475	Date Analyzed:	2015-06-19	Analyzed By:	AK
Prep Batch:	103564	QC Preparation:	2015-06-18	Prepared By:	$\mathbf{A}\mathbf{K}$

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		F	G	LCS	<b>T</b> T •/	D.1	Spike		latrix	D	Rec.
Param		F	С	Result	Units	Dil.	Amoun		tesult	Rec.	Limit
Chloride				2560	mg/Kg		2500		<19.2	102	85 - 115
Percent recovery is based on the	spike	e resu	ılt. RPI	D is based	on the sp	pike and	spike dupli	cate 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	115 8	20
aboratory Control Spike (L C Batch: 122488 rep Batch: 103596	CS-1	1)		te Analyz 2 Preparat		15-06-20 15-06-19				Analyzed F Prepared F	v
aram		F	С	LCS Result	Units	Dil.	Spike Amount		atrix esult	Rec.	Rec. Limit
Benzene			5	1.99	mg/Kg	1	2.00		00533	100	70 - 130
Coluene			5	1.88	mg/Kg	1	2.00		00645	94	70 - 130
Ethylbenzene			5	$1.76 \\ 5.80$	mg/Kg	1	2.00		.0116	88	70 - 130
			5 1+ PP		mg/Kg	1 nike and	6.00 spike dupli		00874 sult	97	70 - 130
Xylene Percent recovery is based on the	spike	rest		J ID DUDOU	on one of	pine and	opino dupin	0000 100	Juio.		
•	spike	e resu				C :1	N / - + <b>:</b>		D -	_	DDD
Percent recovery is based on the	-		LCSD		Dil	Spike	Matrix Besult	Rec	Ree Lin		
Percent recovery is based on the Param	spike F	С	LCSD Result	Units		Amount	Result	Rec. 98	Lin	nit RPI	D Limi
Percent recovery is based on the Param Benzene	-	C 5	LCSD Result 1.97	Units mg/Kg	; 1	Amount 2.00	Result <0.00533	98	Lim 70 -	$\begin{array}{cc} \text{nit} & \text{RPI} \\ 130 & 1 \end{array}$	$\frac{D}{20}$
Percent recovery is based on the Param Benzene Coluene	-	С	LCSD Result	Units mg/Kg mg/Kg	5 1 5 1	Amount	Result	98	Lin	$\begin{array}{c c} \text{nit} & \text{RPI} \\ \hline 130 & 1 \\ 130 & 2 \end{array}$	D Limi
Xylene Percent recovery is based on the Param Benzene Coluene Ethylbenzene Xylene	-	C 5 5	LCSD Result 1.97 1.91	Units mg/Kg	$\begin{array}{ccc} 1 \\ 5 & 1 \\ 5 & 1 \end{array}$	Amount 2.00 2.00	Result <0.00533 <0.00645	98 96 89	Lim 70 - 70 -	nit RPI 130 1 130 2 130 1	D Limi 20 20
Percent recovery is based on the Param Benzene Coluene Cthylbenzene Kylene	F	C 5 5 5 5	LCSD Result 1.97 1.91 1.78 5.83	Units mg/Kg mg/Kg mg/Kg mg/Kg	$     \begin{array}{c}       1 \\       1 \\       1 \\       1 \\       1     \end{array}     $	Amount 2.00 2.00 2.00 6.00	$\begin{array}{r} \text{Result} \\ < 0.00533 \\ < 0.00645 \\ < 0.0116 \\ < 0.00874 \end{array}$	98 96 89 97	Lim 70 - 70 - 70 - 70 -	nit RPI 130 1 130 2 130 1	D Limit 20 20 20 20
Percent recovery is based on the Param Benzene Coluene Cthylbenzene	F	C 5 5 5 5	LCSD Result 1.97 1.91 1.78 5.83 Ilt. RPI	Units mg/Kg mg/Kg mg/Kg D is based	$\begin{array}{c} 1 \\ 1 \\ 1 \\ 1 \\ 1 \\ 1 \\ 1 \\ 1 \\ 1 \\ 1 $	Amount 2.00 2.00 2.00 6.00	Result <0.00533 <0.00645 <0.0116 <0.00874 spike duplie	98 96 89 97 cate res	Lim 70 - 70 - 70 - 70 -	nit RPI 130 1 130 2 130 1 130 0	D Limi 20 20 20 20 20
Percent recovery is based on the Param Benzene Coluene Cthylbenzene Cylene Percent recovery is based on the	F	C 5 5 5 5	LCSD Result 1.97 1.91 1.78 5.83 Ilt. RPI	Units mg/Kg mg/Kg mg/Kg D is based	(5 1) (5 1) (5 1) (5 1) (5 1) (5 1) (5 1) (6 1) (7 1)	Amount 2.00 2.00 2.00 6.00	$\begin{tabular}{lllllllllllllllllllllllllllllllllll$	98 96 89 97	Lim 70 - 70 - 70 - sult. LCS	hit RPI 130 1 130 2 130 1 130 0 LCSD	20 20 20
Percent recovery is based on the Param Benzene Coluene Cthylbenzene Kylene	F	C 5 5 5 5	LCSD Result 1.97 1.91 1.78 5.83 dt. RPI I R	Units mg/Kg mg/Kg mg/Kg D is based CS Le esult R	1       1       1       1       1       1       1       1       1       1       1       1       1       1       1       1       1       1       1       1       1       1       1       1       1       1       1       1       1       1       1       1       1       1       1       1       1       1       1       1       1       1       1       1       1       1       1       1       1       1       1       1       1       1       1       1       1       1       1       1       1       1       1       1       1       1       1       1 <t< td=""><td>Amount 2.00 2.00 2.00 6.00 pike and</td><td>Result           &lt;0.00533</td>           &lt;0.00645</t<>	Amount 2.00 2.00 2.00 6.00 pike and	Result           <0.00533	98 96 89 97 cate res	Lim 70 - 70 - 70 - 70 -	nit RPI 130 1 130 2 130 1 130 0	D Limi 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 ]	LCS Result	Units		Spike Amount	R	atrix esult		ec.	Rec. Limit
GRO			5	14.6	mg/K	g 1	20.0	<	(2.32)	7	'3	70 - 130
Percent recovery is based on the	spike	resu	ılt. RPD	is based	d on the s	spike and	spike duplic	ate res	ult.			
			LCSD			Spike	Matrix			ec.		RPD
Param	F	С	Result	Unit		Amount		Rec.		mit	RPI	
GRO		5	15.7	mg/K	Kg 1	20.0	< 2.32	78	70 -	130	7	20
Percent recovery is based on the	spike	resu	lt. RPD	is based	d on the s	spike and	spike duplic	ate res	ult.			
Surrogate			LC Res		CSD Lesult	Units	Spi Dil. Amo		LCS Rec.		CSD ec.	Rec. Limit
Trifluorotoluene (TFT)			2.4	13 1	2.40	ng/Kg	1 2.0	)0	122	1	20	70 - 130
			2.1	6	2.13	ng/Kg	1 2.0	00	108	1	06	70 - 130
4-Bromofluorobenzene (4-BFB) Laboratory Control Spike (L	CS-1	)										
	CS-1	1)		e Analyz Prepara		)15-06-23 )15-06-19					lyzed 1 bared 1	
Laboratory Control Spike (L QC Batch: 122545	CS-1	)		Prepara			Spike	М	atriv			By: SC
Laboratory Control Spike (L QC Batch: 122545 Prep Batch: 103612	CS-1	,	$\rm QC$	Prepara LCS	tion: 20	)15-06-19	Spike Amount		atrix	Prep	ared 1	By: SC Rec.
Laboratory Control Spike (L QC Batch: 122545	CS-1	L) F	$\rm QC$	Prepara	ution: 20 Units	)15-06-19 Dil.	Spike Amount 250	R	atrix esult 7.41	Prep Re		By: SC Rec. Limit
Laboratory Control Spike (L QC Batch: 122545 Prep Batch: 103612 Param		F	QC C	Prepara LCS Result 239	ution: 20 Units mg/K	Dil. g 1	Amount 250	R <	esult 7.41	Prep Re	ec.	By: SC Rec. Limit
Laboratory Control Spike (L QC Batch: 122545 Prep Batch: 103612 Param DRO		F	QC C	Prepara LCS Result 239	ution: 20 Units mg/K	Dil. g 1	Amount 250	R <	esult 7.41 ult.	Prep Re	ec.	By: SC Rec. Limit
Laboratory Control Spike (L QC Batch: 122545 Prep Batch: 103612 Param DRO		F	$\frac{C}{\frac{5}{1}}$	Prepara LCS Result 239	$\frac{\text{Units}}{\text{mg/K}}$	Di5-06-19 Dil. g 1 spike and s	Amount 250 spike duplica Matrix	R <	esult 7.41 ult. Re	Prep Ra 9	ec.	By: SC Rec. Limit 70 - 130 RPD
Laboratory Control Spike (L QC Batch: 122545 Prep Batch: 103612 Param DRO Percent recovery is based on the	spike	F	$\begin{array}{c} \text{QC} \\ \hline \\ \hline \\ \hline \\ \hline \\ \hline \\ \\ \text{lt. RPD} \\ \\ \\ \text{LCSD} \end{array}$	Prepara LCS Result 239 is based	tion: 20 Units $M = \frac{M}{M}$ d on the s s Dil.	$\frac{\text{Dil.}}{\text{g}  1}$ spike and s	Amount 250 spike duplica Matrix	$\frac{R}{<}$ ate res	esult 7.41 ult. Ra Lin	Prep Ra 9 ec.	ec. 96	By: SC Rec. Limit 70 - 130 RPD
Laboratory Control Spike (L QC Batch: 122545 Prep Batch: 103612 Param DRO Percent recovery is based on the Param	spike F	F resu C 5	QC <u>5</u> lt. RPD LCSD Result 249	Prepara LCS Result 239 is based Unit mg/K	$\begin{array}{c} \text{Units} \\ \hline \\ \text{Units} \\ \hline \\ \text{mg/K} \\ \text{l on the s} \\ \hline \\ \text{s} \\ \hline \\ \hline \\ \text{Sg} \\ 1 \\ \end{array}$	Dits-06-19 Dil. g 1 spike and s Spike Amount 250	Amount 250 spike duplica Matrix Result <7.41	R ate res Rec. 100	esult 7.41 ult. Ra Lin 70 -	Prep Ra g ec. mit	ec. 06 RPI	By: SC Rec. Limit 70 - 130 RPD D Limit
Laboratory Control Spike (L QC Batch: 122545 Prep Batch: 103612 Param DRO Percent recovery is based on the Param DRO	spike F	F resu 5 resu	QC <u>5</u> lt. RPD LCSD Result 249	Prepara LCS Result 239 is based Unit mg/K is based	$\begin{array}{c} \text{Units} \\ \hline \\ \text{Units} \\ \hline \\ \text{mg/K} \\ \text{l on the s} \\ \hline \\ \text{s} \\ \hline \\ \hline \\ \text{Sg} \\ 1 \\ \end{array}$	Dits-06-19 Dil. g 1 spike and s Spike Amount 250	Amount 250 spike duplica Matrix Result <7.41	R ate res Rec. 100	esult 7.41 ult. Ra Lin 70 - ult.	Prep Ra g ec. mit	ec. <u>6</u> <u>RPI</u> <u>4</u>	By: SC Rec. Limit 70 - 130 RPD D Limit
Laboratory Control Spike (L QC Batch: 122545 Prep Batch: 103612 Param DRO Percent recovery is based on the Param DRO	spike F spike	F resu 5 resu	$\begin{array}{c c} QC \\ \hline C \\ \hline 5 \\ \hline 1 \\ LCSD \\ \hline Result \\ \hline 249 \\ \hline 1 \\ LCSD \\ Result \\ \hline 249 \\ \hline 1 \\ RPD \\ \hline \end{array}$	Prepara LCS Result 239 is based Unit mg/K is based D	$\begin{array}{c} \text{Units} \\ \hline \\ \text{Units} \\ \hline \\ \text{mg/K} \\ \text{l on the s} \\ \hline \\ \text{s} \\ \hline \\ \hline \\ \text{Sg} \\ 1 \\ \end{array}$	Dits-06-19 Dil. g 1 spike and s Spike Amount 250	Amount 250 spike duplica Matrix Result <7.41 spike duplica	R ate res Rec. 100 ate res	esult 77.41 ult. Ra Lin 70 - ult. S	Prep Ra 9 ec. mit 130	ec. 06 RPI 4	By: SC Rec. Limit 70 - 130 RPD Limit 20

Report Date: June 23, 2015 7250715053	,					Order: 15 30137 #4			Page Number: 20 of				
Matrix Spike	S												
Matrix Spike (MS-1) Sp	oiked	Sar	nple:	396009	)								
QC Batch: 122418 Prep Batch: 103564					e Analyz Preparat		15-06-18 15-06-18				•	zed By: red By:	
Param			F	С	MS Result	Units	Dil.	Spike Amount	Re	atrix esult	Rec.	Ι	Rec. Limit
Chloride	Qs	:1	Qs		19700	mg/Kg		2500		5600	124	78.	9 - 121
Percent recovery is based on t	he sp	ıke	resu			on the s	pike and s	spike dupli	cate res	sult.			
		Б	a	MSD		D'1	Spike	Matrix	D	Re		DDD	RPE
Param Chloride	Qs	F _{Qs}	С	Resul 19900			Amount 2500	Result 16600	Rec. 132	Lin 78.9 -		RPD 1	Limi 20
2C Batch: 122419	oiked	Sar	mple:		e Analyze		15-06-18					zed By:	
Prep Batch: 103564				QC	Preparat	ion: 20	15-06-18				Prepa	red By:	AK
_			_		MS			Spike		atrix	_		Rec.
Param Chloride			F		Result 14800	Units mg/Kg	Dil. 5	Amount 2500		esult 233	Rec. 103		Limit 9 - 121
Percent recovery is based on t	hom	ike	rocu								109	10.	9 - 12
ercent recovery is based on t	ne sp	INC	resu.		o is based	on the s	-	spike dupin		suit.			
				1 COD			C :1	Matrix		Re	c		
) - man	1	F	C	MSD Degult	TT *+	D:1	Spike		Da-			ססס	
Param Chloride	]	F	С	MSD Result 15000	Units mg/Kg	Dil.	Amount 2500	Result 12233	Rec.	Lin 78.9 -	nit	RPD 1	RPD Limit 20

matrix spike (mb i) spiked sample. 555516	Matrix Spike (MS-1)	Spiked Sample: 395918
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QC Batch:	122475	Date Analyzed:	2015-06-19	Analyzed By:	AK
Prep Batch:	103564	QC Preparation:	2015-06-18	Prepared By:	AK

7250715053					Order: 15 30137 #4				Pag	ge Nun	nber:	21 of 28
				MS			Spike	Ma	trix			Rec.
Param		$\mathbf{F}$	С	Result	Units	Dil.	Amount	Res		Rec.		Limit
Chloride				2370	mg/Kg	5	2500		9.2	95		.9 - 121
Percent recovery is based on th	ne spike	e resi	ılt. RPI		-, -							-
			MSD			Spike	Matrix		Rec			RPD
Param	F	С	Result		Dil.	Amount	Result	Rec.	Limi		RPD	Limit
Chloride			2370	m mg/Kg	5	2500	$<\!19.2$	95	78.9 -	121	0	20
Aatrix Spike (xMS-1)         Spike           QC Batch:         122488           Prep Batch:         103596	piked S	Jamp		08 te Analyze C Preparati		15-06-20 15-06-19				Analyz Prepar		
		F	G	MS	TT •.		Spike		atrix	D		Rec.
Param		F	С	Result	Units	Dil.	Amount		esult	Rec		Limit
Senzene			5	1.51	mg/Kg		2.00		00533	76		70 - 130
oluene			5	$1.53 \\ 1.42$	mg/Kg		2.00		0628 0413	73 60		70 - 130
Cthylbenzene Cylene	$_{\rm Qs}$	Qs	5 5	$1.42 \\ 4.64$	mg/Kg mg/Kg		$2.00 \\ 6.00$		)413 )429	69 77		70 - 130 70 - 130
ercent recovery is based on th	ne spike	e resi			-, -							10 100
			MSD			Spike	Matrix		Re			RPD
	$\mathbf{F}$	С	Result			Amount	Result	Rec.	Lin		RPD	Limit
aram		5	1.74	mg/Kg		2.00	< 0.00533		70 -		14	20
enzene		0						00	70 -	130	9	20
enzene oluene		5	1.67	mg/Kg		2.00	0.0628	80				
enzene oluene thylbenzene			1.63	mg/Kg	1	2.00	0.0413	79	70 -		14	20
enzene oluene thylbenzene ylene		5 5 5	$1.63 \\ 5.35$	mg/Kg mg/Kg	1 1	$2.00 \\ 6.00$	$0.0413 \\ 0.0429$	79 88	70 - 70 -			20 20
Benzene Foluene Sthylbenzene Tylene	ıe spike	5 5 5	1.63 5.35 ult. RPI	mg/Kg mg/Kg D is based	$\frac{1}{1}$ on the s	$2.00 \\ 6.00$	0.0413 0.0429 spike dupli	79 88 cate res	70 - 70 -	130	14 14	
Benzene Foluene Cthylbenzene Cylene Percent recovery is based on th	ıe spike	5 5 5	1.63 5.35 ult. RPI	mg/Kg mg/Kg D is based MS M	$ \frac{1}{1} $ on the s $ 4SD $	2.00 6.00 pike and	0.0413 0.0429 spike dupli S	79 88 cate res pike	70 - 70 - ult. MS	130 MS	14 14 D	20 Rec.
Benzene Coluene Cthylbenzene Cylene Percent recovery is based on th urrogate	ıe spike	5 5 5	1.63 5.35 ult. RPI R	mg/Kg mg/Kg D is based MS M esult Re	1 0 n the s ASD esult	2.00 6.00 pike and to Units	0.0413 0.0429 spike dupli S Dil. Ar	79 88 cate res pike nount	70 - 70 - ult. MS Rec.	130 MS Rec	14 14 D c.	20 Rec. Limit
enzene oluene thylbenzene ylene ercent recovery is based on th urrogate rifluorotoluene (TFT)		5 5 5	1.63 5.35 ilt. RPI R 1	mg/Kg mg/Kg D is based MS M esult Re 1.81 1	1 on the s ASD esult 1.92	$\begin{array}{c} 2.00\\ 6.00 \end{array}$	0.0413 0.0429 spike dupli S Dil. Ar 1	79 88 cate res pike nount 2	70 - 70 - ult. MS Rec. 90	130 MS Rec 96	14 14 D c.	20 Rec. Limit 70 - 130
Param Benzene Coluene Cthylbenzene Cylene Percent recovery is based on th Currogate Crifluorotoluene (TFT) -Bromofluorobenzene (4-BFB		5 5 5	1.63 5.35 ilt. RPI R 1	mg/Kg mg/Kg D is based MS M esult Re 1.81 1	1 on the s ASD esult 1.92	2.00 6.00 pike and to Units	0.0413 0.0429 spike dupli S Dil. Ar	79 88 cate res pike nount	70 - 70 - ult. MS Rec.	130 MS Rec	14 14 D c.	20 Rec.
Benzene Coluene Cthylbenzene Cylene Percent recovery is based on th Currogate Crifluorotoluene (TFT) -Bromofluorobenzene (4-BFB	)	5 5 e rest	1.63 5.35 ilt. RPI R 1	mg/Kg mg/Kg D is based MS N esult Ro 1.81 1 1.92 1	1 on the s ASD esult 1.92	$\begin{array}{c} 2.00\\ 6.00 \end{array}$	0.0413 0.0429 spike dupli S Dil. Ar 1	79 88 cate res pike nount 2	70 - 70 - ult. MS Rec. 90	130 MS Rec 96	14 14 D c.	20 Rec. Limit 70 - 130

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Param		F	С	MS Resu	ilt U	nits	Dil.	Spil Amor	ınt	Mat Res	ult	Rec.	Rec.
GRO	Qs	$_{\rm Qs}$	5	11.8		g/Kg	1	20.		11		1	70 - 130
Percent recovery is based on the	he spike	resu	lt. RPI	D is ba	ised on t	he spi	ike and s	pike dup	licate	resul	t.		
			MSI	)			Spike	Matri	x		Rec.		RPD
Param	$\mathbf{F}$	$\mathbf{C}$	Resu		Jnits 1	Dil.	Amount			ec.	Limit	RPI	
GRO	Qs Qs	5	13.2		g/Kg	1	20.0	11.6	8	3	70 - 130	) 11	20
Percent recovery is based on the	he spike	resu	lt. RPI			he spi	ike and s	pike dup	licate	resul	t.		
v	-					-	-					MOD	р
Sumorato				MS esult	MSD Result	T	Jnits	Dil. A	Spike			MSD Boo	Rec. Limit
Surrogate Trifluorotoluene (TFT)				2.26	2.45	-	g/Kg	$\frac{D\Pi}{1}$	$\frac{1}{2}$		nec. 113	Rec. 122	$\frac{111111}{70 - 130}$
				2.20	$2.45 \\ 2.15$		g/Kg	1	$\frac{2}{2}$		102	108	70 - 130
	,			-									
Matrix Spike (MS-1) Sp QC Batch: 122545	iked San	nple:	Dε	ite Ana	alyzed:		5-06-23					alyzed	
- ( ) -	,	nple:	Dε	ite Ana	alyzed: aration:		5-06-23 5-06-19					alyzed	
Matrix Spike (MS-1) Sp QC Batch: 122545	,	nple:	Dε	ite Ana	v			Spik	e	Mat	Pre	v	•
Matrix Spike (MS-1) Sp QC Batch: 122545 Prep Batch: 103612	iked San	nple: F	Dε	te Ana C Prep	aration:			Spik Amou		Mat Res	Pre	v	By: SC
Matrix Spike (MS-1) Sp QC Batch: 122545 Prep Batch: 103612 Param	iked San	-	Da Q(	ute Ana C Prep MS	aration: t U	2015	5-06-19	-	int		Pre rix ult 1	epared 1	By: SC Rec. Limit
Matrix Spike (MS-1) Sp QC Batch: 122545 Prep Batch: 103612 Param DRO	iked San	F	Da Qa C 5	tte Ana C Prep MS Resul 213	aration: t Ui mg	2015 nits /Kg	5-06-19 Dil. 1	Amou 250	int	Res <7.	Pre rix ult 1 41	epared i	By: SC Rec.
Matrix Spike (MS-1) Sp QC Batch: 122545	iked San	F	$\frac{C}{\frac{5}{11. \text{ RPI}}}$	tte Ana C Prep MS Resul 213 D is ba	aration: t Ui mg	2015 nits /Kg	5-06-19 Dil. 1 ike and sj	Amou 250 pike dup	licate 1	Res <7.	$\frac{\text{Pre}}{41}$ t.	epared i	By: SC Rec. Limit 70 - 130
Matrix Spike (MS-1) Sp QC Batch: 122545 Prep Batch: 103612 Param DRO Percent recovery is based on th	iked San	F	$\frac{C}{\frac{5}{1t. RPI}}$	tte Ana C Prep MS Resul 213	aration: t Ui mg	2015 nits /Kg	5-06-19 Dil. 1 ike and spike	Amou 250 pike dup e Mat	int licate r rix	Res <7.	Pre rix ult 1 41	Rec.	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 th Param	iked San	F	$\frac{C}{1}$	tte Ana C Prep MS Resul 213 D is ba	t Ur mg used on t	2015 nits /Kg he spi	5-06-19 Dil. 1 ike and spike	Amou 250 pike dup e Mat	licate r rix ult R	Rest <7. resul	$\frac{\text{Pre}}{41}$ t. Rec.	Rec. 85 RP	By: SC Rec. Limit 70 - 130 RPD D Limit
Matrix Spike (MS-1) Sp QC Batch: 122545 Prep Batch: 103612 Param DRO	iked San he spike	F resu F	$\frac{C}{5}$ $\frac{C}{C}$ $\frac{S}{5}$	tte Ana C Prep MS Resul 213 D is ba ASD esult 163	t Units	$2013$ $\frac{1}{/\text{Kg}}$ he spi Dil. 1	5-06-19 Dil. 1 ike and sp Spike Amoun 250	Amou 250 pike dup e Mat nt Res <7.	licate r rix ult R 41	Res <7. resul [*] Rec. 65	$\frac{\text{Pre}}{41}$ t. Rec. Limit 70 - 13	Rec. 85 RP	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 th Param DRO	iked San he spike  he spike	F resu F resu	$\frac{C}{5}$ It. RPI $\frac{C}{5}$ It. RPI	Ate Ana C Prep MS Resul 213 D is ba ASD esult 163 D is ba	t Units	$2013$ $\frac{1}{/\text{Kg}}$ he spi Dil. 1	5-06-19 Dil. 1 ike and sp Spike Amoun 250	$\begin{array}{c} Amou \\ \hline 250 \\ pike dup \\ e & Mat \\ \hline nt & Res \\ \hline <7. \\ pike dup \end{array}$	nt licate r rix ult R 41 ( licate r	Res <7. resul dec. 65 resul	$\frac{\text{Pre}}{41}$ t. $\frac{\text{Rec.}}{13}$ t.	Rec. 85 0 27	By: SC Rec. Limit 70 - 130 RPD D Limit 20
Matrix Spike (MS-1) Sp QC Batch: 122545 Prep Batch: 103612 Param DRO Percent recovery is based on th Param DRO	iked San he spike	F resu F resu	$\frac{C}{1}$ $\frac{C}{1}$ $\frac{C}{1}$ $\frac{K}{2}$ $\frac{K}$	tte Ana C Prep MS Resul 213 D is ba ASD esult 163	t Units	$2018$ $\frac{M}{Kg}$ he spi Dil. 1 he spi	5-06-19 Dil. 1 ike and sp Spike Amoun 250	Amou 250 pike dup e Mat nt Res <7.	licate r rix ult R 41 ( licate r	Res <7. resul [*] Rec. 65	$\begin{array}{c} \text{Pre}\\ \text{trix}\\ \text{ult} & 1\\ 41\\ \text{t.}\\ \text{Rec.}\\ \text{Limit}\\ \hline 70 - 13\\ \text{t.}\\ \text{M} \end{array}$	Rec. 85 RP	By: SC Rec. Limit 70 - 130 RPD D Limit

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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
					$\mathrm{CCVs}$	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 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:	122419			Date A	Analyzed:	2015-06-18		Analy	zed By: AK
					CCVs True	CCVs Found	CCVs Percent	Percent Recovery	Date
Param		Flag	Cert	Units	Conc.	Conc.	Recovery	Limits	Analyzed
Chloride		0		mg/Kg	100	100	100	85 - 115	2015-06-18

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Standard (ICV-1)	)							
QC Batch: 122475			Date A	nalyzed: 2	015-06-19		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	2015-06-19
Standard (CCV-1	.)							
QC Batch: 122475			Date A	nalyzed: 2	015-06-19		Analy	zed By: AK
				CCVs	CCVs	$\mathrm{CCVs}$	Percent	
				True	Found	Percent	Recovery	Date
Param	Flag	Cert	Units	Conc.	Conc.	Recovery	Limits	Analyzed
гагаш		0	mg/Kg	100	100	100	85 - 115	2015-06-19
Chloride Standard (CCV-2			mg/ Kg	100	100	100	00 110	2010/00/10
Chloride	:)			nalyzed: 2				zed By: AK
Chloride Standard (CCV-2	:)					CCVs		
Chloride Standard (CCV-2	:)			nalyzed: 2	015-06-20		Analy	
Chloride Standard (CCV-2 QC Batch: 122488	:)	Cert		nalyzed: 2 CCVs True Conc.	015-06-20 CCVs Found Conc.	m CCVs	Analy Percent Recovery Limits	zed By: AK Date Analyzed
Chloride Standard (CCV-2 QC Batch: 122488 Param Benzene	:)	Cert 5	Date A Units mg/kg	nalyzed: 2 CCVs True Conc. 0.100	015-06-20 CCVs Found Conc. 0.0986	CCVs Percent Recovery 99	Analy Percent Recovery Limits 80 - 120	zed By: AK Date Analyzed 2015-06-20
Chloride Standard (CCV-2 QC Batch: 122488 Param Benzene Toluene	:)		Date A Units mg/kg mg/kg	nalyzed: 2 CCVs True Conc. 0.100 0.100	015-06-20 CCVs Found Conc. 0.0986 0.0920	CCVs Percent Recovery 99 92	Analy Percent Recovery Limits 80 - 120 80 - 120	zed By: AK Date <u>Analyzed</u> 2015-06-20 2015-06-20
Chloride Standard (CCV-2 QC Batch: 122488 Param Benzene Toluene Ethylbenzene	:)	5	Date A Units mg/kg mg/kg mg/kg	nalyzed: 2 CCVs True Conc. 0.100 0.100 0.100	015-06-20 CCVs Found Conc. 0.0986 0.0920 0.0857	CCVs Percent Recovery 99 92 86	Analy Percent Recovery Limits 80 - 120 80 - 120 80 - 120	zed By: AK Date Analyzed 2015-06-20 2015-06-20 2015-06-20
Chloride Standard (CCV-2	:)	5 5	Date A Units mg/kg mg/kg	nalyzed: 2 CCVs True Conc. 0.100 0.100	015-06-20 CCVs Found Conc. 0.0986 0.0920	CCVs Percent Recovery 99 92	Analy Percent Recovery Limits 80 - 120 80 - 120	zed By: AK Date <u>Analyzed</u> 2015-06-20 2015-06-20
Chloride Standard (CCV-2 QC Batch: 122488 Param Benzene Toluene Ethylbenzene	e) Flag	5 5 5	Date A Units mg/kg mg/kg mg/kg	nalyzed: 2 CCVs True Conc. 0.100 0.100 0.100	015-06-20 CCVs Found Conc. 0.0986 0.0920 0.0857	CCVs Percent Recovery 99 92 86	Analy Percent Recovery Limits 80 - 120 80 - 120 80 - 120	zed By: AK Date <u>Analyzed</u> 2015-06-20 2015-06-20 2015-06-20
Chloride 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	nalyzed: 2 CCVs True Conc. 0.100 0.100 0.100	015-06-20 CCVs Found Conc. 0.0986 0.0920 0.0857 0.282	CCVs Percent Recovery 99 92 86	Analy Percent Recovery Limits 80 - 120 80 - 120 80 - 120 80 - 120 80 - 120	zed By: AK Date <u>Analyzed</u> 2015-06-20 2015-06-20 2015-06-20
Chloride Standard (CCV-2 QC Batch: 122488 Param Benzene Toluene Ethylbenzene Xylene	Flag	5 5 5	Date A Units mg/kg mg/kg mg/kg mg/kg	nalyzed: 2 CCVs True Conc. 0.100 0.100 0.100 0.300	015-06-20 CCVs Found Conc. 0.0986 0.0920 0.0857 0.282	CCVs Percent Recovery 99 92 86	Analy Percent Recovery Limits 80 - 120 80 - 120 80 - 120 80 - 120 80 - 120	zed By: AK Date Analyzed 2015-06-20 2015-06-20 2015-06-20 2015-06-20
Chloride 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	nalyzed: 2 CCVs True Conc. 0.100 0.100 0.100 0.300	015-06-20 CCVs Found Conc. 0.0986 0.0920 0.0857 0.282	CCVs Percent Recovery 99 92 86 94	Analy: Percent Recovery Limits 80 - 120 80 - 120 80 - 120 80 - 120 80 - 120	zed By: AK Date Analyzed 2015-06-20 2015-06-20 2015-06-20 2015-06-20
Chloride Standard (CCV-2 QC Batch: 122488 Param Benzene Toluene Ethylbenzene Xylene Standard (CCV-3 QC Batch: 122488	Flag	5 5 5	Date A Units mg/kg mg/kg mg/kg mg/kg	nalyzed: 2 CCVs True Conc. 0.100 0.100 0.100 0.300 nalyzed: 2 CCVs	015-06-20 CCVs Found Conc. 0.0986 0.0920 0.0857 0.282 015-06-20 CCVs	CCVs Percent Recovery 99 92 86 94 94	Analy Percent Recovery Limits 80 - 120 80 - 120 80 - 120 80 - 120 80 - 120 Percent	zed By: AK Date Analyzed 2015-06-20 2015-06-20 2015-06-20 2015-06-20
Chloride Standard (CCV-2 QC Batch: 122488 Param Benzene Toluene Ethylbenzene Xylene Standard (CCV-3 QC Batch: 122488 Param	?) Flag	5 5 5	Date A Units mg/kg mg/kg mg/kg mg/kg	nalyzed: 2 CCVs True Conc. 0.100 0.100 0.300 nalyzed: 2 CCVs True	015-06-20 CCVs Found Conc. 0.0986 0.0920 0.0857 0.282 015-06-20 CCVs Found	CCVs Percent Recovery 99 92 86 94 94 CCVs Percent	Analy Percent Recovery Limits 80 - 120 80 - 120 80 - 120 80 - 120 Analy Percent Recovery	zed By: AK Date Analyzed 2015-06-20 2015-06-20 2015-06-20 2015-06-20 zonts-06-20
Chloride 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 Date A Units	nalyzed: 2 CCVs True Conc. 0.100 0.100 0.100 0.300 nalyzed: 2 CCVs True Conc.	015-06-20 CCVs Found Conc. 0.0986 0.0920 0.0857 0.282 015-06-20 CCVs Found Conc.	CCVs Percent Recovery 99 92 86 94 94 CCVs Percent Recovery	Analy Percent Recovery Limits 80 - 120 80 - 120 80 - 120 80 - 120 80 - 120 Percent Recovery Limits	zed By: AK Date Analyzed 2015-06-20 2015-06-20 2015-06-20 2015-06-20 zed By: AK
Chloride Standard (CCV-2 QC Batch: 122488 Param Benzene Toluene Ethylbenzene Xylene Standard (CCV-3	?) Flag	5 5 5 5 Cert	Date A Units mg/kg mg/kg mg/kg mg/kg Date A Units mg/kg	nalyzed: 2 CCVs True Conc. 0.100 0.100 0.100 0.300 nalyzed: 2 CCVs True Conc. 0.100	015-06-20 CCVs Found Conc. 0.0986 0.0920 0.0857 0.282 015-06-20 CCVs Found Conc. 0.0978	CCVs Percent Recovery 99 92 86 94 94 CCVs Percent Recovery 98	Analy Percent Recovery Limits 80 - 120 80 - 120 80 - 120 80 - 120 80 - 120 Analy Percent Recovery Limits 80 - 120	zed By: AK Date Analyzed 2015-06-20 2015-06-20 2015-06-20 2015-06-20 zo15-06-20 Zo15-06-20

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Standard (C	CV-2)							
QC Batch: 1	22489		Date	Analyzed:	2015-06-20		Analy	zed By: AK
				CCVs True	CCVs Found	CCVs Percent	Percent Recovery	Date
Param	Flag	Cert	Units	Conc.	Conc.	Recovery	Limits	Analyzed
GRO		5	m mg/Kg	1.00	0.940	94	80 - 120	2015-06-20
Standard (C	CV-3)							
QC Batch: 1	22489		Date	Analyzed:	2015-06-20		Analy	zed By: AK
				CCVs	$\rm CCVs$	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	2015-06-20
Standard (C QC Batch: 1	,		Date	Analyzed: CCVs True	2015-06-23 CCVs Found	CCVs Percent	Analy Percent Recovery	yzed By: SC Date
Param	Flag	Cert	Units	Conc.	Conc.	Recovery	Limits	Analyzed
DRO		5	m mg/Kg	250	275	110	80 - 120	2015-06-23
	CV-2)							
Standard (C			Date	Analyzed:	2015-06-23		Analy	yzed By: SC
,	22545							
Standard (C QC Batch: 1	22545			$\mathrm{CCVs}$	$\mathrm{CCVs}$	$\mathrm{CCVs}$	Percent	
,	22545			CCVs True	$\operatorname{CCVs}$ Found	CCVs Percent	Percent Recovery	Date
,	22545 Flag	Cert	Units					Date Analyzed

## Standard (CCV-3)

QC Batch: 122545

Date Analyzed: 2015-06-23

Analyzed By: SC

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				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		

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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.

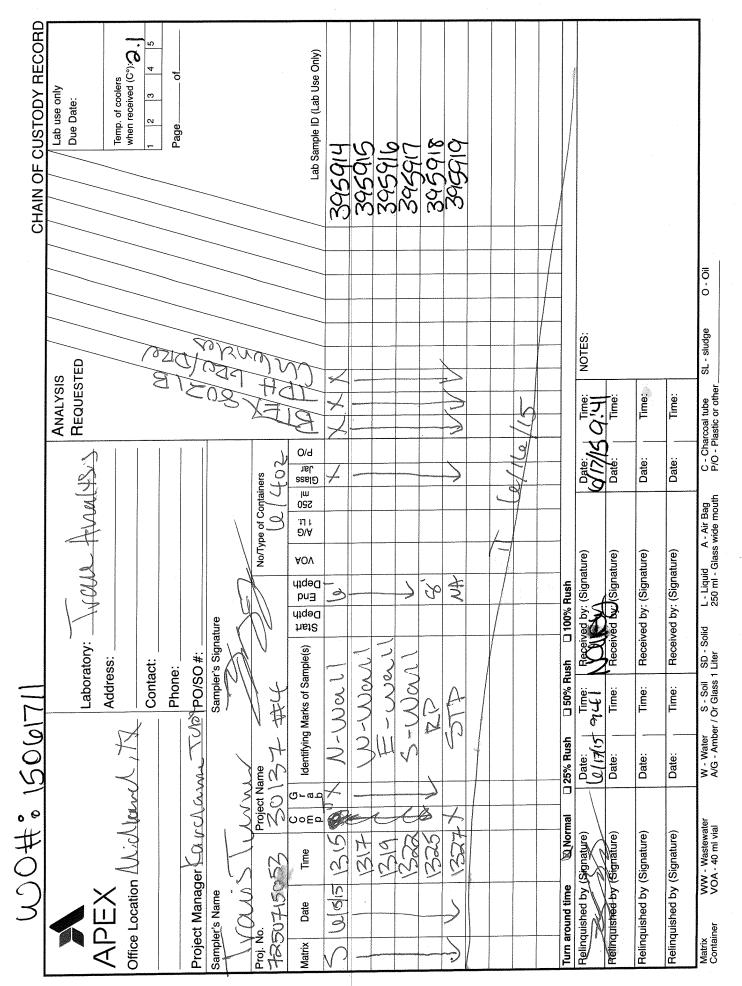
Report Date: June 23, 2015	Work Order: 15061711	Page Number: 28 of 28
7250715053	$30137 \ \#4$	

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.



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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

Work Order: 15061709 

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

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	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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# 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.

Report Date: June 23, 2015

7250715061

Xylene

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1

0.0200

Analytical Re	eport	- ,				
Sample: 395908 - N-Wall						
Laboratory:MidlandAnalysis:BTEXQC Batch:122539Prep Batch:103647		Analytical Metl Date Analyzed: Sample Prepara	2015	021B 5-06-23 5-06-22	Prep Method Analyzed By Prepared By	v: AK
2		<i>a</i>	RL			5.5
Parameter	Flag	Cert	Result			RL
Benzene	U	5	< 0.0200	0/	0	0.0200
Toluene	U	5	< 0.0200	0/	-	0.0200
Ethylbenzene	U	5	< 0.0200	mg/K	g 1	0.0200
37 1			0.0000		4	0 0 0 0 0

Work Order: 15061709

30137~#5

Surrogate	Flag	Cert	Result	Units	Dilution	Spike Amount	Percent Recovery	Recovery Limits
Trifluorotoluene (TFT) 4-Bromofluorobenzene (4-BFB)			$1.91 \\ 1.99$	mg/Kg mg/Kg	1 1	$2.00 \\ 2.00$	96 100	70 - 130 70 - 130

5

< 0.0200

 $\mathrm{mg/Kg}$ 

### Sample: 395908 - N-Wall

U

Laboratory:	Midland					
Analysis:	Chloride (Titration)	Ana	lytical Method:	SM 4500-Cl B $$	Prep Method:	N/A
QC Batch:	122430	Dat	e Analyzed:	2015-06-18	Analyzed By:	AK
Prep Batch:	103564	Sam	ple 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

Laboratory:	Midland						
Analysis:	TPH DRO - NE	EW	Analytica	al Method:	S 8015 D	Prep Method:	N/A
QC Batch:	122545		Date Ana	alyzed:	2015-06-23	Analyzed By:	$\mathbf{SC}$
Prep Batch:	103612		Sample F	Preparation:	2015-06-19	Prepared By:	$\mathbf{SC}$
				$\operatorname{RL}$			
Parameter		Flag	Cert	Result	Units	Dilution	$\operatorname{RL}$
DRO		$_{\rm Qr,Qs,U}$	5	<50.0	mg/Kg	1	50.0

Report Date: June 23, 2015 7250715061					V	Page Number: 7 of 32					
Surrogate		Flag	Ce	rt	Result	Unit	s Dilı	ution	Spike Amount	Percent Recovery	Recovery Limits
n-Tricosane	Qsr	Qsr			69.3	mg/K	g	1	50.0	139	70 - 130
Sample: 39 Laboratory: Analysis: QC Batch: Prep Batch:	5908 - N Midland TPH GR 122540 103647				Date An	al Metho alyzed: Preparatio	2015-0	06-23		Prep Metho Analyzed B Prepared B	y: AK
							RL				
Parameter			Flag		Cert		Result	1	Units	Dilution	$\operatorname{RL}$
GRO			Qs,U		5		<4.00	mg	g/Kg	1	4.00
Surrogate				Flag	Cert	Result	Units	Dilutio	Spike on Amount	Percent Recovery	Recovery Limits
Trifluorotolue	ene (TFT)			0		2.42	mg/Kg	1	2.00	121	70 - 130

 $\mathrm{mg/Kg}$ 

1

2.00

105

70 - 130

#### Sample: 395909 - E-Wall

4-Bromofluorobenzene (4-BFB)

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	5	Dilution	$\operatorname{RL}$
Benzene	U	5	<	0.0200	mg/Kg	r	1	0.0200
Toluene	U	5	<	0.0200	$\mathrm{mg/Kg}$	S	1	0.0200
Ethylbenzene	$_{\rm Qs,U}$	5	<	0.0200	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)			2.08	mg/Kg	1	2.00	104	70 - 130
4-Bromofluorobenzene (4-BFB)			2.14	mg/Kg	1	2.00	107	70 - 130

Report Date 7250715061	: June 23, 2015		V	Work Order: 15061709 30137 #5				Page Num	ber: 8 of 32
Sample: 39	5909 - E-Wall								
Laboratory: Analysis: QC Batch: Prep Batch:	Midland Chloride (Titratic 122419 103564	on)	Date	ytical Met Analyzed ple Prepara	: 20	M 4500-Cl B 15-06-18 15-06-18		Prep Met Analyzed Prepared	By: AK
					RL				
Parameter Chloride		Flag u	Cert		Result <20.0	Uni mg/k		Dilution 5	RL 4.00
						0,	0		
Sample: 39	5909 - E-Wall								
Laboratory: Analysis: QC Batch: Prep Batch:	Midland TPH DRO - NEV 122545 103612	V	Dat	lytical Me e Analyzeo pple Prepa	d: 2	8015 D 015-06-23 015-06-19		Prep Met Analyzed Prepared	By: SC
					$\operatorname{RL}$				
Parameter DRO		Flag	Cert	]	Result	Un		Dilution	RL 50.0
DRU		Qr,Qs,U	5		<50.0	mg/I	Ag	1	50.0
Surrogate	Flag	Cert	Result	Units	Dilu	tion A:	Spike mount	Percent Recovery	Recovery Limits
n-Tricosane			61.1	mg/Kg	1		50.0	122	70 - 130
Sample: 39	5909 - E-Wall								
Laboratory: Analysis: QC Batch: Prep Batch:	Midland TPH GRO 122489 103596		Date An	al Method: alyzed: Preparation	2015-0	06-20		Prep Metho Analyzed B Prepared B	y: AK
Parameter		Flog	Cert	т	RL Result	Uni	ta	Dilution	RL
GRO		Flag _{Qs,U}	5		$\frac{1}{4.00}$	mg/k		1	4.00
Surrogate		Fla	g Cert	Result	Units	Dilution	Spike Amount	Percent Recovery	Recovery Limits
Trifluorotolue	ene (TFT)	r la	g Oert	2.46	mg/Kg	1	2.00	123	70 - 130

Report Date: June 23, 2015 7250715061	15 Work Order: 15061709 30137 #5					Page Number: 9 of 32		
Sample: 395910 - S-Wall								
Laboratory: Midland								
Analysis: BTEX		Analytica	Analytical Method: S 802				Prep Method	: S 5035
QC Batch: 122488		Date Analyzed: 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		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	Fl	ag Cert	Result	Units	Dilution	Amount	Recovery	Limits
Trifluorotoluene (TFT)			2.04	mg/Kg	1	2.00	102	70 - 130
4-Bromofluorobenzene (4-BFB)			2.09	mg/Kg	1	2.00	104	70 - 130

### Sample: 395910 - S-Wall

Laboratory: Analysis: QC Batch: Prep Batch:	Chloride (Titration) 122419		ical Method: analyzed: e 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: 395910 - S-Wall

Laboratory:	Midland								
Analysis:	TPH DRC	) - NEW		Analy	vtical Method:	S 8015 I	)	Prep Me	thod: N/A
QC Batch:	122545			Date	Analyzed:	2015-06-	23	Analyzed	By: SC
Prep Batch:	103612			Samp	le Preparation	n: 2015-06-	19	Prepared	By: SC
					RI	L			
Parameter		]	Flag	Cert	Resul	t	Units	Dilution	$\operatorname{RL}$
DRO		Q	r,Qs,U	5	<50.	0 :	mg/Kg	1	50.0
C .					TT •/		Spike	Percent	Recovery
Surrogate		Flag	Cert	Result	Units	Dilution	Amount	Recovery	Limits
n-Tricosane	$1_{\rm Qsr}$	Qsr		135	m mg/Kg	1	100	135	70 - 130

Report Date: June 23, 2015 7250715061	Work Order: 15061709 $30137 \ \#5$						Page Number: 10 of 32		
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 By Prepared By	y: AK
					$\operatorname{RL}$				
Parameter	Flag		Cert		Result	Unit	s	Dilution	$\operatorname{RL}$
GRO	Qs,U		5		<4.00	$\mathrm{mg/K}$	g	1	4.00
Cumponto		Flam	Cont	Dogult	IIn:ta	Dilution	Spike	Percent	Recovery
Surrogate Trifluorotoluene (TFT)		Flag	Cert	Result 2.42	Units mg/Kg	1	Amount 2.00	Recovery 121	Limits 70 - 130
4-Bromofluorobenzene (4-BFB)				2.42 2.06	mg/Kg	1	2.00 2.00	$121 \\ 103$	70 - 130 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	r: 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	$\mathrm{mg/K}$	r S	1	0.0200
Ethylbenzene	$_{\rm Qs,U}$	5	<	0.0200	$\mathrm{mg/K}$	r S	1	0.0200
Xylene	U	5	<	0.0200	mg/K	5	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 ...

Report Date 7250715061	: June 23, 2015		W	Vork Order: 30137		09		Page Numbe	r: 11 of 32
sample 39591	1 continued								
Parameter		Flag	Cert	R	RL esult	Unit	2	Dilution	RL
		Thag	Cert	1	csuit	0111	60	Dilution	
					$\operatorname{RL}$				
Parameter		Flag	Cert		lesult	Unit		Dilution	RL
Chloride		U		<	<20.0	mg/K	g	5	4.00
Sample: 39	5911 - W-Wall								
Laboratory:	Midland								
Analysis:	TPH DRO - NEV	N	Ana	alytical Me	thod:	S 8015 D		Prep Meth	od: N/A
QC Batch:	122545			e Analyzed		2015-06-23		Analyzed I	,
Prep Batch:	103612		San	nple Prepar	ation:	2015-06-19		Prepared E	By: SC
					$\operatorname{RL}$				
Parameter		Flag	Cert		Result	Uni		Dilution	RL
DRO		$_{\rm Qr,Qs,U}$	5		<50.0	mg/k	Kg	1	50.0
						S	pike	Percent	Recovery
Surrogate	Flag	Cert	Result	Units	Dil	ution Ar	nount	Recovery	Limits
n-Tricosane			63.8	mg/Kg		1 5	50.0	128	70 - 130
Sample: 39	<b>5911 - W-Wall</b> Midland								
Analysis:	TPH GRO		Analytic	al Method:	S 801	5 D		Prep Method	l: S 5035
QC Batch:	122489		Date An			-06-20		Analyzed By	
Prep Batch:	103596			Preparation		-06-19		Prepared By	
					$\operatorname{RL}$				
Parameter		Flag	Cert	R	esult	Unit	ts	Dilution	RL
GRO		Qs,U	5		<4.00	mg/K	g	1	4.00
2			~	<b>D</b>	<b>TT T</b>		Spike	Percent	Recovery
Surrogate		Flag	cert	Result	Units	Dilution	Amount	Recovery	Limits
Trifluorotolue	ene (TFT) ebenzene (4 PFP)			2.23	mg/Kg	1	2.00	112	70 - 130

mg/Kg

1

2.00

100

70 - 130

4-Bromofluorobenzene (4-BFB)

Report Date: June 23, 2015 7250715061		W	Vork Order 3013	r: 15061709 7 #5	)		Page Number	r: 12 of 32
Sample: 395912 - RP								
Laboratory: Midland Analysis: BTEX QC Batch: 122488 Prep Batch: 103596		Analytica Date Ana Sample P:	lyzed:	2015-06	-20		Prep Method Analyzed By: Prepared By:	: AK
				$\operatorname{RL}$				
Parameter	Flag	Cert		Result	Units		Dilution	RL
Benzene	U	5		(0.0200)	mg/Kg		1	0.0200
Toluene	U	5	<	(0.0200)	m mg/Kg		1	0.0200
Ethylbenzene	$_{\rm Qs,U}$	5	<	(0.0200)	$\mathrm{mg/Kg}$		1	0.0200
Xylene	U	5	<	(0.0200	mg/Kg		1	0.0200
		a i		<b>TT 1</b>		Spike	Percent	Recovery
Surrogate	Flag	g Cert	Result	Units	Dilution	Amount		Limits
Trifluorotoluene (TFT)			1.90	mg/Kg	1	2.00	95	70 - 130
4-Bromofluorobenzene (4-BFB)			2.01	m mg/Kg	1	2.00	100	70 - 130

Analysis:	Chloride (Titration)	Ana	lytical Method:	SM 4500-Cl B	Prep Method:	N/A
QC Batch:	122419	Date	e Analyzed:	2015-06-18	Analyzed By:	AK
Prep Batch:	103564	Sam	ple Preparation:	2015-06-18	Prepared By:	AK
			$\operatorname{RL}$			
Parameter	Flag	g Cert	Result	Units	Dilution	$\operatorname{RL}$
Chloride			5630	mg/Kg	5	4.00

#### Sample: 395912 - RP

Laboratory: Analysis: QC Batch: Prep Batch:	Midland TPH DRO - N 122545 103612	EW	Date	lytical Methe e Analyzed: ple Preparat	2015-0	)6-23	Prep Me Analyzed Prepared	•
					RL			
Parameter		Flag	Cert	Re	$\operatorname{sult}$	Units	Dilution	$\operatorname{RL}$
DRO		$_{ m Qr,Qs,U}$	5	<5	50.0	m mg/Kg	1	50.0
Surrogate	Flag	Cert	Result	Units	Dilution	Spike Amount	Percent Recovery	Recovery Limits
n-Tricosane			50.3	m mg/Kg	1	50.0	101	70 - 130

Report Date: June 23, 2015 7250715061		Work Order: 15061709 30137 #5						Page Numb	per: 13 of 32
Sample: 395912 - RP									
Laboratory:MidlandAnalysis:TPH GROQC Batch:122489Prep Batch:103596			Date An	al Metho alyzed: Preparatio	2015-0	06-20		Prep Metho Analyzed B Prepared B	y: AK
					$\operatorname{RL}$				
Parameter	Flag		Cert		Result	Unit	ts	Dilution	$\operatorname{RL}$
GRO	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	mg/Kg	1	2.00	104	70 - 130

# Sample: 395913 - STP

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	r	1	0.0200
Toluene	U	5	<	0.0200	mg/K	r 5	1	0.0200
Ethylbenzene	$_{\rm Qs,U}$	5	<	0.0200	mg/K	r 5	1	0.0200
Xylene	U	5	<	0.0200	mg/K	5	1	0.0200
						Spike	Percent	Recovery
Surrogate	Fla	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	$\mathrm{mg/Kg}$	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 39591	13 continued											
Parameter		Flag		Cert	Ι	RL Result		Unit	S	Dilution	RL	
Parameter		Flag		Cert	Η	RL Result		Unit	S	Dilution	$\operatorname{RL}$	
Chloride		U				<20.0		mg/K		5	4.00	
Sample: 39	5913 - STP											
Laboratory: Analysis: QC Batch:	V		Dat	alytical Me e Analyzeo	d:	S 8015 2015-0	6-23		Prep Met Analyzed	By: SC		
Prep Batch:	103612			San	nple Prepa	ration:	2015-0	6-19		Prepared By: SC		
Parameter		Flag		Cert	]	RL Result		Uni	ts	Dilution	RL	
DRO		Qr,Qs,U		5		<50.0		m mg/Kg		1	50.0	
Surrogate	Flag	Cert		Result	Units	Units Dilutio		Spike tion Amount		Percent Recovery	Recovery Limits	
n-Tricosane	~			62.3	mg/Kg		1			125	70 - 130	
Sample: 39 Laboratory: Analysis: QC Batch: Prep Batch:	5913 - STP Midland TPH GRO 122489 103596			Date An	al Method alyzed: Preparation	201	015 D 5-06-20 5-06-19			Prep Metho Analyzed E Prepared B	y: AK	
Parameter		Flag		Cert	Т	RL Result		Unit	G	Dilution	RL	
GRO		L lag Qs,U		5		<4.00		mg/K		1	4.00	
Surrogate			Flag	Cert	Result	Units		ution	Spike Amount	Percent Recovery	Recovery Limits	
Trifluorotolue 4-Bromofluor				$2.32 \\ 2.04$	mg/K mg/K		1 1	$2.00 \\ 2.00$	$\frac{116}{102}$	70 - 130 70 - 130		

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Method Blanks												
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:	АК АК						
Parameter	Flag	Cert	MI Rest	DL ult	Units	$\operatorname{RL}$						
Chloride			<3.	.85	mg/Kg	4						
Method Blank (1)	QC Batch: 122430											
QC Batch: 122430 Prep Batch: 103564		Date Analyzed: QC Preparation:	2015-06-18 2015-06-18		Analyzed By: Prepared By:	AK AK						

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			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:	2015-06-2 2015-06-2	-		Analyzed By: Prepared By:			
					MDL					
Parameter	Flag		Cert		Result		Units	$\operatorname{RL}$		
Benzene			5		< 0.00533	1	mg/Kg			
Toluene			5		$<\!0.00645$	1	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	mg/Kg	1	2.00	100	70 - 130		
4-Bromofluorobenzene (4-BFB)			2.08	$\mathrm{mg/Kg}$	1	2.00	70 - 130			

Prepared By: AK

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Method Blank (1) QC Batch: 12248	39								
QC Batch: 122489	Date A	Analyzed:	2015-06-2	20		Analyzed	l By: AK		
Prep Batch: 103596		eparation:	2015-06-2	19		Prepared	By: AK		
				MDL					
Parameter Flag		Cert		Result		Units	RL		
GRO		5		<2.32		mg/Kg	4		
					Spike	Percent	Recovery		
Surrogate Fla	g 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	$\mathrm{mg/Kg}$	1	2.00	103	70 - 130		
Method Blank (1) QC Batch: 12253	39								
QC Batch: 122539	Date A	Date Analyzed: 2015-06-23				Analyzed By: AK			

					MDL					
Parameter	Flag		Cert		Result		$\operatorname{RL}$			
Benzene			5		< 0.00533	]	mg/Kg	0.02		
Toluene			5		< 0.00645	1	mg/Kg	0.02		
Ethylbenzene			5		< 0.0116	1	mg/Kg			
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		

QC Preparation: 2015-06-22

# Method Blank (1) QC Batch: 122540

Prep Batch: 103647

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

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Surrogate		Fla	g Cert	Result	Units	Dilution	Spike Amount	Percent Recovery	Reco Lin	
Trifluorotoluene (TFT	)	1 la	g Oert	2.33	mg/Kg	1	2.00	116		$\frac{1105}{130}$
	-Bromofluorobenzene (4-BFB)				mg/Kg	1	2.00 2.00	100		$130 \\ 130$
Method Blank (1)	QC E	Batch: 12254	15							
Method Blank (1) QC Batch: 122545 Prep Batch: 103612	QC B	Batch: 12254	Date A	Analyzed: reparation:	2015-06- 2015-06-	-		Analyze Prepare	v	SC SC
QC Batch: 122545	QC E	Batch: 12254	Date A			-		•	v	
QC Batch: 122545 Prep Batch: 103612 Parameter	QC E	atch: 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	SC
QC Batch: 122545 Prep Batch: 103612 Parameter	QC E		Date A QC Pr	reparation: Cert		19 MDL Result <7.41	Spike mount	Prepare	v	SC RL 50 overy

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# Laboratory Control Spikes

### Laboratory Control Spike (LCS-1)

-0											
Prep Batch: 10	03564		QC I	Preparatio	on: 201	5-06-18			Prep	ared By	: AK
				LCS			$\operatorname{Spike}$	Mε	atrix		Rec.
Param		F	C I	Result	Units	Dil.	Amount	Re	sult R	ec.	Limit
Chloride				2520	mg/Kg	5	2500	<	19.2 1	01 8	85 - 115
Percent recovery	r is based on the spike	resu	lt. RPD	is based o	on the sp	pike and sp	oike duplica	ate resu	ılt.		
			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: Prep Batch:	•									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 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			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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Param	F	С	LCS Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit
Benzene		5	1.99	mg/Kg	1	2.00	< 0.00533	100	70 - 130
Toluene		5	1.88	mg/Kg	1	2.00	< 0.00645	94	70 - 130
Ethylbenzene		5	1.76	mg/Kg	1	2.00	< 0.0116	88	70 - 130
Xylene		5	5.80	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	$\mathbf{F}$	$\mathbf{C}$	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	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

								Page	Number:	20 of 32
CS-1	1)									
		Dat	e Analyz	zed: 20	)15-06-23			Ar	nalvzed By	: AK
			v							
		Ŭ	1						1 0	
			T CC			Crite	Ма			Rec.
	F			Units	Dil	-			Rec	Limit
										70 - 130
										70 - 130
										70 - 130
										70 - 130 70 - 130
anile		-							54	10 - 100
spike	e rest		) is based	1 on the s	-		ate res			
Б	a		<b>T</b> T •,	D.1	-		D			RPD
F'	<u> </u>									Limit
	5			-						20
	5			-						20
	5			-						20
	5	5.70	mg/Kg	g 1	6.00	< 0.00874	95	70 - 13	30 1	20
		1.	.86	1.76 1	mg/Kg	1 2.0	00	93	88	Limit 70 - 130 70 - 130
CS-1	1)		te Analyz Prepara		)15-06-23 )15-06-22				nalyzed By repared By	
CS-I	1)					Spike	М			
CS-:	1) F		Prepara		)15-06-22	Spike Amount		Pr		r: AK
CS-:		QC	Prepara	tion: 20 Units	015-06-22	-	R	Pr atrix	repared By Rec.	r: AK Rec.
	F	QC C 5	Preparat LCS Result 15.5	tion: 20 Units mg/K	015-06-22 s Dil. g 1	Amount	; Re	Pr atrix esult 2.32	repared By Rec.	r: AK Rec. Limit
	F	$\frac{C}{\frac{5}{1}}$	Prepara LCS Result 15.5 D is based	tion: 20 Units mg/K	$\frac{15-06-22}{g}$	Amount 20.0 spike duplic	; Re	Pr atrix esult 2.32 ult.	repared By Rec.	r: AK Rec. Limit 70 - 130
spike	F e resu	QC <u>5</u> ilt. RPI LCSD	Prepara LCS Result 15.5 ) is based	tion: 20 Units Mg/K d on the s	$\begin{array}{c c} \text{D15-06-22} \\ \hline \text{g} & \text{Dil.} \\ \hline \text{g} & 1 \\ \hline \text{spike and} \\ \hline \text{Spike} \end{array}$	Amount 20.0 spike duplic Matrix	ate res	Pr atrix esult 2.32 ult. Rec.	Rec.	r: AK Rec. Limit 70 - 130 RPD
	F e resu C	QC <u>5</u> Ilt. RPI LCSD Result	Prepara LCS Result 15.5 D is based t Units	tion: 20 Units mg/K d on the s s Dil.	)15-06-22 g Dil. g 1 spike and s Spike Amount	Amount 20.0 spike duplic Matrix t Result	ate res	Pr atrix esult 2.32 ult. Rec. Limit	Rec. 78 RPD	r: AK Rec. Limit 70 - 130 RPD Limit
spike F	F e resu C 5	QC <u>5</u> ilt. RPI LCSD Result 15.3	Prepara LCS Result 15.5 D is based t Units mg/K	tion: 20 Units mg/K d on the s s Dil. $\chi$ g 1	DI5-06-22 <u>g 1</u> spike and spike Amount 20.0	Amount 20.0 spike duplic Matrix	ate res	Pr atrix esult 2.32 ult. Rec. Limit 70 - 13	Rec. 78 RPD	r: AK Rec. Limit 70 - 130
	spike F	F C 5 5 5 5	F C I $5$ $5$ spike result. RPD $F C Result$ $5 1.93$ $5 1.81$ $5 1.74$ $5 5.70$ spike result. RPD $LCSD$ $F C Result$ $5 1.93$ $5 1.81$ $5 1.74$ $5 5.70$ spike result. RPD $Lt$ $RPD$ $Lt$ $Re$ $Lt$	CS-1) Date Analyz QC Prepara ECS F C Result 5 1.89 5 1.80 5 1.73 5 5.64 Spike result. RPD is based ECSD F C Result Units 5 1.93 mg/Kg 5 1.81 mg/Kg 5 1.74 mg/Kg 5 1.74 mg/Kg 5 5.70 mg/Kg 5 1.74 mg/Kg 5 1.70 mg/Kg 5 1.74 mg/Kg 5 1.70 mg/Kg	$\begin{array}{c ccccccccccccccccccccccccccccccccccc$	$\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 c c c c c c c c c c c c c c c c c c $	$\begin{array}{c c c c c c c c c c c c c c c c c c c $

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control spikes continued											
				LCSD			$\operatorname{Spik}$		LCS	LCSD	
Surrogate		Re	esult I	Result	Units	Dil.	Amou	int	Rec.	Rec.	Limit
		L	LCS I	LCSD			Spik	æ	LCS	LCSD	Rec.
Surrogate		Re	esult I	Result	Units	Dil.	Amou	$\operatorname{int}$	Rec.	Rec.	Limit
Trifluorotoluene (TFT)		2	2.34	2.35	mg/Kg	1	2.00	0	117	118	70 - 130
4-Bromofluorobenzene (4-BFB)		2	2.09	2.12	$\mathrm{mg/Kg}$	1	2.00	0	104	106	70 - 130
Prep Batch: 103612		QC	C Prepara	ation: 2	2015-06-19	)				Prepare	d By: SC
			LCS				Spike	Μ	[atrix		Rec.
Param	F	$\mathbf{C}$	Result	Unit		. 1	Amount	R	esult	Rec.	Limit
DRO		5	239	mg/I	Kg 1		250	<	(7.41	96	70 - 130
Percent recovery is based on the spil	ke resu	lt. RPI	D is base	d on the	spike and	l spike	e duplica	te res	ult.		
		LCSI	)		Spike	e N	Aatrix		Re	ec.	RPD
Param I	FC	Resul			. Amou	nt F	Result	Rec.	Lin	nit R	PD Limit
DRO	5	249	mg/I	Kg 1	250	<	<7.41	100	70 -	130	4 20
Percent recovery is based on the spil	ke resu	lt. RPI	D is base	d on the	spike and	l spike	e duplica	te res	ult.		
	LCS	LC	SD			S	bike	LC	S	LCSD	Bec

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

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Matrix Spike	S										
Matrix Spike (MS-1) Spi	ked Sample	e: 39601	11								
QC Batch: 122419 Prep Batch: 103564			ate Analyz C Prepara		)15-06-18 )15-06-18				•	vzed By: ared By:	
Param	F	С	MS Result	Units	Dil.	Spike Amount	Re	atrix sult	Rec	. I	Rec.
Chloride Percent recovery is based on th	e spike res	ult. RP	14800 D is based	mg/Kg on the s		2500 spike dupli		233 sult.	103	78.	9 - 121
		MSE	,		Spike	Matrix		R	ec.		RPD
	F C	Resul	t Units	Dil.	Amount	Result	Rec.	Lii	mit - 121	RPD 1	Limit
Chloride		Resul 15000	t Units 0 mg/Kg	g 5	Amount 2500	Result 12233	112	Liı 78.9	mit - 121	RPD 1	
Chloride Percent recovery is based on th <b>Matrix Spike (MS-1)</b> Spi QC Batch: 122430		Resul 15000 ult. RP e: 39575 D:	t Units D mg/Kg D is based	$\frac{5}{5}$ l on the state of th	Amount 2500	Result 12233	112	Liı 78.9	- 121 Analy		Limit 20
QC Batch: 122430 Prep Batch: 103564 Param	ie spike res	Resul 15000 ult. RP e: 39575 D:	t Units <u>mg/Ka</u> D is based 50 ate Analyz C Prepara MS Result	$\frac{5}{5}$ for the state of the	Amount 2500 spike and s 015-06-18 015-06-18 Dil.	Result 12233 spike dupli Spike Amount	112 cate res Ma Re	Lin 78.9 sult. sult.	- 121 Analy Prepa Rec.	1 vzed By: ured By:	Limit 20 : AK AK Rec. .imit
Chloride Percent recovery is based on th <b>Matrix Spike (MS-1)</b> Spi QC Batch: 122430 Prep Batch: 103564 Param Chloride	e spike res ked Sample F	Resul 15000 ult. RP e: 39578 D: Q C	t Units <u>)</u> mg/Kg 2D is based 50 ate Analyz C Prepara <u>MS</u> <u>Result</u> 10100	$\frac{g  5}{1 \text{ on the }}$ $\frac{1}{2}$ $\frac{1}{2}$ $\frac{1}{2}$ $\frac{1}{2}$	Amount 2500 spike and s 015-06-18 015-06-18 Dil.	Result 12233 spike dupli Spike Amount 2500	112 cate res Ma Re 74	Lin 78.9 sult. sult. sult 440	- 121 Analy Prepa	1 vzed By: ured By:	Limit 20 : AK AK Rec. .imit
Chloride Percent recovery is based on th <b>Matrix Spike (MS-1)</b> Spi QC Batch: 122430 Prep Batch: 103564	e spike res ked Sample F	Resul 15000 ult. RP e: 39578 D: Q C	t Units <u>mg/Ka</u> D is based 50 ate Analyz C Prepara <u>MS</u> <u>Result</u> 10100 D is based	$\frac{g  5}{1 \text{ on the }}$ $\frac{1}{2}$ $\frac{1}{2}$ $\frac{1}{2}$ $\frac{1}{2}$	Amount 2500 spike and s 015-06-18 015-06-18 Dil.	Result 12233 spike dupli Spike Amount 2500	112 cate res Ma Re 74	Lin 78.9 sult. sult. 440 sult. R	- 121 Analy Prepa Rec.	1 vzed By: ured By:	Limit 20 : AK AK Rec.

Matrix Spike (xMS-1)	Spiked Sample: 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

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D		Б	G	MS	TT •/	D.1	Spike		trix		Rec.
Param		F	С	Result	Units	Dil.	Amount			Rec.	Limit
Benzene			5	1.51	mg/Kg		2.00		0533	76	70 - 130
Toluene			5	1.53	mg/Kg		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 of	n the spik	e res	ult. RPI	) is based	on the s	spike and s	spike duplica	ate resu	ılt.		
			MSD			Spike	Matrix		Rec.		RPD
Param	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
Xylène		5	5.35	mg/Kg	1	6.00	0.0429	88	70 - 130	14	20
Percent recovery is based of	n the spik	e res	ult. RPI	) is based	on the s	spike and s	spike duplica	ate resu	ılt.		

	${ m MS}$	MSD			Spike	MS	MSD	Rec.
Surrogate	Result	Result	Units	Dil.	Amount	Rec.	Rec.	Limit

	MID	MOD			opike	IVID	MOD	nee.
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

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

QC Batch:	122489	Date Analyzed:	2015-06-20	Analyzed By:	$\mathbf{A}\mathbf{K}$
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	Б	a	MSD	<b>TT</b> •	<b>D</b> '1	Spike		atrix	Ð	Rec		DDD	RPD
Param	F	С	Result	Units	Dil.	Amour	nt Re	esult	Rec.	Lim	it	RPD	Limit
GRO Qs	$_{\rm Qs}$	5	13.2	mg/Kg	1	20.0	1	1.6	8	70 - 1	130	11	20
Percent recovery is based on the s	pike	result	t. RPD is	based or	the s	pike and	spike o	duplicat	e rest	ılt.			
			MS	MS	D			$\operatorname{Spil}$	xe	MS	MS	SD	Rec.
Surrogate			Resu	lt Resu	ılt	Units	Dil.	Amou	$\operatorname{unt}$	Rec.	Re	ec.	Limit
Trifluorotoluene (TFT)			2.26	2.4	5 r	ng/Kg	1	2		113	12	22	70 - 130
4-Bromofluorobenzene (4-BFB)			2.03	2.1	5 r	m ng/Kg	1	2		102	1(	)8	70 - 130

Report Date: June 23, 2015 7250715061				Work	Corder: 1 30137 #				Page Number: 24 of 32			
Matrix Spike (MS-1) Spike	ed Sε	mple	e: 39592	2								
QC Batch: 122539 Prep Batch: 103647				ate Analy C Prepar		015-06-23 015-06-22				lyzed B pared By		
				MS			Spike	Ma	trix		Rec.	
Param		$\mathbf{F}$	$\mathbf{C}$	Result	Units	Dil.	Amount			Rec.	Limit	
Benzene			5	1.78	mg/Kg		2.00				70 - 130	
Toluene			5	1.72	mg/Kg		2.00				70 - 130	
Ethylbenzene			5	1.70	mg/Kg		2.00				70 - 130	
Xylene			5	5.63	mg/Kg		6.00				70 - 130	
Percent recovery is based on the	spik	e res	ult. RP									
			MSD			Spike	Matrix		Rec.		RPD	
Param	F	С	Result			Amount	Result	Rec.	Limit	RPD	Limi	
Benzene		5	1.66	mg/ŀ		2.00	< 0.00533		70 - 130		20	
Toluene		5	1.59	mg/ŀ		2.00	< 0.00645		70 - 130		20	
Ethylbenzene		5	1.59	mg/F		2.00	< 0.0116		70 - 130		20	
Xylene		5	5.25	mg/ŀ	Kg 1	6.00	< 0.00874	4 88	70 - 130	7	20	
Surrogate Frifluorotoluene (TFT)				tesult 1.84	Result 1.89	Units mg/Kg		Spike mount 2	Rec. 1 92	Rec. 94	Limit 70 - 130	
4-Bromofluorobenzene (4-BFB)				1.92	1.96	mg/Kg	1	2	96		70 - 130	
Matrix Spike (MS-1) Spike QC Batch: 122540	ed Sa	ample	e: 39592 Dε	2 ate Analy					Ana	lyzed B	y: AK	
-			Q	C Prepar	, ,	015-06-23 015-06-22			Prep	pared By		
Prep Batch: 103647 Param		F	С	C Prepar MS Result	ration: 20 Units	015-06-22 s Dil.	Spike Amour	nt Re	atrix esult F	lec.	y: AK Rec. Limit	
Prep Batch: 103647 Param		F	·	C Prepar MS	ration: 20	015-06-22 s Dil.	-	nt Re	atrix esult F	lec.	y: AK Rec.	
Prep Batch: 103647 Param GRO	spike		C 5	C Prepar MS Result 14.8	eation: 20 Units mg/K	015-06-22 5 Dil. 5 1	Amour 20.0	nt Re	atrix esult F 2.32 ult.	lec.	y: AK Rec. Limit	
Prep Batch: 103647 Param GRO Percent recovery is based on the	-	e res	C 5 1lt. RP MS	MS Result 14.8 D is base	$\frac{\text{Units}}{\text{Mg/K}}$	$\begin{array}{c c} 015-06-22 \\ \hline s \\ \hline g \\ 1 \\ \hline spike and s \\ \hline Spike \end{array}$	Amoun 20.0 spike dupl Matrix	nt Re	atrix esult F 2.32 	Rec.	y: AK Rec. Limit 70 - 130 RPD	
Prep Batch: 103647 Param GRO Percent recovery is based on the Param	Ē	e rest	C 5 1lt. RP MS Resu	C Prepar MS Result 14.8 D is base D is base	$\begin{array}{c} \text{Tration:} & 20 \\ \hline & \text{Unit:} \\ \hline & \text{mg/K} \\ \hline & \text{mg/K} \\ \hline & \text{ed on the} \\ \\ \text{nits} & \text{Dil} \end{array}$	015-06-22 s Dil. g 1 spike and s Spike . Amoun	Amoun 20.0 spike dupl Matrix t Result	t Rec.	atrix esult F 2.32 ult. Rec. Limit	tec. 74 RPD	y: AK Rec. Limit 70 - 130 RPD Limit	
Prep Batch: 103647	F s Q	e res r C	C ⁵ ilt. RP MS Resu 13.	MS Result 14.8 D is base D ilt Ur 8 mg	$\begin{array}{c} \text{Tration:} & 20 \\ \hline & \text{Units} \\ \hline & \text{mg/K} \\ \text{ed on the} \\ \\ \text{nits} & \text{Dil} \\ \hline & \text{Kg} & 1 \end{array}$	015-06-22 <u>s</u> Dil. <u>g</u> 1 spike and s Spike <u>Spike</u> <u>Amoun</u> 20.0	Amoun 20.0 spike dupl Matrix t Result <2.32	nt Re icate rest : Rec. 69	atrix esult F 2.32 ult. Rec. Limit 70 - 130	Rec.	y: AK Rec. Limit 70 - 130 RPD	

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matrix spikes continued												
			MS	MSD			Spil	ke	MS	MS	D	Rec.
Surrogate			Result	Result	Units	s Di	l. Amo	unt	Rec.	Rec	з.	Limit
			MS	MSD			Spil	ke	MS	MS	D	Rec.
Surrogate			Result	Result	Units	s Di	l. Amo	$\operatorname{unt}$	Rec.	Rec	з.	Limit
Trifluorotoluene (TFT)			2.49	2.48	mg/K		2		124	124	4 7	70 - 130
4-Bromofluorobenzene (4-BFB)			2.20	2.21	mg/K	lg 1	2		110	11(	) 7	70 - 130
Matrix Spike (MS-1) Spil QC Batch: 122545 Prep Batch: 103612	ked Sample	Ι	908 Date Ana QC Prep	v	2015-06 2015-06					Analyz Prepar	•	
QC Batch: 122545	ked Sample F	Ι	Date Ana	aration:	2015-06		Spike Amount			•	red By	
QC Batch: 122545 Prep Batch: 103612	-	1 (	Date Ana QC Prep MS	aration:	2015-06	-19	-	Re	atrix	Prepar	red By	r: SC Rec.
QC Batch: 122545 Prep Batch: 103612 Param DRO	F	I C 5	Date Ana QC Prep MS <u>Resul</u> 213	aration: t Un mg/	2015-06 its /Kg	-19 Dil. 1	Amount 250	Re <7	atrix sult 7.41	Prepar Rec	red By	r: SC Rec. Limit
QC Batch: 122545 Prep Batch: 103612 Param DRO	F	I C 5	Date Ana QC Prep MS <u>Resul</u> 213	aration: t Un mg/	2015-06 its I /Kg ae spike a	-19 Dil. 1	Amount 250	Re <7	atrix sult 7.41	Prepar Rec 85	red By	r: SC Rec. Limit
QC Batch: 122545 Prep Batch: 103612 Param DRO Percent recovery is based on the	F	$\frac{C}{\frac{5}{1}}$	Date Ana QC Prep MS Resul 213 PD is ba	aration: t Un mg/	2015-06 its Kg te spike a	-19 Dil. 1 and spik	Amount 250 & duplicat	Re <7	atrix sult 7.41 ılt. Ro	Prepar Rec 85 ec.	red By	r: SC Rec. Limit 70 - 130
QC Batch: 122545 Prep Batch: 103612 Param DRO Percent recovery is based on the Param	F e spike resu	$\frac{C}{\frac{5}{1}}$	Date Ana QC Prep MS Resul 213 PD is ba MSD	t Un mg/ used on th	2015-06 its Kg le spike a	-19 Dil. 1 and spik Spike	Amount 250 xe duplicat Matrix	Re <7 te resu	atrix sult 7.41 Ilt. Ra Lin	Prepar Rec 85 ec.	red By	r: SC Rec. <u>Limit</u> 70 - 130 RPD
QC Batch: 122545 Prep Batch: 103612 Param DRO Percent recovery is based on the Param	F e spike resu F _{Qr,Qs} _{Qr,Qs}	$\frac{C}{\frac{5}{5}}$	Date Ana QC Prep MS Resul 213 PD is ba MSD Result 163	t Un mg/ used on th Units mg/Kg	2015-06 its I /Kg ne spike a Dil. A 1	-19 Dil. 1 and spike amount 250	Amount 250 & duplicat Matrix Result <7.41	Re <7 te resu Rec. 65	atrix sult 7.41 Ilt. Ra Lin 70 -	Prepar Rec 85 ec. mit	red By 7 RPD	Rec. Limit 0 - 130 RPD Limit
QC Batch: 122545 Prep Batch: 103612 Param DRO Percent recovery is based on the Param DRO	F e spike resu F _{Qr,Qs} _{Qr,Qs}	$\frac{C}{\frac{5}{1}}$	Date Ana QC Prep MS Resul 213 PD is ba MSD Result 163	t Un mg/ used on th Units mg/Kg	2015-06 its I /Kg ne spike a Dil. A 1	-19 Dil. 1 and spike amount 250	Amount 250 & duplicat Matrix Result <7.41	Re <7 te resu Rec. 65	atrix sult 7.41 ilt. Ra Lin 70 - ilt.	Prepar Rec 85 ec. mit	red By 7 RPD	Rec. Limit 0 - 130 RPD Limit
QC Batch: 122545 Prep Batch: 103612 Param DRO Percent recovery is based on the Param DRO	F e spike resu F Qr,Qs Qr,Qs e spike resu	$\frac{C}{\frac{5}{1}}$	Date Ana QC Prep MS Resul 213 PD is ba MSD Result 163 PD is ba	t Un mg/ used on th Units mg/Kg	2015-06 its I Kg te spike a Dil. A 1 te spike a	-19 Dil. 1 and spike amount 250 and spik	Amount 250 & duplicat Matrix Result <7.41 & duplicat	Re <7 te resu <u>Rec.</u> 65 te resu	atrix sult 7.41 ilt. Ra Lin 70 - ilt. S	Prepar Rec 85 ec. mit 130	red By 7 RPD	r: SC Rec. Limit 70 - 130 RPD Limit 20

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# **Calibration Standards**

# Standard (ICV-1)

QC Batch:	122419		Date Analy			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:	122419	Date Ana			Analyzed:	2015-06-18		Analy	zed By: AK
					$\mathrm{CCVs}$	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 (ICV-1)

QC Batch: 122430				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				m mg/Kg	100	100	100	85 - 115	2015-06-18		

# Standard (CCV-1)

QC Batch:	122430			Date Analyzed:				Analy	Analyzed By: AK		
					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	2015-06-18		

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## Standard (CCV-1)

QC Batch: 122488			Analyz	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			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			Date An	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	0.0978	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: J 7250715061	eport Date: June 23, 2015 50715061			V	Vork Order 30137	:: 15061709 7 #5		Page Number: 28 of 32		
Param	Flag	С	ert	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed	
GRO			5	mg/Kg	1.00	0.881	88	80 - 120	2015-06-20	
Standard (CC	V-2)									
QC Batch: 122489				Date A	analyzed:	2015-06-20		Analy	zed By: AK	
					CCVs True	CCVs Found	CCVs Percent	Percent Recovery	Date	
Param GRO	Flag	С	ert	Units mg/Kg	Conc. 1.00	Conc. 0.940	Recovery 94	Limits 80 - 120	Analyzed 2015-06-20	
QC Batch: 122	2489			Date A	analyzed:	2015-06-20		Analy	zed By: AK	
					CCVs	CCVs	CCVs	Percent		
Param	Flag	C	ert	Units	True Conc.	Found Conc.	Percent Recovery	Recovery Limits	Date Analyzed	
GRO	1 103		5	mg/Kg	1.00	0.900	90	80 - 120	2015-06-20	
Standard (CC QC Batch: 122	,			Date A	analyzed:	2015-06-23		Ansly	zed By: AK	
	1000			Date 1	CCVs		$\operatorname{CCVs}$	Percent	Zeu Dy. Am	
					True	Found	Percent	Recovery	Date	
Param		Flag	Cert	Units	Conc.	Conc.	Recovery	Limits	Analyzed	
Benzene		0	5	mg/kg	0.100	0.0958	96	80 - 120	2015-06-23	
Toluene			5	mg/kg	0.100	0.0891	89	80 - 120	2015-06-23	
Ethylbenzene			5	mg/kg	0.100	0.0848	85	80 - 120	2015-06-23	
V 1				0, 0	0.200		0.9	00 100	0015 00 0	

## Standard (CCV-2)

Xylene

QC Batch: 122539

Date Analyzed: 2015-06-23

0.300

0.278

93

mg/kg

 $\mathbf{5}$ 

Analyzed By: AK

2015-06-23

80 - 120

Report Date: June 7250715061	23, 2015		Wo	Page Number: 29 of 32				
				$\rm CCVs$	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	m mg/kg	0.100	0.0905	90	80 - 120	2015-06-23
Ethylbenzene		5	m 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	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	
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		
				$\rm CCVs$	CCVs	$\mathrm{CCVs}$	Percent		
				True	Found	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:	122545		Date	Analyzed:	2015-06-23		Analyzed By: SC	
				CCVs	$\rm CCVs$	$\mathrm{CCVs}$	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			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

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# Appendix

# **Report Definitions**

NameDefinitionMDLMethod Detection LimitMQLMinimum Quantitation LimitSDLSample 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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FDescriptionQsrSurrogate recovery outside of laboratory limits.

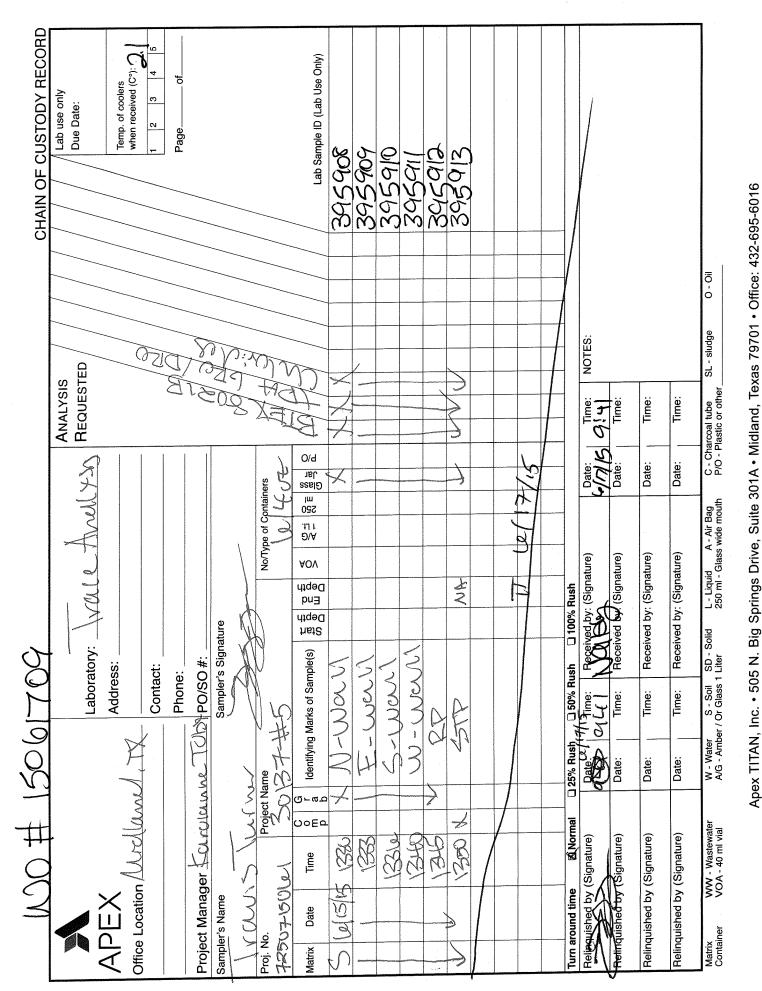
U The analyte is not detected above the SDL

# **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)

Received by OCD: 4/19/2023 7:30:52 AM



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

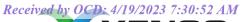
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## Sample Cross Reference 522956



#### 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

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

Sample receipt non conformances and comments:

Sample receipt non conformances and comments per sample:

None





## 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	003	522956-0	04	522956-0	005	522956-	006
	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	11:18	Jan-14-16	1:24	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 (	9:00	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	1:50	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	10:00	Jan-22-16	0:00	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	15:41	Jan-26-16 2	20:53	Jan-26-16 2	21:06	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	1:30	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 (	03:59	Jan-21-16	4:12	Jan-20-16 0	05:02	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

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Kelsey Brooks Project Manager

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## 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
Anulysis Kequesieu	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	11:59	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 0	9:00	Jan-18-16	09:00
	Analyzed:	Jan-18-16	15:24	Jan-18-16 1	5:41	Jan-18-16	15:57	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	10:00	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	16:23	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 0	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

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Kelsey Brooks Project Manager

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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	)13	522956-0	14	522956-0	015	522956-0	16	522956-0	)17	
An aluaia Do au catod	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	12:12	Jan-14-16 1	2:18	Jan-14-16 1	2:40	Jan-14-16 1	2:50	Jan-14-16	12:59	
BTEX by EPA 8021B	Extracted:	Jan-18-16 (	09:00	Jan-18-16 0	9:00	Jan-18-16 0	9:00	Jan-18-16 0	9:00	Jan-18-16 (	)9:00	
	Analyzed:	Jan-19-16 (	09:47	Jan-18-16 1	7:20	Jan-18-16 1	7:35	Jan-18-16 1	7:51	Jan-18-16 1	18:41	
	Units/RL:	mg/kg	RL	mg/kg	RL	mg/kg	RL	mg/kg	RL	mg/kg	RL	
Benzene		ND	0.00101	ND (	).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 (	).000996	ND	0.00101	
Total Xylenes		ND	0.00101	ND (	0.000992	ND	0.000996	ND (	).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	10:00	Jan-22-16 1	0:00	Jan-22-16 1	0:00	Jan-22-16 1	0:00	Jan-22-16 1	10:00	
	Analyzed:	Jan-26-16	18:20	Jan-26-16 1	8:33	Jan-26-16 1	8:46	Jan-26-16 1	9:37	Jan-27-16 2	21:15	
	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 (	)9:00	
	Analyzed:	Jan-21-16 (	03:37	Jan-21-16 0	3:34	Jan-21-16 1	3:42	Jan-21-16 0	4:47	Jan-21-16 (	05:21	
	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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Kelsey Brooks Project Manager

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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 Or Lab Batch #	<b>ders :</b> 52295 #: 985838	6, Sample: 522956-003 / SMP	Batch		: 7250101120 : Soil	)96	
Units:	mg/kg	Date Analyzed: 01/18/16 11:50	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-Difluoro	benzene		0.0321	0.0300	107	80-120	
4-Bromofluo	orobenzene		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	ECOVERYS	STUDY	
	BTEX	X by EPA 8021B	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
1.4-Difluoro	benzene	Analytes	0.0323	0.0300	108	80-120	
4-Bromofluo			0.0299	0.0300	100	80-120	
Lab Batch #		Sample: 522956-002 / SMP	Batch			00 120	
Units:	mg/kg	<b>Date Analyzed:</b> 01/18/16 12:58		RROGATE R		STUDY	
	BTE	X by EPA 8021B	Amount Found	True Amount	Recovery	Control Limits %R	Flags
		Analytes	[ <b>A</b> ]	[B]	%R [D]	70K	
1,4-Difluoro	benzene		0.0352	0.0300	117	80-120	
4-Bromofluo	orobenzene		0.0297	0.0300	99	80-120	
Lab Batch #	#: 985838	Sample: 522956-006 / SMP	Batch	n: 1 Matrix	: Soil		
Units:	mg/kg	Date Analyzed: 01/18/16 13:14	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-Difluoro	benzene		0.0345	0.0300	115	80-120	
4-Bromofluo	orobenzene		0.0294	0.0300	98	80-120	
Lab Batch #	#: 985838	Sample: 522956-007 / SMP	Batch	n: 1 Matrix	: Soil		
U <b>nits:</b>	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	Flags
			0.0240	0.0200	113	80-120	
1,4-Difluoro	benzene		0.0340	0.0300	115	00-120	

* 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 Ore Lab Batch #	<b>ders :</b> 52295 #: 985838	6, Sample: 522956-008 / SMP	Batch		: 7250101120 : Soil	)96		
Units:	mg/kg	<b>Date Analyzed:</b> 01/18/16 15:41	SU	RROGATE R	ECOVERYS	STUDY		
	втех	X by EPA 8021B	Amount Found [A]	True Amount [B]	Recovery %R	Control Limits %R	Flags	
		Analytes			[D]			
1,4-Difluoro	benzene		0.0340	0.0300	113	80-120		
4-Bromofluo	robenzene		0.0295	0.0300	98	80-120		
Lab Batch #	<b>#:</b> 985838	Sample: 522956-009 / SMP	Batch	n: 1 Matrix	: Soil			
Units:	mg/kg	Date Analyzed: 01/18/16 15:57	SURROGATE RECOVERY STUDY					
	ВТЕУ	X by EPA 8021B Analytes	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags	
1,4-Difluorol	benzene	Anaryus	0.0345	0.0300	115	80-120		
4-Bromofluo	robenzene		0.0299	0.0300	100	80-120		
Lab Batch #	#: 985838	Sample: 522956-010 / SMP	Batch	n: 1 Matrix	: Soil			
Units:	mg/kg	<b>Date Analyzed:</b> 01/18/16 16:14		RROGATE R	ECOVERY	STUDY		
	ВТЕУ	X by EPA 8021B Analytes	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags	
1,4-Difluoro	henzene		0.0335	0.0300	112	80-120		
4-Bromofluo			0.0335	0.0300	98	80-120		
Lab Batch #		Sample: 522956-011 / SMP	Batch			80-120		
Units:	mg/kg	<b>Date Analyzed:</b> 01/18/16 16:30		RROGATE R		STUDY		
	ВТЕХ	X by EPA 8021B Analytes	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags	
1,4-Difluoro	benzene		0.0355	0.0300	118	80-120		
4-Bromofluo	robenzene		0.0303	0.0300	101	80-120		
Lab Batch #	#: 985838	Sample: 522956-012 / SMP	Batch	n: 1 Matrix	: Soil			
Units:	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	Flags	
		-						
1,4-Difluorol	benzene		0.0336	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



Work Ore Lab Batch #	<b>ders :</b> 52295 #: 985838	6, Sample: 522956-014 / SMP	Batch		: 7250101120 : Soil	)96	
Units:	mg/kg	Date Analyzed: 01/18/16 17:20	SU	RROGATE R	ECOVERY S	STUDY	
	BTEX	X by EPA 8021B	Amount Found [A]	True Amount [B]	Recovery %R	Control Limits %R	Flags
		Analytes			[D]		
1,4-Difluoro	benzene		0.0359	0.0300	120	80-120	
4-Bromofluo	orobenzene		0.0305	0.0300	102	80-120	
Lab Batch #	<b>#:</b> 985838	Sample: 522956-015 / SMP	Batch	n: 1 Matrix	: Soil		
Units:	mg/kg	Date Analyzed: 01/18/16 17:35	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-Difluorol	benzene		0.0283	0.0300	94	80-120	
4-Bromofluo			0.0241	0.0300	80	80-120	
Lab Batch #	#: 985838	Sample: 522956-016 / SMP	Batch				
Units:	mg/kg	<b>Date Analyzed:</b> 01/18/16 17:51		RROGATE R	ECOVERY S	STUDY	
	BTEX	X by EPA 8021B	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
		Analytes					
1,4-Difluorol			0.0312	0.0300	104	80-120	
4-Bromofluo			0.0273	0.0300	91	80-120	
Lab Batch #		Sample: 522956-017 / SMP	Batch	n: 1 Matrix	: Soil		
Units:	mg/kg	Date Analyzed: 01/18/16 18:41	SU	RROGATE R	ECOVERY S	STUDY	
	BTE	X by EPA 8021B Analytes	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
1,4-Difluorol	benzene		0.0276	0.0300	92	80-120	
4-Bromofluo	orobenzene		0.0241	0.0300	80	80-120	
Lab Batch #	#: 985838	Sample: 522956-001 / SMP	Batch	n: 1 Matrix	: Soil		
Units:	mg/kg	Date Analyzed: 01/18/16 18:57	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
140.0	benzene		0.0268	0.0300	89	80-120	
1,4-Difluoro	oenzene			0.0500			

* 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



Euo Duten #1	985838	Sample: 522956-004 / SMP	Batc	h: 1 Matrix	: 5011		
Units:	mg/kg	Date Analyzed: 01/18/16 19:12	SU	RROGATE R	ECOVERY S	STUDY	
	BTEX	K by EPA 8021B	Amount Found [A]	True Amount [B]	Recovery %R	Control Limits %R	Flags
		Analytes			[D]		
1,4-Difluorobe	nzene		0.0263	0.0300	88	80-120	
4-Bromofluoro	benzene		0.0351	0.0300	117	80-120	
Lab Batch #:	985838	Sample: 522956-013 / SMP	Batc	h: 1 Matrix	: Soil		
Units:	mg/kg	Date Analyzed: 01/19/16 09:47	SU	RROGATE R	ECOVERY S	STUDY	
	втех	X by EPA 8021B	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
1,4-Difluorobe	nzene	Analytes	0.0340	0.0300	113	80-120	
4-Bromofluoro			0.0311	0.0300	104	80-120	
Lab Batch #:		Sample: 522956-001 / SMP	Batc			00 120	
Units:	mg/kg	Date Analyzed: 01/20/16 02:53		RROGATE R		STUDY	
	TPE	I by SW 8015B	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
1 (11)		Analytes					
1-Chlorooctane			87.5	99.6	88	70-135	
o-Terphenyl	00(000		46.6	49.8	94	70-135	
Lab Batch #:		Sample: 522956-002 / SMP	Batc				
Units:	mg/kg	Date Analyzed: 01/20/16 03:27	SU	RROGATE R	ECOVERY	STUDY	
	TPE	I by SW 8015B Analytes	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
1-Chlorooctane	1		103	99.9	103	70-135	
o-Terphenyl			54.5	50.0	109	70-135	
Lab Batch #:	986082	Sample: 522956-003 / SMP	Batc	h: 1 Matrix	: Soil		
Units:	mg/kg	Date Analyzed: 01/20/16 03:59	SU	RROGATE R	ECOVERY S	STUDY	
	TPE	I by SW 8015B Analytes	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
		J					
1-Chlorooctane			106	99.7	106	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



Work Orde Lab Batch #:		6, Sample: 522956-005 / SMP	Batch		7250101120 Soil	)96			
Units:	mg/kg	<b>Date Analyzed:</b> 01/20/16 05:02	SU	RROGATE R	ECOVERY S	STUDY			
	TPH	I by SW 8015B	Amount Found [A]	True Amount [B]	Recovery %R	Control Limits %R	Flags		
		Analytes			[D]				
1-Chlorooctane	e		88.8	99.8	89	70-135			
o-Terphenyl			47.1	49.9	94	70-135			
Lab Batch #:	986082	Sample: 522956-006 / SMP	Batch	n: 1 Matrix	: Soil	· · · · · · · · · · · · · · · · · · ·			
Units:	mg/kg	Date Analyzed: 01/20/16 05:35	SU	RROGATE R	RECOVERY STUDY				
	TPH	I by SW 8015B Analytes	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags		
1-Chlorooctane	e	Anarytes	91.4	99.6	92	70-135			
o-Terphenyl			48.7	49.8	98	70-135			
Lab Batch #:	986082	Sample: 522956-007 / SMP	Batch	n: 1 Matrix	: Soil				
U <b>nits:</b>	mg/kg	<b>Date Analyzed:</b> 01/20/16 06:09	SU	RROGATE R	ECOVERY S	STUDY			
	TPH	I by SW 8015B Analytes	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags		
1-Chlorooctane	<u>,</u>	Anarytes	93.1	99.8	93	70-135			
o-Terphenyl			49.9	49.9	93	70-135			
Lab Batch #:	986086	Sample: 522956-008 / SMP	49.9 Batch			/0-155			
Units:	mg/kg	Date Analyzed: 01/21/16 01:27		RROGATE R		STUDY			
	TPH	I by SW 8015B Analytes	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags		
1-Chlorooctane	e		115	99.9	115	70-135			
o-Terphenyl			47.7	50.0	95	70-135			
Lab Batch #:	986086	Sample: 522956-009 / SMP	Batch	n: 1 Matrix	: Soil				
Units:	mg/kg	Date Analyzed: 01/21/16 01:51	SU	RROGATE R	ECOVERY S	STUDY			
	TPH	I by SW 8015B Analytes	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags		
					1	50.105			
1-Chlorooctane	e		115	100	115	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 Orders Lab Batch #: 98		5, Sample: 522956-010 / SMP	Batc		: 7250101120 : Soil	)96		
	g/kg	<b>Date Analyzed:</b> 01/21/16 02:16		JRROGATE R	-	STUDY		
	ТРН	by SW 8015B	Amount Found [A]	True Amount [B]	Recovery %R	Control Limits %R	Flags	
		Analytes			[D]			
1-Chlorooctane			106	99.8	106	70-135		
o-Terphenyl			44.0	49.9	88	70-135		
Lab Batch #: 98	86086	Sample: 522956-011 / SMP	Batc	h: 1 Matrix	: Soil			
Units: m	g/kg	Date Analyzed: 01/21/16 02:41	SU	JRROGATE R	ECOVERY	STUDY		
		by SW 8015B Analytes	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags	
1-Chlorooctane			102	100	102	70-135		
o-Terphenyl			42.7	50.0	85	70-135		
Lab Batch #: 98	36086	Sample: 522956-012 / SMP	Batc	h: 1 Matrix	: Soil			
Units: m	g/kg	Date Analyzed: 01/21/16 03:08	SURROGATE RECOVERY STUDY					
		by SW 8015B Analytes	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flage	
1-Chlorooctane		Analytes	104	00.6		70.125		
			104	99.6	104	70-135		
o-Terphenyl Lab Batch #: 98	26086	Sample: 522956-014 / SMP	44.1 Batc	49.8 h: 1 Matrix	89 • Soil	70-135		
		<b>Date Analyzed:</b> 01/21/16 03:34						
	g/kg	Date Analyzet: 01/21/10 05.54	SU	JRROGATE R	ECOVERY	STUDY		
		by SW 8015B Analytes	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags	
1-Chlorooctane			106	100	106	70-135		
o-Terphenyl			55.7	50.0	111	70-135		
Lab Batch #: 98	86086	Sample: 522956-013 / SMP	Batc	h: 1 Matrix	: Soil			
Units: m	g/kg	Date Analyzed: 01/21/16 03:37	SU	JRROGATE R	ECOVERY	STUDY		
		by SW 8015B	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flag	
1.011		Analytes						
1-Chlorooctane			105	99.9	105	70-135		
o-Terphenyl			44.0	50.0	88	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 Orde Lab Batch #:		Sample: 522956-016 / SMP	Batc		: 7250101120 : Soil	// 0			
Units:	mg/kg	<b>Date Analyzed:</b> 01/21/16 04:47	SU	JRROGATE R	ECOVERY S	STUDY			
	TPH	I by SW 8015B	Amount Found [A]	True Amount [B]	Recovery %R	Control Limits %R	Flags		
		Analytes			[D]	Control Limits %R70-13570-13570-135STUDYControl Limits %R70-135STUDYControl Limits %R70-135STUDYSTUDYControl Limits %R70-13570-13570-13570-13570-13570-13570-13570-13570-13570-13570-13570-135			
1-Chlorooctane	•		84.4	99.9	84	70-135			
o-Terphenyl			44.6	50.0	89	70-135			
Lab Batch #:	986086	Sample: 522956-017 / SMP	Batc	h: 1 Matrix	: Soil				
Units:	mg/kg	Date Analyzed: 01/21/16 05:21	SU	JRROGATE R	E RECOVERY STUDY				
	TPH	l by SW 8015B Analytes	Amount Found [A]	True Amount [B]	Recovery %R [D]	Limits	Flags		
1-Chlorooctane	;	Anarytes	85.2	100	85	70-135			
o-Terphenyl			44.4	50.0	89				
Lab Batch #:	986086	Sample: 522956-015 / SMP	Batc						
Units:	mg/kg	<b>Date Analyzed:</b> 01/21/16 13:42	SURROGATE RECOVERY STUDY						
	TPH	l by SW 8015B	Amount Found [A]	True Amount [B]	Recovery %R	Limits	Flags		
		Analytes			[D]				
1-Chlorooctane	•		93.8	99.9	94	70-135			
o-Terphenyl			49.5	50.0	99	70-135			
Lab Batch #:	986082	Sample: 522956-004 / SMP	Batc	h: 1 Matrix	: Soil				
Units:	mg/kg	Date Analyzed: 01/21/16 14:12	SU	JRROGATE R	ECOVERY S	STUDY			
	TPH	I by SW 8015B	Amount Found [A]	True Amount [B]	Recovery %R [D]	Limits	Flags		
1 Chlorocotory		Analytes	105	100		70.125			
1-Chlorooctane o-Terphenyl	5		125	100	125				
Lab Batch #:	985838	Sample: 703579-1-BLK / BL	63.6 K Bate	50.0 b: 1 Matrix	127 • Solid	/0-135			
Units:	mg/kg	Date Analyzed: 01/18/16 09:05		JRROGATE R		STUDY			
		K by EPA 8021B	Amount Found [A]	True Amount [B]	Recovery %R	Control Limits	Flags		
		Analytes			[D]				
1,4-Difluorobe	nzene		0.0337	0.0300	112	80-120			
4-Bromofluoro	benzene		0.0329	0.0300	110	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



17	Л						
Units:	mg/kg	Date Analyzed: 01/19/16 13:06	SU	RROGATE R	ECOVERY S	STUDY	
	TPH	I by SW 8015B	Amount Found [A]	True Amount [B]	Recovery %R	Control Limits %R	Flag
		Analytes			[D]		
1-Chlorooct	ane		91.7	100	92	70-135	
o-Terpheny	l		48.2	50.0	96	70-135	
Lab Batch	#: 986086	Sample: 703716-1-BLK / B	LK Bate	h: 1 Matrix	: Solid		
Units:	mg/kg	Date Analyzed: 01/20/16 09:11	SU	RROGATE R	ECOVERY S	STUDY	
	TPH	I by SW 8015B	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flag
1-Chlorooct	000	Analytes	110	100		70.125	
			110	100	110	70-135	
o-Terpheny	#: 985838	Sample: 703579-1-BKS / Bl	45.9 KS Batcl	50.0 50.0	92 Solid	70-135	
Lab Batch Units:		<b>Date Analyzed:</b> 01/18/16 08:15					
Units:	mg/kg	Date Analyzed: 01/18/10 08.15	SU	RROGATE R	ECOVERY S	STUDY	
	втеу	K by EPA 8021B	Amount Found [A]	True Amount [B]	Recovery %R	Control Limits %R	Flag
		Analytes	[]	[2]	[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 / BI	KS Bate	h: 1 Matrix	: Solid		
Units:	mg/kg	Date Analyzed: 01/19/16 13:37	SU	RROGATE R	ECOVERY S	STUDY	
	TPH	I by SW 8015B	Amount Found [A]	True Amount [B]	Recovery %R	Control Limits %R	Flag
		Analytes			[D]		
1-Chlorooct			97.5	100	98	70-135	
o-Terpheny			48.3	50.0	97	70-135	
	#: 986086	Sample: 703716-1-BKS / BI			: Solid		
Units:	mg/kg	Date Analyzed: 01/20/16 09:38	SU	RROGATE R	ECOVERY S	STUDY	
	TPH	I by SW 8015B	Amount Found [A]	True Amount [B]	Recovery %R	Control Limits %R	Flag
		Analytes			[D]		
1-Chlorooct	ane		127	100	127	70-135	
o-Terpheny			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

Work Or Lab Batch	<b>ders :</b> 52295 #: 985838	6, Sample: 703579-1-BSD / BS	SD Batch	-	: 7250101120 : Solid	096	
Units:	mg/kg	Date Analyzed: 01/18/16 08:32	SU	RROGATE R	RECOVERY	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-Bromoflue	orobenzene		0.0326	0.0300	109	80-120	
Lab Batch	#: 986082	Sample: 703714-1-BSD / BS	SD Batch	n: 1 Matrix	c: Solid		
Units:	mg/kg	Date Analyzed: 01/19/16 14:04	SU	RROGATE R	RECOVERY	STUDY	
	TPH	I by SW 8015B	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
		Analytes					
1-Chlorooct			93.6	100	94	70-135	
o-Terphenyl			46.4	50.0	93	70-135	
Lab Batch		Sample: 703716-1-BSD / BS	SD Batch	n: 1 Matrix	: Solid		
Units:	mg/kg	Date Analyzed: 01/20/16 10:06	SU	RROGATE R	RECOVERY	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-Terphenyl	l		57.3	50.0	115	70-135	
Lab Batch	#: 985838	Sample: 522956-002 S / MS	Batch	n: 1 Matrix	<b>x:</b> Soil		
Units:	mg/kg	Date Analyzed: 01/18/16 13:30	SU	RROGATE R	RECOVERY	STUDY	
	BTE	X by EPA 8021B	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
1.4.5.0	,	Analytes					
1,4-Difluoro			0.0335	0.0300	112	80-120	
4-Bromoflue		Somela, 500056 007 8 / Mg	0.0338	0.0300	113	80-120	
		Sample: 522956-007 S / MS					
Units:	mg/kg	Date Analyzed: 01/20/16 06:41	SU	RROGATE R	RECOVERY	STUDY	
	TPH	I by SW 8015B	Amount Found [A]	True Amount [B]	Recovery %R	Control Limits %R	Flags
		Analytes			[D]		
1-Chlorooct	ane		98.1	99.7	98	70-135	
o-Terphenyl			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



	rders : 52295				: 7250101120	096	
Lab Batch	#: 986086	Sample: 522956-010 S / M	S Batc	h: 1 Matrix	: Soil		
U <b>nits:</b>	mg/kg	Date Analyzed: 01/21/16 05:57	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-Chlorooc	etane		103	99.6	103	70-135	
o-Terpheny	/1		49.9	49.8	100	70-135	
Lab Batch	#: 985838	Sample: 522956-002 SD / N	MSD Bate	h: 1 Matrix	: Soil		
U <b>nits:</b>	mg/kg	Date Analyzed: 01/18/16 13:45	SU	RROGATE R	ECOVERY	STUDY	
	BTEX	X by EPA 8021B	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
145.0	1	Analytes					
1,4-Difluor			0.0351	0.0300	117	80-120	
	lorobenzene		0.0349	0.0300	116	80-120	
	<b>#:</b> 986082	Sample: 522956-007 SD / N					
Units:	mg/kg	Date Analyzed: 01/20/16 07:13	SU	RROGATE R	ECOVERY	STUDY	
	TPF	I by SW 8015B	Amount Found [A]	True Amount [B]	Recovery %R	Control Limits %R	Flags
		Analytes			[D]		
1-Chlorooc	etane		105	100	105	70-135	
o-Terpheny	/1		51.4	50.0	103	70-135	
Lab Batch	#: 986086	Sample: 522956-010 SD / N	MSD 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-Chlorooc	tane		103	99.7	103	70-135	
o-Terpheny			50.8	49.9	103	70-135	
5 respicing	-		50.0	+7.7	102	10-135	

* 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**



.

#### Project Name: 30137 Pipeline Release

Work Order	·#: 522956							Proj	ect ID:	725010112	096	
Analyst:	SYG	D	ate Prepar	ed: 01/18/20	16			Date A	nalyzed:	01/18/2016		
Lab Batch ID	: 985838 Sample: 703579-	1-BKS	Batcl	<b>h #:</b> 1					Matrix:	Solid		
Units:	mg/kg		BLAN	K /BLANK	SPIKE / ]	BLANK S	SPIKE DUP	LICATE	RECOV	ERY STU	DY	
	BTEX 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
Analy	vtes		[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	
Ethylbenz	ene	< 0.00100	0.100	0.0842	84	0.100	0.0839	84	0	71-129	35	
m,p-Xyler	nes	< 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: 01/22/20	16	•		Date A	nalyzed:	01/26/2016		
Lab Batch ID	: 986585 Sample: 703750-	1-BKS	Batcl	<b>h #:</b> 1					Matrix:	Solid		
Units:	mg/kg		BLAN	K/BLANK	SPIKE / ]	BLANK S	SPIKE DUP	LICATE	RECOV	ERY STU	DY	
Inorga	anic Anions by EPA 300/300.1 /tes	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 BERGER DE LES 162 of 190

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

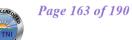
Work Order #: 4	522956							Pro	ect ID:	725010112	096	
Analyst: PJB		D	ate Prepai	ed: 01/19/20	16			Date A	nalyzed: (	01/19/2016		
Lab Batch ID: 986	082 Sample: 703714-1	-BKS	Batc	<b>h #:</b> 1					Matrix:	Solid		
Units: mg/	kg		BLAN	K /BLANK	SPIKE /	BLANK	SPIKE DUP	LICATE	RECOV	ERY STU	DY	
Analytes	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**



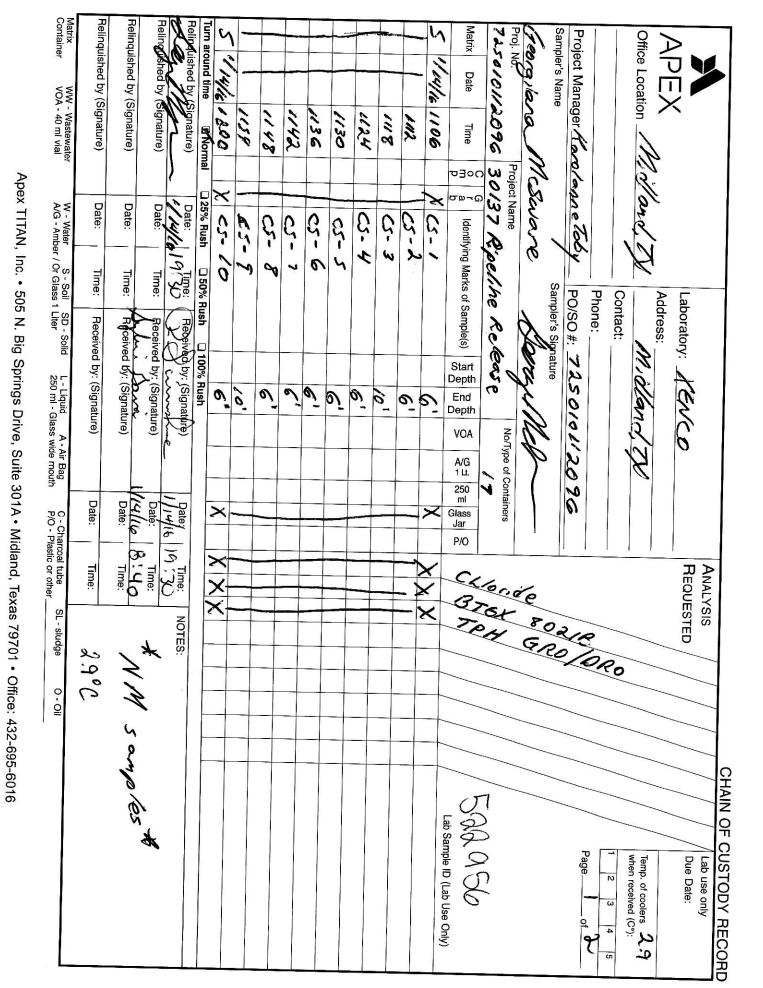
.

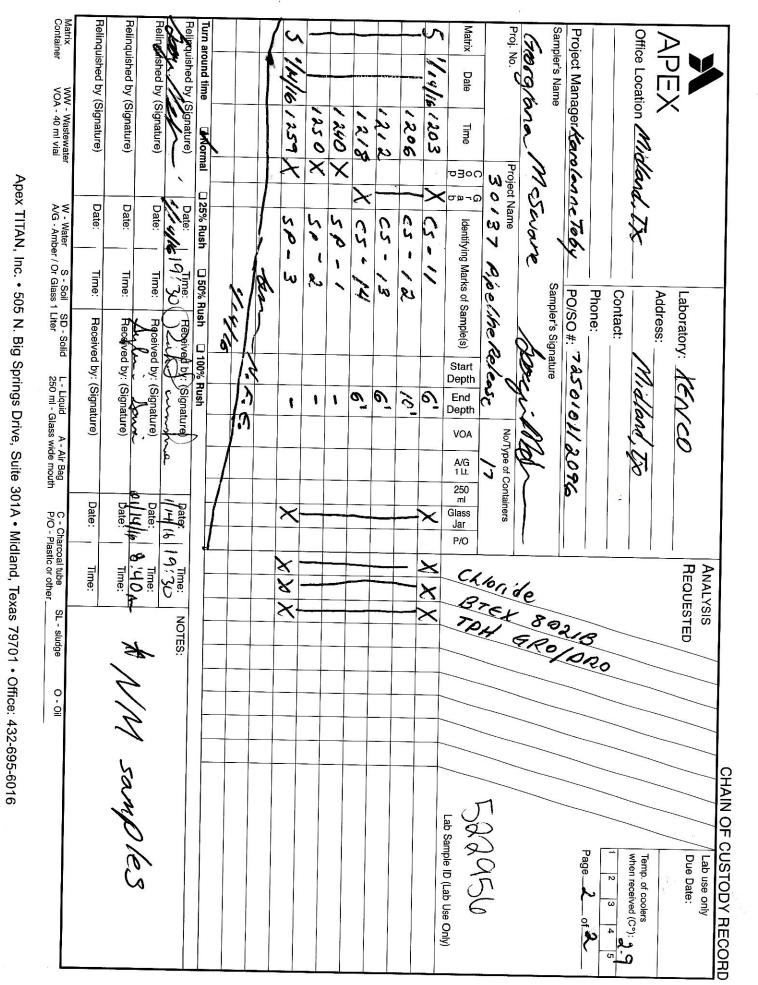
Work Order # :	522956						Project II	<b>D:</b> 72501	0112096			
Lab Batch ID:	985838	QC- Sample ID:	522956	-002 S	Ba	tch #:	1 Matri	x: Soil				
Date Analyzed:	01/18/2016	Date Prepared:	01/18/2	016	Ar	alyst: S	SYG					
<b>Reporting Units:</b>	mg/kg		Ν	IATRIX SPIK	E / MAT	RIX SPI	KE DUPLICA	TE REC	OVERY	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]		[D]	[E]		[G]				
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 Matri	x: Soil				
Date Analyzed:	01/20/2016	Date Prepared:	01/19/2	016	Ar	alyst: F	PIR					
	01/20/2010	···· · · · · · · · · · · · · · · · · ·		010		alyst. 1	<b>3D</b>					
·	mg/kg			IATRIX SPIK		-		TE REC	OVERY	STUDY		
·		Parent Sample	N Spike	IATRIX SPIK Spiked Sample Result	E / MAT Spiked Sample	RIX SPI Spike	KE DUPLICA Duplicate Spiked Sample	Spiked Dup.	RPD	Control Limits	Control Limits	Flag
·	mg/kg	Parent	N	IATRIX SPIK Spiked Sample	E / MAT Spiked	RIX SPI	KE DUPLICA Duplicate	Spiked		Control		Flag
Reporting Units:	mg/kg <b>TPH by SW 8015B</b>	Parent Sample Result	N Spike Added	IATRIX 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 Gasoli	mg/kg TPH by SW 8015B Analytes	Parent Sample Result [A]	N 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
Reporting Units: C6-C10 Gasoli 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] 724 962	Spiked Dup. %R [G] 72	<b>RPD</b> %	Control Limits %R 70-135	Limits %RPD 35	Flag
Reporting Units: C6-C10 Gasoli C10-C28 Diese Lab Batch ID:	mg/kg TPH by SW 8015B Analytes ne Range Hydrocarbons el Range Organics	Parent Sample Result [A] <15.0 <15.0	N. 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 Matri	Spiked           Dup.           %R           [G]           72           96	<b>RPD</b> %	Control Limits %R 70-135	Limits %RPD 35	Flag
Reporting Units: C6-C10 Gasoli C10-C28 Diese Lab Batch ID: Date Analyzed:	mg/kg TPH by SW 8015B Analytes ne Range Hydrocarbons el Range Organics 986086	Parent Sample Result [A]           <15.0	Spike           Added           [B]           997           997           522956           01/20/2	ATRIX SPIK Spiked Sample Result [C] 782 918 -010 S	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 Matri PJB	<b>Spiked</b> <b>Dup.</b> % <b>R</b> [ <b>G</b> ] 72 96 <b>x:</b> Soil	<b>RPD</b> %	Control Limits %R 70-135 70-135	Limits %RPD 35	Flag
Reporting Units: C6-C10 Gasoli	mg/kg TPH by SW 8015B Analytes ne Range Hydrocarbons el Range Organics 986086 01/21/2016	Parent Sample Result [A] <15.0 <15.0 QC- Sample ID: Date Prepared: Parent Sample	N. Spike Added [B] 997 997 522956 01/20/2 N. Spike	IATRIX SPIK Spiked Sample Result [C] 782 918 -010 S 016 IATRIX 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 Matri: PJB KE DUPLICA Duplicate Spiked Sample	Spiked Dup. %R [G] 72 96 x: Soil TE REC Spiked Dup.	RPD           %           8           5           OVERY           RPD	Control Limits %R 70-135 70-135 STUDY Control Limits	Limits %RPD 35 35 Control Limits	
C6-C10 Gasoli C10-C28 Diese Lab Batch ID: Date Analyzed:	mg/kg TPH by SW 8015B Analytes ne Range Hydrocarbons el Range Organics 986086 01/21/2016 mg/kg	Parent Sample Result [A] <15.0 <15.0 QC- Sample ID: Date Prepared: Parent	N. Spike Added [B] 997 997 522956 01/20/2 N.	IATRIX SPIK Spiked Sample Result [C] 782 918 -010 S 016 IATRIX 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 Matri PJB KE DUPLICA Duplicate	Spiked Dup. %R [G] 72 96 x: Soil TE REC Spiked	RPD           %           8           5	Control Limits %R 70-135 70-135 STUDY Control	Limits %RPD 35 35 Control	
Reporting Units: C6-C10 Gasoli C10-C28 Diese Lab Batch ID: Date Analyzed: Reporting Units:	mg/kg TPH by SW 8015B Analytes ne Range Hydrocarbons El 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	Spike           Added           [B]           997           997           522956           01/20/2           M           Spike           Added	IATRIX SPIK Spiked Sample Result [C] 782 918 -010 S 016 IATRIX 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 Matri: PJB KE DUPLICA Duplicate Spiked Sample	Spiked Dup. %R [G] 72 96 x: 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 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: 4/19/2023 7:30:52 AM



## **XENCO Laboratories**



Prelogin/Nonconformance Report- Sample Log-In

Client: APEX/Titan	Acceptable Temperature Ra	nge: 0 - 6 deaC
Date/ Time Received: 01/15/2016 08:40:00 AM	Air and Metal samples Acce	
Work Order #: 522956	Temperature Measuring dev	rice 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 b	bubble)? N/A	
#21 <2 for all samples preserved with HNO3,HCL, H2SO4? E samples for the analysis of HEM or HEM-SGT which are verifi 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
 Carley Owens

 Checklist reviewed by:
 Mass Moat

 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,

Huns hoah

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





## 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

	1												
	Lab Id:	526802-	001	526802-0	02	526802-0	003	526802-0	04	526802-0	05	526802-	006
Analysis Requested	Field Id:	CS-1 (2015	) (RE)	S-Wall (R	E)	CS-2 (2015	) (RE)	R.P. (RE	E)	SP-4		SP-5	
Anutysis Requested	Depth:	10 ft		8 ft		14 ft		13 ft					
	Matrix:	SOIL		SOIL		SOIL	,	SOIL		SOIL		SOIL	
	Sampled:	Mar-14-16	10:49	Mar-14-16	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

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## 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:				
	Matrix:	SOIL			
	Sampled:	Mar-14-16 12:45			
			1		
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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Kelsey Brooks Project Manager

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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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4147 Greenbriar Dr, Stafford, TX 77477 (281) 240-4200 (281) 24	0-4280
9701 Harry Hines Blvd , Dallas, TX 75220 (214) 902 0300 (214) 35	1-9139
5332 Blackberry Drive, San Antonio TX 78238 (210) 509-3334 (210) 50	)9-3335
1211 W Florida Ave, Midland, TX 79701 (432) 563-1800 (432) 56	53-1713
2525 W. Huntington Dr Suite 102, Tempe AZ 85282 (602) 437-0330	



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

Work Orders : Lab Batch #: 990		2, Sample: 526802-001 / SMP	Batel		: 7250101120 : Soil	)96	
Units: mg/	kg	Date Analyzed: 03/15/16 18:02	SU	RROGATE R	ECOVERY S	STUDY	
	ТРН	by SW 8015B	Amount Found [A]	True Amount [B]	Recovery %R	Control Limits %R	Flags
		Analytes			[D]		
1-Chlorooctane			115	100	115	70-130	
o-Terphenyl			56.7	50.0	113	70-130	
Lab Batch #: 990	381	Sample: 526802-003 / SMP	Batch	h: 1 Matrix	: Soil	<u>.</u>	
Units: mg/	kg	Date Analyzed: 03/15/16 18:29	SU	RROGATE R	ECOVERY S	STUDY	
		by SW 8015B	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
1 Chlorocatana		Analytes	116	00.7		70.120	
1-Chlorooctane			116	99.7	116	70-130	
o-Terphenyl Lab Batch #: 990	373	Sample: 526802-001 / SMP	57.3 Batcl	49.9 h: 1 Matrix	115	70-130	
Units: mg/		Date Analyzed: 03/15/16 18:42					
Units: ing/	ĸg	Date Analyzeu: 05/15/10 18.42	SU	RROGATE R	ECOVERY	STUDY	
		by EPA 8021B	Amount Found [A]	True Amount [B]	Recovery %R	Control Limits %R	Flags
		Analytes			[D]		
1,4-Difluorobenzene	•		0.0287	0.0300	96	80-120	
4-Bromofluorobenze			0.0294	0.0300	98	80-120	
Lab Batch #: 990	323	Sample: 526802-003 / SMP	Batcl	h: 1 Matrix	: Soil		
Units: mg/	kg	Date Analyzed: 03/15/16 18:58	SU	<b>RROGATE R</b>	ECOVERY S	STUDY	
		by EPA 8021B Analytes	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
1.4-Difluorobenzene			0.0285	0.0300	95	80-120	
4-Bromofluorobenze			0.0306	0.0300	102	80-120	
Lab Batch #: 990		Sample: 526802-005 / SMP	Batcl				
Units: mg/	kg	<b>Date Analyzed:</b> 03/15/16 19:21		RROGATE R		STUDY	
		by SW 8015B	Amount Found [A]	True Amount [B]	Recovery %R	Control Limits %R	Flags
		Analytes			[D]		
1-Chlorooctane			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 Orders Lab Batch #: 9		2, Sample: 526802-006 / SMP	Batcl		: 7250101120 : Soil	)96	
Units: m	ng/kg	<b>Date Analyzed:</b> 03/15/16 19:49	SU	RROGATE R	ECOVERYS	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	Batcl	h: 1 Matrix	: Soil		
Units: m	ng/kg	<b>Date Analyzed:</b> 03/15/16 20:14	SU	RROGATE R	ECOVERY	STUDY	
	TPE	I by SW 8015B Analytes	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	Batcl			/0-130	
	ng/kg	<b>Date Analyzed:</b> 03/16/16 11:08					
	1 <u>6</u> / Kg	Date Analyzet. 05/10/10 11:00	50	RROGATE R	ECOVERY		1
	BTEX	K by EPA 8021B	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
		Analytes			[10]		
1,4-Difluorobenzo			0.0342	0.0300	114	80-120	
4-Bromofluorobe			0.0338	0.0300	113	80-120	
Lab Batch #: 9		Sample: 526802-007 / SMP	Batcl				
Units: m	ng/kg	Date Analyzed: 03/16/16 14:52	SU	<b>RROGATE R</b>	ECOVERY	STUDY	
	втех	X by EPA 8021B	Amount Found [A]	True Amount [B]	Recovery %R	Control Limits %R	Flags
		Analytes			[D]		
1,4-Difluorobenzo			0.0278	0.0300	93	80-120	
4-Bromofluorobe			0.0325	0.0300	108	80-120	
Lab Batch #: 9		Sample: 526802-005 / SMP	Batcl	h: 1 Matrix	: Soil		
Units: m	ng/kg	Date Analyzed: 03/16/16 15:08	SU	<b>RROGATE R</b>	ECOVERY	STUDY	
	BTEX	X by EPA 8021B	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
140.0		Analytes	0.001-	0.0000			
1,4-Difluorobenze			0.0242	0.0300	81	80-120	
4-Bromofluorobe	nzene		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

Work Orde Lab Batch #:		2, Sample: 706407-1-BLK / Bl	LK Batc		7250101120 Solid	)96	
U <b>nits:</b>	mg/kg	Date Analyzed: 03/15/16 08:42	SU	RROGATE R	ECOVERY	STUDY	
	TPH	I by SW 8015B	Amount Found [A]	True Amount [B]	Recovery %R	Control Limits %R	Flage
		Analytes			[D]		
1-Chlorooctane			92.7	100	93	70-130	
o-Terphenyl			45.7	50.0	91	70-130	
Lab Batch #:	990323	Sample: 706394-1-BLK / B	LK Bate	h: 1 Matrix	: Solid		
Units:	mg/kg	Date Analyzed: 03/15/16 14:26	SURROGATE RECOVERY STUDY				
	BTE	X by EPA 8021B	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flage
1 4 D'flee and an		Analytes	0.0074	0.0200		00.100	
1,4-Difluorober			0.0274	0.0300	91	80-120	
4-Bromofluorol		01- 70/407 1 DZC / D	0.0287	0.0300	96	80-120	
Lab Batch #:		Sample: 706407-1-BKS / BI					
Units:	mg/kg	Date Analyzed: 03/15/16 09:14	SU	RROGATE R	ECOVERY	STUDY	
	TPH	I by SW 8015B	Amount Found [A]	True Amount [B]	Recovery %R	Control Limits %R	Flage
		Analytes			[D]		
1-Chlorooctane			115	100	115	70-130	
o-Terphenyl			50.0	50.0	100	70-130	
Lab Batch #:	990323	Sample: 706394-1-BKS / BI	KS Bate	h: 1 Matrix	: Solid		
Units:	mg/kg	Date Analyzed: 03/15/16 13:05	SU	RROGATE R	ECOVERY	STUDY	
	BTE	X by EPA 8021B Analytes	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flage
1,4-Difluorober	176196	Timity (CS	0.0274	0.0300	91	80-120	
4-Bromofluorol			0.0274	0.0300	104	80-120	
Lab Batch #:		Sample: 706407-1-BSD / BS				00-120	
	mg/kg	<b>Date Analyzed:</b> 03/15/16 09:48		RROGATE R		TUDV	
	8	2 and 11 mary 2001 001 101 10 07.10	50	ARUGAIE K		51001	
	TPE	I by SW 8015B	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flag
[		Analytes			נען		
1-Chlorooctane			118	100	118	70-130	
o-Terphenyl			50.9	50.0	102	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

	rders : 52680 #: 990323	2, Sample: 706394-1-BSD / B	SD Batcl	-	: 7250101120 :: Solid	)96	
Units:	mg/kg	Date Analyzed: 03/15/16 13:21	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-Difluor	obenzene		0.0267	0.0300	89	80-120	
4-Bromoflu	orobenzene		0.0300	0.0300	100	80-120	
Lab Batch	#: 990323	Sample: 526801-001 S / MS	S Bate	h: 1 Matrix	: Soil		
Units:	mg/kg	Date Analyzed: 03/15/16 13:38	SURROGATE RECOVERY STUDY				
	BTEX	X by EPA 8021B	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
		Analytes					
1,4-Difluor			0.0262	0.0300	87	80-120	
4-Bromoflu			0.0297	0.0300	99	80-120	
	#: 990381	Sample: 526801-001 S / MS	<b>B</b> Batel	h: 1 Matrix	: Soil		
Units:	mg/kg	Date Analyzed: 03/15/16 13:58	SU	RROGATE R	ECOVERY	STUDY	
	TPE	I by SW 8015B	Amount Found [A]	True Amount [B]	Recovery %R	Control Limits %R	Flags
		Analytes			[D]		
1-Chlorooct	tane		128	99.8	128	70-130	
o-Terpheny	1		57.5	49.9	115	70-130	
Lab Batch	#: 990323	Sample: 526801-001 SD / N	ASD Bate	h: 1 Matrix	: Soil		1
Units:	mg/kg	Date Analyzed: 03/15/16 13:53	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-Difluor	obenzene	v	0.0275	0.0300	92	80-120	
4-Bromoflu			0.0336	0.0300	112	80-120	
Lab Batch	#: 990381	Sample: 526801-001 SD / M					
Units:	mg/kg	<b>Date Analyzed:</b> 03/15/16 14:25	SU	RROGATE R	ECOVERY	STUDY	
	TPE	I by SW 8015B	Amount Found [A]	True Amount [B]	Recovery %R	Control Limits %R	Flags
		Analytes			[D]		
1-Chlorooct	tane		129	100	129	70-130	
o-Terpheny	1		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

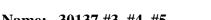
Surrogate Recovery [D] = 100 * A / B

All results are based on MDL and validated for QC purposes.

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## **BS / BSD Recoveries**





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

Work Order #: 526802							Proj	ect ID:	725010112	096	
Analyst: PJB	D	ate Prepa	red: 03/15/20	16			Date A	nalyzed: (	03/15/2016		
Lab Batch ID: 990323 Sample: 706394	1-BKS	Batc	<b>h #:</b> 1					Matrix: S	Solid		
Units: mg/kg		BLAN	K /BLANK	SPIKE / I	BLANK S	SPIKE DUP	LICATE	RECOV	ERY STUI	DY	
BTEX 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	< 0.00150	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 Prepa	red: 03/15/20	16	•		Date A	nalyzed: (	)3/15/2016	•	
Lab Batch ID: 990333 Sample: 706395	1-BKS	Batc	<b>h #:</b> 1					Matrix: S	Solid		
Units: mg/kg		BLAN	K /BLANK	SPIKE / 1	BLANK S	SPIKE DUP	LICATE	RECOVI	ERY STUI	DY	
Inorganic Anions by EPA 300/300.1 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
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	<b>Date Analyzed:</b> 03/15/2016						
Lab Batch ID:	990381 Sample: 706407-1-E	706407-1-BKS         Batch #: 1         Matrix: Solid										
Units:	mg/kg	BLANK /BLANK SPIKE / BLANK SPIKE DUPLICATE RECOVERY STUDY										
	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: 4/19/2023	7:30:52 AM
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## Form 3 - MS Recoveries



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

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

Chloride

#### Project ID: 725010112096

80-120

99

<b>Date Analyzed:</b> 03/15/2016	<b>Date Prepared:</b> 03/15/201	16 Analyst	: MNR
<b>QC- Sample ID:</b> 526801-005 S	<b>Batch #:</b> 1	Matrix	: Soil
Reporting Units: mg/kg	COVERY STUDY		
Inorganic Anions by EPA 300	Sample Sp Result Ad	Spiked Sample Dike Result %R Ided [C] [D] B]	Control Limits Flag %R
Analytes		-	
Chloride	65.5 5	500 547 96	80-120
Lab Batch #: 990333			
<b>Date Analyzed:</b> 03/15/2016	Date Prepared: 03/15/201	16 Analyst	: MNR
<b>QC- Sample ID:</b> 526802-002 S	<b>Batch #:</b> 1	Matrix	: Soil
Reporting Units: mg/kg	MATRIX	/ MATRIX SPIKE REC	OVERY STUDY
Inorganic Anions by EPA 300	Sample Sp	pike Spiked Sample Result %R	Control Limits Flag
Analytes		lded [C] [D] B]	%R

254

500

747

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> 72501	0112096			
Lab Batch ID:	990323	QC- Sample ID:	526801	-001 S	Ba	tch #:	1 Matrix	k: Soil				
Date Analyzed:	03/15/2016	Date Prepared:	03/15/2	016	An	alyst: F	PJB					
<b>Reporting Units:</b>	mg/kg		N	IATRIX SPIK	E / MAT	RIX SPI	KE DUPLICA	TE REC	OVERY	STUDY		
	BTEX by EPA 8021B	Parent Sample Result	Spike	Spiked Sample Result	Sample	Spike	Duplicate Spiked Sample		RPD	Control Limits	Control Limits	Flag
	Analytes	[A]	Added [B]	[C]	%R [D]	Added [E]	Result [F]	%R [G]	%	%R	%RPD	
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>k:</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	Spike	Duplicate Spiked Sample		RPD	Control Limits %R	Control Limits	Flag
	Analytes	[A]	Added [B]	[C]	%R [D]	Added [E]	Result [F]	%R [G]	%	70K	%RPD	1

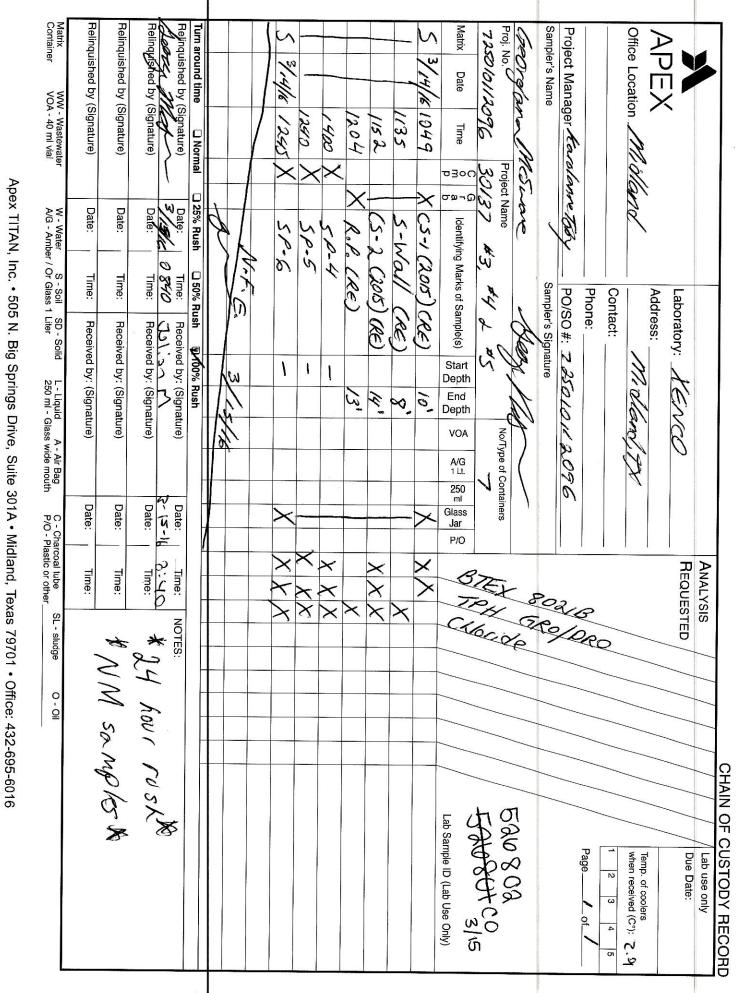
Analytes	Result [A]	Added [B]	[C]	%R [D]	Added [E]	Result [F]	%R [G]	%	%R	%RPD	
C6-C10 Gasoline Range Hydrocarbons	<25.0	998	921	92	1000	926	93	1	75-125	35	
C10-C28 Diesel Range Hydrocarbons	<25.0	998	1070	107	1000	1040	104	3	75-125	35	

 $\begin{array}{ll} Matrix \ Spike \ Percent \ Recovery \quad [D] = 100*(C-A)/B \\ Relative \ Percent \ Difference \quad RPD = 200*|(C-F)/(C+F)| \end{array}$ 

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.

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Final 1.000

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Received by OCD: 4/19/2023 7:30:52 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: Ambien					
Work Order #: 526802	Temperature Measuring device 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?	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? I samples for the analysis of HEM or HEM-SGT which are verif analysts.	•					
#22 >10 for all samples preserved with NaAsO2+NaOH, ZnA	IC+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 b	v OCL	): 4/19/202	3 7:30:52 AM
ALCOUTON D			C THOUSDALLAND

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nived by OCD: 4/19/2023 7:30:52 AM	Page 185
	NM OIL CONSERVATION ARTESIA DISTRICT
625 N. French Dr., Hobbs, NM 88240	ate of New Mexico nerals and Natural Resources FEB <b>2 4</b> 2015 Form C-141 Revised August 8, 2011
301 W. Grand Avenue, Artesia, NM 88210	Conservation Division Submit 1 Copy to appropriate District Office in
000 Rio Brazos Road, Aztec, NM 87410	South St. Francis Dr.
330 C D4 Press F- Conta F- MD4 97808	anta Fe, NM 87505
	cation and Corrective Action
AB1506228797	OPERATOR 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 Later	
Surface Owner State of New Mexico Mineral C	Dwner         NA - Pipeline         Lease No.         NA
· · · · · · · · · · · · · · · · · · ·	TION OF RELEASE
Unit LetterSectionTownshipRangeFeet from theO1319S28E97	North/South Line         Feet from the         East/West Line         County           South         562         West         Eddy
Latitude: <u>N3</u>	<u></u>
	TURE OF RELEASE
Type of Release Natural Gas, Pipeline Liquids	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
Was Immediate Notice Given?	02/15/2015 @ 09:10 MST 02/15/2015 @ 09:10 MST If YES, To Whom?
🛛 Yes 🗌 No 🗌 Not R	
By Whom? Dina Babinski Was a Watercourse Reached?	Date and Hour 02/15/2015 @ 12:43 MST If YES, Volume Impacting the Watercourse.
Yes X No	If YES, volume impacting the watercourse.
f a Watercourse was Impacted, Describe Fully.*	
Describe Cause of Problem and Remedial Action Taken.*	
	ent 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	re currently being performed and additional sampling has been requested to confirm
cleanup is satisfactory.	lete to the best of my knowledge and understand that pursuant to NMOCD rules and
egulations all operators are required to report and/or file certain r	elease notifications and perform corrective actions for releases which may endanger
	ort by the NMOCD marked as "Final Report" does not relieve the operator of liability emediate contamination that pose a threat to ground water, surface water, human health
or the environment. In addition, NMOCD acceptance of a C-141	report does not relieve the operator of responsibility for compliance with any other
ederal, state, or local laws and/or regulations.	OIL CONSERVATION DIVISION
Signature	Approved by District Supervise Fility Enemanter
Printed Name: Ivan W. Zirbes	
Fitle: Sr. Director, Field Environmental	Approval Date: 3315 Expiration Date: NA
,	Conditions of Approval:
E-mail Address: snolan@eprod.com	
Date: 1. 94 2015 Phone: 713 381 6595	Remediation per O.C.D. Rules & Guidelines

Received the Oceptad 2033 Trites Report only	Received 8/ NMOCD D		<b>Page 186 of 190</b>
District II Energy Minera	of New Mexico Is and Natural Resources	/15t 2	Form C-141 Revised August 8, 2011
District IV 1220 Sou	servation Division St uth St. Francis Dr. Fe, NM 87505	ıbmit 1 Copy a	y to appropriate District Office in coordance with 19,15,29 NMAC.
	on and Corrective Actio		· · · · · · · · · · · · · · · · · · ·
nMLB1521930490		_	_
	OPERATOR	🛛 Initi	al Report - Final Report
Name of Company Enterprise Field Services LLC PO Box 4324, Houston, TX 77210	ContactDina FergusonTelephone No. 210-528-3824		
Facility Name Pipeline ROW, 30137 Gathering Lateral	Facility Type: Gas Gathering P	inolino	
Surface Owner State of New Mexico Mineral Owne		Lease 1	No. NA
LOCATI	ON OF RELEASE		
		/West Line	County
0 13 19S 28E 97	South 562	West	Eddy
Latitude: <u>N 32.6538</u>	<u>6</u> Longitude: <u><i>W-104.12857</i></u>		
	E OF RELEASE		
Type of Release Natural Gas, Pipeline Liquids	Volume of Release: 1,257 MCF, 2 BBL Liquids		Recovered: N/A
Source of Release Pipeline Leak.	Date and Hour of Occurrence 04/29/2015 @ 10:05 MDT		Hour of Discovery (5 @ 10:05 MDT
Was Immediate Notice Given?	If YES, To Whom?		<u>5 @ 10.05 MD1</u>
Yes 🗌 No 🗌 Not Require	d Mike Bratcher – NMOCD Distric	2	
By Whom? Osman De Leon	Date and Hour 04/29/2015 @ 12		
Was a Watercourse Reached?	If YES, Volume Impacting the Wa	tercourse.	
If a Watercourse was Impacted, Describe Fully.*			
If a watercourse was impacted, Describe Funy.*			
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 leaki	ng portion w	vas 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.	s. Enterprise will maintain records of s	ampling 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 remediator the environment. In addition, NMOCD acceptance of a C-141 report federal, state, or local laws and/or regulations.	notifications and perform corrective ac the NMOCD marked as "Final Report" ate contamination that pose a threat to g does not relieve the operator of respons	tions for rele does not reli- round water sibility for co	ases which may endanger eve the operator of liability , surface water, human health ompliance with any other
Signature: Jon Kulds	OIL CONSERV		
Printed Name Jon E. Fields	Approved by District Supervisor: Acc	cepted 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: Remediati	on per	Attached
Date: 3 - 15 - 70/5 Phone: 713-381-6684 Attach Additional Sheets If Necessary	OCD Rules and Guidelines		
Attach Additional Sheets If Necessary			2RP-3191

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Received by OCD: 4/19/2023 7:30:52 AREVISED	]	Rec'd 8/12/2	2015 Page 187 of 190
District II Energy Mine	e of New Mexico ] prals and Natural Resources	NMOCD D	Pist 2 Form C-141 Revised August 8, 2011
1301 W. Grand Avenue, Artesia, NM 88210         District III         1000 Rio Brazos Road, Aztec, NM 87410         District IV         1220 S. St. Francis Dr. Santa Fo. NM 87505	nservation Division outh St. Francis Dr.	Submit 1 Cop a	y to appropriate District Office in coordance with 19.15.29 NMAC.
	ta Fe, NM 87505 tion and Corrective A	Action	
nMLB1521930490	OPERATOR		ial Report 🔲 Final Report
Name of Company Enterprise Field Services LLC	Contact Dina Fer		ial Report Final Report
PO Box 4324, Houston, TX 77210	Telephone No. 210-528-3	824	
Facility Name         Pipeline ROW, 30137 Gathering Lateral	Facility Type: Gas Gathe	ering Pipeline	
Surface Owner State of New Mexico Mineral Ow	ner NA - Pipeline	Lease 1	No. NA
	<b>'ION OF RELEASE</b>		
Unit LetterSectionTownshipRangeFeet from theN01319528E97	Jorth/South LineFeet from theSouth562	East/West Line	County
		West	Eddy
Latitude: <u>N 32.65</u>		<u>857</u>	
Type of Release Natural Gas, Pipeline Liquids	RE OF RELEASE		
	Volume of Release: 1,257 8.5 BBL Liquids (updated)		Recovered: N/A
Source of Release Pipeline Leak.	Date and Hour of Occurren	ce Date and	Hour of Discovery
Was Immediate Notice Given?	04/29/2015 @ 10:05 MDT If YES, To Whom?	04/29/201	15 @ 10:05 MDT
Yes 🗌 No 🗌 Not Requ	ired Mike Bratcher - NMOCD	District 2	
By Whom? Osman De Leon Was a Watercourse Reached?	Date and Hour 04/29/201	5@ 12:43 MDT	
Yes X No	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 pumper passing by. Pipeline segment standard One-Call.	was clamped and blown down, ar	id leaking portion v	vas repaired following
Describe Area Affreded and Olever And The			
Describe Area Affected and Cleanup Action Taken.* Liquid spill occurred within pipeline ROW. Clean-up activities will	be carried out in accordance with	Enternrise's Gene	ral release Natification
<i>Response and Remeatation Plan (dated March 9, 2015). Operations</i>	personnel originally estimated an	proximately 2 bbl r	nineline liquids spilled to the
ground within pipeline right-of-way. After further investigation and pipeline liquids. NMOCD Reference 2RP-3191.			Ť
I hereby certify that the information given above is true and complete	to the best of my knowledge and u	inderstand that purs	uant to NMOCD rules and
regulations all operators are required to report and/or file certain relea public health or the environment. The acceptance of a C-141 report b	v the NMOCD marked as "Final R	enort" does not reli-	eve the operator of lightlity
should their operations have failed to adequately investigate and reme	diate contamination that pose a thr	eat to ground water	surface water human health
or the environment. In addition, NMOCD acceptance of a C-141 reported federal, state, or local laws and/or regulations.	or does not relieve the operator of	responsibility for co	ompliance with any other
	OIL CON	SERVATION	DIVISION
Signature: Aon Fulls			
Printed Name: Jon E. Fields	Approved by District Supervis	or:	
Title: Director, Field Environmental	Approval Date: 8/21/15	Expiration [	Date:
E-mail Address: jefields@eprod.com	Conditions of Approval: Ren	· •	· · · · · · · · · · · · · · · · · · ·
	NMOCD Rules & Guid		Attached
Date: 5-12-205 Phone: 713-381-6684 Attach Additional Sheets If Necessary			
A REALED THE CHECKS II INCOUSSELY		2	RP-3191

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Received l	by OCL	): 4/19/2	2023 7::	30:52 AM

# NM OIL CONSERVATION

Page 188 of 190

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		ARTESIA DISTRICT
16/N N French Dr. Honns NM XX/40	e of New Mexico rals and Natural Resources	JUN 1.0 2015 Form C- Revised August 8, 2
District III Oil Con 1000 Rio Brazos Road, Aztec, NM 87410 District IV 1220 Se	nservation Division outh St. Francis Dr. a Fe, NM 87505	Subreic Einer pappropriate District Offic accordance with 19.15.29 NM.
FAB143284154.3 Release Notificat	tion and Corrective A	ction
NAB1516226673	<b>OPERATOR</b>	🛛 Initial Report 🛛 Final Re
Name of Company Enterprise Field Services LLC	Contact Dina Fergi	
PO Box 4324, Houston, TX 77210	Telephone No. 210-528-38	
Facility Name Pipeline ROW, 30137 Gathering Lateral	Facility Type: Gas Gather	ing Pipeline
Surface Owner State of New Mexico Mineral Own	ner NA - Pipeline	Lease No. NA
1 OCAT	ION OF RELEASE	
	orth/South Line Feet from the	East/West Line County
$\begin{array}{c c c c c c c c c c c c c c c c c c c $	South 388	West Eddy
Latitude: <u>N 32.653</u>	899 Longitude: <u>W-104.129</u>	186
Type of Release Natural Gas, Pipeline Liquids	RE OF RELEASE	ICF. Volume Recovered: N/A
	3 BBL Liquids	
Source of Release Pipeline Leak.	Date and Hour of Occurrenc	
Was Immediate Notice Given?	06/08/2015 @ 8:50 MDT If YES, To Whom?	06/08/2015 @ 9:38 MDT
Yes No Not Requ		District 2
By Whom? Osman De Leon	Date and Hour 06/08/2015	@, 9:38 MDT
Was a Watercourse Reached?	If YES, Volume Impacting t	
🗌 Yes 🖾 No		
If a Watercourse was Impacted, Describe Fully.*		
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 down	n, and leaking portion will be repaired followin
Describe Area Affected and Cleanup Action Taken.* Liquid spill occurred within pipeline ROW. Clean-up activities will Response and Remediation Plan according as defined in the house documentation and will make available to NMOCD upon request		
documentation, and will make available to NMOCD upon request. I hereby certify that the information given above is true and complete regulations all operators are required to report and/or file certain relea public health or the environment. The acceptance of a C-141 report to should their operations have failed to adequately investigate and remo or the environment. In addition, NMOCD acceptance of a C-141 rep federal, state, or local laws and/or regulations.	ase notifications and perform correct by the NMOCD marked as "Final Re- ediate contamination that pose a thro- ort does not relieve the operator of the sector of the sector of the sec	tive actions for releases which may endanger eport [®] does not relieve the operator of liability eat to ground water, surface water, human healt esponsibility for compliance with any other
1 co no	OIL CON	SERVATION DIVISION
Signature: Jan Frelas	Signed	By Mile Kan
Printed Name: Jon E. Fields	Approved by District Supervise	Dy really considered
Title: Director, Field Environmental	Approval Date: 41111	5 Expiration Date: NIA
E-mail Address: jefields@eprod.com	Conditions of Approval:	
	T FII	Attached
Date: 6-8-2015 Phone: 713-381-6684 Attach Additional Sheets If Necessary		
THE TRANSMUM COVER A TRANSMUY		2RP-30

		N	M OIL CONSE ARTESIA DIST		Page 189 of
<u>istrict I</u> 525 N. French Dr., Hobbs, NM 88240 <u>istrict II</u> 301 W. Grand Avenue, Artesia, NM 88210		f New Mexico and Natural Resources	JUL 07 2	Revised	Form C-141 August 8, 2011
<u>istrict III</u> 200 Rio Brazos Road, Aztec, NM 87410 <u>istrict IV</u> 220 S. St. Francis Dr., Santa Fe, NM 87505	1220 Sout	rvation Division h St. Francis Dr.	Surrecen	toropropriate Di cordance with 19.	strict Office in 15.29 NMAC.
	2	re, NM 87505			
	ase Notificatio	n and Corrective A	_		
AB151944-9044- Jame of Company Enterprise Field Service		OPERATOR Contact Dina Fera		l Report 🛛 🛛	Final Report
PO Box 4324, Houston,		Contact Dina Ferg Telephone No. 210-528-3			
acility Name Pipeline ROW, 30137 Gu		Facility Type: Gas Gathe			
urface Owner State of New Mexico	Mineral Owner	NA - Pipeline	Lease N	o. <i>NA</i>	
	LOCATIO	N OF RELEASE			
Jnit LetterSectionTownshipRange01319S28E	Feet from the North 70	N/South Line Feet from the 388	East/West Line West	County Eddy	
La	titude: <u>N 32,653899</u>	<b>• • • •</b>	9186		
	NATURE	COF RELEASE	KCP VI ~		
ype of Release Natural Gas, Pipeline Liquids		Volume of Release: 1,532 3 BBL Liquids	MCF, Volume R	ecovered: N/A	
ource of Release Pipeline Leak.		Date and Hour of Occurren		Hour of Discover 5 @ 8:50 MDT	/
Vas Immediate Notice Given?		07/02/2015 @ 8:50 MDT If YES, To Whom?	07/02/201	5 (W 0.50 MD)	
	No 🗌 Not Required			(Per e-m	ail)
By Whom? Osman De Lean Vas a Watercourse Reached?		Date and Hour 07/02/201		-418/15	434AN
vas a warercourse Reached?	No	If YES, Volume Impacting	the watercourse.		
f a Watercourse was Impacted, Describe Fully.*	·····	- <b>1</b>			
Describe Cause of Problem and Remedial Action					
ipeline leak was detected by an Enterprise Insp andard One-Call.	ector. Pipeline segmer	nt was clamped and blown dov	vn, and leaking port	ion was repaired	following
ipeline leak was detected by an Enterprise Insp tandard One-Call. Describe Area Affected and Cleanup Action Take iquid spill occurred within pipeline ROW. Clea Desponse and Remediation Plan (dated March 9	ector. Pipeline segmer on.* (n-up activities will be o (, 2015) as defined in th	carried out in accordance with he housekeeping standards. Ei	Bnterprise's Gener	al release Notific	ation,
ipeline leak was detected by an Enterprise Insp andard One-Call. escribe Area Affected and Cleanup Action Take iquid spill occurred within pipeline ROW. Clea esponse and Remediation Plan (dated March 9 and disposal documentation, and will make avail hereby certify that the information given above i gulations all operators are required to report and ablic health or the environment. The acceptance nould their operations have failed to adequately is the environment. In addition, NMOCD accepts	ector. Pipeline segment on.* (n-up activities will be a (2015) as defined in the lable to NMOCD upon is true and complete to (l/or file certain release to (of a C-141 report by the investigate and remedia	carried out in accordance with the housekeeping standards. En request. the best of my knowledge and notifications and perform correct the NMOCD marked as "Final 1 the contamination that pose a th	a Enterprise's Gener Interprise will mainta understand that purs ective actions for rele Report" does not relive reat to ground water	al release Notific tin records of san uant to NMOCD asses which may convert eve the operator of surface water, hu	ation, apling results rules and ndanger f liability uman health
ipeline leak was detected by an Enterprise Insp andard One-Call. escribe Area Affected and Cleanup Action Take iquid spill occurred within pipeline ROW. Clea esponse and Remediation Plan (dated March 9 and disposal documentation, and will make avail hereby certify that the information given above i egulations all operators are required to report and ublic health or the environment. The acceptance hould their operations have failed to adequately in the environment. In addition, NMOCD accepts ederal, state, or local laws and/or regulations.	ector. Pipeline segment on.* (n-up activities will be a (2015) as defined in the lable to NMOCD upon is true and complete to (l/or file certain release to (of a C-141 report by the investigate and remedia	carried out in accordance with the housekeeping standards. En request. the best of my knowledge and notifications and perform correct the NMOCD marked as "Final 1 the contamination that pose a the does not relieve the operator of	a Enterprise's Gener Interprise will mainta understand that purs ective actions for rele Report" does not relive reat to ground water	al release Notific tin records of san uant to NMOCD asses which may c eve the operator o , surface water, ho ompliance with an	ation, apling results rules and ndanger f liability uman health
ipeline leak was detected by an Enterprise Insp andard One-Call. escribe Area Affected and Cleanup Action Take iquid spill occurred within pipeline ROW. Clea esponse and Remediation Plan (dated March 9 and disposal documentation, and will make avail hereby certify that the information given above i egulations all operators are required to report and ublic health or the environment. The acceptance hould their operations have failed to adequately in the environment. In addition, NMOCD accepts ederal, state, or local laws and/or regulations.	ector. Pipeline segment on.* (n-up activities will be a (2015) as defined in the lable to NMOCD upon is true and complete to (l/or file certain release to (of a C-141 report by the investigate and remedia	carried out in accordance with the housekeeping standards. En request. the best of my knowledge and notifications and perform correct the NMOCD marked as "Final 1 the contamination that pose a the does not relieve the operator of	Enterprise's Generaterprise will maintain understand that purs active actions for release Report" does not reliare reat to ground water responsibility for constant ISERVATION	al release Notific tin records of san uant to NMOCD asses which may c eve the operator o , surface water, ho ompliance with an	ation, apling results rules and ndanger f liability uman health
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Pipeline leak was detected by an Enterprise Insplandard One-Call. Describe Area Affected and Cleanup Action Take iquid spill occurred within pipeline ROW. Clea Response and Remediation Plan (dated March 9 and disposal documentation, and will make avail hereby certify that the information given above i egulations all operators are required to report and ublic health or the environment. The acceptance hould their operations have failed to adequately is r the environment. In addition, NMOCD accepts ederal, state, or local laws and/or regulations. ignature:	ector. Pipeline segment on.* (n-up activities will be of (2, 2015) as defined in the lable to NMOCD upon is true and complete to flor file certain release to of a C-141 report by the investigate and remedia ance of a C-141 report of (1)	carried out in accordance with the housekeeping standards. En request. the best of my knowledge and notifications and perform correct the NMOCD marked as "Final 1 the contamination that pose a the does not relieve the operator of OIL CON Signed By Approved by District Supervi	a Enterprise's Gener interprise will mainta understand that purs extive actions for rele Report" does not relive reat to ground water Fresponsibility for construction SERVATION	al release Notific in records of san uant to NMOCD asses which may c eve the operator of surface water, hu ompliance with an DIVISION MUSE	ation, apling results rules and ndanger f liability uman health

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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 Field Services, LLC	241602
PO Box 4324	Action Number:
Houston, TX 77210	208911
	Action Type:
	[C-141] Release Corrective Action (C-141)

#### CONDITIONS

Created By	Condition	Condition
		Date
amaxwell	None	4/19/2023

Page 190 of 190 CONDITIONS

Action 208911