District I
1625 N. French Dr., Hobbs, NM 88240
District II
1301 W. Grand Avenue, Artesia, NM 88210
District III
1000 Rio Brazos Road, Aztec, NM 87410
District IV
1220 S. St. Francis Dr., Santa Fe, NM 87505

### State of New Mexico Energy Minerals and Natural Resources

Form C-141 Revised August 8, 2011

Oil Conservation Division 1220 South St. Francis Dr. Santa Fe, NM 87505 Submit 1 Copy to appropriate District Office in accordance with 19.15.29 NMAC.

## **Release Notification and Corrective Action**

			Kel	ease Nounc	auo			cuor	L			
												Final Repo
Name of Co						Contact	Alena Miro					
T 112 N.		D Box 4324,				Telephone No. 575-628-6802 Facility Type: Gas Gathering Pipeline						
Facility Nan	ne <i>Pip</i>	eline KUW,	30137 6	athering Latero	ıl	Facility Typ	e: Gas Gatheri	ing Pi	peline			
Surface Own	ner St	ate of New I	<i>1exico</i>	Mineral O	wner	NA - Pipe	line		Lease N	lo. NA		
LOCATION OF RELEASE												
Unit Letter <b>O</b>	Section 13	Township 19S	Range 28E	Feet from the 97		South Line	Feet from the 562		Vest Line West	County Eddy		i v
	Latitude: <u>N 32.6540</u> Longitude: <u>W -104.1286</u>											
				NAT	URE	OF RELI	EASE					
Type of Relea	se Natura	ıl Gas, Pipelir	e Liquids			Volume of	Release: 1581 M	CF,	Volume F	Recovered: 1	V/A	
Source of Rel	ease <i>Pipe</i>	line Leak.					quids (update) our of Occurrence	e	Date and	Hour of Disc	coverv	
337 T 1'							@ 09:10 MST			5 @ 09:10 1		
Was Immedia	te Notice G		Yes	No 🗌 Not Re	quired	If YES, To	Whom? Reporting Hotline					
	Dina Ferg			,			our <i>02/15/2015</i>					
Was a Waterc	ourse Reac	hed?	Yes 🗵	No		If YES, Vo	lume Impacting th	ne Wate	ercourse.			
If a Watercour	rse was Imp	acted, Descri	be Fully.*									
	_		-									
Describe Caus	se of Proble	m and Remed	lial Action	Taken.*								
Pipeline leak	was detecte	d by pipeline	technicia	n. Pipeline segm	ent was	s clamped and	l blown down, and	l leakin	g portion v	vas repaired	<u>.</u>	
Describe Area	Affected a	nd Cleanup A	ction Tak	en.*								
Liquid spill of	ccurred wit	hin pipeline I	ROW. Cle	anup activities we	ere perf	ormed and ad	lditional sampling	y was re	eceived to c	onfirm clear	nup is s	satisfactory.
Operations pe	ersonnel ort	iginally estima tion it was de	ated appro	oximately 3 bbl pi that the liquid sp	peline i	liquids spilled	to the ground wi	thin pi	peline right	of-way. Aft	er furth	her
activities in ac 2RP-2896.	ccordance v	with Enterpris	se's Gener	ral Release Notifi	cation,	me is approxi Response and	d Remediation Pla	an (dat	quias. Ente ed March 9	rprise perjo , 2015). NM	rmea re [OCD R	emediation Reference
I hereby certif	y that the ir	formation giv	en above	is true and compl	ete to tl	he best of my	knowledge and ur	derstan	d that purs	uant to NMC	OCD rul	les and
regulations all	operators a	re required to	report an	d/or file certain re	elease n	otifications an	d perform correct	ive acti	ons for rele	ases which	may end	danger
public health of	or the environs ha	onment. The	acceptanc	e of a C-141 report investigate and re	rt by the	e NMOCD ma	arked as "Final Re	port" d	oes not reli	eve the opera	ator of l	liability
or the environ	ment. In ac	ldition. NMO	CD accen	tance of a C-141 r	enort d	e contamination oes not relieve	on that pose a three the operator of re	at to gr esnonsi	ound water hility for co	, surtace wat	er, hum	nan health
federal, state,	or local law	sand/or regu	atjons.		-p		one operator of the	оороны	onny for co	mphanee w	un any t	other
	//	(					OIL CONS	ERV	ATION	DIVISIO	N	
Signature:	1m	1. of	61									
7						Approved by	District Superviso	r:	21600	Wan	and.	0
Printed Name:	Jon E.	Fields			-			-	//	y Max		
Title:	Directo	or, Field Envi	ronmenta	il		Approval Date	e: 4/13/2023	I	Expiration I	Pate:		
E-mail Addres	s: jefield:	@eprod.com				Conditions of	Approval:			Attochad		
Date: 5 -9	-19	Phone: 713	-381-6684	1						Attached		
Attach Additi												



### **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-3101 (30137 #6 Release)

July 2016 Apex Project No. 725010112096

Prepared for:

PO Box 4324 Houston, TX 77252 Attention: Dina Ferguson

Prepared by:

Karolanne Toby Project Manager

Liz Scaggs, P.G. Division Manager

### **TABLE OF CONTENTS**

1.0 1.1 1.2	Site De	UCTIONescription & Backgroundt Objective	1
2.0	SITE RA	NKING	2
3.0	SITE CH	RONOLOGY	2
<b>4.0</b> 4.1 4.2	Soil Ex	NSE ACTIONScavation Activitiesampling Program	5
<b>5.0</b> 5.1 5.2	Confirr	VALUATION mation Soil Samples pile Soil Samples	7
6.0	FINDING	S AND RECOMMENDATIONS	8
LIST	OF APPE	NDICES	
Appei	ndix A:	Figure 1 – Topographic Map Figure 2 – Site Vicinity Map Figure 3 – Site Map	
Appei	ndix B:	Photographic Documentation	
Appei	ndix C:	Analytical Tables	
Appei	ndix D:	Laboratory Analytical Reports & Chain-of-Custody Documentation	
Appei	ndix E:	NMOCD C-141 Documentation	



### **CORRECTIVE ACTION REPORT**

### **30137 Pipeline Releases**

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

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

### 1.0 INTRODUCTION

### 1.1 Site Description & Background

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

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

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

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

### 1.2 Project Objective

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



### 2.0 SITE RANKING

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

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

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

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

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

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

### 3.0 SITE CHRONOLOGY

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

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

February 15, 2015

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



July 2016 Page 3

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, 2015

Enterprise Operations conducted excavation activities at the 30137 #4 and 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.



Enterprise Field Services, LLC
Corrective Action Report
30137 Pipeline Releases

July 2016 Page 4

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.



July 2016 Page 5

#### 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.



July 2016 Page 6

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 #5 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.



July 2016 Page 7

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



July 2016 Page 8

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.



July 2016 Page 9

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

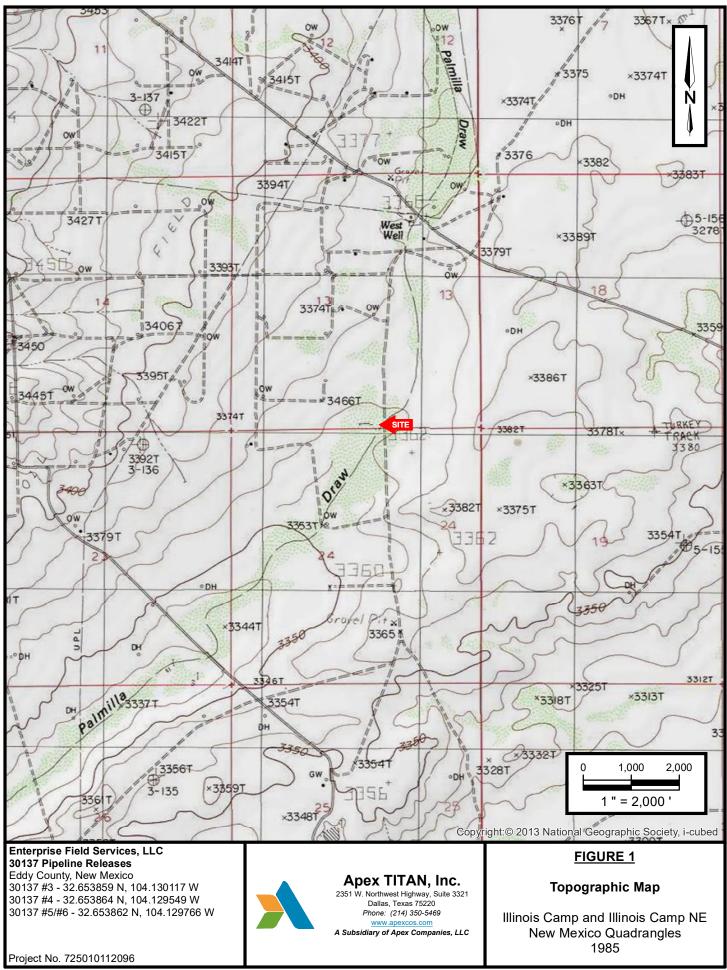
Based on field observations and laboratory analytical results, no additional investigation or corrective action appears warranted at this time.





**APPENDIX A** 

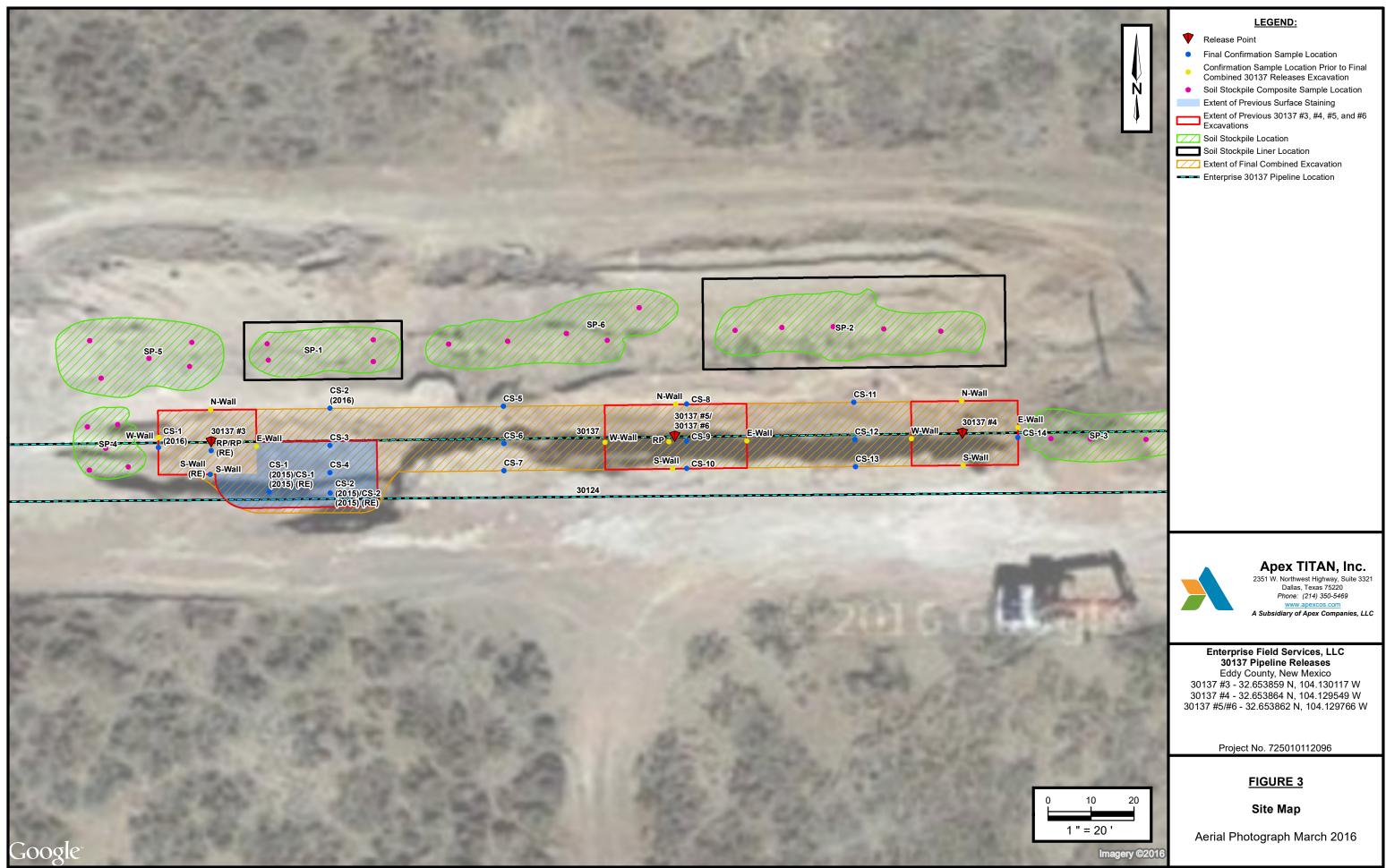
**Figures** 





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Page 16 of 189



P:\Drafting\2016\725010112096\Figure 3B.mxd 5/6/2016 NAD 1983 2011 StatePlane New Mexico East FIPS 3001 Ft US Projected Coordinate System



**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** 

# TABLE 1 SOIL SAMPLE ANALYTICAL RESULTS 30137 Pipeline Releases

Sample I.D.	Sample Date	Sample Depth (feet bgs)	Benzene (mg/Kg)	Toluene (mg/Kg)	Ethylbenzene (mg/Kg)	Xylenes (mg/Kg)	Total BTEX (mg/Kg)	TPH GRO (mg/Kg)	TPH DRO (mg/Kg)	TPH GRO/DRO (mg/Kg)	Chloride (mg/Kg)
New Mexico Oil Conse	ervation Division (NM		ded Remediati	on Action Leve	els (RRALs) (Tot	al Ranking Sco	re: 10)				
	led Remediation Acti	, , ,	10	NE	NE	NE	50	NE	NE	1,000	500
			BACKGRO	UND SOIL SAI	MPLE ANALYTIC	CAL RESULTS					
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		CONFIRMATION	ON SOIL SAMPL	E ANALYTICA	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 <sup>Je</sup>	5.54	47.6 <sup>Je</sup>	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 <sup>Je</sup>	82.3	346 <sup>4e</sup>	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	6	<0.000990	<0.00198	<0.000990	<0.000990	<0.000990	<15.0	40.7	40.7	13.7
E-Wall	2/25/2015	8	0.0214	0.163	0.746	3.48	4.41	122	61.1	183	1,530
CS-3	1/14/2016	10	<0.000998	<0.00200	<0.000998	<0.000998	<0.000998	<15.0	<15.0	<15.0	6.74
CS-4	1/14/2016	6	0.00150	<0.00198	<0.000990	0.505	0.507	149	300	449	9.42
N-Wall	2/25/2015	8	0.0270	0.0436	<0.0200	0.0334	0.104	<4.00	<50.0	<54.0	383
S-Wall	2/25/2015	8	0.0494	0.277	0.352	0.556	1.23	120	62.1	182	11,100
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			ON SOIL SAMPL						
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	<b>&lt;0.0200</b>	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		CONFIRMATION	ON SOIL SAMPL				•		
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	<b>⊲0.0200</b>	<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	<0.0200	<0.0200	<0.0200	<0.0200	<0.0200	<4.00	<50.0	<54.00	5,630
CS-9	1/14/2016	10	<0.000996	<0.00199	<0.000996	<0.000996	<0.000996	<15.0	<15.0	<15.0	<2.00
S-Wall	6/15/2015	6	<b>≮0.0200</b>	<b>⊲0.0200</b>	<0.0200	<b>₹0.0200</b>	<b>₹0.0200</b>	≼4.00	<b>₹50.0</b>	<54.00	<b>≼20.0</b>
CS-10	1/14/2016	6	<0.000994	<0.00199	<0.000994	<0.000994	<0.000994	<15.0	<15.0	<15.0	2.63
					SAMPLE ANALY						
SP	2/25/2015	NA	1.88	63.2			224	3,150	571	3,721	1,530
STP-2	6/16/2015	NA	4.22	20.4	7.34	34.0 <sup>Je</sup>	66.0	1,190	575	1,765	98.0
					SAMPLE ANALY						
STP	6/15/2015	NA	0.0248	0.777	1.13	1,22	3.15	314	<50.0	314	588
			30137 #5 STO	CKPILE SOIL S	SAMPLE ANALY	TICAL RESULT	rs				
STP	6/15/2015	NA	<0.0200	<0.0200	<0.0200	<0.0200	<0.0200	<4.00	<50.0	<54.00	<20.0
		F	INAL 30137 ST	OCKPILE SAN	IPLE SOIL ANAI	LYTICAL RESU	LTS				
SP-1	1/14/2016	NA	<0.000996	<0.00199	< 0.000996	<0.000996	<0.000996	<15.0	<15.0	<15.0	364
SP-2	1/14/2016	NA	<0.000996	<0.00199	<0.000996	<0.000996	<0.000996	<15.0	<15.0	<15.0	141
SP-3	1/14/2016	NA	<0.00101	<0.00201	<0.00101	<0.00101	<0.00101	<15.0	<15.0	<15.0	37.0
SP-4	3/14/2016	NA	<0.0299	1.95	2.77	14.5	19.2	583	122	705	107
SP-5	3/14/2016	NA	<0.00150	0.0137	0.0174	0.126	0.157	215	561	829	344
SP-6	3/14/2016	NA	<0.00150	0.0140	0.0193	0.233	0.266	198	229	455	207
					_						_

: 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

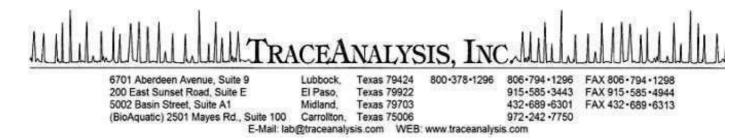
Je: Estimated concentration exceeding calibration range

bgs: below ground surface



APPENDIX D

Laboratory Analytical Reports & Chain of Custody Documentation



### 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

Work Order: 15022625

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	1 ime	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	$\operatorname{SP}$	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.

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

# Report Contents

Case Narrative	5
Analytical Report	6
Sample 387688 (CS-1)	6
Sample 387689 (CS-2)	7
Sample 387690 (N- Wall)	8
Sample 387691 (E- Wall)	10
Sample 387692 (W- Wall)	11
Sample 387693 (S- Wall)	13
Sample 387694 (RP)	14
Sample 387695 (SP)	16
Method Blanks	18
QC Batch 119724 - Method Blank (1)	18
QC Batch 119733 - Method Blank $\stackrel{\checkmark}{(1)}$	18
QC Batch 119741 - Method Blank (1)	18
QC Batch 119761 - Method Blank (1)	18
QC Batch 119764 - Method Blank (1)	19
QC Batch 119791 - Method Blank (1)	19
QC Batch 119849 - Method Blank (1)	20
Laboratory Control Spikes	21
QC Batch 119724 - LCS (1)	21
QC Batch 119733 - LCS (1)	21
QC Batch 119741 - LCS (1)	21
QC Batch 119761 - LCS (1)	22
QC Batch 119764 - LCS (1)	22
QC Batch 119791 - LCS (1)	23
QC Batch 119849 - LCS (1)	23
	20
Matrix Spikes	25
QC Batch 119724 - MS (1)	25
QC Batch 119733 - MS (1)	25
QC Batch 119741 - MS (1)	25
QC Batch 119761 - MS (1)	26
QC Batch 119764 - MS (1)	26
QC Batch 119791 - MS (1)	27
QC Batch 119849 - MS (1)	27
Calibration Standards	29
QC Batch 119724 - CCV (1)	29
QC Batch 119724 - CCV (2)	29
$\stackrel{\bullet}{\mathrm{QC}}$ Batch 119733 - ICV $\stackrel{\bullet}{\mathrm{(1)}}$	29
QC Batch 119733 - CCV (1)	29
QC Batch 119741 - ICV (1)	29
OC Batch 119741 - CCV (1)	30

QC Batch 119761 - CCV (1)	30
QC Batch 119761 - CCV (2)	30
QC Batch 119761 - CCV (3)	31
QC Batch 119764 - CCV (1)	31
QC Batch 119764 - CCV (2)	31
QC Batch 119764 - CCV (3)	31
QC Batch 119791 - CCV (1)	31
QC Batch 119791 - CCV (2)	32
QC Batch 119849 - CCV (1)	32
QC Batch 119849 - CCV (2)	32
Appendix	33
Report Definitions	33
Laboratory Certifications	33
Standard Flags	33
Attachments	33

### 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)	$\mathrm{SM}\ 4500\text{-}\mathrm{Cl}\ \mathrm{B}$	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 Work Order: 15022625 Page Number: 6 of 34

7250715022.001 30137 #3

# **Analytical Report**

Sample: 387688 - CS-1

Laboratory: Midland

Analysis: BTEX Analytical Method: S 8021B Prep Method: S 5035 QC Batch: 119761 Date Analyzed: 2015-03-04 Analyzed By: AKPrep Batch: 101285 Sample Preparation: Prepared By: 2015-03-03 AK

			RL			
Parameter	Flag	$\operatorname{Cert}$	Result	Units	Dilution	RL
Benzene		1	4.08	mg/Kg	1	0.0200
Toluene	Je	1	25.3	$\mathrm{mg}/\mathrm{Kg}$	1	0.0200
Ethylbenzene		1	$\bf 5.54$	$\mathrm{mg}/\mathrm{Kg}$	1	0.0200
Xylene	Je	1	47.6	$\mathrm{mg}/\mathrm{Kg}$	1	0.0200

						$\operatorname{Spike}$	Percent	Recovery
Surrogate	Flag	$\operatorname{Cert}$	Result	Units	Dilution	Amount	Recovery	Limits
Trifluorotoluene (TFT)			1.58	mg/Kg	1	2.00	79	70 - 130
4-Bromofluorobenzene (4-BFB)			6.72	mg/Kg	1	2.00	336	70 - 130

Sample: 387688 - CS-1

Laboratory: Midland

Analysis: Chloride (Titration) Analytical Method: SM 4500-Cl B Prep Method: N/A QC Batch: 119733 Date Analyzed: 2015 - 03 - 03Analyzed By: EMPrep Batch: 101275 Sample Preparation: 2015-03-03 Prepared By: EM

Sample: 387688 - CS-1

Laboratory: Midland

Analytical Method: Analysis: TPH DRO - NEW S 8015 D Prep Method: N/AQC Batch: Analyzed By: SC119724 Date Analyzed: 2015-03-03 Prep Batch: 101249 Sample Preparation: 2015-03-02 Prepared By: SC

Page Number: 7 of 34

Report Date: March 9, 2015

7250715022.001

Work Order: 15022625

30137 #3

						Spike	Percent	Recovery
Surrogate	Flag	$\operatorname{Cert}$	Result	Units	Dilution	Amount	Recovery	Limits
n-Tricosane			82.7	mg/Kg	1	100	83	70 - 130

Sample: 387688 - CS-1

Laboratory: Midland

Analysis: TPH GRO QC Batch: 119791 Prep Batch: 101317 Analytical Method: S 8015 D Date Analyzed: 2015-03-05 Sample Preparation: 2015-03-04

5 D Prep Method: S 5035 03-05 Analyzed By: AK 03-04 Prepared By: AK

						$_{ m Spike}$	Percent	Recovery
Surrogate	Flag	$\operatorname{Cert}$	Result	Units	Dilution	Amount	Recovery	Limits
Trifluorotoluene (TFT)			86.2	mg/Kg	50	100	86	70 - 130
4-Bromofluorobenzene (4-BFB)			107	mg/Kg	50	100	107	70 - 130

Sample: 387689 - CS-2

Laboratory: Midland

Analysis: BTEX QC Batch: 119761 Prep Batch: 101285 Analytical Method: S 8021B Date Analyzed: 2015-03-04 Sample Preparation: 2015-03-03

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

RLParameter Flag  $\operatorname{Cert}$ Result Units Dilution RL20 Benzene 112 mg/Kg 0.0200 Toluene 378 mg/Kg20 0.0200Jе 20 Ethylbenzene 82.3 mg/Kg0.02001 20 346 mg/Kg0.0200Xylene

							$_{ m Spike}$	Percent	Recovery
Surrogate		Flag	Cert	Result	Units	Dilution	Amount	Recovery	Limits
Trifluorotoluene (TFT)				35.1	mg/Kg	20	40.0	88	70 - 130
4-Bromofluorobenzene (4-BFB)	Qsr	$_{\mathrm{Qsr}}$		67.3	$\mathrm{mg}/\mathrm{Kg}$	20	40.0	168	70 - 130

Report Date: March 9, 2015 Work Order: 15022625 Page Number: 8 of 34

7250715022.001 30137 #3

### Sample: 387689 - CS-2

Laboratory: Midland

Analysis: Chloride (Titration) Analytical Method: SM 4500-Cl B Prep Method: N/AQC Batch: 119733 Date Analyzed: 2015-03-03 Analyzed By: EMPrep Batch: 101275 Sample Preparation: 2015-03-03 Prepared By: EM

### Sample: 387689 - CS-2

Laboratory: Midland

Analysis: TPH DRO - NEW Analytical Method: S 8015 D Prep Method: N/AQC Batch: 2015-03-03 119724 Date Analyzed: Analyzed By: SCPrep Batch: 101249 Sample Preparation: 2015-03-02 Prepared By: SC

Spike Percent Recovery Surrogate Flag Cert Result Units Dilution Amount Recovery Limits n-Tricosane 96.7 mg/Kg 1 100 97 70 - 130

### Sample: 387689 - CS-2

Laboratory: Midland

Analysis: TPH GRO Analytical Method: S 8015 D Prep Method: S 5035 QC Batch: 119849 Date Analyzed: 2015-03-09 Analyzed By: AK Prep Batch: 101336 Sample Preparation: 2015-03-05 Prepared By: AK

Spike Percent Recovery Surrogate Flag  $\operatorname{Cert}$ Result Units Dilution Amount Recovery Limits Trifluorotoluene (TFT) 185 mg/Kg 200 92 70 - 130 100 4-Bromofluorobenzene (4-BFB) 248 mg/Kg100 200 124 70 - 130

Report Date: March 9, 2015

Work Order: 15022625

30137 #3

Sample: 387690 - N- Wall

Laboratory: Midland

7250715022.001

Xylene

Analysis:BTEXAnalytical Method:S 8021BQC Batch:119761Date Analyzed:2015-03-04Prep Batch:101285Sample Preparation:2015-03-03

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

0.0200

Page Number: 9 of 34

			RL			
Parameter	Flag	Cert	Result	Units	Dilution	RL
Benzene		1	0.0270	mg/Kg	1	0.0200
Toluene		1	0.0436	mg/Kg	1	0.0200
Ethylbenzene	U	1	< 0.0200	mg/Kg	1	0.0200

						$_{ m Spike}$	Percent	Recovery
Surrogate	Flag	$\operatorname{Cert}$	Result	Units	Dilution	Amount	Recovery	Limits
Trifluorotoluene (TFT)			1.79	mg/Kg	1	2.00	90	70 - 130
4-Bromofluorobenzene (4-BFB)			2.23	mg/Kg	1	2.00	112	70 - 130

0.0334

mg/Kg

Sample: 387690 - N- 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: EMPrep Batch: 101275 Sample Preparation: Prepared By: 2015 - 03 - 03EM

			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 - NEW Analytical Method: S 8015 D Prep Method: N/AQC Batch: 119724 Date Analyzed: 2015-03-03 Analyzed By: SCPrep Batch: 101249 Sample Preparation: 2015 - 03 - 02Prepared By: SC

			RL			
Parameter	$\operatorname{Flag}$	$\operatorname{Cert}$	Result	Units	Dilution	RL
DRO	U	1	< 50.0	mg/Kg	1	50.0

						Spike	Percent	Recovery
Surrogate	Flag	Cert	Result	Units	Dilution	Amount	Recovery	Limits
n-Tricosane			87.0	mg/Kg	1	100	87	70 - 130

S 5035

AK

AK

Report Date: March 9, 2015 Work Order: 15022625 Page Number: 10 of 34

7250715022.001 30137 #3

### Sample: 387690 - N- Wall

Laboratory: Midland

Analysis: TPH GRO Analytical Method: S 8015 D Prep Method: QC Batch: 119764 Date Analyzed: 2015-03-04 Analyzed By: Prep Batch: 101285 Sample Preparation: 2015-03-03 Prepared By:

						Spike	Percent	Recovery
Surrogate	Flag	$\operatorname{Cert}$	Result	Units	Dilution	Amount	Recovery	Limits
Trifluorotoluene (TFT)			1.82	mg/Kg	1	2.00	91	70 - 130
4-Bromofluorobenzene (4-BFB)			1.96	$\mathrm{mg}/\mathrm{Kg}$	1	2.00	98	70 - 130

### Sample: 387691 - E- Wall

Laboratory: Midland

Analysis: **BTEX** Analytical Method:  $S_{8021B}$ Prep Method: S 5035QC Batch: 119761 Date Analyzed: 2015-03-04 Analyzed By: AK2015-03-03 Prep Batch: 101285 Sample Preparation: Prepared By: AK

RLFlag Parameter Cert Result Units Dilution RL0.0200 Benzene 0.0214mg/Kg 1 1 Toluene 0.163 mg/Kg1 0.0200 Ethylbenzene 0.746mg/Kg1 0.02001 3.48 mg/Kg1 0.0200Xylene

							Spike	Percent	Recovery
Surrogate		Flag	$\operatorname{Cert}$	Result	Units	Dilution	Amount	Recovery	Limits
Trifluorotoluene (TFT)				2.14	mg/Kg	1	2.00	107	70 - 130
4-Bromofluorobenzene (4-BFB)	$_{\mathrm{Qsr}}$	$_{\mathrm{Qsr}}$		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/AQC Batch: 119733 Date Analyzed: 2015-03-03 Analyzed By: EMPrep Batch: 101275 Sample Preparation: 2015 - 03 - 03Prepared By: EM

 $\overline{continued}$  . . .

Report Date: March 9, 2015 Work Order: 15022625 Page Number: 11 of 34

7250715022.001 30137 #3

sample 387691 continued ...

			RL			
Parameter	Flag	Cert	Result	Units	Dilution	RL
			$\operatorname{RL}$			
Parameter	Flag	Cert	Result	Units	Dilution	RL
Chloride	Qs		1530	$\mathrm{mg/Kg}$	5	4.00

### Sample: 387691 - E- Wall

Laboratory: Midland

Analysis: TPH DRO - NEW Analytical Method: S 8015 D Prep Method: N/A QC Batch: 119724Date Analyzed: 2015-03-03 Analyzed By: SCPrep Batch: 101249 Sample Preparation: 2015-03-02 Prepared By: SC

						Spike	Percent	Recovery
Surrogate	Flag	$\operatorname{Cert}$	Result	Units	Dilution	Amount	Recovery	Limits
n-Tricosane			94.5	mg/Kg	1	100	94	70 - 130

### Sample: 387691 - E- Wall

Laboratory: Midland

Analysis: TPH GRO Analytical Method: S 8015 D Prep Method: S 5035 QC Batch: 119764 Date Analyzed: 2015-03-04 Analyzed By: AKPrep Batch: 101285 Sample Preparation: 2015-03-03 Prepared By: AK

							$_{ m Spike}$	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)	$_{ m Qsr}$	$_{\mathrm{Qsr}}$		5.27	mg/Kg	1	2.00	264	70 - 130

S 5035

AK

AK

Report Date: March 9, 2015 Work Order: 15022625 Page Number: 12 of 34

7250715022.001 30137 #3

### Sample: 387692 - W- Wall

Laboratory: Midland

Analysis:BTEXAnalytical Method:S 8021BPrep Method:QC Batch:119761Date Analyzed:2015-03-04Analyzed By:Prep Batch:101285Sample Preparation:2015-03-03Prepared By:

			RL			
Parameter	Flag	$\operatorname{Cert}$	Result	Units	Dilution	RL
Benzene		1	0.0665	$\mathrm{mg/Kg}$	1	0.0200
Toluene		1	0.304	$\mathrm{mg}/\mathrm{Kg}$	1	0.0200
Ethylbenzene		1	0.0500	$\mathrm{mg}/\mathrm{Kg}$	1	0.0200
Xylene		1	0.851	mg/Kg	1	0.0200

						$_{ m Spike}$	Percent	Recovery
Surrogate	Flag	$\operatorname{Cert}$	Result	Units	Dilution	Amount	Recovery	Limits
Trifluorotoluene (TFT)			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: Midland

Analysis: Chloride (Titration) Analytical Method: SM 4500-Cl B Prep Method: N/A QC Batch: 119741 Date Analyzed: 2015-03-03 Analyzed By: EMSample Preparation: Prepared By: Prep Batch: 101283 2015-03-03 EM

### Sample: 387692 - W- Wall

Laboratory: Midland

Analysis: TPH DRO - NEW Analytical Method: S 8015 D Prep Method: N/AQC Batch: 119724 Date Analyzed: 2015-03-03 Analyzed By: SCPrep Batch: 101249 Sample Preparation: 2015-03-02 Prepared By: SC

			$\mathbf{n}$			
Parameter	Flag	Cert	Result	Units	Dilution	RL
DRO	U	1	< 50.0	m mg/Kg	1	50.0

DI

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

Report Date: March 9, 2015

7250715022.001

Work Order: 15022625

30137 #3

Page Number: 13 of 34

Sample: 387692 - W- Wall

Laboratory: Midland

Analysis: TPH GRO QC Batch: 119849 Prep Batch: 101336 Analytical Method: S 8015 D Date Analyzed: 2015-03-09 Sample Preparation: 2015-03-05

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

						$_{ m Spike}$	Percent	Recovery
Surrogate	Flag	$\operatorname{Cert}$	Result	Units	Dilution	Amount	Recovery	Limits
Trifluorotoluene (TFT)			1.72	mg/Kg	1	2.00	86	70 - 130
4-Bromofluorobenzene (4-BFB)			2.01	$\mathrm{mg}/\mathrm{Kg}$	1	2.00	100	70 - 130

### Sample: 387693 - S- Wall

Laboratory: Midland

Analysis: BTEX Analytical Method: S 8021B QC Batch: 119761 Date Analyzed: 2015-03-04 Prep Batch: 101285 Sample Preparation: 2015-03-03 Prep Method: S 5035 Analyzed By: AK Prepared By: AK

RLFlag Result Parameter Cert Units Dilution RL0.0200 Benzene 0.0494 mg/Kg 1 1 Toluene 0.277 mg/Kg1 0.0200 Ethylbenzene 0.352mg/Kg1 0.02001 0.556mg/Kg1 0.0200Xylene

							Spike	Percent	Recovery
Surrogate		Flag	$\operatorname{Cert}$	Result	Units	Dilution	Amount	Recovery	Limits
Trifluorotoluene (TFT)				1.70	mg/Kg	1	2.00	85	70 - 130
4-Bromofluorobenzene (4-BFB)	$_{\mathrm{Qsr}}$	$_{\mathrm{Qsr}}$		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/AQC Batch: 119733 Date Analyzed: 2015-03-03 Analyzed By: EMPrep Batch: 101275 Sample Preparation: 2015 - 03 - 03Prepared By: EM

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Report Date: March 9, 2015 Work Order: 15022625 Page Number: 14 of 34

7250715022.001 30137 #3

sample 387693 continued ...

			RL			
Parameter	Flag	Cert	Result	Units	Dilution	RL
			$\operatorname{RL}$			
Parameter	Flag	Cert	Result	Units	Dilution	RL
Chloride	Qs		11100	m mg/Kg	5	4.00

### Sample: 387693 - S- Wall

Laboratory: Midland

Analysis: TPH DRO - NEW Analytical Method: S 8015 D Prep Method: N/A QC Batch: 119724Date Analyzed: 2015-03-03 Analyzed By: SCPrep Batch: 101249 Sample Preparation: 2015-03-02 Prepared By: SC

						Spike	Percent	Recovery
Surrogate	Flag	$\operatorname{Cert}$	Result	Units	Dilution	Amount	Recovery	Limits
n-Tricosane			91.4	mg/Kg	1	100	91	70 - 130

### Sample: 387693 - S- Wall

Laboratory: Midland

Analysis: TPH GRO Analytical Method: S 8015 D Prep Method: S 5035 QC Batch: 119764 Date Analyzed: 2015-03-04 Analyzed By: AKPrep Batch: 101285 Sample Preparation: 2015-03-03 Prepared By: AK

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

Report Date: March 9, 2015

Work Order: 15022625 7250715022.00130137 #3

Page Number: 15 of 34

Sample: 387694 - RP

Laboratory: Midland

BTEX Analysis: Analytical Method: S 8021BQC Batch: 119761 Date Analyzed: 2015-03-04 Prep Batch: 101285 Sample Preparation: 2015-03-03

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

			$\operatorname{RL}$			
Parameter	Flag	Cert	Result	Units	Dilution	RL
Benzene		1	0.0461	m mg/Kg	1	0.0200
Toluene	U	1	< 0.0200	mg/Kg	1	0.0200
Ethylbenzene		1	$\boldsymbol{0.254}$	$\mathrm{mg}/\mathrm{Kg}$	1	0.0200
Xvlene		1	0.511	mg/Kg	1	0.0200

						$_{ m Spike}$	Percent	Recovery
Surrogate	Flag	$\operatorname{Cert}$	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: Midland

Analysis: Chloride (Titration) Analytical Method: SM 4500-Cl B Prep Method: N/A QC Batch: 119733 Date Analyzed: 2015-03-03 Analyzed By: EMPrep Batch: 101275 Sample Preparation: Prepared By: 2015 - 03 - 03EM

			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 - NEW Analytical Method: S 8015 D Prep Method: N/AQC Batch: 119724 Date Analyzed: 2015-03-03 Analyzed By: SCPrep Batch: 101249 Sample Preparation: 2015-03-02 Prepared By: SC

			$\Gamma$ L			
Parameter	Flag	Cert	Result	Units	Dilution	RL
DRO		1	292	m mg/Kg	1	50.0
·	·		·	·	·	

DI

						Spike	Percent	Recovery
Surrogate	Flag	$\operatorname{Cert}$	Result	Units	Dilution	Amount	Recovery	Limits
n-Tricosane			106	$\mathrm{mg/Kg}$	1	100	106	70 - 130

Page Number: 16 of 34

Report Date: March 9, 2015 Work Order: 15022625

7250715022.001 30137 #3

Sample: 387694 - RP

Laboratory: Midland

Analysis: TPH GRO Analytical Method: S 8015 D Prep Method: S 5035 QC Batch: 119764 Date Analyzed: 2015-03-04 Analyzed By: AK Prep Batch: 101285 Sample Preparation: 2015-03-03 Prepared By: AK

							Spike	Percent	Recovery
Surrogate		Flag	$\operatorname{Cert}$	Result	Units	Dilution	Amount	Recovery	Limits
Trifluorotoluene (TFT)				1.66	mg/Kg	1	2.00	83	70 - 130
4-Bromofluorobenzene (4-BFB)	$_{\mathrm{Qsr}}$	$_{\mathrm{Qsr}}$		3.24	$\mathrm{mg}/\mathrm{Kg}$	1	2.00	162	70 - 130

Sample: 387695 - SP

Laboratory: Midland

Analysis: **BTEX** Analytical Method: S 8021BPrep Method: S 5035 QC Batch: 119761 Date Analyzed: 2015-03-04 Analyzed By: AK2015-03-03 Prep Batch: 101285 Sample Preparation: Prepared By: AK

RLFlag Parameter Cert Result Units Dilution RL1.88 Benzene mg/Kg 5 0.0200 Toluene 63.2 mg/Kg5 0.0200 Ethylbenzene 30.1 mg/Kg5 0.02001 129 mg/Kg5 0.0200Xylene

							$\operatorname{Spike}$	Percent	Recovery
Surrogate		Flag	$\operatorname{Cert}$	Result	Units	Dilution	Amount	Recovery	Limits
Trifluorotoluene (TFT)				7.71	mg/Kg	5	10.0	77	70 - 130
4-Bromofluorobenzene (4-BFB)	$_{\mathrm{Qsr}}$	$_{\mathrm{Qsr}}$		23.4	$\mathrm{mg}/\mathrm{Kg}$	5	10.0	234	70 - 130

Sample: 387695 - SP

Laboratory: Midland

Analysis: Chloride (Titration) Analytical Method: SM 4500-Cl B Prep Method: N/AQC Batch: 119733 Date Analyzed: 2015-03-03 Analyzed By: EMPrep Batch: 101275 Sample Preparation: 2015 - 03 - 03Prepared By: EM

 $\overline{continued}$  . . .

Report Date: March 9, 2015 Work Order: 15022625 Page Number: 17 of 34

7250715022.001 30137 #3

sample 387695 continued ...

			RL			
Parameter	Flag	Cert	Result	Units	Dilution	RL
			$\operatorname{RL}$			
Parameter	Flag	Cert	Result	Units	Dilution	RL
Chloride	Qs		1530	$\mathrm{mg/Kg}$	5	4.00

## Sample: 387695 - SP

Laboratory: Midland

Analysis: TPH DRO - NEW Analytical Method: S 8015 D Prep Method: N/A QC Batch: 119724Date Analyzed: 2015-03-03 Analyzed By: SCPrep Batch: 101249 Sample Preparation: 2015-03-02 Prepared By: SC

						$_{ m Spike}$	Percent	Recovery
Surrogate	Flag	Cert	Result	Units	Dilution	Amount	Recovery	Limits
n-Tricosane			106	$\mathrm{mg/Kg}$	1	100	106	70 - 130

## Sample: 387695 - SP

Laboratory: Midland

Analysis: TPH GRO Analytical Method: S 8015 D Prep Method: S 5035 QC Batch: 119791 Date Analyzed: 2015-03-05 Analyzed By: AKPrep Batch: 101317 Sample Preparation: 2015-03-04 Prepared By: AK

						$\operatorname{Spike}$	Percent	Recovery
Surrogate	Flag	$\operatorname{Cert}$	Result	Units	Dilution	Amount	Recovery	Limits
Trifluorotoluene (TFT)			82.6	mg/Kg	50	100	83	70 - 130
4-Bromofluorobenzene (4-BFB)			115	mg/Kg	50	100	115	70 - 130

Report Date: March 9, 2015 Work Order: 15022625 Page Number: 18 of 34

7250715022.001 30137 #3

# **Method Blanks**

Method Blank (1) QC Batch: 119724

QC Batch: 119724 Date Analyzed: 2015-03-03 Analyzed By: SC Prep Batch: 101249 QC Preparation: 2015-03-02 Prepared By: SC

Spike Percent Recovery Units Surrogate Flag Cert Result Dilution Amount Recovery Limits 91.3 100 91 70 - 130 n-Tricosane mg/Kg

Method Blank (1) QC Batch: 119733

QC Batch: 119733 Date Analyzed: 2015-03-03 Analyzed By: EM
Prep Batch: 101275 QC Preparation: 2015-03-03 Prepared By: EM

Method Blank (1) QC Batch: 119741

QC Batch: 119741 Date Analyzed: 2015-03-03 Analyzed By: EM
Prep Batch: 101283 QC Preparation: 2015-03-03 Prepared By: EM

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

Report Date: March 9, 2015 7250715022.001		V	Vork Order 3013'		Page Number: 19 of 34			
Method Blank (1) QC Batch: 11	9761							
QC Batch: 119761		Date A	nalyzed:	2015-03-	04		Analyzed	l By: AK
Prep Batch: 101285			eparation:	2015-03-	03		Prepared	•
					MDL			
Parameter	Flag		Cert		Result		Units	RL
Benzene			1		< 0.00533	1	ng/Kg	0.02
Toluene			1		< 0.00645	1	ng/Kg	0.02
Ethylbenzene			1		< 0.0116	1	ng/Kg	0.02
Xylene			1		< 0.00874	1	ng/Kg	0.02
						Spike	Percent	Recovery
Surrogate	$\operatorname{Flag}$	Cert	Result	Units	Dilution	Amount	Recovery	Limits
Trifluorotoluene (TFT)			1.86	mg/Kg	1	2.00	93	70 - 130
4-Bromofluorobenzene (4-BFB)			2.04	mg/Kg	1	2.00	102	70 - 130

Method Blank (1)	QC Batch: 119764							
QC Batch: 119764			analyzed:	2015-03-04			Analyzed	•
Prep Batch: 101285		QC Pr	eparation:	2015-03-03	3		Prepared	By: AK
					MDL			
Parameter	Flag		Cert		Result		Units	RL
GRO			1		< 2.32	]	mg/Kg	4
						Spike	Percent	Recovery
Surrogate	Flag	$\operatorname{Cert}$	Result	Units	Dilution	Amount	Recovery	Limits
Trifluorotoluene (TFT)			1.94	mg/Kg	1	2.00	97	70 - 130
4-Bromofluorobenzene (4-B	FB)		1.83	mg/Kg	1	2.00	92	70 - 130

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

7250715022.001

Work Order: 15022625

 $30137 \ #3$ 

						Spike	Percent	Recovery
Surrogate	Flag	$\operatorname{Cert}$	Result	Units	Dilution	Amount	Recovery	Limits
Trifluorotoluene (TFT)			1.88	mg/Kg	1	2.00	94	70 - 130
4-Bromofluorobenzene (4-BFB)			1.82	mg/Kg	1	2.00	91	70 - 130

Method Blank (1) QC Batch: 119849

QC Batch: 119849

Date Analyzed: 2015-03-09

Analyzed By: AK Prepared By: AK

Page Number: 20 of 34

Prep Batch: 101336

QC Preparation: 2015-03-05

			MDL		
Parameter	Flag	Cert	Result	Units	RL
GRO		1	< 2.32	m mg/Kg	4

						Spike	Percent	Recovery
Surrogate	Flag	$\operatorname{Cert}$	Result	Units	Dilution	Amount	Recovery	Limits
Trifluorotoluene (TFT)			1.87	mg/Kg	1	2.00	94	70 - 130
4-Bromofluorobenzene (4-BFB)			1.82	$\mathrm{mg}/\mathrm{Kg}$	1	2.00	91	70 - 130

Report Date: March 9, 2015 Work Order: 15022625 Page Number: 21 of 34

7250715022.001 30137 #3

# Laboratory Control Spikes

## Laboratory Control Spike (LCS-1)

QC Batch: 119724 Date Analyzed: 2015-03-03 Analyzed By: SC Prep Batch: 101249 QC Preparation: 2015-03-02 Prepared By: SC

LCS Spike Matrix Rec. F C Units Dil. Param Result Amount Result Rec. Limit < 7.41DRO 251 mg/Kg 250 100 70 - 130

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

LCSD RPD Spike Matrix Rec. Param Units Dil. Result Limit RPD Result Amount Rec. Limit  $\overline{\text{DRO}}$ 260 mg/Kg 250 < 7.41 104 70 - 130 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
n-Tricosane	101	99.2	mg/Kg	1	100	101	99	70 - 130

### Laboratory Control Spike (LCS-1)

QC Batch: 119733 Date Analyzed: 2015-03-03 Analyzed By: EM
Prep Batch: 101275 QC Preparation: 2015-03-03 Prepared By: EM

LCS Spike Matrix Rec. F  $\mathbf{C}$ Units Param Result Dil. Amount Result Rec. Limit 85 - 115 Chloride 2680 2500< 19.2107 mg/Kg

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

LCSD Spike Rec. RPD Matrix Param F  $\mathbf{C}$ Result Units Dil. Amount Result Rec. Limit RPD Limit 20 Chloride 2580 2500 <19.2 85 - 115 mg/Kg 103

Work Order: 15022625

7250715022.001

30137~#3

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

QC Batch: 119741 Prep Batch: 101283 Date Analyzed: 2015-03-03 QC Preparation: 2015-03-03 Analyzed By: EM Prepared By: EM

Page Number: 22 of 34

			LCS			Spike	Matrix		Rec.
Param	$\mathbf{F}$	$\mathbf{C}$	Result	Units	Dil.	Amount	Result	Rec.	Limit
Chloride			2500	mg/Kg	5	2500	<19.2	100	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			2310	mg/Kg	5	2500	<19.2	92	85 - 115	8	20

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

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

 Analyzed By: AK Prepared By: AK

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

	LCS	LCSD			$\operatorname{Spike}$	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	$\mathrm{mg}/\mathrm{Kg}$	1	2.00	102	104	70 - 130

Work Order: 15022625

30137 #3

Laboratory Control Spike (LCS-1)

QC Batch: 119764 Prep Batch: 101285

7250715022.001

Date Analyzed: 2015-03-04 QC Preparation: 2015-03-03 Analyzed By: AK Prepared By: AK

Page Number: 23 of 34

LCS Spike Matrix Rec. F Amount Result Param  $\mathbf{C}$ Result Units Dil. Rec. Limit GRO < 2.32 70 - 130 20.5mg/Kg 20.0 102

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
GRO		1	21.9	mg/Kg	1	20.0	< 2.32	110	70 - 130	7	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)	1.95	1.94	mg/Kg	1	2.00	98	97	70 - 130
4-Bromofluorobenzene (4-BFB)	1.89	1.92	mg/Kg	1	2.00	94	96	70 - 130

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

QC Batch: 119791 Prep Batch: 101317 Date Analyzed: 2015-03-05 QC Preparation: 2015-03-04 Analyzed By: AK Prepared By: AK

			LCS			Spike	Matrix		Rec.
Param	$\mathbf{F}$	$\mathbf{C}$	Result	Units	Dil.	Amount	Result	Rec.	Limit
GRO		1	21.3	mg/Kg	1	20.0	< 2.32	106	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
GRO		1	19.4	mg/Kg	1	20.0	< 2.32	97	70 - 130	9	20

	LCS	LCSD			Spike	LCS	LCSD	Rec.
Surrogate	Result	Result	Units	Dil.	Amount	Rec.	Rec.	Limit
Trifluorotoluene (TFT)	1.93	1.90	mg/Kg	1	2.00	96	95	70 - 130
4-Bromofluorobenzene (4-BFB)	1.92	1.90	$\mathrm{mg}/\mathrm{Kg}$	1	2.00	96	95	70 - 130

Report Date: March 9, 2015 7250715022.001

Work Order: 15022625

30137 #3

Laboratory Control Spike (LCS-1)

QC Batch: 119849 Prep Batch: 101336 Date Analyzed: 2015-03-09 QC Preparation: 2015-03-05 Analyzed By: AK Prepared By: AK

Page Number: 24 of 34

LCS Spike Matrix Rec. Param  $\mathbf{F}$  $\mathbf{C}$ Result Dil. Amount Result Limit Units Rec.  $\overline{GRO}$ 20.6 20.0 < 2.32 103 70 - 130 mg/Kg

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
GRO		1	21.1	mg/Kg	1	20.0	< 2.32	106	70 - 130	2	20

	LCS	LCSD			Spike	LCS	LCSD	Rec.
Surrogate	Result	Result	Units	Dil.	Amount	Rec.	Rec.	Limit
Trifluorotoluene (TFT)	1.84	1.92	mg/Kg	1	2.00	92	96	70 - 130
4-Bromofluorobenzene (4-BFB)	1.87	1.87	mg/Kg	1	2.00	94	94	70 - 130

Report Date: March 9, 2015 Work Order: 15022625 Page Number: 25 of 34

7250715022.001 30137 #3

## Matrix Spikes

Matrix Spike (MS-1) Spiked Sample: 387694

QC Batch: 119724 Date Analyzed: 2015-03-03 Analyzed By: SC Prep Batch: 101249 QC Preparation: 2015-03-02 Prepared By: SC

MSSpike Matrix Rec. F Units  $\mathbf{C}$ Dil. Param Result Amount Result Rec. Limit DRO 512 mg/Kg 250 292 88 70 - 130

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

MSD RPDSpike Matrix Rec. Dil.  $\mathbf{C}$ Units Result Limit RPD Param Result Amount Rec. Limit  $\overline{\mathrm{DRO}}$ 527 mg/Kg 250 292 94 70 - 130 3 20

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

	MS	MSD			Spike	MS	MSD	Rec.
Surrogate	Result	Result	Units	Dil.	Amount	Rec.	Rec.	Limit
n-Tricosane	97.1	101	mg/Kg	1	100	97	101	70 - 130

Matrix Spike (MS-1) Spiked Sample: 387688

QC Batch: 119733 Date Analyzed: 2015-03-03 Analyzed By: EM
Prep Batch: 101275 QC Preparation: 2015-03-03 Prepared By: EM

MS Spike Matrix Rec. F Units Param Result Dil. AmountResult Rec. Limit Chloride 574 2500383 78.9 - 121 mg/Kg  $_{\mathrm{Qs}}$ Qs

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

MSD Rec. RPD Spike Matrix Param F C Result Units Dil. Amount Result Rec. Limit RPD Limit 78.9 - 121 20 Chloride 574 2500 383 mg/Kg 0 Qs

Work Order: 15022625

7250715022.001

30137 #3

Matrix Spike (MS-1) Spiked Sample: 387692

QC Batch: 119741 Prep Batch: 101283 Date Analyzed: 2015-03-03 QC Preparation: 2015-03-03 Analyzed By: EM Prepared By: EM

Page Number: 26 of 34

MS Spike Matrix Rec. F Param  $\mathbf{C}$ Result Units Dil. Amount Result Rec. Limit Chloride 1150 78.9 - 121 mg/Kg 5 2500 < 19.246 Qs

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

				MSD			$_{ m Spike}$	Matrix		Rec.		RPD
Param		$\mathbf{F}$	$\mathbf{C}$	Result	Units	Dil.	Amount	Result	Rec.	Limit	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 result. RPD is based on the spike and spike duplicate result.

Matrix Spike (MS-1) Spiked Sample: 387690

 QC Batch:
 119761
 Date Analyzed:
 2015-03-04

 Prep Batch:
 101285
 QC Preparation:
 2015-03-03

Analyzed By: AK Prepared By: AK

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

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

			MSD			Spike	Matrix		Rec.		RPD
Param	$\mathbf{F}$	$\mathbf{C}$	Result	Units	Dil.	Amount	Result	Rec.	Limit	RPD	Limit
Benzene		1	1.48	mg/Kg	1	2.00	0.027	73	70 - 130	10	20
Toluene		1	1.54	mg/Kg	1	2.00	0.0436	75	70 - 130	9	20
Ethylbenzene		1	1.66	mg/Kg	1	2.00	< 0.0116	83	70 - 130	9	20
Xylene		1	5.01	mg/Kg	1	6.00	0.0334	83	70 - 130	9	20

	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	mg/Kg	1	2	108	102	70 - 130

7250715022.001

Work Order: 15022625

30137 #3

Matrix Spike (MS-1) Spiked Sample: 387690

 QC Batch:
 119764
 Date Analyzed:
 2015-03-04

 Prep Batch:
 101285
 QC Preparation:
 2015-03-03

Analyzed By: AK Prepared By: AK

Page Number: 27 of 34

			MS			Spike	Matrix		Rec.
Param	$\mathbf{F}$	$\mathbf{C}$	Result	Units	Dil.	Amount	Result	Rec.	Limit
GRO		1	14.7	mg/Kg	1	20.0	< 2.32	74	70 - 130

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

			MSD			$_{ m Spike}$	Matrix		Rec.		RPD
Param	$\mathbf{F}$	$\mathbf{C}$	Result	Units	Dil.	Amount	Result	Rec.	Limit	RPD	Limit
GRO		1	15.2	mg/Kg	1	20.0	< 2.32	76	70 - 130	3	20

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

	MS	MSD			$\operatorname{Spike}$	MS	MSD	Rec.
Surrogate	Result	Result	Units	Dil.	Amount	Rec.	Rec.	Limit
Trifluorotoluene (TFT)	1.74	1.67	mg/Kg	1	2	87	84	70 - 130
4-Bromofluorobenzene (4-BFB)	1.94	1.88	mg/Kg	1	2	97	94	70 - 130

Matrix Spike (MS-1) Spiked Sample: 387700

QC Batch:119791Date Analyzed:2015-03-05Analyzed By:AKPrep Batch:101317QC Preparation:2015-03-04Prepared By:AK

			MS			Spike	Matrix		Rec.
Param	$\mathbf{F}$	$\mathbf{C}$	Result	Units	Dil.	Amount	Result	Rec.	Limit
GRO		1	15.6	mg/Kg	1	20.0	< 2.32	78	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
GRO		1	16.6	mg/Kg	1	20.0	< 2.32	83	70 - 130	6	20

	MS	MSD			Spike	MS	MSD	Rec.
Surrogate	Result	Result	Units	Dil.	Amount	Rec.	Rec.	Limit
Trifluorotoluene (TFT)	1.68	1.76	mg/Kg	1	2	84	88	70 - 130
4-Bromofluorobenzene (4-BFB)	1.89	1.95	$\mathrm{mg}/\mathrm{Kg}$	1	2	94	98	70 - 130

Work Order: 15022625

7250715022.001

 $30137 \ #3$ 

Matrix Spike (MS-1) Spiked Sample: 387705

QC Batch: 119849 Prep Batch: 101336

Date Analyzed: 2015-03-09 QC Preparation: 2015-03-05 Analyzed By: AK Prepared By: AK

Page Number: 28 of 34

			MS			Spike	Matrix		Rec.
Param	$\mathbf{F}$	$\mathbf{C}$	Result	Units	Dil.	Amount	Result	Rec.	Limit
GRO		1	15.2	mg/Kg	1	20.0	< 2.32	76	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
GRO	Qs	Qs	1	13.4	mg/Kg	1	20.0	< 2.32	67	70 - 130	13	20

	MS	MSD			$\operatorname{Spike}$	MS	MSD	Rec.
Surrogate	Result	Result	Units	Dil.	Amount	Rec.	Rec.	Limit
Trifluorotoluene (TFT)	1.81	1.83	mg/Kg	1	2	90	92	70 - 130
4-Bromofluorobenzene (4-BFB)	1.94	1.96	mg/Kg	1	2	97	98	70 - 130

Page Number: 29 of 34

Report Date: March 9, 2015 Work Order: 15022625

7250715022.001 $30137\ \#3$ 

## Calibration Standards

Standard (CCV-1)

 $QC\ Batch{:}\quad 119724$ Date Analyzed: 2015-03-03 Analyzed 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)

Date Analyzed: 2015-03-03  $QC\ Batch{:}\quad 119724$ Analyzed By: SC

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

Standard (ICV-1)

QC Batch: 119733 Date Analyzed: 2015-03-03 Analyzed By: EM

				ICVs	ICVs	ICVs	Percent	
				True	Found	Percent	Recovery	Date
Param	Flag	$\operatorname{Cert}$	Units	Conc.	Conc.	Recovery	Limits	Analyzed
Chloride			mg/Kg	100	100	100	85 - 115	2015-03-03

Standard (CCV-1)

QC Batch: 119733 Date Analyzed: 2015-03-03 Analyzed By: EM

				$\operatorname{CCVs}$	CCVs	CCVs	Percent	D. (
				True	Found	Percent	Recovery	Date
Param	Flag	$\operatorname{Cert}$	Units	Conc.	Conc.	Recovery	Limits	Analyzed
Chloride			$\mathrm{mg}/\mathrm{Kg}$	100	100	100	85 - 115	2015-03-03

Report Date: March 9, 2015 Work Order: 15022625 Page Number: 30 of 34

7250715022.001 30137 #3

Standard (ICV-1)

QC Batch: 119741 Date Analyzed: 2015-03-03 Analyzed By: EM

				ICVs	ICVs	ICVs	Percent	
				True	Found	Percent	Recovery	Date
Param	Flag	$\operatorname{Cert}$	Units	Conc.	Conc.	Recovery	Limits	Analyzed
Chloride			mg/Kg	100	101	101	85 - 115	2015-03-03

Standard (CCV-1)

QC Batch: 119741 Date Analyzed: 2015-03-03 Analyzed By: EM

				CCVs	CCVs	CCVs	Percent	
				True	Found	Percent	Recovery	Date
Param	Flag	$\operatorname{Cert}$	Units	Conc.	Conc.	Recovery	Limits	Analyzed
Chloride			mg/Kg	100	99.0	99	85 - 115	2015-03-03

Standard (CCV-1)

QC Batch: 119761 Date Analyzed: 2015-03-04 Analyzed By: AK

				CCVs	CCVs	CCVs	Percent	
				True	Found	Percent	Recovery	Date
Param	Flag	$\operatorname{Cert}$	Units	Conc.	Conc.	Recovery	Limits	Analyzed
Benzene		1	mg/kg	0.100	0.103	103	80 - 120	2015-03-04
Toluene		1	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
Xylene		1	mg/kg	0.300	0.304	101	80 - 120	2015-03-04

Standard (CCV-2)

QC Batch: 119761 Date Analyzed: 2015-03-04 Analyzed By: AK

				$\begin{array}{c} { m CCVs} \\ { m True} \end{array}$	$\begin{array}{c} {\rm CCVs} \\ {\rm Found} \end{array}$	$\begin{array}{c} { m CCVs} \\ { m Percent} \end{array}$	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	mg/kg	0.100	0.0978	98	80 - 120	2015-03-04
Ethylbenzene		1	mg/kg	0.100	0.0987	99	80 - 120	2015-03-04
Xylene		1	mg/kg	0.300	0.297	99	80 - 120	2015-03-04

7250715022.001

Work Order: 15022625

30137 # 3

## Standard (CCV-3)

QC Batch: 119761

Date Analyzed: 2015-03-04

Analyzed By: AK

Page Number: 31 of 34

				CCVs	CCVs	CCVs	Percent	
				True	Found	Percent	Recovery	Date
Param	Flag	$\operatorname{Cert}$	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	2015-03-04
Ethylbenzene		1	mg/kg	0.100	0.101	101	80 - 120	2015-03-04
Xylene		1	mg/kg	0.300	0.302	101	80 - 120	2015-03-04

## Standard (CCV-1)

QC Batch: 119764

Date Analyzed: 2015-03-04

Analyzed By: AK

				CCVs	CCVs	CCVs	Percent	
				True	Found	Percent	Recovery	Date
Param	$\operatorname{Flag}$	Cert	Units	Conc.	Conc.	Recovery	Limits	Analyzed
GRO		1	mg/Kg	1.00	1.04	104	80 - 120	2015-03-04

## Standard (CCV-2)

QC Batch: 119764

Date Analyzed: 2015-03-04

Analyzed By: AK

				CCVs	CCVs	CCVs	Percent	
				True	Found	Percent	Recovery	Date
Param	Flag	Cert	Units	Conc.	Conc.	Recovery	Limits	Analyzed
GRO		1	mg/Kg	1.00	1.09	109	80 - 120	2015-03-04

## Standard (CCV-3)

QC Batch: 119764

Date Analyzed: 2015-03-04

Analyzed By: AK

				CCVs	CCVs	$\mathrm{CCVs}$	Percent	
				True	Found	Percent	Recovery	Date
Param	Flag	Cert	Units	Conc.	Conc.	Recovery	Limits	Analyzed
GRO		1	mg/Kg	1.00	0.967	97	80 - 120	2015-03-04

Report Date: March 9, 2015 Work Order: 15022625 Page Number: 32 of 34

7250715022.001 30137 #3

## Standard (CCV-1)

QC Batch: 119791 Date Analyzed: 2015-03-05 Analyzed By: AK

				CCVs	CCVs	CCVs	Percent	
				True	Found	Percent	Recovery	Date
Param	Flag	Cert	Units	Conc.	Conc.	Recovery	Limits	Analyzed
GRO		1	mg/Kg	1.00	1.04	104	80 - 120	2015-03-05

## Standard (CCV-2)

QC Batch: 119791 Date Analyzed: 2015-03-05 Analyzed By: AK

				CCVs	$\mathrm{CCVs}$	CCVs	Percent	
				True	Found	Percent	Recovery	Date
Param	Flag	Cert	Units	Conc.	Conc.	Recovery	Limits	Analyzed
GRO		1	mg/Kg	1.00	1.01	101	80 - 120	2015-03-05

## Standard (CCV-1)

QC Batch: 119849 Date Analyzed: 2015-03-09 Analyzed By: AK

				CCVs	$\operatorname{CCVs}$	CCVs	Percent	
				True	Found	Percent	Recovery	Date
Param	Flag	$\operatorname{Cert}$	Units	Conc.	Conc.	Recovery	Limits	Analyzed
GRO		1	mg/Kg	1.00	1.05	105	80 - 120	2015-03-09

## Standard (CCV-2)

QC Batch: 119849 Date Analyzed: 2015-03-09 Analyzed By: AK

				CCVs	CCVs	CCVs	Percent	
				True	Found	Percent	Recovery	Date
Param	Flag	Cert	Units	Conc.	Conc.	Recovery	Limits	Analyzed
GRO		1	mg/Kg	1.00	0.979	98	80 - 120	2015-03-09

Report Date: March 9, 2015 Work Order: 15022625 Page Number: 33 of 34

 $7250715022.001 \hspace{30137 \# 3}$ 

# **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	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

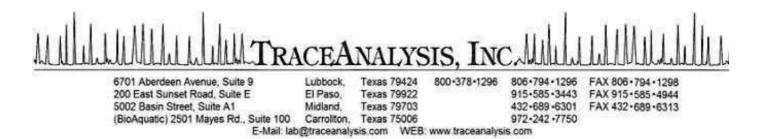
## Attachments

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 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

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	1 ime	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.

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

# Report Contents

Case Narrative	4
Analytical Report         Sample 395922 (BKG-1)	5 6 7
QC Batch 122418 - Method Blank (1)	10 10 10 10
QC Batch 122418 - LCS (1)	12 12 13 13
QC Batch 122418 - MS (1)	15 15 16 16
QC Batch 122418 - ICV (1) QC Batch 122418 - CCV (1) QC Batch 122539 - CCV (1) QC Batch 122539 - CCV (2) QC Batch 122539 - CCV (3) QC Batch 122540 - CCV (1) QC Batch 122540 - CCV (2) QC Batch 122545 - CCV (2)	18 18 18 18 19 19 19
Report Definitions	21 21 21 21

## Case Narrative

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

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

		$\operatorname{Prep}$	Prep	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)	$\mathrm{SM}\ 4500\text{-}\mathrm{Cl}\ \mathrm{B}$	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.

Page Number: 5 of 22

Report Date: June 23, 2015 Work Order: 15061712

7250715022.001 30137 #3

# **Analytical Report**

Sample: 395922 - BKG-1

Laboratory: Midland

Analytical Method: Analysis: BTEX S 8021B Prep Method: S 5035 QC Batch: 122539 Date Analyzed: 2015-06-23 Analyzed By: AKPrep Batch: 103647 Sample Preparation: 2015-06-22 Prepared By: AK

			RL			
Parameter	Flag	Cert	Result	Units	Dilution	RL
Benzene	U	1	< 0.0200	m mg/Kg	1	0.0200
Toluene	U	1	< 0.0200	$\mathrm{mg}/\mathrm{Kg}$	1	0.0200
Ethylbenzene	U	1	< 0.0200	$\mathrm{mg}/\mathrm{Kg}$	1	0.0200
Xylene	U	1	< 0.0200	mg/Kg	1	0.0200

						$_{ m Spike}$	Percent	Recovery
Surrogate	Flag	$\operatorname{Cert}$	Result	Units	Dilution	Amount	Recovery	Limits
Trifluorotoluene (TFT)			2.03	mg/Kg	1	2.00	102	70 - 130
4-Bromofluorobenzene (4-BFB)			2.08	mg/Kg	1	2.00	104	70 - 130

Sample: 395922 - BKG-1

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

			RL			
Parameter	Flag	Cert	Result	Units	Dilution	RL
Chloride	Qs		98.0	$\mathrm{mg}/\mathrm{Kg}$	5	4.00

Sample: 395922 - BKG-1

Laboratory: Midland

Analytical Method: Prep Method: Analysis: TPH DRO - NEW S 8015 D N/AQC Batch: Date Analyzed: 2015-06-23 Analyzed By: SC122545 Prep Batch: 103612 Sample Preparation: 2015-06-19 Prepared By: SC

			RL			
Parameter	Flag	Cert	Result	Units	Dilution	RL
DRO	Qr,Qs,U	1	< 50.0	$\mathrm{mg}/\mathrm{Kg}$	1	50.0

7250715022.001

Work Order: 15061712

 $30137 \ #3$ 

							Spike	Percent	Recovery
Surrogate		Flag	Cert	Result	Units	Dilution	Amount	Recovery	Limits
n-Tricosane	Qsr	Qsr		68.6	mg/Kg	1	50.0	137	70 - 130

## Sample: 395922 - BKG-1

Laboratory: Midland

Analysis:

QC Batch:

TPH GRO 122540Prep Batch: 103647

Analytical Method: S 8015 D Date Analyzed: 2015-06-23 Sample Preparation: 2015 - 06 - 22

S 5035 Prep Method: Analyzed By: AKPrepared By: AK

Page Number: 6 of 22

			$\operatorname{RL}$			
Parameter	Flag	$\operatorname{Cert}$	Result	Units	Dilution	RL
GRO	$Q_s, U$	1	< 4.00	$\mathrm{mg}/\mathrm{Kg}$	1	4.00

						$_{ m Spike}$	Percent	Recovery
Surrogate	Flag	$\operatorname{Cert}$	Result	Units	Dilution	Amount	Recovery	Limits
Trifluorotoluene (TFT)			2.54	mg/Kg	1	2.00	127	70 - 130
4-Bromofluorobenzene (4-BFB)			2.18	$\mathrm{mg}/\mathrm{Kg}$	1	2.00	109	70 - 130

## Sample: 395923 - BKG-2

Laboratory: Midland

Analysis: BTEXQC Batch: 122539 Prep Batch: 103647

Analytical Method: S 8021B Date Analyzed: 2015 - 06 - 23Sample Preparation: 2015-06-22

Prep Method: S 5035 Analyzed By: AKPrepared By: AK

			RL			
Parameter	Flag	Cert	Result	Units	Dilution	RL
Benzene	U	1	< 0.0200	m mg/Kg	1	0.0200
Toluene	U	1	< 0.0200	$\mathrm{mg}/\mathrm{Kg}$	1	0.0200
Ethylbenzene		1	0.0517	$\mathrm{mg}/\mathrm{Kg}$	1	0.0200
Xylene	U	1	< 0.0200	$\mathrm{mg}/\mathrm{Kg}$	1	0.0200

						$_{ m Spike}$	Percent	Recovery
Surrogate	$\operatorname{Flag}$	$\operatorname{Cert}$	Result	Units	Dilution	Amount	Recovery	Limits
Trifluorotoluene (TFT)			1.95	mg/Kg	1	2.00	98	70 - 130
4-Bromofluorobenzene (4-BFB)			2.05	$\mathrm{mg}/\mathrm{Kg}$	1	2.00	102	70 - 130

7250715022.001

Work Order: 15061712

30137 #3

Sample: 395923 - BKG-2

Laboratory: Midland

Analysis: Chloride (Titration) QC Batch: 122418 Prep Batch: 103564 Analytical Method: SM 4500-Cl B Date Analyzed: 2015-06-18

Date Analyzed: 2015-06-18 Sample Preparation: 2015-06-18 Prep Method: N/A Analyzed By: AK Prepared By: AK

Page Number: 7 of 22

Sample: 395923 - BKG-2

Laboratory: Midland

Analysis: TPH DRO - NEW QC Batch: 122545 Prep Batch: 103612 Analytical Method: S 8015 D Date Analyzed: 2015-06-23 Sample Preparation: 2015-06-19

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

						Spike	Percent	Recovery
Surrogate	Flag	Cert	Result	Units	Dilution	Amount	Recovery	Limits
n-Tricosane			54.6	mg/Kg	1	50.0	109	70 - 130

Sample: 395923 - BKG-2

Laboratory: Midland

Analysis: TPH GRO QC Batch: 122540 Prep Batch: 103647 Analytical Method: S 8015 D Date Analyzed: 2015-06-23 Sample Preparation: 2015-06-22

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

						$\operatorname{Spike}$	Percent	Recovery
Surrogate	$\operatorname{Flag}$	$\operatorname{Cert}$	Result	Units	Dilution	Amount	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

7250715022.001

Work Order: 15061712

30137 #3

#### Sample: 395924 - STP-2

Laboratory: Midland

Analysis: BTEX Analytical Method: S 8021B QC Batch: 122539 Date Analyzed: 2015-06-23 Prep Batch: 103647 Sample Preparation: 2015-06-22 Prep Method: S 5035 Analyzed By: AK Prepared By: AK

N/A

AK

AK

Page Number: 8 of 22

			RL			
Parameter	Flag	Cert	Result	Units	Dilution	RL
Benzene		1	4.22	m mg/Kg	1	0.0200
Toluene		1	20.4	$\mathrm{mg}/\mathrm{Kg}$	1	0.0200
Ethylbenzene		1	$\bf 7.34$	$\mathrm{mg}/\mathrm{Kg}$	1	0.0200
Xylene	Je	1	34.0	mg/Kg	1	0.0200

							$_{ m Spike}$	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	$_{\mathrm{Qsr}}$		6.49	mg/Kg	1	2.00	324	70 - 130

#### Sample: 395924 - STP-2

Laboratory: Midland

Analysis: Chloride (Titration) Analytical Method: SM 4500-Cl B Prep Method: QC Batch: 122418 Date Analyzed: 2015-06-18 Analyzed By: Prep Batch: 103564 Sample Preparation: 2015-06-18 Prepared By:

## Sample: 395924 - STP-2

Laboratory: Midland

S 8015 D Analysis: TPH DRO - NEW Analytical Method: Prep Method: N/AQC Batch: 122545 Date Analyzed: 2015-06-23 Analyzed By: SCPrep Batch: 103612 Sample Preparation: 2015 - 06 - 19Prepared By: SC

							Spike	Percent	Recovery
Surrogate		Flag	Cert	Result	Units	Dilution	Amount	Recovery	Limits
n-Tricosane	Qsr	Qsr		81.9	mg/Kg	1	50.0	164	70 - 130

Page Number: 9 of 22

Report Date: June 23, 2015 Work Order: 15061712

7250715022.001 30137 #3

Sample: 395924 - STP-2

Laboratory: Midland

Analysis: TPH GRO Analytical Method: S 8015 D Prep Method: S 5035 QC Batch: 122540 Date Analyzed: 2015-06-23 Analyzed By: AK Prep Batch: 103647 Sample Preparation: 2015-06-22 Prepared By: AK

RL

						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) Qss	$_{\mathrm{Qsr}}$		25.6	mg/Kg	1	10.0	256	70 - 130

Page Number: 10 of 22

Analyzed By:

Prepared By:

AK

AK

Report Date: June 23, 2015

7250715022.001

Work Order: 15061712

30137 #3

## Method Blanks

Method Blank (1) QC Batch: 122418

 QC Batch:
 122418
 Date Analyzed:
 2015-06-18

 Prep Batch:
 103564
 QC Preparation:
 2015-06-18

Method Blank (1) QC Batch: 122539

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

MDL Parameter Flag Cert Result Units RLBenzene < 0.00533 mg/Kg 0.02 1 Toluene < 0.00645 mg/Kg0.02 Ethylbenzene 0.02 < 0.0116 mg/Kg Xylene < 0.00874mg/Kg0.02

Spike Percent Recovery Surrogate Flag Cert Result Units Dilution Amount Recovery Limits Trifluorotoluene (TFT) 1.82 mg/Kg 2.00 91 70 - 130 1 2.00 70 - 130 4-Bromofluorobenzene (4-BFB) 1.88 mg/Kg 1 94

Method Blank (1) QC Batch: 122540

QC Batch: 122540 Date Analyzed: 2015-06-23 Analyzed By: AK Prep Batch: 103647 QC Preparation: 2015-06-22 Prepared By: AK

7250715022.001

Work Order: 15061712

 $30137\ \#3$ 

Page Number: 11 of 22

Surrogate	Flag	Cert	Result	Units	Dilution	$\begin{array}{c} {\rm Spike} \\ {\rm Amount} \end{array}$	Percent Recovery	Recovery Limits
Trifluorotoluene (TFT)			2.33	mg/Kg	1	2.00	116	70 - 130
4-Bromofluorobenzene (4-BFB)			1.99	$\mathrm{mg}/\mathrm{Kg}$	1	2.00	100	70 - 130

Method Blank (1) QC Batch: 122545

QC Batch: 122545Prep Batch: 103612 Date Analyzed: 2015 - 06 - 23QC Preparation: 2015 - 06 - 19 Analyzed By: SCPrepared By: SC

 $\operatorname{RL}$ 

50

 ${\rm Units}$ 

mg/Kg

 $\operatorname{MDL}$  $\operatorname{Cert}$ Parameter Flag Result  $\overline{\mathrm{DRO}}$ < 7.41 1

Spike Percent Recovery Surrogate Flag Cert Result Units Dilution Amount Recovery Limits

n-Tricosane 57.1 mg/Kg 1 50.0 114 70 - 130

Page Number: 12 of 22

Analyzed By: AK

Prepared By: AK

Report Date: June 23, 2015

7250715022.001

Work Order: 15061712 30137 #3

Laboratory Control Spikes

Laboratory Control Spike (LCS-1)

 QC Batch:
 122418
 Date Analyzed:
 2015-06-18

 Prep Batch:
 103564
 QC Preparation:
 2015-06-18

LCS Spike Matrix Rec. F  $\mathbf{C}$ Units Dil. Amount Result Param Result Rec. Limit Chloride 2350 mg/Kg 2500 <19.2 94 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			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 Date Analyzed: 2015-06-23 Analyzed By: AK Prep Batch: 103647 QC Preparation: 2015-06-22 Prepared By: AK

			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	$\mathrm{mg}/\mathrm{Kg}$	1	2.00	< 0.00645	90	70 - 130
Ethylbenzene		1	1.73	$\mathrm{mg}/\mathrm{Kg}$	1	2.00	< 0.0116	86	70 - 130
Xylene		1	5.64	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

Work Order: 15061712

30137 # 3

control spikes continued . . .

Surrogate	LCS Result	LCSD Result	Units	Dil.	$\begin{array}{c} {\rm Spike} \\ {\rm Amount} \end{array}$	LCS Rec.	LCSD Rec.	${ m Rec.} \ { m Limit}$
Surrogate	LCS Result	LCSD Result	Units	Dil.	Spike Amount	LCS Rec.	LCSD Rec.	Rec.
Trifluorotoluene (TFT) 4-Bromofluorobenzene (4-BFB)	1.86 1.83	1.76 1.75	mg/Kg mg/Kg	1 1	2.00 2.00	93 92	88 88	70 - 130 70 - 130

## Laboratory Control Spike (LCS-1)

QC Batch: 122540 Prep Batch: 103647 Date Analyzed: 2015-06-23 QC Preparation: 2015-06-22 Analyzed By: AK Prepared By: AK

Page Number: 13 of 22

			LCS			Spike	Matrix		Rec.
Param	$\mathbf{F}$	$\mathbf{C}$	Result	Units	Dil.	Amount	Result	Rec.	Limit
GRO		1	15.5	mg/Kg	1	20.0	< 2.32	78	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
GRO		1	15.3	mg/Kg	1	20.0	< 2.32	76	70 - 130	1	20

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

	LCS	LCSD			Spike	LCS	LCSD	Rec.
Surrogate	Result	Result	Units	Dil.	Amount	Rec.	Rec.	Limit
Trifluorotoluene (TFT)	2.34	2.35	mg/Kg	1	2.00	117	118	70 - 130
4-Bromofluorobenzene (4-BFB)	2.09	2.12	$\mathrm{mg}/\mathrm{Kg}$	1	2.00	104	106	70 - 130

## Laboratory Control Spike (LCS-1)

QC Batch: 122545 Prep Batch: 103612 Date Analyzed: 2015-06-23 QC Preparation: 2015-06-19 Analyzed By: SC Prepared By: SC

LCS Spike Matrix Rec. Param Result Units Dil. Amount Result Rec. Limit  $\overline{\mathrm{DRO}}$ 239 250 < 7.41 70 - 130 mg/Kg 96

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

 $continued \dots$ 

Report Date: June 23, 2015 7250715022.001				Work O	rder: 15 0137 #3				Page Nu	ımber:	14 of 22
control spikes continued											
			LCSD			Spike	Matrix		Rec.		RPD
Param	F	С	Result	Units	Dil.	Amount	Result	Rec.	Limit	RPD	Limit
			LCSD			Spike	Matrix		Rec.		RPD
Param	$\mathbf{F}$	$\mathbf{C}$	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 the	e spike	resu	lt. RPD	is based	on the s	pike and sp	pike duplic	ate resu	ılt.		
	LO	CS	LCSI	)			Spike	LCS	S LCS	D	Rec.
Surrogate	Res	$\operatorname{sult}$	Resul	lt U	abla	Dil.	Amount	Rec	. Rec		Limit
n-Tricosane	58	3.5	61.9	m	g/Kg	1	50.0	117	124		70 - 130

Page Number: 15 of 22

Report Date: June 23, 2015

7250715022.001 30137 #3

Matrix Spikes

Matrix Spike (MS-1) Spiked Sample: 396009

QC Batch: 122418 Date Analyzed: 2015-06-18 Analyzed By: AK
Prep Batch: 103564 QC Preparation: 2015-06-18 Prepared By: AK

Work Order: 15061712

MS Spike Matrix Rec. F C UnitsDil. Limit Param Result Amount Result Rec. Chloride 19700 mg/Kg 2500 16600 124 78.9 - 121 Qs

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

MSD RPDSpike Matrix Rec. Param Result Units Dil. Result Limit RPD Amount Rec. Limit Chloride 19900 mg/Kg 5 2500 16600 132 78.9 - 121 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	$\mathbf{F}$	$\mathbf{C}$	Result	Units	Dil.	Amount	Result	Rec.	Limit
Benzene		1	1.78	mg/Kg	1	2.00	< 0.00533	89	70 - 130
Toluene		1	1.72	$\mathrm{mg}/\mathrm{Kg}$	1	2.00	< 0.00645	86	70 - 130
Ethylbenzene		1	1.70	mg/Kg	1	2.00	< 0.0116	85	70 - 130
Xylene		1	5.63	mg/Kg	1	6.00	< 0.00874	94	70 - 130

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

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

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

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Report Date: June 23, 2015 7250715022.001	Wo		Page Number: 16 of 22					
matrix spikes continued								
	MS	MSD			Spike	MS	MSD	Rec.
Surrogate	Result	Result	Units	Dil.	Amount	Rec.	Rec.	Limit
	MS	MSD			Spike	MS	MSD	Rec.
Surrogate	Result	Result	Units	Dil.	Amount	Rec.	Rec.	$\operatorname{Limit}$
Trifluorotoluene (TFT)	1.84	1.89	mg/Kg	1	2	92	94	70 - 130
4-Bromofluorobenzene (4-BFB)	1.92	1.96	mg/Kg	1	2	96	98	70 - 130

Matrix Spike (MS-1) Spiked Sample: 395922

QC Batch: 122540 Date Analyzed: 2015-06-23 Analyzed By: AK Prep Batch: 103647 QC Preparation: 2015-06-22 Prepared By: AK

			MS			Spike	Matrix		Rec.
Param	$\mathbf{F}$	$\mathbf{C}$	Result	Units	Dil.	Amount	Result	Rec.	Limit
GRO		1	14.8	mg/Kg	1	20.0	< 2.32	74	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
GRO	Qs	Qs	1	13.8	mg/Kg	1	20.0	< 2.32	69	70 - 130	7	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)	2.49	2.48	mg/Kg	1	2	124	124	70 - 130
4-Bromofluorobenzene (4-BFB)	2.20	2.21	$\mathrm{mg}/\mathrm{Kg}$	1	2	110	110	70 - 130

Matrix Spike (MS-1) Spiked Sample: 395908

QC Batch: 122545 Date Analyzed: 2015-06-23 Analyzed By: SC Prep Batch: 103612 QC Preparation: 2015-06-19 Prepared By: SC

			MS			$_{ m Spike}$	Matrix		Rec.
Param	$\mathbf{F}$	$\mathbf{C}$	Result	Units	Dil.	Amount	Result	Rec.	Limit
DRO		1	213	$\mathrm{mg}/\mathrm{Kg}$	1	250	< 7.41	85	70 - 130

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

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Report Date: June 23, 2015 7250715022.001		Work Order: 15061712 30137 #3					Page Nu	mber:	17 of 22		
matrix spikes continued											
			MSD			$_{ m Spike}$	Matrix		Rec.		RPD
Param	F	С	Result	Units	Dil.	Amount	Result	Rec.	Limit	RPD	Limit
Param	F	$\mathbf{C}$	MSD Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit	RPD	RPD Limit
DDO	Qr,Qs Qr,Qs	1	163	mg/Kg	1	250	<7.41	65	70 - 130	27	20
Percent recovery is based on th	e spike resu	ılt. I	RPD is b		ne spil	e and spi	ke duplica	te resul	t.		
	MS		MSD				Spike	MS	MSI	)	Rec.
Surrogate	Result		Result	Units	;	Dil.	Amount	$\operatorname{Rec}$	. Rec		Limit
n-Tricosane	57.2		59.8	mg/K	g	1	50	114	120	7	70 - 130

Page Number: 18 of 22

Report Date: June 23, 2015

7250715022.001

Work Order: 15061712

30137 #3

## Calibration Standards

Standard (ICV-1)

QC Batch: 122418 Date Analyzed: 2015-06-18 Analyzed By: AK

**ICVs** ICVsICVsPercent 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 Analyzed By: AK

CCVsCCVsCCVsPercent True Found Percent Recovery Date Flag Param Cert Units Conc. Conc. Recovery Limits Analyzed Chloride mg/Kg 100 100 100 85 - 115 2015-06-18

Standard (CCV-1)

QC Batch: 122539 Date Analyzed: 2015-06-23 Analyzed By: AK

CCVsCCVsCCVsPercent True Found Percent Recovery Date Flag  $\operatorname{Cert}$ Param Units Conc. Conc. Recovery Limits Analyzed Benzene mg/kg 0.100 0.0958 96 80 - 120 2015-06-23 1 Toluene mg/kg 0.1000.089189 80 - 120 2015-06-23 Ethylbenzene 80 - 120 2015-06-23 mg/kg 0.1000.084885 Xylene mg/kg 0.3000.27893 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

Work Order: 15061712

30137 # 3

				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	$\mathrm{mg/kg}$	0.100	0.0905	90	80 - 120	2015-06-23
Ethylbenzene		1	$\mathrm{mg/kg}$	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 Analyzed: 2015-06-23

Analyzed By: AK

Page Number: 19 of 22

				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	mg/kg	0.100	0.0894	89	80 - 120	2015-06-23
Ethylbenzene		1	mg/kg	0.100	0.0856	86	80 - 120	2015-06-23
Xylene		1	mg/kg	0.300	0.279	93	80 - 120	2015-06-23

### Standard (CCV-1)

QC Batch: 122540

Date Analyzed: 2015-06-23

Analyzed By: AK

				CCVs	CCVs	CCVs	Percent	
				True	Found	Percent	Recovery	Date
Param	Flag	Cert	Units	Conc.	Conc.	Recovery	Limits	Analyzed
GRO		1	mg/Kg	1.00	0.968	97	80 - 120	2015-06-23

#### Standard (CCV-2)

QC Batch: 122540

 $Date \ Analyzed: \ \ 2015\text{-}06\text{-}23$ 

Analyzed By: AK

				$\mathrm{CCVs}$	CCVs	$\mathrm{CCVs}$	Percent	
				True	Found	Percent	Recovery	Date
Param	Flag	Cert	Units	Conc.	Conc.	Recovery	Limits	Analyzed
GRO		1	mg/Kg	1.00	0.964	96	80 - 120	2015-06-23

Report Date: June 23, 2015 Work Order: 15061712 Page Number: 20 of 22

7250715022.001 30137 #3

Standard (CCV-2)

QC Batch: 122545 Date Analyzed: 2015-06-23 Analyzed By: SC

 $\mathrm{CCVs}$  $\mathrm{CCVs}$  $\mathrm{CCVs}$ Percent True Found Percent Recovery Date Param Flag Cert Units Conc. Conc. Analyzed Recovery Limits  $\overline{\mathrm{DRO}}$ mg/Kg 250 243 97 80 - 120 2015-06-23

Standard (CCV-3)

QC Batch: 122545 Date Analyzed: 2015-06-23 Analyzed By: SC

 $\mathrm{CCVs}$  $\mathrm{CCVs}$ CCVsPercent True Found Percent Recovery Date Conc. Param Flag  $\operatorname{Cert}$ Units  ${\rm Conc.}$ Recovery Limits Analyzed  $\overline{\mathrm{DRO}}$ 250 249 100 80 - 120 2015-06-23 1 mg/Kg

Page Number: 21 of 22

Report Date: June 23, 2015 Work Order: 15061712

 $7250715022.001 \hspace{30137 \# 3}$ 

# **Appendix**

## Report Definitions

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

### **Laboratory Certifications**

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

Report Date: June 23, 2015 7250715022.001

Work Order: 15061712 30137 # 3

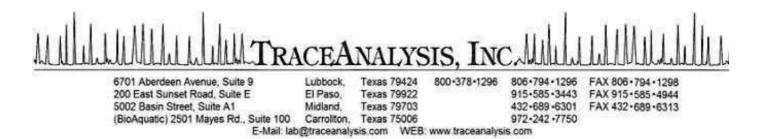
Page Number: 22 of 22

The scanned attachments will follow this page.

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

WO #5 (506/1/12	CHAIN OF CUSTODY RECORD
A DEX	Lab use only Due Date:
Office Location Michigan Routect:	Temp. of coolers ` when received (C°):
	of
Sampler's Name Sampler's Signature	
Proj. No. Project Name NorType of Containers	
1 dentifying Marks of Sample(s) at the De Second S	Lab Sample ID (Lab Use Only)
	204993
1 00 × Brg-2 Will 1	30592
AXX WAY	395994
sh 🗆 50% Rush 🗀 100% Rush	
Date: Time: Received by: (Signature) Date: Time:	
Relinquished by (Signature) Date: Time: Received by: (Signature) Date: Time:	
Relinquished by (Signature) Date: Time: Received by: (Signature) Date: Time:	
Matrix WW - Wastewater W - Water S - Soil SD - Solid L - Liquid A - Air Bag C - Charcoal tube SL - sludge Container VOA - 40 ml vial A/G - Amber / Or Glass 1 Liter 250 ml - Glass wide mouth P/O - Plastic or other	IO-0

Apex TITAN, Inc. • 505 N. Big Springs Drive, Suite 301A • Midland, Texas 79701 • Office: 432-695-6016



#### 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

Work Order: 15061711

Work Order: 15061711

Report Date: June 23, 2015

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.

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

# Report Contents

5
6 7 8 10 11 13
15 15 15 15 15 16 16
17 17 17 17 18 18 19
20 20 20 20 21 21 22
23 23 23 23 23 23 24 24 24 25 25

QC Batch 122545 - CCV (2)		
Appendix	:	27
Report Definitions		27
Laboratory Certifications		27
Standard Flags		27
Attachments		28

## Case Narrative

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

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

		$\operatorname{Prep}$	$\operatorname{Prep}$	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
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.

Report Date: June 23, 2015 Work Order: 15061711 Page Number: 6 of 28

7250715053 30137 #4

# **Analytical Report**

Sample: 395914 - N-Wall

Laboratory: Midland

Analysis: BTEX Analytical Method: S 8021B Prep Method: S 5035 QC Batch: 122488 Date Analyzed: 2015-06-20 Analyzed By: AK103596 Sample Preparation: Prep Batch: 2015-06-19 Prepared By: AK

RLUnits Dilution Parameter Flag Cert Result RLBenzene < 0.0200 mg/Kg 0.0200 1 U 5 Toluene 1 < 0.0200 mg/Kg 0.0200U 5 1 Ethylbenzene mg/Kg0.0200< 0.0200 Qs, U5 Xylene < 0.0200 mg/Kg 1 0.0200U

						$\operatorname{Spike}$	Percent	Recovery
Surrogate	Flag	$\operatorname{Cert}$	Result	Units	Dilution	Amount	Recovery	Limits
Trifluorotoluene (TFT)			1.86	mg/Kg	1	2.00	93	70 - 130
4-Bromofluorobenzene (4-BFB)			1.95	mg/Kg	1	2.00	98	70 - 130

Sample: 395914 - N-Wall

Laboratory: Midland

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

Sample: 395914 - N-Wall

Laboratory: Midland

Analysis: TPH DRO - NEW Analytical Method: S 8015 D Prep Method: N/AQC Batch: SC122545 Date Analyzed: 2015-06-23 Analyzed By: Prep Batch: 103612 Sample Preparation: 2015-06-19 Prepared By: SC

Page Number: 7 of 28

Report Date: June 23, 2015

Work Order: 15061711

7250715053 30137 #4

						Spike	Percent	Recovery
Surrogate	Flag	$\operatorname{Cert}$	Result	Units	Dilution	Amount	Recovery	Limits
n-Tricosane			61.2	mg/Kg	1	50.0	122	70 - 130

#### Sample: 395914 - N-Wall

Laboratory: Midland

Analysis: TPH GRO Analytical Method: S 8015 D Prep Method: S 5035 QC Batch: 122489 Date Analyzed: 2015-06-20 Analyzed By: AKPrep Batch: 103596 Sample Preparation: 2015-06-19 Prepared By: AK

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

#### Sample: 395915 - W-Wall

Laboratory: Midland

Analysis: BTEX Analytical Method: S 5035 S 8021BPrep Method: 122488 QC Batch: Date Analyzed: 2015 - 06 - 20Analyzed By: AK2015-06-19 Prep Batch: 103596 Sample Preparation: Prepared By: AK

RLResult Parameter Flag Cert Units Dilution RLBenzene < 0.0200 mg/Kg 1 0.0200 U 5 Toluene 0.0221mg/Kg1 0.02005 Ethylbenzene 0.0389mg/Kg1 0.0200Qs 5 mg/Kg1 0.0200Xylene 0.0681

						$_{ m Spike}$	Percent	Recovery
Surrogate	Flag	$\operatorname{Cert}$	Result	Units	Dilution	Amount	Recovery	Limits
Trifluorotoluene (TFT)			1.84	mg/Kg	1	2.00	92	70 - 130
4-Bromofluorobenzene (4-BFB)			1.95	mg/Kg	1	2.00	98	70 - 130

Report Date: June 23, 2015 Work Order: 15061711 Page Number: 8 of 28

7250715053 30137 #4

#### Sample: 395915 - W-Wall

Laboratory: Midland

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

#### Sample: 395915 - W-Wall

Laboratory: Midland

Analysis: TPH DRO - NEW Analytical Method: S 8015 D Prep Method: N/AQC Batch: 2015 - 06 - 23122545Date Analyzed: Analyzed By: SCPrep Batch: 103612 Sample Preparation: 2015-06-19 Prepared By: SC

						Spike	Percent	Recovery
Surrogate	Flag	Cert	Result	Units	Dilution	Amount	Recovery	Limits
n-Tricosane			53.9	${ m mg/Kg}$	1	50.0	108	70 - 130

#### Sample: 395915 - W-Wall

Laboratory: Midland

Analysis: TPH GRO Analytical Method: S 8015 D Prep Method: S 5035 QC Batch: 122489 Date Analyzed: 2015-06-20 Analyzed By: AK Prep Batch: 103596 Sample Preparation: 2015-06-19 Prepared By: AK

						Spike	Percent	Recovery
Surrogate	Flag	$\operatorname{Cert}$	Result	Units	Dilution	Amount	Recovery	Limits
Trifluorotoluene (TFT)			2.30	mg/Kg	1	2.00	115	70 - 130
4-Bromofluorobenzene (4-BFB)			2.12	$\mathrm{mg}/\mathrm{Kg}$	1	2.00	106	70 - 130

Report Date: June 23, 2015

Work Order: 15061711 30137 #4

7250715053

#### Sample: 395916 - E-Wall

Laboratory: Midland

Analysis: BTEX Analytical Method: S 8021B QC Batch: 122488 Date Analyzed: 2015-06-20 Prep Batch: 103596 Sample Preparation: 2015-06-19 Prep Method: S 5035 Analyzed By: AK Prepared By: AK

Page Number: 9 of 28

			$\operatorname{RL}$			
Parameter	Flag	Cert	Result	Units	Dilution	RL
Benzene	U	5	< 0.0200	m mg/Kg	1	0.0200
Toluene		5	0.0231	$\mathrm{mg}/\mathrm{Kg}$	1	0.0200
Ethylbenzene	Qs	5	0.0528	$\mathrm{mg}/\mathrm{Kg}$	1	0.0200
Xylene		5	0.0585	$\mathrm{mg/Kg}$	1	0.0200

						$\operatorname{Spike}$	Percent	Recovery
Surrogate	Flag	$\operatorname{Cert}$	Result	Units	Dilution	Amount	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: 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 Prepared By: Prep Batch: 103564 Sample Preparation: 2015-06-18 AK

#### Sample: 395916 - E-Wall

Laboratory: Midland

Analysis: TPH DRO - NEW Analytical Method: S 8015 D Prep Method: N/AQC Batch: 122545 Date Analyzed: 2015-06-23 Analyzed By: SCPrep Batch: 103612 Sample Preparation: 2015 - 06 - 19Prepared By: SC

						Spike	Percent	Recovery
Surrogate	Flag	$\operatorname{Cert}$	Result	Units	Dilution	Amount	Recovery	Limits
n-Tricosane			64.6	$\mathrm{mg}/\mathrm{Kg}$	1	50.0	129	70 - 130

Report Date: June 23, 2015 Work Order: 15061711 Page Number: 10 of 28

7250715053 30137 #4

#### Sample: 395916 - E-Wall

Laboratory: Midland

Analysis: TPH GRO Analytical Method: S 8015 D Prep Method: S 5035 QC Batch: 122489 Date Analyzed: 2015-06-20 Analyzed By: AK Prep Batch: 103596 Sample Preparation: 2015-06-19 Prepared By: AK

						Spike	Percent	Recovery
Surrogate	Flag	$\operatorname{Cert}$	Result	Units	Dilution	Amount	Recovery	Limits
Trifluorotoluene (TFT)			2.33	mg/Kg	1	2.00	116	70 - 130
4-Bromofluorobenzene (4-BFB)			2.13	$\mathrm{mg}/\mathrm{Kg}$	1	2.00	106	70 - 130

#### Sample: 395917 - S-Wall

Laboratory: Midland

Analysis: **BTEX** Analytical Method:  $S_{8021B}$ Prep Method: S 5035QC Batch: 122488 Date Analyzed: 2015-06-20 Analyzed By: AK2015-06-19 Prep Batch: 103596 Sample Preparation: Prepared By: AK

RLFlag Parameter Cert Result Units Dilution RL0.0200 Benzene < 0.0200 mg/Kg 1 U 5 Toluene < 0.0200 mg/Kg1 0.0200 U 5 Ethylbenzene < 0.0200 mg/Kg1 0.0200Qs, U5 < 0.0200 mg/Kg1 0.0200Xylene U

						$_{\mathrm{Spike}}$	Percent	Recovery
Surrogate	Flag	$\operatorname{Cert}$	Result	Units	Dilution	Amount	Recovery	Limits
Trifluorotoluene (TFT)			2.01	mg/Kg	1	2.00	100	70 - 130
4-Bromofluorobenzene (4-BFB)			2.03	$\mathrm{mg}/\mathrm{Kg}$	1	2.00	102	70 - 130

#### Sample: 395917 - S-Wall

Laboratory: Midland

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

 $\overline{continued}$  . . .

Report Date: June 23, 2015 Work Order: 15061711 Page Number: 11 of 28

7250715053 30137 #4

sample 395917 continued ...

			RL			
Parameter	Flag	Cert	Result	Units	Dilution	RL
			$\operatorname{RL}$			
Parameter	Flag	Cert	Result	Units	Dilution	RL
Chloride	U		< 20.0	mg/Kg	5	4.00

#### Sample: 395917 - S-Wall

Laboratory: Midland

Analysis: TPH DRO - NEW Analytical Method: S 8015 D Prep Method: N/A QC Batch: 122545Date Analyzed: 2015-06-23 Analyzed By: SCPrep Batch: 103612 Sample Preparation: 2015 - 06 - 19Prepared By: SC

						Spike	Percent	Recovery
Surrogate	Flag	$\operatorname{Cert}$	Result	Units	Dilution	Amount	Recovery	Limits
n-Tricosane			56.2	mg/Kg	1	50.0	112	70 - 130

#### Sample: 395917 - S-Wall

Laboratory: Midland

Analysis: TPH GRO Analytical Method: S 8015 D Prep Method: S 5035 QC Batch: 122489 Date Analyzed: 2015-06-20 Analyzed By: AKPrep Batch: 103596 Sample Preparation: 2015-06-19 Prepared By: AK

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

Report Date: June 23, 2015

Work Order: 15061711

7250715053 30137 #4

Page Number: 12 of 28

#### Sample: 395918 - RP

Laboratory: Midland

Analysis: BTEX Analytical Method: S 8021B QC Batch: 122488 Date Analyzed: 2015-06-20 Prep Batch: 103596 Sample Preparation: 2015-06-19 Prep Method: S 5035 Analyzed By: AK Prepared By: AK

			RL			
Parameter	Flag	Cert	Result	Units	Dilution	RL
Benzene	U	5	< 0.0200	m mg/Kg	1	0.0200
Toluene	U	5	< 0.0200	$\mathrm{mg}/\mathrm{Kg}$	1	0.0200
Ethylbenzene	$Q_s, U$	5	< 0.0200	$\mathrm{mg}/\mathrm{Kg}$	1	0.0200
Xvlene	ŢJ	5	< 0.0200	mg/Kg	1	0.0200

						$_{ m Spike}$	Percent	Recovery
Surrogate	Flag	$\operatorname{Cert}$	Result	Units	Dilution	Amount	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) 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

#### Sample: 395918 - RP

Laboratory: Midland

Analysis: TPH DRO - NEW Analytical Method: S 8015 D Prep Method: N/AQC Batch: 122545 Date Analyzed: 2015-06-23 Analyzed By: SCPrep Batch: 103612 Sample Preparation: 2015 - 06 - 19Prepared By: SC

						Spike	Percent	Recovery
Surrogate	$\operatorname{Flag}$	Cert	Result	Units	Dilution	Amount	Recovery	Limits
n-Tricosane			58.0	mg/Kg	1	50.0	116	70 - 130

Report Date: June 23, 2015 Work Order: 15061711 Page Number: 13 of 28

7250715053 30137 #4

#### Sample: 395918 - RP

Laboratory: Midland

Analysis: TPH GRO Analytical Method: S 8015 D Prep Method: S 5035 QC Batch: 122489 Date Analyzed: 2015-06-20 Analyzed By: AK Prep Batch: 103596 Sample Preparation: 2015-06-19 Prepared By: AK

						Spike	Percent	Recovery
Surrogate	Flag	$\operatorname{Cert}$	Result	Units	Dilution	Amount	Recovery	Limits
Trifluorotoluene (TFT)			2.42	mg/Kg	1	2.00	121	70 - 130
4-Bromofluorobenzene (4-BFB)			2.08	$\mathrm{mg}/\mathrm{Kg}$	1	2.00	104	70 - 130

#### Sample: 395919 - STP

Laboratory: Midland

Analysis: **BTEX** Analytical Method:  $S_{8021B}$ Prep Method: S 5035QC Batch: 122488 Date Analyzed: 2015-06-20 Analyzed By: AK2015-06-19 Prep Batch: 103596 Sample Preparation: Prepared By: AK

RLFlag Result Parameter Cert Units Dilution RL0.02480.0200 Benzene mg/Kg 1 5 Toluene 0.777mg/Kg1 0.0200 5 Ethylbenzene 1.13 mg/Kg1 0.0200Qs 5 1.22 mg/Kg1 0.0200Xylene

							$\operatorname{Spike}$	Percent	Recovery
Surrogate		Flag	$\operatorname{Cert}$	Result	Units	Dilution	Amount	Recovery	Limits
Trifluorotoluene (TFT)				1.71	mg/Kg	1	2.00	86	70 - 130
4-Bromofluorobenzene (4-BFB)	$_{\mathrm{Qsr}}$	$_{\mathrm{Qsr}}$		3.35	$\mathrm{mg}/\mathrm{Kg}$	1	2.00	168	70 - 130

#### Sample: 395919 - STP

Laboratory: Midland

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

 $\overline{continued \dots}$ 

Report Date: June 23, 2015 Work Order: 15061711 Page Number: 14 of 28 7250715053 30137 #4

sample 395919 continued ...

			$\operatorname{RL}$			
Parameter	Flag	Cert	Result	Units	Dilution	RL
			$\operatorname{RL}$			
Parameter	Flag	Cert	Result	Units	Dilution	RL
Chloride	Qs		588	m mg/Kg	5	4.00

#### Sample: 395919 - STP

Laboratory: Midland

Analysis: TPH DRO - NEW Analytical Method: S 8015 D Prep Method: N/A QC Batch: 122545Date Analyzed: 2015-06-23 Analyzed By: SCPrep Batch: 103612 Sample Preparation: 2015 - 06 - 19Prepared By: SC

						$_{ m Spike}$	Percent	Recovery
Surrogate	Flag	Cert	Result	Units	Dilution	Amount	Recovery	Limits
n-Tricosane			60.6	$\mathrm{mg}/\mathrm{Kg}$	1	50.0	121	70 - 130

#### Sample: 395919 - STP

Laboratory: Midland

Analysis: TPH GRO Analytical Method: S 8015 D Prep Method: S 5035 QC Batch: 122489 Date Analyzed: 2015-06-20 Analyzed By: AKPrep Batch: 103596 Sample Preparation: 2015-06-19 Prepared By: AK

							$_{ m Spike}$	Percent	Recovery
Surrogate		Flag	$\operatorname{Cert}$	Result	Units	Dilution	Amount	Recovery	Limits
Trifluorotoluene (TFT)				2.00	mg/Kg	1	2.00	100	70 - 130
4-Bromofluorobenzene (4-BFB)	$_{\mathrm{Qsr}}$	$_{\mathrm{Qsr}}$		7.56	mg/Kg	1	2.00	378	70 - 130

Report Date: June 23, 2015 Work Order: 15061711 Page Number: 15 of 28

7250715053 30137 #4

# Method Blanks

Method Blank (1) QC Batch: 122418

QC Batch: 122418 Date Analyzed: 2015-06-18 Analyzed By: AK
Prep Batch: 103564 QC Preparation: 2015-06-18 Prepared By: AK

Method Blank (1) QC Batch: 122419

QC Batch: 122419 Date Analyzed: 2015-06-18 Analyzed By: AK
Prep Batch: 103564 QC Preparation: 2015-06-18 Prepared By: AK

Method Blank (1) QC Batch: 122475

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

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 Report Date: June 23, 2015 Work Order: 15061711 Page Number: 16 of 28

7250715053 30137 #4

				MDL		
Parameter	Flag	Cert		Result	Units	RL
Benzene		5		< 0.00533	mg/Kg	0.02
Toluene		5		< 0.00645	m mg/Kg	0.02
Ethylbenzene		5		< 0.0116	m mg/Kg	0.02
Xylene		5		< 0.00874	m mg/Kg	0.02
Common and a	FI C	1t D1t	TT:4	D:14:	Spike Percent	Recovery

						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	$\mathrm{mg}/\mathrm{Kg}$	1	2.00	104	70 - 130

Method Blank (1) QC Batch: 122489

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

Surrogate	Flag	Cert	Result	Units	Dilution	Spike Amount	Percent Recovery	Recovery Limits
Trifluorotoluene (TFT)			2.41	mg/Kg	1	2.00	120	70 - 130
4-Bromofluorobenzene (4-BFB)			2.06	mg/Kg	1	2.00	103	70 - 130

Method Blank (1) QC Batch: 122545

QC Batch: 122545 Date Analyzed: 2015-06-23 Analyzed By: SC Prep Batch: 103612 QC Preparation: 2015-06-19 Prepared By: SC

						$\operatorname{Spike}$	Percent	Recovery
Surrogate	Flag	$\operatorname{Cert}$	Result	Units	Dilution	Amount	Recovery	Limits
n-Tricosane			57.1	mg/Kg	1	50.0	114	70 - 130

Report Date: June 23, 2015 Work Order: 15061711 Page Number: 17 of 28

7250715053 30137 #4

# Laboratory Control Spikes

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

QC Batch: 122418 Date Analyzed: 2015-06-18 Analyzed By: AK Prep Batch: 103564 QC Preparation: 2015-06-18 Prepared By: AK

LCS Spike Matrix Rec. F  $\mathbf{C}$ Dil. Param Result Units Amount Result Limit Rec. Chloride 2350 mg/Kg 5 2500 <19.2 94 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			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: 122419 Date Analyzed: 2015-06-18 Analyzed By: AK Prep Batch: 103564 QC Preparation: 2015-06-18 Prepared By: AK

LCS Spike Matrix Rec.  $\mathbf{C}$ Param Result Units Dil. Amount Result Rec. Limit Chloride 2520 2500 <19.2 101 mg/Kg 5 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			2430	mg/Kg	5	2500	<19.2	97	85 - 115	4	20

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

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

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

Page Number: 18 of 28

Report Date: June 23, 2015

7250715053

Work Order: 15061711

30137 #4

			LCS			Spike	Matrix		Rec.
Param	$\mathbf{F}$	$\mathbf{C}$	Result	Units	Dil.	Amount	Result	Rec.	Limit
Chloride			2560	mg/Kg	5	2500	<19.2	102	85 - 115

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

			LCSD			$_{ m Spike}$	Matrix		Rec.		RPD
Param	$\mathbf{F}$	$\mathbf{C}$	Result	Units	Dil.	Amount	Result	Rec.	Limit	RPD	Limit
Chloride			2370	mg/Kg	5	2500	<19.2	95	85 - 115	8	20

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

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

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

			LCS			Spike	Matrix		Rec.
Param	$\mathbf{F}$	$\mathbf{C}$	Result	Units	Dil.	Amount	Result	Rec.	Limit
Benzene		5	1.99	mg/Kg	1	2.00	< 0.00533	100	70 - 130
Toluene		5	1.88	$\mathrm{mg}/\mathrm{Kg}$	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	mg/Kg	1	2.00	< 0.00645	96	70 - 130	2	20
Ethylbenzene		5	1.78	mg/Kg	1	2.00	< 0.0116	89	70 - 130	1	20
Xylene		5	5.83	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	$\mathrm{mg}/\mathrm{Kg}$	1	2.00	96	94	70 - 130

### Laboratory Control Spike (LCS-1)

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

Page Number: 19 of 28

Report Date: June 23, 2015

7250715053

Work Order: 15061711

30137 # 4

			LCS			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			Spike	Matrix		Rec.		RPD
Param	$\mathbf{F}$	$\mathbf{C}$	Result	Units	Dil.	Amount	Result	Rec.	Limit	RPD	Limit
GRO		5	15.7	mg/Kg	1	20.0	< 2.32	78	70 - 130	7	20

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

	LCS	LCSD			Spike	LCS	LCSD	Rec.
Surrogate	Result	Result	Units	Dil.	Amount	Rec.	Rec.	Limit
Trifluorotoluene (TFT)	2.43	2.40	mg/Kg	1	2.00	122	120	70 - 130
4-Bromofluorobenzene (4-BFB)	2.16	2.13	$\mathrm{mg}/\mathrm{Kg}$	1	2.00	108	106	70 - 130

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

QC Batch: 122545 Date Analyzed: 2015-06-23 Analyzed By: SC Prep Batch: 103612 QC Preparation: 2015-06-19 Prepared By: SC

			LCS			Spike	Matrix		Rec.
Param	$\mathbf{F}$	$\mathbf{C}$	Result	Units	Dil.	Amount	Result	Rec.	Limit
DRO		5	239	mg/Kg	1	250	< 7.41	96	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
DRO		5	249	mg/Kg	1	250	< 7.41	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
n-Tricosane	58.5	61.9	mg/Kg	1	50.0	117	124	70 - 130

Report Date: June 23, 2015 Work Order: 15061711 Page Number: 20 of 28

7250715053 30137 #4

# Matrix Spikes

Matrix Spike (MS-1) Spiked Sample: 396009

QC Batch: 122418 Date Analyzed: 2015-06-18 Analyzed By: AK
Prep Batch: 103564 QC Preparation: 2015-06-18 Prepared By: AK

MS Spike Rec. Matrix F C Limit Param Result Units Dil. Amount Result Rec. Chloride 19700 mg/Kg 5 2500 16600 124 78.9 - 121 Qs

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

MSD RPD Spike Matrix Rec.  $\mathbf{C}$ Dil. Limit RPD Param Result Units Amount Result Rec. Limit Chloride 19900 mg/Kg 5 2500 16600 132 78.9 - 121 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: 396011

QC Batch: 122419 Date Analyzed: 2015-06-18 Analyzed By: AK Prep Batch: 103564 QC Preparation: 2015-06-18 Prepared By: AK

MSSpike Matrix Rec. C Rec. Param Result Units Dil. Amount Result Limit 14800 5 2500 12233 Chloride mg/Kg 103 78.9 - 121

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

MSD RPD Spike Matrix Rec. Param F C Result Units Dil. Amount Result Rec. Limit RPD Limit 15000 2500 12233 78.9 - 12120 Chloride mg/Kg 5 112

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

Matrix Spike (MS-1) Spiked Sample: 395918

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

Page Number: 21 of 28

Report Date: June 23, 2015

7250715053

Work Order: 15061711

30137 #4

			MS			Spike	Matrix		Rec.
Param	F	$\mathbf{C}$	Result	Units	Dil.	Amount	Result	Rec.	Limit
Chloride			2370	mg/Kg	5	2500	<19.2	95	78.9 - 121

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

			MSD			$_{\rm Spike}$	Matrix		Rec.		RPD
Param	$\mathbf{F}$	$\mathbf{C}$	Result	Units	Dil.	Amount	Result	Rec.	Limit	RPD	Limit
Chloride			2370	mg/Kg	5	2500	<19.2	95	78.9 - 121	0	20

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

Matrix Spike (xMS-1) Spiked Sample: 395908

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

				MS			Spike	Matrix		Rec.
Param		$\mathbf{F}$	$\mathbf{C}$	Result	Units	Dil.	Amount	Result	Rec.	Limit
Benzene			5	1.51	mg/Kg	1	2.00	< 0.00533	76	70 - 130
Toluene			5	1.53	mg/Kg	1	2.00	0.0628	73	70 - 130
Ethylbenzene	Qs	$_{ m Qs}$	5	1.42	mg/Kg	1	2.00	0.0413	69	70 - 130
Xylene			5	4.64	mg/Kg	1	6.00	0.0429	77	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		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
Xylene		5	5.35	mg/Kg	1	6.00	0.0429	88	70 - 130	14	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)	1.81	1.92	mg/Kg	1	2	90	96	70 - 130
4-Bromofluorobenzene (4-BFB)	1.92	1.97	$\mathrm{mg}/\mathrm{Kg}$	1	2	96	98	70 - 130

Matrix Spike (xMS-1) Spiked Sample: 395908

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

Page Number: 22 of 28

Report Date: June 23, 2015

7250715053

Work Order: 15061711

30137 # 4

				MS			Spike	Matrix		Rec.
Param		F	$\mathbf{C}$	Result	Units	Dil.	Amount	Result	Rec.	Limit
GRO	Qs	Qs	5	11.8	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.

				MSD			Spike	Matrix		Rec.		RPD
Param		$\mathbf{F}$	$\mathbf{C}$	Result	Units	Dil.	Amount	Result	Rec.	Limit	RPD	Limit
GRO	Qs	Qs	5	13.2	mg/Kg	1	20.0	11.6	8	70 - 130	11	20

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

	MS	MSD			Spike	MS	MSD	Rec.
Surrogate	Result	Result	Units	Dil.	Amount	Rec.	Rec.	Limit
Trifluorotoluene (TFT)	2.26	2.45	mg/Kg	1	2	113	122	70 - 130
4-Bromofluorobenzene (4-BFB)	2.03	2.15	mg/Kg	1	2	102	108	70 - 130

Matrix Spike (MS-1) Spiked Sample: 395908

QC Batch: 122545 Date Analyzed: 2015-06-23 Analyzed By: SC Prep Batch: 103612 QC Preparation: 2015-06-19 Prepared By: SC

			MS			Spike	Matrix		Rec.
Param	$\mathbf{F}$	$\mathbf{C}$	Result	Units	Dil.	Amount	Result	Rec.	Limit
DRO		5	213	mg/Kg	1	250	< 7.41	85	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
DRO	Or.Os	Or.Os	5	163	mg/Kg	1	250	< 7.41	65	70 - 130	27	20

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

	MS	MSD			Spike	MS	MSD	Rec.
Surrogate	Result	Result	Units	Dil.	Amount	Rec.	Rec.	Limit
n-Tricosane	57.2	59.8	mg/Kg	1	50	114	120	70 - 130

Page Number: 23 of 28

Report Date: June 23, 2015 Work Order: 15061711

7250715053 $30137\ \#4$ 

## Calibration Standards

#### Standard (ICV-1)

QC Batch: 122418 Date Analyzed: 2015-06-18 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 Analyzed By: AK

				CCVs	CCVs	CCVs	Percent	
				True	Found	Percent	Recovery	Date
Param	Flag	$\operatorname{Cert}$	Units	Conc.	Conc.	Recovery	Limits	Analyzed
Chloride			mg/Kg	100	100	100	85 - 115	2015-06-18

#### Standard (ICV-1)

QC Batch: 122419 Date Analyzed: 2015-06-18 Analyzed By: AK

				ICVs	ICVs	ICVs	Percent	
				True	Found	Percent	Recovery	Date
Param	Flag	Cert	Units	Conc.	Conc.	Recovery	Limits	Analyzed
Chloride			mg/Kg	100	100	100	85 - 115	2015-06-18

#### Standard (CCV-1)

QC Batch: 122419 Date Analyzed: 2015-06-18 Analyzed By: AK

				CCVs	$\mathrm{CCVs}$	CCVs	Percent	
				True	Found	Percent	Recovery	Date
Param	$\operatorname{Flag}$	$\operatorname{Cert}$	Units	Conc.	Conc.	Recovery	Limits	Analyzed
Chloride			mg/Kg	100	100	100	85 - 115	2015-06-18

Report Date: June 23, 2015 Work Order: 15061711 Page Number: 24 of 28

7250715053 30137 #4

Standard (ICV-1)

QC Batch: 122475 Date Analyzed: 2015-06-19 Analyzed By: AK

				ICVs	ICVs	ICVs	Percent	
				True	Found	Percent	Recovery	Date
Param	Flag	$\operatorname{Cert}$	Units	Conc.	Conc.	Recovery	Limits	Analyzed
Chloride			mg/Kg	100	100	100	85 - 115	2015-06-19

Standard (CCV-1)

QC Batch: 122475 Date Analyzed: 2015-06-19 Analyzed By: AK

				CCVs	$\mathrm{CCVs}$	CCVs	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-2)

QC Batch: 122488 Date Analyzed: 2015-06-20 Analyzed By: AK

				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	$\mathrm{mg/kg}$	0.100	0.0920	92	80 - 120	2015-06-20
Ethylbenzene		5	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 Analyzed: 2015-06-20 Analyzed By: AK

				CCVs True	$\begin{array}{c} { m CCVs} \\ { m Found} \end{array}$	$\begin{array}{c} { m CCVs} \\ { m Percent} \end{array}$	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	mg/kg	0.100	0.0933	93	80 - 120	2015-06-20
Ethylbenzene		5	mg/kg	0.100	0.0887	89	80 - 120	2015-06-20
Xylene		5	mg/kg	0.300	0.289	96	80 - 120	2015-06-20

Report Date: June 23, 2015 Work Order: 15061711 Page Number: 25 of 28

7250715053 30137 #4

Standard (CCV-2)

QC Batch: 122489 Date Analyzed: 2015-06-20 Analyzed By: AK

				CCVs	CCVs	$\mathrm{CCVs}$	Percent	
				True	Found	Percent	Recovery	Date
Param	Flag	Cert	Units	Conc.	Conc.	Recovery	Limits	Analyzed
GRO		5	mg/Kg	1.00	0.940	94	80 - 120	2015-06-20

Standard (CCV-3)

QC Batch: 122489 Date Analyzed: 2015-06-20 Analyzed By: AK

				CCVs	CCVs	CCVs	Percent	
				True	Found	Percent	Recovery	Date
Param	Flag	Cert	Units	Conc.	Conc.	Recovery	Limits	Analyzed
GRO		5	mg/Kg	1.00	0.900	90	80 - 120	2015-06-20

Standard (CCV-1)

QC Batch: 122545 Date Analyzed: 2015-06-23 Analyzed By: SC

				$\mathrm{CCVs}$	$\mathrm{CCVs}$	CCVs	Percent	
				True	Found	Percent	Recovery	Date
Param	Flag	Cert	Units	Conc.	Conc.	Recovery	Limits	Analyzed
DRO		5	mg/Kg	250	275	110	80 - 120	2015-06-23

Standard (CCV-2)

QC Batch: 122545 Date Analyzed: 2015-06-23 Analyzed By: SC

				CCVs	CCVs	$\mathrm{CCVs}$	Percent	
				True	Found	Percent	Recovery	Date
Param	Flag	Cert	Units	Conc.	Conc.	Recovery	Limits	Analyzed
DRO		5	mg/Kg	250	243	97	80 - 120	2015-06-23

Standard (CCV-3)

QC Batch: 122545 Date Analyzed: 2015-06-23 Analyzed By: SC

Report Date: June 23, 2015 7250715053Work Order: 15061711 Page Number: 26 of 28

 $30137 \ \#4$ 

				CCVs	CCVs	CCVs	Percent	
				True	Found	Percent	Recovery	Date
Param	Flag	Cert	Units	Conc.	Conc.	Recovery	Limits	Analyzed
DRO		5	mg/Kg	250	249	100	80 - 120	2015-06-23

Report Date: June 23, 2015 Work Order: 15061711 Page Number: 27 of 28

7250715053 30137 #4

# **Appendix**

## Report Definitions

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

### **Laboratory Certifications**

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

# Standard Flags

- F Description
- B Analyte detected in the corresponding method blank above the method detection limit
- H Analyzed out of hold time
- J Estimated concentration
- Jb The analyte is positively identified and the value is approximated between the SDL and MQL. Sample contains less then ten times the concentration found in the method blank. The result should be considered non-detect to the SDL.
- Je Estimated concentration exceeding calibration range.
- MI1 Split peak or shoulder peak
- MI2 Instrument software did not integrate
- $\mbox{MI3}$   $\,$  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

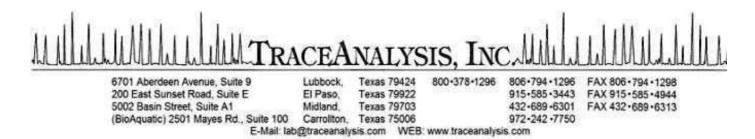
### Attachments

The scanned attachments will follow this page.

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

CHAIN OF CUSTODY RECORD	Lab use only Due Date: Temp. of coolers when received (C°):  1   2   3   4   5  Page. of	Lab Sample ID (Lab Use Only)	395914	39596	395916	394917	395918	399919			- Control of the Cont				O - Oil
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Apex TITAN, Inc. • 505 N. Big Springs Drive, Suite 301A • Midland, Texas 79701 • Office: 432-695-6016



### 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

Work Order: 15061709

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.

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

# Report Contents

Case Narrative	5
Analytical Report	6
Sample 395908 (N-Wall)	6
Sample 395909 (E-Wall)	7
Sample 395910 (S-Wall)	8
Sample 395911 (W-Wall)	10
Sample 395912 (RP)	11
Sample 395913 (STP)	13
Dampie 000010 (D11)	10
Method Blanks	15
QC Batch 122419 - Method Blank (1)	15
QC Batch 122430 - Method Blank (1)	15
QC Batch 122488 - Method Blank (1)	15
QC Batch 122489 - Method Blank (1)	15
QC Batch 122539 - Method Blank (1)	16
QC Batch 122540 - Method Blank (1)	16
· · · · · · · · · · · · · · · · · · ·	17
QC Batch 122545 - Method Blank (1)	11
Laboratory Control Spikes	18
QC Batch 122419 - LCS (1)	18
QC Batch 122430 - LCS (1)	18
QC Batch 122488 - LCS (1)	18
QC Batch 122489 - LCS (1)	19
·	
QC Batch 122539 - LCS (1)	19
QC Batch 122540 - LCS (1)	20
QC Batch 122545 - LCS (1)	21
Matrix Spikes	22
QC Batch 122419 - MS (1)	22
QC Batch 122430 - MS (1)	22
QC Batch 122488 - xMS (1)	22
•	23
QC Batch 122489 - xMS (1)	
QC Batch 122539 - MS (1)	23
QC Batch 122540 - MS (1)	24
QC Batch 122545 - MS (1)	25
Calibration Standards	26
0.00 Pt + 1 400 (40 - 1071 (4)	26
- ' '	
QC Batch 122419 - CCV (1)	26
QC Batch 122430 - ICV (1)	26
QC Batch 122430 - CCV (1)	26
QC Batch 122488 - CCV (1)	26
QC Batch 122488 - CCV (2)	27
QC Batch 122488 - CCV (3)	27
QC Batch 122489 - CCV (1)	27

QC Batch 122489 - CCV (2)	
QC Batch 122489 - CCV (3)	
QC Batch 122539 - CCV (1)	
QC Batch 122539 - CCV (2)	
QC Batch 122540 - CCV (1)	29
QC Batch 122540 - CCV (2)	29
QC Batch 122545 - CCV (1)	29
QC Batch 122545 - CCV (2)	
Appendix	3
Report Definitions	
Laboratory Certifications	
Standard Flags	
Result Comments	35
Attachmanta	96

### 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	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 8021 $B$	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.

Work Order: 15061709 Report Date: June 23, 2015 Page Number: 6 of 32

725071506130137 # 5

# **Analytical Report**

Sample: 395908 - N-Wall

Laboratory: Midland

Analysis: BTEX Analytical Method: S 8021B Prep Method: S 5035 QC Batch: 122539 Date Analyzed: 2015-06-23 Analyzed By: AK103647 Sample Preparation: 2015-06-22 Prep Batch: Prepared By: AK

RLUnits Dilution Parameter Flag Cert Result RLBenzene < 0.0200 mg/Kg 0.0200 1 U 5 Toluene 1 < 0.0200 mg/Kg 0.0200U 5 1 Ethylbenzene mg/Kg0.0200< 0.0200 U Xylene < 0.0200 mg/Kg 1 0.0200U

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

Sample: 395908 - N-Wall

Laboratory: Midland

Analysis: Chloride (Titration) Analytical Method: SM 4500-Cl B Prep Method: N/A QC Batch: 122430 Date Analyzed: 2015-06-18 Analyzed By: AKPrep Batch: 103564 Sample Preparation: 2015-06-18 Prepared By: AK

RLCert Dilution RLParameter Flag Result Units Chloride 193  $\overline{\mathrm{mg/Kg}}$ 5 4.00

Sample: 395908 - N-Wall

Laboratory: Midland

Analysis: TPH DRO - NEW Analytical Method: S 8015 D Prep Method: N/AQC Batch: SC122545 Date Analyzed: 2015-06-23 Analyzed By: Prep Batch: 103612 Sample Preparation: 2015-06-19 Prepared By: SC

RLParameter Flag Cert Result Units Dilution RL $\overline{\mathrm{DRO}}$ < 50.0 mg/Kg 50.0  $_{
m Qr,Qs,U}$ 

S 5035

AK

AK

Page Number: 7 of 32

Report Date: June 23, 2015

7250715061

Work Order: 15061709

 $30137 \ #5$ 

							Spike	Percent	Recovery
Surrogate		Flag	$\operatorname{Cert}$	Result	Units	Dilution	Amount	Recovery	Limits
n-Tricosane	Qsr	Qsr		69.3	mg/Kg	1	50.0	139	70 - 130

Sample: 395908 - N-Wall

Laboratory: Midland

Analysis:TPH GROAnalytical Method:S 8015 DPrep Method:QC Batch:122540Date Analyzed:2015-06-23Analyzed By:Prep Batch:103647Sample Preparation:2015-06-22Prepared By:

						Spike	Percent	Recovery
Surrogate	Flag	$\operatorname{Cert}$	Result	Units	Dilution	Amount	Recovery	Limits
Trifluorotoluene (TFT)			2.42	mg/Kg	1	2.00	121	70 - 130
4-Bromofluorobenzene (4-BFB)			2.10	$\mathrm{mg}/\mathrm{Kg}$	1	2.00	105	70 - 130

Sample: 395909 - E-Wall

Laboratory: Midland

Analysis: BTEX Analytical Method: S 8021B S 5035 Prep Method: QC Batch: 122488 Date Analyzed: 2015 - 06 - 20Analyzed By: AK2015-06-19 Prep Batch: 103596 Sample Preparation: Prepared By: AK

RLResult Parameter Flag Cert Units Dilution RLBenzene < 0.0200 mg/Kg 0.0200 U 5 Toluene < 0.0200 mg/Kg1 0.0200U 5 1 Ethylbenzene < 0.0200mg/Kg0.0200 $_{\mathrm{Qs,U}}$ 5 mg/Kg1 0.0200Xylene U < 0.0200

						Spike	Percent	Recovery
Surrogate	$\operatorname{Flag}$	$\operatorname{Cert}$	Result	Units	Dilution	Amount	Recovery	Limits
Trifluorotoluene (TFT)			2.08	mg/Kg	1	2.00	104	70 - 130
4-Bromofluorobenzene (4-BFB)			2.14	$\mathrm{mg}/\mathrm{Kg}$	1	2.00	107	70 - 130

Report Date: June 23, 2015 Work Order: 15061709 Page Number: 8 of 32

7250715061 30137 #5

### Sample: 395909 - E-Wall

Laboratory: Midland

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

#### Sample: 395909 - E-Wall

Laboratory: Midland

Analysis: TPH DRO - NEW Analytical Method: S 8015 D Prep Method: N/AQC Batch: 2015 - 06 - 23122545Date Analyzed: Analyzed By: SCPrep Batch: 103612 Sample Preparation: 2015-06-19 Prepared By: SC

						Spike	Percent	Recovery
Surrogate	Flag	Cert	Result	Units	Dilution	Amount	Recovery	Limits
n-Tricosane			61.1	${ m mg/Kg}$	1	50.0	122	70 - 130

### Sample: 395909 - E-Wall

Laboratory: Midland

Analysis: TPH GRO Analytical Method: S 8015 D Prep Method: S 5035 QC Batch: 122489 Date Analyzed: 2015-06-20 Analyzed By: AK Prep Batch: 103596 Sample Preparation: 2015-06-19 Prepared By: AK

						$_{ m Spike}$	Percent	Recovery
Surrogate	$\operatorname{Flag}$	$\operatorname{Cert}$	Result	Units	Dilution	Amount	Recovery	Limits
Trifluorotoluene (TFT)			2.46	mg/Kg	1	2.00	123	70 - 130
4-Bromofluorobenzene (4-BFB)			2.13	mg/Kg	1	2.00	106	70 - 130

Report Date: June 23, 2015

Work Order: 15061709

7250715061

30137 # 5

### Sample: 395910 - S-Wall

Laboratory:	Midland
A malregia.	DTFV

Analytical Method: S 8021BAnalysis: BTEX QC Batch: 122488 Date Analyzed: 2015-06-20 Prep Batch: 103596 Sample Preparation: 2015-06-19

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

Page Number: 9 of 32

Parameter	Flag	$\operatorname{Cert}$	Result
			RL

Units Dilution RLBenzene mg/Kg 0.0200 < 0.0200 1 U Toluene < 0.0200mg/Kg1 0.0200U 5 Ethylbenzene mg/Kg1 0.0200 < 0.0200 Qs,Umg/Kg1 Xylene U < 0.0200 0.0200

						Spike	Percent	Recovery
Surrogate	Flag	$\operatorname{Cert}$	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: Midland

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

			RL			
Parameter	Flag	$\operatorname{Cert}$	Result	Units	Dilution	RL
Chloride	U		< 20.0	mg/Kg	5	4.00

### Sample: 395910 - S-Wall

Laboratory: Midland

Analysis: TPH DRO - NEW Analytical Method: S 8015 D Prep Method: N/AQC Batch: 122545 Date Analyzed: 2015-06-23 Analyzed By: SCPrep Batch: 103612 Sample Preparation: 2015-06-19 Prepared By: SC

			RL			
Parameter	Flag	Cert	Result	Units	Dilution	RL
DRO	$_{ m Qr,Qs,U}$	5	< 50.0	mg/Kg	1	50.0

							Spike	Percent	Recovery
Surrogate		Flag	$\operatorname{Cert}$	Result	Units	Dilution	Amount	Recovery	Limits
n-Tricosane	$1_{\mathrm{Qsr}}$	Qsr		135	mg/Kg	1	100	135	70 - 130

Report Date: June 23, 2015 Work Order: 15061709 Page Number: 10 of 32

7250715061 30137 #5

### Sample: 395910 - S-Wall

Laboratory: Midland

Analysis: TPH GRO Analytical Method: S 8015 D Prep Method: S 5035 QC Batch: 122489 Date Analyzed: 2015-06-20 Analyzed By: AK Prep Batch: 103596 Sample Preparation: 2015-06-19 Prepared By: AK

						Spike	Percent	Recovery
Surrogate	Flag	$\operatorname{Cert}$	Result	Units	Dilution	Amount	Recovery	Limits
Trifluorotoluene (TFT)			2.42	mg/Kg	1	2.00	121	70 - 130
4-Bromofluorobenzene (4-BFB)			2.06	$\mathrm{mg}/\mathrm{Kg}$	1	2.00	103	70 - 130

### Sample: 395911 - W-Wall

Laboratory: Midland

Analysis: **BTEX** Analytical Method:  $S_{8021B}$ Prep Method: S 5035QC Batch: 122488 Date Analyzed: 2015-06-20 Analyzed By: AK2015-06-19 Prep Batch: 103596 Sample Preparation: Prepared By: AK

RLParameter Flag Cert Result Units Dilution RL0.0200 Benzene < 0.0200 mg/Kg 1 U 5 Toluene < 0.0200 mg/Kg1 0.0200 U 5 Ethylbenzene < 0.0200 mg/Kg1 0.0200Qs, U5 < 0.0200 mg/Kg1 0.0200Xylene U

						$\operatorname{Spike}$	Percent	Recovery
Surrogate	Flag	$\operatorname{Cert}$	Result	Units	Dilution	Amount	Recovery	Limits
Trifluorotoluene (TFT)			1.79	mg/Kg	1	2.00	90	70 - 130
4-Bromofluorobenzene (4-BFB)			1.90	$\mathrm{mg}/\mathrm{Kg}$	1	2.00	95	70 - 130

#### Sample: 395911 - W-Wall

Laboratory: Midland

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

 $\overline{continued}$  . . .

Report Date: June 23, 2015 Work Order: 15061709 Page Number: 11 of 32

7250715061 30137 #5

sample 395911 continued ...

			RL			
Parameter	Flag	Cert	Result	Units	Dilution	RL
			DI			
			RL			
Parameter	Flag	$\operatorname{Cert}$	Result	Units	Dilution	RL
Chloride	U		< 20.0	mg/Kg	5	4.00

### Sample: 395911 - W-Wall

Laboratory: Midland

Analysis: TPH DRO - NEW Analytical Method: S 8015 D Prep Method: N/A QC Batch: 122545 Date Analyzed: 2015-06-23 Analyzed By: SC Prep Batch: 103612 Sample Preparation: 2015-06-19 Prepared By: SC

			RL			
Parameter	Flag	Cert	Result	Units	Dilution	RL
DRO	Qr,Qs,U	5	< 50.0	$\mathrm{mg}/\mathrm{Kg}$	1	50.0

						$_{ m Spike}$	Percent	Recovery
Surrogate	Flag	Cert	Result	Units	Dilution	Amount	Recovery	Limits
n-Tricosane			63.8	$\mathrm{mg}/\mathrm{Kg}$	1	50.0	128	70 - 130

### Sample: 395911 - W-Wall

Laboratory: Midland

Analysis: TPH GRO Analytical Method: S 8015 D Prep Method: S 5035 QC Batch: 122489 Date Analyzed: 2015-06-20 Analyzed By: AKPrepared By: Prep Batch: 103596 Sample Preparation: 2015-06-19 AK

			$\operatorname{RL}$			
Parameter	Flag	Cert	Result	Units	Dilution	RL
GRO	Qs,U	5	< 4.00	mg/Kg	1	4.00

						$\operatorname{Spike}$	Percent	Recovery
Surrogate	Flag	$\operatorname{Cert}$	Result	Units	Dilution	Amount	Recovery	Limits
Trifluorotoluene (TFT)			2.23	mg/Kg	1	2.00	112	70 - 130
4-Bromofluorobenzene (4-BFB)			1.99	$\mathrm{mg}/\mathrm{Kg}$	1	2.00	100	70 - 130

Report Date: June 23, 2015 Work Order: 15061709 Page Number: 12 of 32

7250715061 30137 #5

### Sample: 395912 - RP

Laboratory: Midland

Analysis:BTEXAnalytical Method:S 8021BQC Batch:122488Date Analyzed:2015-06-20Prep Batch:103596Sample Preparation:2015-06-19

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

			RL			
Parameter	Flag	$\operatorname{Cert}$	Result	Units	Dilution	RL
Benzene	U	5	< 0.0200	m mg/Kg	1	0.0200
Toluene	U	5	< 0.0200	m mg/Kg	1	0.0200
Ethylbenzene	$_{\mathrm{Qs,U}}$	5	< 0.0200	$\mathrm{mg}/\mathrm{Kg}$	1	0.0200
Xylene	U	5	< 0.0200	mg/Kg	1	0.0200

						$\operatorname{Spike}$	Percent	Recovery
Surrogate	Flag	$\operatorname{Cert}$	Result	Units	Dilution	Amount	Recovery	Limits
Trifluorotoluene (TFT)			1.90	mg/Kg	1	2.00	95	70 - 130
4-Bromofluorobenzene (4-BFB)			2.01	mg/Kg	1	2.00	100	70 - 130

#### Sample: 395912 - RP

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 Sample Preparation: Prep Batch: 103564 2015-06-18 Prepared By: AK

### Sample: 395912 - RP

Laboratory: Midland

Analysis: TPH DRO - NEW Analytical Method: S 8015 D Prep Method: N/AQC Batch: 122545 Date Analyzed: 2015-06-23 Analyzed By: SCPrep Batch: 103612 Sample Preparation: 2015 - 06 - 19Prepared By: SC

						Spike	Percent	Recovery
Surrogate	Flag	Cert	Result	Units	Dilution	Amount	Recovery	Limits
n-Tricosane			50.3	mg/Kg	1	50.0	101	70 - 130

Report Date: June 23, 2015 Work Order: 15061709 Page Number: 13 of 32

7250715061 30137 #5

Sample: 395912 - RP

Laboratory: Midland

Analysis: TPH GRO Analytical Method: S 8015 D Prep Method: S 5035 QC Batch: 122489 Date Analyzed: 2015-06-20 Analyzed By: AK Prep Batch: 103596 Sample Preparation: 2015-06-19 Prepared By: AK

						Spike	Percent	Recovery
Surrogate	Flag	$\operatorname{Cert}$	Result	Units	Dilution	Amount	Recovery	Limits
Trifluorotoluene (TFT)			2.36	mg/Kg	1	2.00	118	70 - 130
4-Bromofluorobenzene (4-BFB)			2.07	$\mathrm{mg}/\mathrm{Kg}$	1	2.00	104	70 - 130

Sample: 395913 - STP

Laboratory: Midland

Analysis: **BTEX** Analytical Method:  $S_{8021B}$ Prep Method: S 5035QC Batch: 122488 Date Analyzed: 2015-06-20 Analyzed By: AK2015-06-19 Prep Batch: 103596 Sample Preparation: Prepared By: AK

RLFlag Parameter Cert Result Units Dilution RL0.0200 Benzene < 0.0200 mg/Kg 1 U 5 Toluene < 0.0200 mg/Kg1 0.0200 U 5 Ethylbenzene < 0.0200 mg/Kg1 0.0200Qs, U5 < 0.0200 mg/Kg1 0.0200Xylene U

						$\operatorname{Spike}$	Percent	Recovery
Surrogate	Flag	$\operatorname{Cert}$	Result	Units	Dilution	Amount	Recovery	Limits
Trifluorotoluene (TFT)			1.86	mg/Kg	1	2.00	93	70 - 130
4-Bromofluorobenzene (4-BFB)			1.95	$\mathrm{mg}/\mathrm{Kg}$	1	2.00	98	70 - 130

Sample: 395913 - STP

Laboratory: Midland

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

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Report Date: June 23, 2015 Work Order: 15061709 Page Number: 14 of 32

7250715061 30137 #5

sample 395913 continued ...

			RL			
Parameter	Flag	Cert	Result	Units	Dilution	RL
			$\operatorname{RL}$			
Parameter	Flag	Cert	Result	Units	Dilution	RL
Chloride	U		< 20.0	mg/Kg	5	4.00

### Sample: 395913 - STP

Laboratory: Midland

Analytical Method: Analysis: TPH DRO - NEW S 8015 D Prep Method: N/A QC Batch: 122545Date Analyzed: 2015 - 06 - 23Analyzed By: SCPrep Batch: 103612 Sample Preparation: 2015-06-19 Prepared By: SC

			RL			
Parameter	Flag	$\operatorname{Cert}$	Result	Units	Dilution	RL
DRO	$_{\mathrm{Qr,Qs,U}}$	5	< 50.0	m mg/Kg	1	50.0

						Spike	Percent	Recovery
Surrogate	Flag	$\operatorname{Cert}$	Result	Units	Dilution	Amount	Recovery	Limits
n-Tricosane			62.3	mg/Kg	1	50.0	125	70 - 130

### Sample: 395913 - STP

Laboratory: Midland

Analysis: TPH GRO Analytical Method: S 8015 D Prep Method: S 5035 QC Batch: 122489 Date Analyzed: 2015-06-20 Analyzed By: AKPrepared By: Prep Batch: 103596 Sample Preparation: 2015-06-19 AK

			$\operatorname{RL}$			
Parameter	Flag	Cert	Result	Units	Dilution	RL
GRO	Qs,U	5	< 4.00	mg/Kg	1	4.00

						$_{ m Spike}$	Percent	Recovery
Surrogate	$\operatorname{Flag}$	$\operatorname{Cert}$	Result	Units	Dilution	Amount	Recovery	Limits
Trifluorotoluene (TFT)			2.32	mg/Kg	1	2.00	116	70 - 130
4-Bromofluorobenzene (4-BFB)			2.04	$\mathrm{mg}/\mathrm{Kg}$	1	2.00	102	70 - 130

Report Date: June 23, 2015 Work Order: 15061709 Page Number: 15 of 32

7250715061 30137 #5

### Method Blanks

Method Blank (1) QC Batch: 122419

QC Batch: 122419 Date Analyzed: 2015-06-18 Analyzed By: AK
Prep Batch: 103564 QC Preparation: 2015-06-18 Prepared By: AK

Method Blank (1) QC Batch: 122430

QC Batch: 122430 Date Analyzed: 2015-06-18 Analyzed By: AK Prep Batch: 103564 QC Preparation: 2015-06-18 Prepared By: AK

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

MDL Parameter Cert Units RLFlag Result Benzene < 0.00533 mg/Kg 0.02 Toluene < 0.00645 mg/Kg0.02 5 Ethylbenzene < 0.0116mg/Kg0.025 mg/KgXylene < 0.008740.025

Spike Percent Recovery Flag Dilution Amount Result Units Surrogate Cert Recovery Limits Trifluorotoluene (TFT) 2.00 100 2.00 mg/Kg 1 70 - 1304-Bromofluorobenzene (4-BFB) 2.08mg/Kg 1 2.00104 70 - 130

Report Date: June 23, 2015 Work Order: 15061709 Page Number: 16 of 32

7250715061 $30137 \ #5$ 

Method Blank (1) QC Batch: 122489

122489 QC Batch: Date Analyzed: 2015-06-20 Analyzed By: AK Prepared By: AK

Prep Batch: 103596 QC Preparation: 2015-06-19

MDLParameter Flag Cert Result Units RLGRO < 2.32mg/Kg 4

						$_{ m Spike}$	Percent	Recovery
Surrogate	Flag	Cert	Result	Units	Dilution	Amount	Recovery	Limits
Trifluorotoluene (TFT)			2.41	mg/Kg	1	2.00	120	70 - 130
4-Bromofluorobenzene (4-BFB)			2.06	mg/Kg	1	2.00	103	70 - 130

Method Blank (1) QC Batch: 122539

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

MDLParameter Flag Cert Result Units RLBenzene < 0.00533 mg/Kg 0.02 mg/KgToluene 0.02 < 0.006455 Ethylbenzene mg/Kg0.02 < 0.0116 5 Xylene < 0.00874mg/Kg 0.025

						$_{ m Spike}$	Percent	Recovery
Surrogate	Flag	$\operatorname{Cert}$	Result	Units	Dilution	Amount	Recovery	Limits
Trifluorotoluene (TFT)			1.82	mg/Kg	1	2.00	91	70 - 130
4-Bromofluorobenzene (4-BFB)			1.88	mg/Kg	1	2.00	94	70 - 130

Method Blank (1) QC Batch: 122540

QC Batch: 122540 Date Analyzed: 2015 - 06 - 23Analyzed By: AK Prep Batch: 103647 QC Preparation: 2015 - 06 - 22Prepared By: AK

MDL Flag Cert Units  $\operatorname{RL}$ Parameter Result  $\overline{GRO}$ < 2.32 mg/Kg 5

Report Date: June 23, 2015

Work Order: 15061709

7250715061

30137~#5

C .	151	C .	D 1/	TT '4	D:1 /:	Spike	Percent	Recovery
Surrogate	$\operatorname{Flag}$	$\operatorname{Cert}$	Result	$\operatorname{Units}$	Dilution	Amount	Recovery	Limits
Trifluorotoluene (TFT)			2.33	mg/Kg	1	2.00	116	70 - 130
4-Bromofluorobenzene (4-BFB)			1.99	mg/Kg	1	2.00	100	70 - 130

Method Blank (1) QC Batch: 122545

QC Batch: 122545 Prep Batch: 103612 Date Analyzed: 2015-06-23 QC Preparation: 2015-06-19 Analyzed By: SC Prepared By: SC

Page Number: 17 of 32

MDL Parameter Cent Pagelt

						$_{ m Spike}$	Percent	Recovery
Surrogate	Flag	Cert	Result	Units	Dilution	Amount	Recovery	Limits
n-Tricosane			57.1	${ m mg/Kg}$	1	50.0	114	70 - 130

Report Date: June 23, 2015 Work Order: 15061709 Page Number: 18 of 32

7250715061 30137 #5

## Laboratory Control Spikes

### Laboratory Control Spike (LCS-1)

QC Batch: 122419 Date Analyzed: 2015-06-18 Analyzed By: AK Prep Batch: 103564 QC Preparation: 2015-06-18 Prepared By: AK

LCS Spike Matrix Rec. F  $\mathbf{C}$ Dil. Param Result Units Amount Result Rec. Limit Chloride 2520 mg/Kg 5 2500 <19.2 101 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			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: 122430 Date Analyzed: 2015-06-18 Analyzed By: AK Prep Batch: 103564 QC Preparation: 2015-06-18 Prepared By: AK

LCS Spike Matrix Rec.  $\mathbf{C}$ Param Result Units Dil. Amount Result Rec. Limit Chloride 2320 2500 <19.2 93 mg/Kg 5 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	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

Page Number: 19 of 32

Report Date: June 23, 2015

Work Order: 15061709

7250715061 30137 #5

Param	F	С	LCS Result	Units	Dil.	$\begin{array}{c} {\rm Spike} \\ {\rm Amount} \end{array}$	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	$\mathrm{mg/Kg}$	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			$_{ m Spike}$	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	mg/Kg	1	2.00	< 0.00645	96	70 - 130	2	20
Ethylbenzene		5	1.78	mg/Kg	1	2.00	< 0.0116	89	70 - 130	1	20
Xylene		5	5.83	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	mg/Kg	1	2.00	96	94	70 - 130

### Laboratory Control Spike (LCS-1)

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

			LCS			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			Spike	Matrix		Rec.		RPD
Param	$\mathbf{F}$	$\mathbf{C}$	Result	Units	Dil.	Amount	Result	Rec.	Limit	RPD	Limit
GRO		5	15.7	mg/Kg	1	20.0	< 2.32	78	70 - 130	7	20

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

	LCS	LCSD			Spike	LCS	LCSD	Rec.
Surrogate	Result	Result	Units	Dil.	Amount	Rec.	Rec.	Limit
Trifluorotoluene (TFT)	2.43	2.40	mg/Kg	1	2.00	122	120	70 - 130
4-Bromofluorobenzene (4-BFB)	2.16	2.13	$\mathrm{mg}/\mathrm{Kg}$	1	2.00	108	106	70 - 130

Page Number: 20 of 32

Report Date: June 23, 2015 Work Order: 15061709

7250715061 30137 #5

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

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

			LCS			Spike	Matrix		Rec.
Param	$\mathbf{F}$	$\mathbf{C}$	Result	Units	Dil.	Amount	Result	Rec.	Limit
Benzene		5	1.89	mg/Kg	1	2.00	< 0.00533	94	70 - 130
Toluene		5	1.80	$\mathrm{mg}/\mathrm{Kg}$	1	2.00	< 0.00645	90	70 - 130
Ethylbenzene		5	1.73	mg/Kg	1	2.00	< 0.0116	86	70 - 130
Xylene		5	5.64	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		5	1.93	mg/Kg	1	2.00	< 0.00533	96	70 - 130	2	20
Toluene		5	1.81	mg/Kg	1	2.00	< 0.00645	90	70 - 130	1	20
Ethylbenzene		5	1.74	mg/Kg	1	2.00	< 0.0116	87	70 - 130	1	20
Xylene		5	5.70	mg/Kg	1	6.00	< 0.00874	95	70 - 130	1	20

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

	LCS	LCSD			Spike	LCS	LCSD	Rec.
Surrogate	Result	Result	Units	Dil.	Amount	Rec.	Rec.	$\operatorname{Limit}$
Trifluorotoluene (TFT)	1.86	1.76	mg/Kg	1	2.00	93	88	70 - 130
4-Bromofluorobenzene (4-BFB)	1.83	1.75	mg/Kg	1	2.00	92	88	70 - 130

### Laboratory Control Spike (LCS-1)

QC Batch: 122540 Date Analyzed: 2015-06-23 Analyzed By: AK Prep Batch: 103647 QC Preparation: 2015-06-22 Prepared By: AK

			LCS			Spike	Matrix		Rec.
Param	$\mathbf{F}$	$\mathbf{C}$	Result	Units	Dil.	Amount	Result	Rec.	Limit
GRO		5	15.5	mg/Kg	1	20.0	< 2.32	78	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
GRO		5	15.3	mg/Kg	1	20.0	< 2.32	76	70 - 130	1	20

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

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Report Date: June 23, 2015 Work Order: 15061709 Page Number: 21 of 32

7250715061 30137 #5

control spikes continued								
•	LCS	LCSD			Spike	LCS	LCSD	Rec.
Surrogate	Result	Result	Units	Dil.	Amount	Rec.	Rec.	Limit
	- 20	- 0.0-					- 0.0-	
	LCS	LCSD			$_{ m Spike}$	LCS	LCSD	Rec.
Surrogate	Result	Result	Units	Dil.	Amount	Rec.	Rec.	Limit
Trifluorotoluene (TFT)	2.34	2.35	mg/Kg	1	2.00	117	118	70 - 130
4-Bromofluorobenzene (4-BFB)	2.09	2.12	mg/Kg	1	2.00	104	106	70 - 130

### Laboratory Control Spike (LCS-1)

QC Batch: 122545 Date Analyzed: 2015-06-23 Analyzed By: SC Prep Batch: 103612 QC Preparation: 2015-06-19 Prepared By: SC

			LCS			Spike	Matrix		Rec.
Param	$\mathbf{F}$	$\mathbf{C}$	Result	Units	Dil.	Amount	Result	Rec.	Limit
DRO		5	239	mg/Kg	1	250	< 7.41	96	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
DRO		5	249	mg/Kg	1	250	< 7.41	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
n-Tricosane	58.5	61.9	mg/Kg	1	50.0	117	124	70 - 130

Report Date: June 23, 2015 Work Order: 15061709 Page Number: 22 of 32

7250715061 30137 #5

# Matrix Spikes

Matrix Spike (MS-1) Spiked Sample: 396011

QC Batch: 122419 Date Analyzed: 2015-06-18 Analyzed By: AK
Prep Batch: 103564 QC Preparation: 2015-06-18 Prepared By: AK

MS Spike Matrix Rec. F  $\mathbf{C}$ Dil. Limit Param Result Units Amount Result Rec. Chloride 14800 mg/Kg 5 2500 12233 103 78.9 - 121

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

MSD RPD Spike Matrix Rec. Dil. F  $\mathbf{C}$ Result Limit RPD Param Result Units Amount Rec. Limit 112 Chloride 15000 mg/Kg 5 2500 12233 78.9 - 121 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: 395750

QC Batch: 122430 Date Analyzed: 2015-06-18 Analyzed By: AK Prep Batch: 103564 QC Preparation: 2015-06-18 Prepared By: AK

MSSpike Matrix Rec. C Param Result Units Dil. Amount Result Rec. Limit 10100 2500 7440 Chloride mg/Kg 106 78.9 - 121

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

RPD MSD Spike Matrix Rec. Param F С Result Units Dil. Amount Result Rec. Limit RPD Limit Chloride 9760 2500 7440 78.9 - 12120 mg/Kg

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

Matrix Spike (xMS-1) Spiked Sample: 395908

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

Page Number: 23 of 32

Report Date: June 23, 2015

7250715061

Work Order: 15061709

30137 #5

Param		F	С	${ m MS}$ Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit
Benzene			5	1.51	mg/Kg	1	2.00	< 0.00533	76	70 - 130
Toluene			5	1.53	mg/Kg	1	2.00	0.0628	73	70 - 130
Ethylbenzene	Qs	Qs	5	1.42	mg/Kg	1	2.00	0.0413	69	70 - 130
Xylene			5	4.64	mg/Kg	1	6.00	0.0429	77	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		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
Xylene		5	5.35	mg/Kg	1	6.00	0.0429	88	70 - 130	14	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)	1.81	1.92	mg/Kg	1	2	90	96	70 - 130
4-Bromofluorobenzene (4-BFB)	1.92	1.97	$\mathrm{mg}/\mathrm{Kg}$	1	2	96	98	70 - 130

Matrix Spike (xMS-1) Spiked Sample: 395908

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

				MS			Spike	Matrix		Rec.
Param		$\mathbf{F}$	$\mathbf{C}$	Result	Units	Dil.	Amount	Result	Rec.	Limit
GRO	Qs	Qs	5	11.8	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.

				MSD			Spike	Matrix		Rec.		RPD
Param		$\mathbf{F}$	$\mathbf{C}$	Result	Units	Dil.	Amount	Result	Rec.	Limit	RPD	Limit
GRO	Qs	Qs	5	13.2	mg/Kg	1	20.0	11.6	8	70 - 130	11	20

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

	MS	MSD			Spike	MS	MSD	Rec.
Surrogate	Result	Result	Units	Dil.	Amount	Rec.	Rec.	Limit
Trifluorotoluene (TFT)	2.26	2.45	mg/Kg	1	2	113	122	70 - 130
4-Bromofluorobenzene (4-BFB)	2.03	2.15	$\mathrm{mg}/\mathrm{Kg}$	1	2	102	108	70 - 130

Report Date: June 23, 2015 Work Order: 15061709 Page Number: 24 of 32

7250715061 30137 #5

Matrix Spike (MS-1) Spiked Sample: 395922

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

			MS			Spike	Matrix		Rec.
Param	$\mathbf{F}$	$\mathbf{C}$	Result	Units	Dil.	Amount	Result	Rec.	Limit
Benzene		5	1.78	mg/Kg	1	2.00	< 0.00533	89	70 - 130
Toluene		5	1.72	$\mathrm{mg}/\mathrm{Kg}$	1	2.00	< 0.00645	86	70 - 130
Ethylbenzene		5	1.70	mg/Kg	1	2.00	< 0.0116	85	70 - 130
Xylene		5	5.63	mg/Kg	1	6.00	< 0.00874	94	70 - 130

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

			MSD			Spike	Matrix		Rec.		RPD
Param	$\mathbf{F}$	$\mathbf{C}$	Result	Units	Dil.	Amount	Result	Rec.	Limit	RPD	Limit
Benzene		5	1.66	mg/Kg	1	2.00	< 0.00533	83	70 - 130	7	20
Toluene		5	1.59	mg/Kg	1	2.00	< 0.00645	80	70 - 130	8	20
Ethylbenzene		5	1.59	mg/Kg	1	2.00	< 0.0116	80	70 - 130	7	20
Xylene		5	5.25	mg/Kg	1	6.00	< 0.00874	88	70 - 130	7	20

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

	MS	MSD			Spike	MS	MSD	Rec.
Surrogate	Result	Result	Units	Dil.	Amount	Rec.	Rec.	Limit
Trifluorotoluene (TFT)	1.84	1.89	mg/Kg	1	2	92	94	70 - 130
4-Bromofluorobenzene (4-BFB)	1.92	1.96	mg/Kg	1	2	96	98	70 - 130

Matrix Spike (MS-1) Spiked Sample: 395922

QC Batch: 122540 Date Analyzed: 2015-06-23 Analyzed By: AK Prep Batch: 103647 QC Preparation: 2015-06-22 Prepared By: AK

			MS			Spike	Matrix		Rec.
Param	$\mathbf{F}$	$\mathbf{C}$	Result	Units	Dil.	Amount	Result	Rec.	Limit
GRO		5	14.8	mg/Kg	1	20.0	< 2.32	74	70 - 130

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

				MSD			$_{ m Spike}$	Matrix		Rec.		RPD
Param		F	$\mathbf{C}$	Result	Units	Dil.	Amount	Result	Rec.	Limit	RPD	Limit
GRO	Qs	Qs	5	13.8	mg/Kg	1	20.0	< 2.32	69	70 - 130	7	20

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

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Report Date: June 23, 2015 Work Order: 15061709 Page Number: 25 of 32

7250715061 30137 #5

matrix spikes continued								
·	MS	MSD			Spike	MS	MSD	Rec.
Surrogate	Result	Result	Units	Dil.	Amount	Rec.	Rec.	Limit
	MS	MSD			Spike	MS	MSD	Rec.
Surrogate	Result	Result	Units	Dil.	Amount	Rec.	Rec.	Limit
Trifluorotoluene (TFT)	2.49	2.48	mg/Kg	1	2	124	124	70 - 130
4-Bromofluorobenzene (4-BFB)	2.20	2.21	mg/Kg	1	2	110	110	70 - 130

Matrix Spike (MS-1) Spiked Sample: 395908

QC Batch: 122545 Date Analyzed: 2015-06-23 Analyzed By: SC Prep Batch: 103612 QC Preparation: 2015-06-19 Prepared By: SC

			MS			Spike	Matrix		Rec.
Param	$\mathbf{F}$	$\mathbf{C}$	Result	Units	Dil.	Amount	Result	Rec.	$\operatorname{Limit}$
DRO		5	213	mg/Kg	1	250	< 7.41	85	70 - 130

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

				MSD			$_{\rm Spike}$	Matrix		Rec.		RPD
Param		$\mathbf{F}$	С	Result	Units	Dil.	Amount	Result	Rec.	Limit	RPD	Limit
DRO	$_{ m Qr,Qs}$	Qr,Qs	5	163	mg/Kg	1	250	< 7.41	65	70 - 130	27	20

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

	MS	MSD			Spike	MS	MSD	Rec.
Surrogate	Result	Result	Units	Dil.	Amount	Rec.	Rec.	Limit
n-Tricosane	57.2	59.8	mg/Kg	1	50	114	120	70 - 130

Report Date: June 23, 2015 Work Order: 15061709 Page Number: 26 of 32

7250715061 30137~#5

### Calibration Standards

### Standard (ICV-1)

QC Batch: 122419 Date Analyzed: 2015-06-18 Analyzed By: AK

				ICVs	ICVs	ICVs	Percent	
				True	Found	Percent	Recovery	Date
Param	Flag	Cert	Units	Conc.	Conc.	Recovery	Limits	Analyzed
Chloride			mg/Kg	100	100	100	85 - 115	2015-06-18

### Standard (CCV-1)

QC Batch: 122419 Date Analyzed: 2015-06-18 Analyzed By: AK

				CCVs	$\mathrm{CCVs}$	CCVs	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 (ICV-1)

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

				$\begin{array}{c} { m CCVs} \\ { m True} \end{array}$	$\begin{array}{c} { m CCVs} \\ { m Found} \end{array}$	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

Report Date: June 23, 2015 Work Order: 15061709 Page Number: 27 of 32

 $7250715061 \hspace{30 cm} 30137 \ \#5$ 

Standard (CCV-1)

QC Batch: 122488 Date Analyzed: 2015-06-20 Analyzed By: AK

				CCVs	CCVs	CCVs	Percent	
				True	Found	Percent	Recovery	Date
Param	Flag	Cert	Units	Conc.	Conc.	Recovery	Limits	Analyzed
Benzene		5	mg/kg	0.100	0.0984	98	80 - 120	2015-06-20
Toluene		5	mg/kg	0.100	0.0928	93	80 - 120	2015-06-20
Ethylbenzene		5	mg/kg	0.100	0.0874	87	80 - 120	2015-06-20
Xylene		5	mg/kg	0.300	0.287	96	80 - 120	2015-06-20

Standard (CCV-2)

QC Batch: 122488 Date Analyzed: 2015-06-20 Analyzed By: AK

				CCVs	$\mathrm{CCVs}$	$\mathrm{CCVs}$	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	mg/kg	0.100	0.0920	92	80 - 120	2015-06-20
Ethylbenzene		5	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 Analyzed: 2015-06-20 Analyzed By: AK

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

Standard (CCV-1)

QC Batch: 122489 Date Analyzed: 2015-06-20 Analyzed By: AK

Report Date: June 23, 2015

7250715061

Work Order: 15061709

30137 # 5

				CCVs	CCVs	$\mathrm{CCVs}$	Percent	
				True	Found	Percent	Recovery	Date
Param	Flag	$\operatorname{Cert}$	Units	Conc.	Conc.	Recovery	Limits	Analyzed
GRO		5	mg/Kg	1.00	0.881	88	80 - 120	2015-06-20

### Standard (CCV-2)

QC Batch: 122489

Date Analyzed: 2015-06-20

Analyzed By: AK

Page Number: 28 of 32

				CCVs	CCVs	CCVs	Percent	
				True	Found	Percent	Recovery	Date
Param	Flag	Cert	Units	Conc.	Conc.	Recovery	Limits	Analyzed
GRO		5	mg/Kg	1.00	0.940	94	80 - 120	2015-06-20

### Standard (CCV-3)

QC Batch: 122489

Date Analyzed: 2015-06-20

Analyzed By: AK

				CCVs	CCVs	CCVs	Percent	
				True	Found	Percent	Recovery	Date
Param	Flag	Cert	Units	Conc.	Conc.	Recovery	Limits	Analyzed
GRO		5	mg/Kg	1.00	0.900	90	80 - 120	2015-06-20

### Standard (CCV-1)

QC Batch: 122539

Date Analyzed: 2015-06-23

Analyzed By: AK

				CCVs	$\mathrm{CCVs}$	CCVs	Percent	
				True	Found	Percent	Recovery	Date
Param	Flag	$\operatorname{Cert}$	Units	Conc.	Conc.	Recovery	Limits	Analyzed
Benzene		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
Xylene		5	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

Page Number: 29 of 32

Report Date: June 23, 2015

7250715061

Work Order: 15061709

30137 # 5

				CCVs True	CCVs Found	CCVs Percent	Percent Recovery	Date
Param	Flag	Cert	Units	Conc.	Conc.	Recovery	Limits	Analyzed
Benzene		5	mg/kg	0.100	0.0950	95	80 - 120	2015-06-23
Toluene		5	mg/kg	0.100	0.0905	90	80 - 120	2015-06-23
Ethylbenzene		5	mg/kg	0.100	0.0861	86	80 - 120	2015-06-23
Xylene		5	mg/kg	0.300	0.283	94	80 - 120	2015-06-23

### Standard (CCV-1)

QC Batch: 122540 Date Analyz

Cert

5

Units

mg/Kg

Flag

Date Analyzed: 2015-06-23

CCVs

Found

Conc.

0.968

CCVs

Percent

Recovery

97

 Percent
 Date

 Recovery
 Date

 Limits
 Analyzed

 80 - 120
 2015-06-23

Analyzed By: AK

### Standard (CCV-2)

Param

GRO

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

CCVs

True

Conc.

1.00

				CCVs	CCVs	CCVs	Percent	
				True	Found	Percent	Recovery	Date
Param	Flag	Cert	Units	Conc.	Conc.	Recovery	Limits	Analyzed
GRO		5	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

				$\mathrm{CCVs}$	$\mathrm{CCVs}$	$\mathrm{CCVs}$	Percent	
				True	Found	Percent	Recovery	Date
Param	Flag	Cert	Units	Conc.	Conc.	Recovery	Limits	Analyzed
DRO		5	mg/Kg	250	275	110	80 - 120	2015-06-23

### Standard (CCV-2)

QC Batch: 122545 Date Analyzed: 2015-06-23 Analyzed By: SC

Report Date: June 23, 2015 7250715061Work Order: 15061709Page Number: 30 of 32

 $30137 \ \#5$ 

				CCVs	$\operatorname{CCVs}$	CCVs	Percent	
				True	Found	Percent	Recovery	Date
Param	Flag	Cert	Units	Conc.	Conc.	Recovery	Limits	Analyzed
DRO		5	mg/Kg	250	243	97	80 - 120	2015-06-23

Report Date: June 23, 2015 Work Order: 15061709 Page Number: 31 of 32

7250715061 30137 #5

# Appendix

### Report Definitions

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

### **Laboratory Certifications**

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

### Standard Flags

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

Report Date: June 23, 2015 Work Order: 15061709 Page Number: 32 of 32

7250715061 30137 #5

F Description

Qsr Surrogate 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.

MO # 15061709	CHAIN OF CUSTODY RECORD
Laboratory: AMALYSIS REQUESTED	Lab use only Due Date:
Address:	Temp. of coolers
Office Location / Wrd (Mand ( ) Contact:	when received (C°): 7
B	Pageof
Project Manager Caroltaine TOD PO/SO#:	
15.78 - 1-15.75 - 15.7	
Proj. No. Project Name XXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXX	
ine O E c	Lab Sample ID (Lab Use Only)
1 2 2 2 2 X	395908
	395909
(2)(0)	395910
(240 W - WON)	396911
22 X SE	367013
1300 K STP NA JUVU	395913
1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1	
Rush	
Relinquished by (Signature)  Out   Notes: Received by: (Signature)   Date: Time: Notes: Notes:	
Relinquished by (Signature) Date: Time: Received by: (Signature) Date: Time:	
Relinquished by (Signature) Date: Time: Received by: (Signature) Date: Time:	
WWV - Wastewater W - Water S - Soil SD - Solid L - Liquid A - Air Bag C - Charcoal tube SL - sludge VOA - 40 ml vial A/G - Amber / Or Glass 1 Liter 250 ml - Glass wide mouth P/O - Plastic or other	0-0

Apex TITAN, Inc. • 505 N. Big Springs Drive, Suite 301A • Midland, Texas 79701 • Office: 432-695-6016

# **Analytical Report 522956**

# for APEX/Titan

Project Manager: Karolanne Toby 30137 Pipeline Release 725010112096 28-JAN-16

Collected By: Client





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

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

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

Xenco-Lakeland: Florida (E84098)





28-JAN-16

Project Manager: Karolanne Toby

APEX/Titan

505 N. Big Spring Ste. 301 A

Midland, TX 79701

Reference: XENCO Report No(s): 522956

**30137 Pipeline Release** Project Address: NM

### **Karolanne Toby**:

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

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

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

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

Respectfully,

Mus Hoah

Kelsey Brooks

Project Manager

Recipient of the Prestigious Small Business Administration Award of Excellence in 1994.

Certified and approved by numerous States and Agencies.

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



### **Sample Cross Reference 522956**



### APEX/Titan, Midland, TX

30137 Pipeline Release

Sample Id	Matrix	<b>Date Collected</b>	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
 Report Date:
 28-JAN-16

 Work Order Number(s):
 522956
 Date Received:
 01/15/2016

 $\label{eq:Sample receipt non conformances and comments:} \\$ 

Sample receipt non conformances and comments per sample:

None



#### APEX/Titan, Midland, TX

**Project Name: 30137 Pipeline Release** 

TNI Page 14

**Project Id:** 725010112096

Karolanne Toby

**Project Location:** NM

**Contact:** 

**Date Received in Lab:** Fri Jan-15-16 08:40 am

**Report Date:** 28-JAN-16

Project Manager: Kelsey Brooks

	Lab Id:	522956-0	001	522956-0	02	522956-0	003	522956-0	004	522956-0	05	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 1	11:18	Jan-14-16	11:24	Jan-14-16 1	1:30	Jan-14-16	11:36
BTEX by EPA 8021B	Extracted:	Jan-18-16	09:00	Jan-18-16 0	9:00	Jan-18-16 (	9:00	Jan-18-16 (	09:00	Jan-18-16 0	9:00	Jan-18-16	09:00
	Analyzed:	Jan-18-16	18:57	Jan-18-16 1	2:58	Jan-18-16 1	1:50	Jan-18-16	19:12	Jan-18-16 1	2:07	Jan-18-16	13:14
	Units/RL:	mg/kg	RL	mg/kg	RL	mg/kg	RL	mg/kg	RL	mg/kg	RL	mg/kg	RL
Benzene		0.0142	0.00101	ND (	0.000990	ND	0.000998	0.00150	0.000990	ND	0.000990	ND	0.00101
Toluene		0.0637	0.00202	ND	0.00198	ND	0.00200	ND	0.00198	ND	0.00198	ND	0.00202
Ethylbenzene		0.0147	0.00101	ND (	0.000990	ND	0.000998	ND	0.000990	ND	0.000990	ND	0.00101
m,p-Xylenes		0.122	0.00202	ND	0.00198	ND	0.00200	0.312	0.00198	ND	0.00198	ND	0.00202
o-Xylene		0.0198	0.00101	ND (	0.000990	ND	0.000998	0.193	0.000990	ND	0.000990	ND	0.00101
Total Xylenes		0.142	0.00101	ND (	0.000990	ND	0.000998	0.505	0.000990	ND	0.000990	ND	0.00101
Total BTEX		0.234	0.00101	ND (	0.000990	ND	0.000998	0.507	0.000990	ND	0.000990	ND	0.00101
Inorganic Anions by EPA 300/300.1	Extracted:	Jan-22-16	10:00	Jan-22-16 1	0:00	Jan-22-16 1	0:00	Jan-22-16	10:00	Jan-22-16 1	0:00	Jan-22-16	10:00
	Analyzed:	Jan-26-16	20:02	Jan-26-16 2	0:28	Jan-27-16 1	5:41	Jan-26-16 2	20:53	Jan-26-16 2	1:06	Jan-26-16	21:19
	Units/RL:	mg/kg	RL	mg/kg	RL	mg/kg	RL	mg/kg	RL	mg/kg	RL	mg/kg	RL
Chloride		56.5	2.00	13.7	2.00	6.74	2.00	9.42	2.00	ND	2.00	ND	2.00
TPH by SW 8015B	Extracted:	Jan-19-16	11:30	Jan-19-16 1	1:30	Jan-19-16 1	1:30	Jan-19-16	11:30	Jan-19-16 1	1:30	Jan-19-16	11:30
	Analyzed:	Jan-20-16	02:53	Jan-20-16 0	3:27	Jan-20-16 0	3:59	Jan-21-16	14:12	Jan-20-16 0	5:02	Jan-20-16	05:35
	Units/RL:	mg/kg	RL	mg/kg	RL	mg/kg	RL	mg/kg	RL	mg/kg	RL	mg/kg	RL
C6-C10 Gasoline Range Hydrocarbons		24.3	14.9	ND	15.0	ND	15.0	149	15.0	ND	15.0	ND	14.9
C10-C28 Diesel Range Organics		ND	14.9	40.7	15.0	ND	15.0	300	15.0	101	15.0	ND	14.9
Total TPH		24.3	14.9	40.7	15.0	ND	15.0	449	15.0	101	15.0	ND	14.9

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

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

Kelsey Brooks
Project Manager



#### APEX/Titan, Midland, TX

**Project Name: 30137 Pipeline Release** 

TNI ROBATOR

**Project Id:** 725010112096

Contact: Karolanne Toby
Project Location: NM

**Date Received in Lab:** Fri Jan-15-16 08:40 am

**Report Date:** 28-JAN-16 **Project Manager:** Kelsey Brooks

	Lab Id:	522956-0	007	522956-0	08	522956-0	200	522956-0	10	522956-0	)11	522956-	012
			,,,,										
Analysis Requested	Field Id:	CS-7		CS-8		CS-9		CS-10		CS-11		CS-12	
	Depth:	6 ft		6 ft		10 ft		6 ft		6 ft		10 ft	
	Matrix:	SOIL		SOIL		SOIL	,	SOIL		SOIL		SOIL	
	Sampled:	Jan-14-16 1	1:42	Jan-14-16 1	1:48	Jan-14-16	11:59	Jan-14-16 1	2:00	Jan-14-16	12:03	Jan-14-16	12:06
BTEX by EPA 8021B	Extracted:	Jan-18-16 (	09:00	Jan-18-16 0	9:00	Jan-18-16	09:00	Jan-18-16 0	9:00	Jan-18-16 (	9:00	Jan-18-16	09:00
	Analyzed:	Jan-18-16 1	15:24	Jan-18-16 1	5:41	Jan-18-16	15:57	Jan-18-16 1	6:14	Jan-18-16	16:30	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 1	10:00	Jan-22-16 1	0:00	Jan-22-16	10:00	Jan-22-16 1	0:00	Jan-22-16	10:00	Jan-22-16	10:00
	Analyzed:	Jan-27-16 1	16:18	Jan-26-16 2	2:10	Jan-26-16	16:23	Jan-26-16 2	2:22	Jan-26-16	17:55	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 1	11:30	Jan-20-16 0	9:00	Jan-20-16	09:00	Jan-20-16 0	9:00	Jan-20-16	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 (	02:41	Jan-21-16	03:08
	Units/RL:	mg/kg	RL	mg/kg	RL	mg/kg	RL	mg/kg	RL	mg/kg	RL	mg/kg	RL
C6-C10 Gasoline Range Hydrocarbons		ND	15.0	ND	15.0	ND	15.0	ND	15.0	ND	15.0	ND	14.9
C10-C28 Diesel Range Organics		ND	15.0	ND	15.0	ND	15.0	ND	15.0	ND	15.0	ND	14.9
Total TPH		ND	15.0	ND	15.0	ND	15.0	ND	15.0	ND	15.0	ND	14.9

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

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

Kelsey Brooks Project Manager

Knis Roah



#### APEX/Titan, Midland, TX

**Project Name: 30137 Pipeline Release** 



Project Id: 725010112096 Contact: Karolanne Toby

**Project Location:** NM

**Date Received in Lab:** Fri Jan-15-16 08:40 am

**Report Date:** 28-JAN-16

**Project Manager:** Kelsey Brooks

	Lab Id:	522956-0	013	522956-0	14	522956-0	015	522956-0	016	522956-0	017	
Analysis Requested	Field Id:	CS-13		CS-14		SP-1		SP-2		SP-3		
Analysis Requesieu	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	12:50	Jan-14-16 1	12:59	
BTEX by EPA 8021B	Extracted:	Jan-18-16 (	09:00	Jan-18-16 09	9:00	Jan-18-16 0	9:00	Jan-18-16	09:00	Jan-18-16 (	9:00	
	Analyzed:	Jan-19-16 (	9:47	Jan-18-16 1	7:20	Jan-18-16 1	7:35	Jan-18-16	17:51	Jan-18-16 1	8:41	
	Units/RL:	mg/kg	RL	mg/kg	RL	mg/kg	RL	mg/kg	RL	mg/kg	RL	
Benzene		ND	0.00101	ND 0	0.000992	ND	0.000996	ND	0.000996	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	0.000996	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	0.000992	ND	0.000996	ND	0.000996	ND	0.00101	
Total Xylenes		ND	0.00101	ND 0	0.000992	ND	0.000996	ND	0.000996	ND	0.00101	
Total BTEX		ND	0.00101	ND (	0.000992	ND	0.000996	ND	0.000996	ND	0.00101	
Inorganic Anions by EPA 300/300.1	Extracted:	Jan-22-16	10:00	Jan-22-16 10	0:00	Jan-22-16 1	0:00	Jan-22-16	10:00	Jan-22-16 1	0:00	
	Analyzed:	Jan-26-16	18:20	Jan-26-16 1	8:33	Jan-26-16 1	8:46	Jan-26-16	19:37	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 (	9:00	Jan-20-16 0	9:00	Jan-20-16 0	9:00	Jan-20-16	09:00	Jan-20-16 0	9:00	
	Analyzed:	Jan-21-16 (	)3:37	Jan-21-16 0	3:34	Jan-21-16 1	3:42	Jan-21-16	04:47	Jan-21-16 0	)5:21	
	Units/RL:	mg/kg	RL	mg/kg	RL	mg/kg	RL	mg/kg	RL	mg/kg	RL	
C6-C10 Gasoline Range Hydrocarbons		ND	15.0	ND	15.0	ND	15.0	ND	15.0	ND	15.0	
C10-C28 Diesel Range Organics		ND	15.0	ND	15.0	ND	15.0	ND	15.0	ND	15.0	
Total TPH		ND	15.0	ND	15.0	ND	15.0	ND	15.0	ND	15.0	

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

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

Kelsey Brooks
Project Manager





#### Flagging Criteria



- 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 Limit	SDL Sample Detection Limit	LOD Limit of Detection

PQL Practical Quantitation Limit MQL Method Quantitation Limit LOQ 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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Final 1.000



Project Name: 30137 Pipeline Release

Work Orders: 522956,

Sample: 522956-003 / SMP

**Project ID:** 725010112096

**Lab Batch #:** 985838

Matrix: Soil Batch:

Units:	mg/kg	<b>Date Analyzed:</b> 01/18/16 11:50	SURROGATE RECOVERY STUDY							
	ВТЕ	X by EPA 8021B	Amount Found [A]	True Amount [B]	Recovery %R	Control Limits %R	Flags			
		Analytes			[D]					
1,4-Difluorol	benzene		0.0321	0.0300	107	80-120				
4-Bromofluo	robenzene		0.0296	0.0300	99	80-120				

Lab Batch #: 985838 Sample: 522956-005 / SMP Batch: Matrix: Soil

**Units:** mg/kg Date Analyzed: 01/18/16 12:07 SURROGATE RECOVERY STUDY **Amount** True Control BTEX by EPA 8021B Found Limits Amount Recovery Flags [A] [B] %R %R [D] **Analytes** 1,4-Difluorobenzene 0.0323 0.0300 108 80-120 4-Bromofluorobenzene 0.0300 0.0299 100 80-120

Lab Batch #: 985838 Sample: 522956-002 / SMP Batch: Matrix: Soil

**Units:** mg/kg Date Analyzed: 01/18/16 12:58 SURROGATE RECOVERY STUDY

BTEX by EPA 8021B  Analytes	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
1,4-Difluorobenzene	0.0352	0.0300	117	80-120	
4-Bromofluorobenzene	0.0297	0.0300	99	80-120	

**Lab Batch #:** 985838 Sample: 522956-006 / SMP Batch: Matrix: Soil

Units:	mg/kg	<b>Date Analyzed:</b> 01/18/16 13:14	SU	RROGATE R	ECOVERY S	STUDY	
	ВТЕ	X by EPA 8021B	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
		Analytes			[D]		
1,4-Difluor	robenzene		0.0345	0.0300	115	80-120	
4-Bromoflu	uorobenzene		0.0294	0.0300	98	80-120	

Lab Batch #: 985838 Sample: 522956-007 / SMP Batch: Matrix: Soil

Units:	mg/kg	<b>Date Analyzed:</b> 01/18/16 15:24	SU	RROGATE R	ECOVERY S	STUDY	
	ВТЕ	X by EPA 8021B	Amount Found [A]	True Amount [B]	Recovery %R	Control Limits %R	Flags
		Analytes			[D]		
1,4-Difluor	robenzene		0.0340	0.0300	113	80-120	
4-Bromoflu	uorobenzene		0.0298	0.0300	99	80-120	

<sup>\*</sup> Surrogate outside of Laboratory QC limits

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

<sup>\*\*</sup> Surrogates outside limits; data and surrogates confirmed by reanalysis

<sup>\*\*\*</sup> Poor recoveries due to dilution



Project Name: 30137 Pipeline Release

Work Orders: 522956,

Sample: 522956-008 / SMP

**Project ID:** 725010112096

**Lab Batch #:** 985838

Date Analyzed: 01/18/16 15:41

Matrix: Soil Batch:

Units:	Units: mg/kg Date Analyzed: 01/18/16 15:41 SURROGATE RECOVERY STUDY							
		by EPA 8021B	Amount Found [A]	True Amount [B]	Recovery %R	Control Limits %R	Flags	
		Analytes			[D]			
1,4-Difluorobenz	ene		0.0340	0.0300	113	80-120		
4-Bromofluorobe	enzene		0.0295	0.0300	98	80-120		

Lab Batch #: 985838 Sample: 522956-009 / SMP Batch: Matrix: Soil

**Units:** mg/kg Date Analyzed: 01/18/16 15:57 SURROGATE RECOVERY STUDY **Amount** True Control BTEX by EPA 8021B Found Limits Amount Recovery Flags [A] [B] %R %R [D] **Analytes** 1,4-Difluorobenzene 0.0345 0.0300 115 80-120 4-Bromofluorobenzene 0.0299 0.0300 100 80-120

Lab Batch #: 985838 Sample: 522956-010 / SMP Batch: Matrix: Soil

**Units:** mg/kg Date Analyzed: 01/18/16 16:14 SURROGATE RECOVERY STUDY

BTEX by EPA 8021B  Analytes	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
1,4-Difluorobenzene	0.0335	0.0300	112	80-120	
4-Bromofluorobenzene	0.0295	0.0300	98	80-120	

**Lab Batch #:** 985838 Sample: 522956-011 / SMP Batch: Matrix: Soil

Units:	mg/kg	<b>Date Analyzed:</b> 01/18/16 16:30	SU	RROGATE R	ECOVERY S	STUDY	
	вте	X by EPA 8021B	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
		Analytes			[D]		
1,4-Difluor	robenzene		0.0355	0.0300	118	80-120	
4-Bromoflu	uorobenzene		0.0303	0.0300	101	80-120	

Lab Batch #: 985838 Sample: 522956-012 / SMP Batch: Matrix: Soil

Units:	mg/kg	<b>Date Analyzed:</b> 01/18/16 16:47	SURROGATE RECOVERY STUDY					
	ВТЕ	X by EPA 8021B  Analytes	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags	
1,4-Difluorol	benzene	Marytes	0.0336	0.0300	112	80-120		
4-Bromofluo	robenzene		0.0291	0.0300	97	80-120		

<sup>\*</sup> Surrogate outside of Laboratory QC limits

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

<sup>\*\*</sup> Surrogates outside limits; data and surrogates confirmed by reanalysis

<sup>\*\*\*</sup> Poor recoveries due to dilution



Project Name: 30137 Pipeline Release

Work Orders: 522956,

**Project ID:** 725010112096

**Lab Batch #:** 985838

Sample: 522956-014 / SMP

Matrix: Soil Batch:

Units:	mg/kg	<b>Date Analyzed:</b> 01/18/16 17:20	SURROGATE RECOVERY STUDY					
	ВТЕ	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-Bromoflu	orobenzene		0.0305	0.0300	102	80-120		

Lab Batch #: 985838 Sample: 522956-015 / SMP Batch: Matrix: Soil

**Units:** mg/kg Date Analyzed: 01/18/16 17:35 SURROGATE RECOVERY STUDY **Amount** True Control BTEX by EPA 8021B Found Limits Amount Recovery Flags

[A] [B] %R %R [D] **Analytes** 1,4-Difluorobenzene 0.0283 0.0300 94 80-120 4-Bromofluorobenzene 0.0241 0.0300 80 80-120

Lab Batch #: 985838 Sample: 522956-016 / SMP Batch: Matrix: Soil

**Units:** mg/kg Date Analyzed: 01/18/16 17:51 SURROGATE RECOVERY STUDY

BTEX by EPA 8021B  Analytes	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
1,4-Difluorobenzene	0.0312	0.0300	104	80-120	
4-Bromofluorobenzene	0.0273	0.0300	91	80-120	

**Lab Batch #:** 985838 Sample: 522956-017 / SMP Batch: Matrix: Soil

Units:	mg/kg	<b>Date Analyzed:</b> 01/18/16 18:41	SURROGATE RECOVERY STUDY						
	ВТЕ	X by EPA 8021B  Analytes	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags		
1,4-Difluor	robenzene		0.0276	0.0300	92	80-120			
4-Bromoflu	uorobenzene		0.0241	0.0300	80	80-120			

Lab Batch #: 985838 Sample: 522956-001 / SMP Batch: Matrix: Soil

Units: mg/kg Date Analyzed: 01/18/16 18	ECOVERY S	STUDY			
BTEX by EPA 8021B	Amount Found [A]	True Amount [B]	Recovery %R	Control Limits %R	Flags
Analytes			[D]		
1,4-Difluorobenzene	0.0268	0.0300	89	80-120	
4-Bromofluorobenzene	0.0240	0.0300	80	80-120	

<sup>\*</sup> Surrogate outside of Laboratory QC limits

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

<sup>\*\*</sup> Surrogates outside limits; data and surrogates confirmed by reanalysis

<sup>\*\*\*</sup> Poor recoveries due to dilution



Project Name: 30137 Pipeline Release

Work Orders: 522956,

Sample: 522956-004 / SMP

**Project ID:** 725010112096

**Lab Batch #:** 985838

Matrix: Soil Batch: 1

Units:	mg/kg	<b>Date Analyzed:</b> 01/18/16 19:12	SURROGATE RECOVERY STUDY					
BTEX by EPA 8021B		Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags		
		Analytes			[2]			
1,4-Difluoro	benzene		0.0263	0.0300	88	80-120		
4-Bromofluo	orobenzene		0.0351	0.0300	117	80-120		

Lab Batch #: 985838 Sample: 522956-013 / SMP Batch: 1 Matrix: Soil

**Units:** mg/kg Date Analyzed: 01/19/16 09:47 SURROGATE RECOVERY STUDY **Amount** True Control BTEX by EPA 8021B Found Limits Amount Recovery Flags [A] [B] %R %R [D] **Analytes** 1,4-Difluorobenzene 0.0340 0.0300 113 80-120 4-Bromofluorobenzene 0.0311 0.0300 104 80-120

Lab Batch #: 986082 Sample: 522956-001 / SMP Batch: Matrix: Soil

**Units:** mg/kg Date Analyzed: 01/20/16 02:53 SURROGATE RECOVERY STUDY

TPH by SW 8015B  Analytes	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
1-Chlorooctane	87.5	99.6	88	70-135	
o-Terphenyl	46.6	49.8	94	70-135	

**Lab Batch #:** 986082 Sample: 522956-002 / SMP Batch: Matrix: Soil

Units:	mg/kg	<b>Date Analyzed:</b> 01/20/16 03:27	SURROGATE RECOVERY STUDY						
	TPl	H by SW 8015B  Analytes	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags		
1-Chlorooc	ctane		103	99.9	103	70-135			
o-Terpheny	yl		54.5	50.0	109	70-135			

Lab Batch #: 986082 Sample: 522956-003 / SMP Batch: Matrix: Soil

Units:	mg/kg	<b>Date Analyzed:</b> 01/20/16 03:59	SURROGATE RECOVERY STUDY					
	TP	H by SW 8015B  Analytes	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags	
1-Chlorooct	tane		106	99.7	106	70-135		
o-Terpheny	1		57.1	49.9	114	70-135		

<sup>\*</sup> Surrogate outside of Laboratory QC limits

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

<sup>\*\*</sup> Surrogates outside limits; data and surrogates confirmed by reanalysis

<sup>\*\*\*</sup> Poor recoveries due to dilution



Project Name: 30137 Pipeline Release

Work Orders: 522956,

Sample: 522956-005 / SMP

**Project ID:** 725010112096

Lab Batch #: 986082

Data Analyzad: 01/20/16 05:02

Matrix: Soil Batch:

Units: mg/kg Date Analyzed: 01/20/16 05:02	SURROGATE RECOVERY STUDY							
TPH by SW 8015B	Amount Found [A]	True Amount [B]	Recovery %R	Control Limits %R	Flags			
Analytes			[D]					
1-Chlorooctane	88.8	99.8	89	70-135				
o-Terphenyl	47.1	49.9	94	70-135				

**Lab Batch #:** 986082 Sample: 522956-006 / SMP Batch: 1

Matrix: Soil

**Units:** 

T T---24---

mg/kg

**Date Analyzed:** 01/20/16 05:35

SURROGATE RECOVERY STUDY

TPH by SW 8015B	Amount Found [A]	True Amount [B]	Recovery %R	Control Limits %R	Flags		
Analytes			[D]				
1-Chlorooctane	91.4	99.6	92	70-135			
o-Terphenyl	48.7	49.8	98	70-135			

Lab Batch #: 986082

Sample: 522956-007 / SMP

Batch:

Matrix: Soil

**Units:** 

mg/kg

Date Analyzed: 01/20/16 06:09

SURROGATE RECOVERY STUDY

TPH by SW 8015B  Analytes	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
1-Chlorooctane	93.1	99.8	93	70-135	
o-Terphenyl	49.9	49.9	100	70-135	

**Lab Batch #:** 986086

Sample: 522956-008 / SMP

Batch:

Matrix: Soil

Units:	mg/kg	<b>Date Analyzed:</b> 01/21/16 01:27	SURROGATE RECOVERY STUDY						
	TP	H by SW 8015B  Analytes	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags		
1-Chlorooc	etane		115	99.9	115	70-135			
o-Terpheny	yl		47.7	50.0	95	70-135			

Lab Batch #: 986086

Sample: 522956-009 / SMP

Batch:

Matrix: Soil

Units:	mg/kg	<b>Date Analyzed:</b> 01/21/16 01:51	SU	RROGATE RI	ECOVERY S	STUDY	
	TPI	H by SW 8015B  Analytes	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
1-Chlorood	ctane		115	100	115	70-135	
o-Terpheny	yl		47.2	50.0	94	70-135	

<sup>\*</sup> Surrogate outside of Laboratory QC limits

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

<sup>\*\*</sup> Surrogates outside limits; data and surrogates confirmed by reanalysis

<sup>\*\*\*</sup> Poor recoveries due to dilution



Project Name: 30137 Pipeline Release

Work Orders: 522956,

Sample: 522956-010 / SMP

**Project ID:** 725010112096

**Lab Batch #:** 986086

**Date Analyzed:** 01/21/16 02:16

Matrix: Soil Batch:

Units:	mg/kg	<b>Date Analyzed:</b> 01/21/16 02:16	6 SURROGATE RECOVERY STUDY						
	TPI	I by SW 8015B  Analytes	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags		
1-Chlorooc	tane	,	106	99.8	106	70-135			
o-Terpheny	·l		44.0	49.9	88	70-135			

**Lab Batch #:** 986086 Sample: 522956-011 / SMP Batch: Matrix: Soil

**Units:** mg/kg Date Analyzed: 01/21/16 02:41 SURROGATE RECOVERY STUDY **Amount** True Control TPH by SW 8015B Found Limits Amount Recovery Flags [A] [B] %R %R [D] **Analytes** 1-Chlorooctane 102 100 102 70-135 o-Terphenyl 42.7 50.0 85 70-135

Lab Batch #: 986086 Sample: 522956-012 / SMP Batch: Matrix: Soil

**Units:** mg/kg Date Analyzed: 01/21/16 03:08 SURROGATE RECOVERY STUDY

TPH by SW 8015B  Analytes	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
1-Chlorooctane	104	99.6	104	70-135	
o-Terphenyl	44.1	49.8	89	70-135	

**Lab Batch #:** 986086 Sample: 522956-014 / SMP Batch: Matrix: Soil

Units:	mg/kg	<b>Date Analyzed:</b> 01/21/16 03:34	3:34 SURROGATE RECOVERY STUDY							
	TPI	H by SW 8015B  Analytes	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags			
1-Chlorooc	ctane		106	100	106	70-135				
o-Terpheny	yl		55.7	50.0	111	70-135				

Lab Batch #: 986086 Sample: 522956-013 / SMP Batch: Matrix: Soil

Units:	mg/kg	<b>Date Analyzed:</b> 01/21/16 03:37	SURROGATE RECOVERY STUDY					
	TP	H by SW 8015B	Amount Found [A]	True Amount [B]	Recovery %R	Control Limits %R	Flags	
		Analytes			[D]			
1-Chlorooct	tane		105	99.9	105	70-135		
o-Terpheny	1		44.0	50.0	88	70-135		

<sup>\*</sup> Surrogate outside of Laboratory QC limits

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

<sup>\*\*</sup> Surrogates outside limits; data and surrogates confirmed by reanalysis

<sup>\*\*\*</sup> Poor recoveries due to dilution



Project Name: 30137 Pipeline Release

Work Orders: 522956,

**Project ID:** 725010112096

**Lab Batch #:** 986086

Sample: 522956-016 / SMP

Matrix: Soil Batch: 1

Units:	mg/kg	<b>Date Analyzed:</b> 01/21/16 04:47	SURROGATE RECOVERY STUDY						
	TPI	H by SW 8015B  Analytes	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags		
1-Chlorooct	ane		84.4	99.9	84	70-135			
o-Terphenyl			44.6	50.0	89	70-135			

**Lab Batch #:** 986086

Sample: 522956-017 / SMP

Batch: 1

Matrix: Soil

**Units:** 

mg/kg

Date Analyzed: 01/21/16 05:21

SURROGATE RECOVERY STUDY

TPH by SW 8015B  Analytes	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
1-Chlorooctane	85.2	100	85	70-135	
o-Terphenyl	44.4	50.0	89	70-135	

Lab Batch #: 986086

Sample: 522956-015 / SMP

Batch:

Matrix: Soil

**Units:** 

mg/kg

g <b>Date Analyzed:</b> 01/21/16 13:42	SU	RROGATE R	ECOVERY S	STUDY	
TPH by SW 8015B  Analytes	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
	93.8	99.9	94	70-135	

1-Chlorooctane o-Terphenyl

Lab Batch #: 986082

Sample: 522956-004 / SMP

Batch:

49.5

Matrix: Soil

70-135

50.0

Units:	mg/kg	<b>Date Analyzed:</b> 01/21/16 14:12	SURROGATE RECOVERY STUDY						
	TP	H by SW 8015B  Analytes	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags		
1-Chlorooc	tane		125	100	125	70-135			
o-Terpheny	1		63.6	50.0	127	70-135			

Lab Batch #: 985838

**Sample:** 703579-1-BLK / BLK

Batch:

Matrix: Solid

Units: mg/kg Date Analyzed: 01/18/16 09:05 SURROGATE RECOVERY STUDY							
	ВТЕ	X by EPA 8021B  Analytes	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
1,4-Difluorob	enzene	11mily tes	0.0337	0.0300	112	80-120	
4-Bromofluor	4-Bromofluorobenzene			0.0300	110	80-120	

<sup>\*</sup> Surrogate outside of Laboratory QC limits

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

<sup>\*\*</sup> Surrogates outside limits; data and surrogates confirmed by reanalysis

<sup>\*\*\*</sup> Poor recoveries due to dilution



**Project Name: 30137 Pipeline Release** 

Work Orders: 522956,

**Sample:** 703714-1-BLK / BLK

**Project ID:** 725010112096

**Lab Batch #:** 986082

Sample: 703/14-1-DLK/DLK

Batch: 1 Matrix: Solid

<b>Units:</b>	mg/kg	<b>Date Analyzed:</b> 01/19/16 13:06	SURROGATE RECOVERY STUDY						
	TPH	I by SW 8015B  Analytes	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags		
1-Chlorooct	tane	Analytes	91.7	100	92	70-135			
o-Terpheny			48.2	50.0	96	70-135			

Lab Batch #: 986086 Sample: 703716-1-BLK / BLK Batch: 1 Matrix: Solid

Units:	mg/kg	<b>Date Analyzed:</b> 01/20/16 09:11	SURROGATE RECOVERY STUDY					
	TP	H by SW 8015B  Analytes	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags	
1-Chlorooc	tane		110	100	110	70-135		
o-Terpheny	1		45.9	50.0	92	70-135		

Lab Batch #: 985838 Sample: 703579-1-BKS / BKS Batch: 1 Matrix: Solid

Units: mg/kg Date Analyzed: 01/18/16 08:15 SURROGATE RECOVERY STUDY

BTEX by EPA 8021B  Analytes	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
1,4-Difluorobenzene	0.0334	0.0300	111	80-120	
4-Bromofluorobenzene	0.0334	0.0300	111	80-120	

Lab Batch #: 986082 Sample: 703714-1-BKS / BKS Batch: 1 Matrix: Solid

Units:	mg/kg	<b>Date Analyzed:</b> 01/19/16 13:37	SURROGATE RECOVERY STUDY					
	TPI	H by SW 8015B  Analytes	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags	
1-Chlorood	ctane	v	97.5	100	98	70-135		
o-Terpheny	yl		48.3	50.0	97	70-135		

Lab Batch #: 986086 Sample: 703716-1-BKS / BKS Batch: 1 Matrix: Solid

Units:	mg/kg	<b>Date Analyzed:</b> 01/20/16 09:38	SURROGATE RECOVERY STUDY					
	TP	H by SW 8015B  Analytes	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags	
1-Chlorooct	ane		127	100	127	70-135		
o-Terphenyl			49.6	50.0	99	70-135		

<sup>\*</sup> Surrogate outside of Laboratory QC limits

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

<sup>\*\*</sup> Surrogates outside limits; data and surrogates confirmed by reanalysis

<sup>\*\*\*</sup> Poor recoveries due to dilution



Project Name: 30137 Pipeline Release

Work Orders: 522956,

**Project ID:** 725010112096

Lab Batch #: 985838

**Sample:** 703579-1-BSD / BSD

Matrix: Solid Batch: 1

<b>Units:</b> mg/kg <b>Date Analyzed:</b> 01/18/16 08:32	SURROGATE RECOVERY STUDY					
BTEX by EPA 8021B	Amount Found [A]	True Amount [B]	Recovery %R	Control Limits %R	Flags	
Analytes			[D]			
1,4-Difluorobenzene	0.0338	0.0300	113	80-120		
4-Bromofluorobenzene	0.0326	0.0300	109	80-120		

**Sample:** 703714-1-BSD / BSD **Lab Batch #:** 986082 Batch: Matrix: Solid

Units:	mg/kg	<b>Date Analyzed:</b> 01/19/16 14:04	SURROGATE RECOVERY STUDY					
	TP	H by SW 8015B  Analytes	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags	
1-Chlorooct	tane		93.6	100	94	70-135		
o-Terpheny	1		46.4	50.0	93	70-135		

**Sample:** 703716-1-BSD / BSD Lab Batch #: 986086 Batch: Matrix: Solid

**Date Analyzed:** 01/20/16 10:06 **Units:** mg/kg SURROGATE RECOVERY STUDY

TPH by SW 8015B  Analytes	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
1-Chlorooctane	135	100	135	70-135	
o-Terphenyl	57.3	50.0	115	70-135	

**Lab Batch #:** 985838 **Sample:** 522956-002 S / MS Batch: Matrix: Soil

Units:	mg/kg	<b>Date Analyzed:</b> 01/18/16 13:30	SURROGATE RECOVERY STUDY					
	ВТЕ	X by EPA 8021B  Analytes	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags	
1,4-Difluor	obenzene		0.0335	0.0300	112	80-120		
4-Bromoflu	orobenzene		0.0338	0.0300	113	80-120		

Lab Batch #: 986082 Sample: 522956-007 S / MS Batch: Matrix: Soil

Units:	mg/kg	<b>Date Analyzed:</b> 01/20/16 06:41	SURROGATE RECOVERY STUDY					
	TP	H by SW 8015B  Analytes	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags	
1-Chlorooct	tane		98.1	99.7	98	70-135		
o-Terpheny	1		48.7	49.9	98	70-135		

<sup>\*</sup> Surrogate outside of Laboratory QC limits

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

<sup>\*\*</sup> Surrogates outside limits; data and surrogates confirmed by reanalysis

<sup>\*\*\*</sup> Poor recoveries due to dilution



Project Name: 30137 Pipeline Release

Work Orders: 522956,

**Project ID:** 725010112096

**Lab Batch #:** 986086 Sample: 522956-010 S / MS Batch: 1 Matrix: Soil

Units:	mg/kg	<b>Date Analyzed:</b> 01/21/16 05:57	SURROGATE RECOVERY STUDY					
	TP	H by SW 8015B Analytes	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags	
1-Chlorooct	ane		103	99.6	103	70-135		
o-Terphenyl			49.9	49.8	100	70-135		

**Lab Batch #:** 985838 **Sample:** 522956-002 SD / MSD Batch: 1 Matrix: Soil

Units: mg/kg Date Analyzed: 01/18/16 13:45 SURROGATE RECOVERY STUDY								
BTEX by EPA 8021B		Amount Found [A]	True Amount [B]	Recovery %R	Control Limits %R	Flags		
	Analytes			[D]				
1,4-Difluorobenzene		0.0351	0.0300	117	80-120			
4-Bromofluorobenzen	e	0.0349	0.0300	116	80-120			

Lab Batch #: 986082 Sample: 522956-007 SD / MSD Matrix: Soil Batch:

**Units:** mg/kg Date Analyzed: 01/20/16 07:13 SURROGATE RECOVERY STUDY

TPH by SW 8015B  Analytes	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
1-Chlorooctane	105	100	105	70-135	
o-Terphenyl	51.4	50.0	103	70-135	

**Lab Batch #:** 986086 **Sample:** 522956-010 SD / MSD Batch: 1 Matrix: Soil

Units:	mg/kg	<b>Date Analyzed:</b> 01/21/16 08:14	SU	RROGATE RE	ECOVERY S	STUDY	
	TP	H by SW 8015B  Analytes	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
1-Chlorooc	etane		103	99.7	103	70-135	
o-Terpheny	/l		50.8	49.9	102	70-135	

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

<sup>\*</sup> Surrogate outside of Laboratory QC limits

<sup>\*\*</sup> Surrogates outside limits; data and surrogates confirmed by reanalysis

<sup>\*\*\*</sup> Poor recoveries due to dilution



mg/kg

**Units:** 

#### **BS / BSD Recoveries**

BLANK /BLANK SPIKE / BLANK SPIKE DUPLICATE RECOVERY STUDY



**Project Name: 30137 Pipeline Release** 

Work Order #: 522956 Project ID: 725010112096

Analyst: SYG Date Prepared: 01/18/2016 Date Analyzed: 01/18/2016

Lab Batch ID: 985838Sample: 703579-1-BKSBatch #: 1Matrix: Solid

		DLIM	(IX/DL/II\IX)				DICHTE	MECO 11			
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	< 0.00100	0.100	0.0805	81	0.100	0.0820	82	2	70-130	35	
Toluene	< 0.00200	0.100	0.0810	81	0.100	0.0812	81	0	70-130	35	
Ethylbenzene	< 0.00100	0.100	0.0842	84	0.100	0.0839	84	0	71-129	35	
m,p-Xylenes	< 0.00200	0.200	0.172	86	0.200	0.171	86	1	70-135	35	
o-Xylene	< 0.00100	0.100	0.0852	85	0.100	0.0849	85	0	71-133	35	

Analyst: MNR Date Prepared: 01/22/2016 Date Analyzed: 01/26/2016

Lab Batch ID: 986585 Sample: 703750-1-BKS Batch #: 1 Matrix: Solid

Units: mg/kg BLANK /BLANK SPIKE / BLANK SPIKE DUPLICATE RECOVERY STUDY

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	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**



**Project Name: 30137 Pipeline Release** 

Work Order #: 522956 Project ID: 725010112096

 Analyst:
 PJB
 Date Prepared:
 01/19/2016
 Date Analyzed:
 01/19/2016

**Lab Batch ID:** 986082 **Sample:** 703714-1-BKS **Batch #:** 1 **Matrix:** Solid

Units:	mg/kg	BLANK /BLANK SPIKE / BLANK SPIKE DUPLICATE RECOVERY STUDY
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TPH by SW 8015B  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
C6-C10 Gasoline 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 **Date Prepared:** 01/20/2016 **Date Analyzed:** 01/20/2016

Units: mg/kg BLANK /BLANK SPIKE / BLANK SPIKE DUPLICATE RECOVERY STUDY

TPH by SW 8015B  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
C6-C10 Gasoline 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



Page 162 of 189

**Project Name: 30137 Pipeline Release** 

Work Order #: 522956 **Project ID:** 725010112096

Lab Batch ID:

985838

**QC- Sample ID:** 522956-002 S

Batch #:

Matrix: Soil

Date Analyzed:

01/18/2016

**Date Prepared:** 01/18/2016

Analyst: SYG

**Reporting Units:** 

mg/kg

#### MATRIX SPIKE / MATRIX SPIKE DUPLICATE RECOVERY 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

Batch #:

Matrix: Soil

Date Analyzed:

01/20/2016

**Date Prepared:** 01/19/2016

Analyst: PJB

**Reporting Units:** 

mg/kg

MATRIX SPIKE / MATRIX SPIKE DUPLICATE RECOVERY STUDY

TPH by SW 8015B  Analytes	Parent Sample Result [A]	Spike Added [B]	Spiked Sample Result [C]	Spiked Sample %R [D]	Spike Added [E]	Duplicate Spiked Sample Result [F]	Spiked Dup. %R [G]	RPD %	Control Limits %R	Control Limits %RPD	Flag
C6-C10 Gasoline Range Hydrocarbons	<15.0	997	782	78	1000	724	72	8	70-135	35	
C10-C28 Diesel Range Organics	<15.0	997	918	92	1000	962	96	5	70-135	35	

Lab Batch ID:

986086

**QC- Sample ID:** 522956-010 S

Batch #:

Matrix: Soil

Date Analyzed:

01/21/2016

**Date Prepared:** 01/20/2016

Analyst: PJB

**Reporting Units:** 

mg/kg

MATRIX SPIKE / MATRIX SPIKE DUPLICATE RECOVERY STUDY

1

TPH by SW 8015B  Analytes	Parent Sample Result [A]	Spike Added [B]	Spiked Sample Result [C]	Spiked Sample %R [D]	Spike Added [E]	Duplicate Spiked Sample Result [F]	Spiked Dup. %R [G]	RPD %	Control Limits %R	Control Limits %RPD	Flag
C6-C10 Gasoline Range Hydrocarbons	<14.9	996	845	85	997	794	80	6	70-135	35	
C10-C28 Diesel Range Organics	<14.9	996	942	95	997	968	97	3	70-135	35	

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

Page 21 of 24

Final 1.000

	SL - sludge O - Oil	C - Charcoal tube P/O - Plastic or other		L - Liquid A - Air Bag 250 ml - Glass wide mouth		vv - water S - Soil SD - Solid A/G - Amber / Or Glass 1 Liter	r S - Soi ber / Or Glass	A/G - Amt	vial	VOA - 40 ml vial		Container
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CHAIN OF CUSTODY RECORD												

Apex TITAN, Inc. • 505 N. Big Springs Drive, Suite 301A • Midland, Texas 79701 • Office: 432-695-6016

	0 - Oil	SL - sludge	C - Charcoal tube P/O - Plastic or other		L - Liquid A - Air Bag 250 ml - Glass wide mouth	SD - Solid 1 Liter	W - Water S - Soil SD - Solid A/G - Amber / Or Glass 1 Liter	W - Wate A/G - Arr	WW - Wastewater VOA - 40 ml vial		Container
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# XENCO Laboratories Prelogin/Nonconformance Report- Sample Log-In



Client: APEX/Titan

AFEA/IIIaII

Date/ Time Received: 01/15/2016 08:40:00 AM

Acceptable Temperature Range: 0 - 6 degC Air and Metal samples Acceptable Range: Ambient

Work Order #: 522956 Temperature Measuring device used : r8

Sample Receipt Checklist	t	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 bubble)?	N/A	
#21 <2 for all samples preserved with HNO3,HCL, H2SO4? Except for samples for the analysis of HEM or HEM-SGT which are verified by the analysts.	N/A	
#22 >10 for all samples preserved with NaAsO2+NaOH, ZnAc+NaOH?	N/A	

	. а сар.оо р.ооо. гоа	,	
Must be	completed for after-hours de	livery of samples prior to pla	cing in the refrigerator
Analyst:		PH Device/Lot#:	
	Checklist completed by:	Carley Owens	Date: <u>01/15/2016</u>
	Checklist reviewed by:	Mmy Hoah  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,

**Kelsey Brooks** 

Knus Koah

Project Manager

Recipient of the Prestigious Small Business Administration Award of Excellence in 1994.

Certified and approved by numerous States and Agencies.

A Small Business and Minority Status Company that delivers SERVICE and QUALITY

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



## **Sample Cross Reference 526802**



#### APEX/Titan, Midland, TX

30137 #3, #4, #5

Sample Id	Matrix	<b>Date Collected</b>	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
 Report Date:
 16-MAR-16

 Work Order Number(s):
 526802
 Date Received:
 03/15/2016

Sample receipt non conformances and comments:

Sample receipt non conformances and comments per sample:

None



#### APEX/Titan, Midland, TX

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



Project Id: 725010112096 Contact: Karolanne Toby

**Project Location:** NM

**Date Received in Lab:** Tue Mar-15-16 08:40 am

**Report Date:** 16-MAR-16 **Project Manager:** Kelsey Brooks

		<b>72</b> 500 <b>2</b> 6	204	<b>52</b> 5002 0		72 5002 (		<b>50</b> 500 <b>0</b> 0	0.4	<b>50</b> 5000 /	20.5	<b>50</b> 5000	00.5
	Lab Id:	526802-0		526802-0		526802-0		526802-0		526802-0	)05	526802-	
Analysis Requested	Field Id:	CS-1 (2015)	(RE)	S-Wall (R	E)	CS-2 (2015)	(RE)	R.P. (RE	E)	SP-4		SP-5	
mulysis nequesicu	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	1:35	Mar-14-16	11:52	Mar-14-16 1	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.

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

Kelsey Brooks Project Manager

Knis Roah



725010112096

Karolanne Toby

NM

**Project Id:** 

**Project Location:** 

**Contact:** 

## 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 am

**Report Date:** 16-MAR-16 Project Manager: Kelsey Brooks

	l I		T	1	1	1	I
	Lab Id:	526802-007					
Analysis Requested	Field Id:	SP-6					
Anaiysis Kequesieu	Depth:						
	Matrix:	SOIL					
	Sampled:	Mar-14-16 12:45					
BTEX by EPA 8021B	Extracted:	Mar-15-16 14:00					
	Analyzed:	Mar-16-16 14:52					
	Units/RL:	mg/kg RL					
Benzene		ND 0.00150					
Toluene		0.0140 0.00200					
Ethylbenzene		0.0193 0.00200					
m,p-Xylenes		0.211 0.00200					
o-Xylene		0.0221 0.00300					
Total Xylenes		0.233 0.00200					
Total BTEX		0.266 0.00150					
Inorganic Anions by EPA 300/300.1	Extracted:	Mar-15-16 14:00					
	Analyzed:	Mar-15-16 15:45					
	Units/RL:	mg/kg RL					
Chloride		207 100					
TPH by SW 8015B	Extracted:	Mar-15-16 09:00					
	Analyzed:	Mar-15-16 20:14					
	Units/RL:	mg/kg RL					
C6-C10 Gasoline Range Hydrocarbons	'	198 24.9					
C10-C28 Diesel Range Hydrocarbons		229 24.9					
Total TPH		455 24.9					

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

Knis Roah





#### Flagging Criteria



- 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 Limit	SDL Sample Detection Limit	LOD Limit of Detection

PQL Practical Quantitation Limit MQL Method Quantitation Limit LOQ Limit of Quantitation

**DL** Method Detection Limit

NC Non-Calculable

- + NELAC certification not offered for this compound.
- \* (Next to analyte name or method description) = Outside XENCO's scope of NELAC accreditation

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



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

Work Orders: 526802,

Sample: 526802-001 / SMP

**Project ID:** 725010112096

Lab Batch #: 990381

Date Analyzed: 03/15/16 18:02

Matrix: Soil Batch: 1

Units:	mg/kg	<b>Date Analyzed:</b> 03/15/16 18:02	SURROGATE RECOVERY STUDY					
	TPI	H by SW 8015B  Analytes	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags	
1-Chlorooct	tane		115	100	115	70-130		
o-Terpheny	1		56.7	50.0	113	70-130		

Lab Batch #: 990381 Sample: 526802-003 / SMP Batch: 1 Matrix: Soil

**Units:** mg/kg Date Analyzed: 03/15/16 18:29 SURROGATE RECOVERY STUDY **Amount** True Control TPH by SW 8015B Found Limits Amount Recovery Flags [A] [B] %R %R [D] **Analytes** 1-Chlorooctane 99.7 70-130 116 116 o-Terphenyl 57.3 49.9 115 70-130

Lab Batch #: 990323 Sample: 526802-001 / SMP Batch: Matrix: Soil

**Units:** mg/kg Date Analyzed: 03/15/16 18:42 SURROGATE RECOVERY STUDY

BTEX by EPA 8021B  Analytes	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
1,4-Difluorobenzene	0.0287	0.0300	96	80-120	
4-Bromofluorobenzene	0.0294	0.0300	98	80-120	

**Lab Batch #:** 990323 Sample: 526802-003 / SMP Batch: Matrix: Soil

Units:	mg/kg	<b>Date Analyzed:</b> 03/15/16 18:58	SURROGATE RECOVERY STUDY						
	ВТЕ	X by EPA 8021B  Analytes	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags		
1,4-Difluor	robenzene		0.0285	0.0300	95	80-120			
4-Bromofli	uorobenzene		0.0306	0.0300	102	80-120			

Lab Batch #: 990381 **Sample:** 526802-005 / SMP Batch: Matrix: Soil

Units:	mg/kg	<b>Date Analyzed:</b> 03/15/16 19:21	SURROGATE RECOVERY STUDY						
	TP	H by SW 8015B	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags		
		Analytes			رطا				
1-Chlorooc	ctane		123	99.7	123	70-130			
o-Terpheny	yl		57.1	49.9	114	70-130			

<sup>\*</sup> Surrogate outside of Laboratory QC limits

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

<sup>\*\*</sup> Surrogates outside limits; data and surrogates confirmed by reanalysis

<sup>\*\*\*</sup> Poor recoveries due to dilution



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

Work Orders: 526802,

**Sample:** 526802-006 / SMP

**Project ID:** 725010112096

Lab Batch #: 990381

Matrix: Soil Batch: 1

Units:	mg/kg	<b>Date Analyzed:</b> 03/15/16 19:49	SURROGATE RECOVERY STUDY					
	TP	H by SW 8015B	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags	
		Analytes			[2]			
1-Chlorooct	ane		116	99.8	116	70-130		
o-Terphenyl			56.4	49.9	113	70-130		

Lab Batch #: 990381

Sample: 526802-007 / SMP

Batch: 1 Matrix: Soil

**Units:** 

mg/kg

Date Analyzed: 03/15/16 20:14

SURROGATE RECOVERY STUDY

TPH by SW 8015B  Analytes	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
1-Chlorooctane	114	99.7	114	70-130	
o-Terphenyl	54.7	49.9	110	70-130	

**Lab Batch #:** 990323

Sample: 526802-006 / SMP

Batch:

Matrix: Soil

**Units:** 

mg/kg

Date Analyzed: 03/16/16 11:08

SURROGATE RECOVERY STUDY

BTEX by EPA 8021B  Analytes	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
1,4-Difluorobenzene	0.0342	0.0300	114	80-120	
4-Bromofluorobenzene	0.0338	0.0300	113	80-120	

**Lab Batch #:** 990323

Sample: 526802-007 / SMP

Batch:

Matrix: Soil

Units:	mg/kg	<b>Date Analyzed:</b> 03/16/16 14:52	SURROGATE RECOVERY STUDY					
	ВТЕ	X by EPA 8021B  Analytes	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags	
1,4-Difluor	obenzene		0.0278	0.0300	93	80-120		
4-Bromoflu	orobenzene		0.0325	0.0300	108	80-120		

Lab Batch #: 990323

Sample: 526802-005 / SMP

Batch:

Matrix: Soil

Units: mg/kg Date Analyzed: 03/16/16 15:08 SURROGATE RECOVERY STUDY								
	ВТЕ	X by EPA 8021B	Amount Found [A]	True Amount [B]	Recovery %R	Control Limits %R	Flags	
		Analytes			[D]			
1,4-Difluoro	benzene		0.0242	0.0300	81	80-120		
4-Bromofluo	orobenzene		0.0294	0.0300	98	80-120		

<sup>\*</sup> Surrogate outside of Laboratory QC limits

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

<sup>\*\*</sup> Surrogates outside limits; data and surrogates confirmed by reanalysis

<sup>\*\*\*</sup> Poor recoveries due to dilution



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

Work Orders: 526802,

**Sample:** 706407-1-BLK / BLK

**Project ID:** 725010112096

Lab Batch #: 990381

**Date Analyzed:** 03/15/16 08:42

Matrix: Solid Batch: 1

Units:	mg/kg	<b>Date Analyzed:</b> 03/15/16 08:42	SURROGATE RECOVERY STUDY					
TPH by SW 8015B  Analytes			Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags	
1-Chlorooc	tane		92.7	100	93	70-130		
o-Terphenyl			45.7	50.0	91	70-130		

**Lab Batch #:** 990323 **Sample:** 706394-1-BLK / BLK Batch: 1 Matrix: Solid

Units:	Units: mg/kg Date Analyzed: 03/15/16 14:26 SURROGATE RECOVERY STUDY								
BTEX by EPA 8021B		Amount Found [A]	True Amount [B]	Recovery %R	Control Limits %R	Flags			
		Analytes			[D]				
1,4-Difluor	robenzene		0.0274	0.0300	91	80-120			
4-Bromoflu	uorobenzene		0.0287	0.0300	96	80-120			

**Sample:** 706407-1-BKS / BKS Lab Batch #: 990381 Batch: 1 Matrix: Solid

Date Analyzed: 03/15/16 09:14 **Units:** mg/kg SURROGATE RECOVERY STUDY

TPH by SW 8015B  Analytes	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
1-Chlorooctane	115	100	115	70-130	
o-Terphenyl	50.0	50.0	100	70-130	

**Lab Batch #:** 990323 **Sample:** 706394-1-BKS / BKS Batch: 1 Matrix: Solid

Units:	mg/kg	<b>Date Analyzed:</b> 03/15/16 13:05	SURROGATE RECOVERY STUDY						
	ВТЕ	X by EPA 8021B  Analytes	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags		
1,4-Difluor	robenzene	Analytes	0.0274	0.0300	91	80-120			
4-Bromofluorobenzene			0.0313	0.0300	104	80-120			

Batch: Lab Batch #: 990381 **Sample:** 706407-1-BSD / BSD Matrix: Solid

Units:	mg/kg	<b>Date Analyzed:</b> 03/15/16 09:48	SURROGATE RECOVERY STUDY						
	TPI	H by SW 8015B  Analytes	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags		
1-Chloroocta	ane		118	100	118	70-130			
o-Terphenyl			50.9	50.0	102	70-130			

<sup>\*</sup> Surrogate outside of Laboratory QC limits

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

<sup>\*\*</sup> Surrogates outside limits; data and surrogates confirmed by reanalysis

<sup>\*\*\*</sup> Poor recoveries due to dilution



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

Work Orders: 526802,

**Sample:** 706394-1-BSD / BSD

**Project ID:** 725010112096

**Lab Batch #:** 990323

Matrix: Solid Batch: 1

Units:	mg/kg	<b>Date Analyzed:</b> 03/15/16 13:21	SURROGATE RECOVERY STUDY					
	ВТЕ	X by EPA 8021B	Amount Found [A]	True Amount [B]	Recovery %R	Control Limits %R	Flags	
		Analytes			[D]			
1,4-Difluoro	obenzene		0.0267	0.0300	89	80-120		
4-Bromofluorobenzene			0.0300	0.0300	100	80-120		

Lab Batch #: 990323 **Sample:** 526801-001 S / MS Batch: 1 Matrix: Soil

**Units:** mg/kg **Date Analyzed:** 03/15/16 13:38 SURROGATE RECOVERY STUDY **Amount** True Control BTEX by EPA 8021B Found Recovery Limits Amount Flags [A] [B] %R %R [D] **Analytes** 1,4-Difluorobenzene 0.0262 0.0300 87 80-120 4-Bromofluorobenzene 0.0297 0.0300 99 80-120

Lab Batch #: 990381 Sample: 526801-001 S / MS Batch: Matrix: Soil

**Units:** mg/kg Date Analyzed: 03/15/16 13:58 SURROGATE RECOVERY STUDY

TPH by SW 8015B  Analytes	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
1-Chlorooctane	128	99.8	128	70-130	
o-Terphenyl	57.5	49.9	115	70-130	

**Lab Batch #:** 990323 **Sample:** 526801-001 SD / MSD Batch: Matrix: Soil

Units:	mg/kg	<b>Date Analyzed:</b> 03/15/16 13:53	SURROGATE RECOVERY STUDY							
	ВТЕ	X by EPA 8021B	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags			
1.4-Difluor	obenzene	Analytes	0.0275	0.0300	92	80-120				
,	ıorobenzene		0.0336	0.0300	112	80-120				

Lab Batch #: 990381 Sample: 526801-001 SD / MSD Batch: Matrix: Soil

Units:	mg/kg	<b>Date Analyzed:</b> 03/15/16 14:25	SURROGATE RECOVERY STUDY						
	TPI	H by SW 8015B  Analytes	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags		
1-Chlorooct	ane		129	100	129	70-130			
o-Terpheny	1		55.7	50.0	111	70-130			

<sup>\*</sup> Surrogate outside of Laboratory QC limits

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

<sup>\*\*</sup> Surrogates outside limits; data and surrogates confirmed by reanalysis

<sup>\*\*\*</sup> Poor recoveries due to dilution



#### **BS / BSD Recoveries**



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

Work Order #: 526802 Project ID: 725010112096

Analyst: PJB Date Prepared: 03/15/2016 Date Analyzed: 03/15/2016

**Lab Batch ID:** 990323 **Sample:** 706394-1-BKS **Batch #:** 1 **Matrix:** Solid

Units:	mg/kg		BLAN	K/BLANK S	SPIKE / E	BLANK S	SPIKE DUPI	LICATE	RECOVI	ERY STUD	PΥ	
		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
Analy	ytes		[10]	[6]	[10]	[E]	Kesuit [F]	[0]				

	[A]		Result	%R		Duplicate	%R	%	%R	%RPD	
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 **Date Prepared:** 03/15/2016 **Date Analyzed:** 03/15/2016

**Lab Batch ID:** 990333 **Sample:** 706395-1-BKS **Batch #:** 1 **Matrix:** Solid

Units: mg/kg BLANK /BLANK SPIKE / BLANK SPIKE DUPLICATE RECOVERY STUDY

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



mg/kg

**Units:** 

#### **BS / BSD Recoveries**

BLANK /BLANK SPIKE / BLANK SPIKE DUPLICATE RECOVERY STUDY



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

Work Order #: 526802 Project ID: 725010112096

Analyst: ARM Date Prepared: 03/15/2016 Date Analyzed: 03/15/2016

 Lab Batch ID:
 990381
 Sample:
 706407-1-BKS
 Batch #:
 1
 Matrix:
 Solid

		DETTI		JI IIII / I				TELCO 11			
	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]				
C6-C10 Gasoline Range Hydrocarbons	<25.0	1000	818	82	1000	875	88	7	75-125	35	
C10-C28 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





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



**Work Order #:** 526802 **Lab Batch #:** 990333

**Project ID:** 725010112096

**Date Prepared:** 03/15/2016

Analyst: MNR

**Date Analyzed:** 03/15/2016 **QC- Sample ID:** 526801-005 S

**Inorganic Anions by EPA 300** 

**Analytes** 

Batch #: 1 Matrix: Soil

500

Reporting Units: mg/kg

MATE	RIX / MA'	TRIX SPIKE	RECOV	VERY STU	DY
Parent Sample Result [A]	Spike Added [B]	Spiked Sample Result [C]	%R [D]	Control Limits %R	Flag

547

**Lab Batch #:** 990333

Chloride

**Date Analyzed:** 03/15/2016 **QC- Sample ID:** 526802-002 S **Date Prepared:** 03/15/2016

65.5

Analyst: MNR

80-120

**Batch #:** 1

Matrix: Soil

Reporting Units: mg/kg

Reporting Omis. mg/kg	MATRIX / MATRIX SPIKE RECOVERY STUDY						
Inorganic Anions by EPA 300	Parent Sample Result	Spike Added	Spiked Sample Result [C]	%R [D]	Control Limits %R	Flag	
Analytes	[A]	[B]					
Chloride	254	500	747	99	80-120		

Matrix Spike Percent Recovery [D] = 100\*(C-A)/BRelative 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



Page 180 of 189

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

Work Order #: 526802 **Project ID:** 725010112096

Lab Batch ID:

990323

**QC- Sample ID:** 526801-001 S

Batch #:

Matrix: Soil

Date Analyzed:

03/15/2016

**Date Prepared:** 03/15/2016

Analyst: PJB

**Reporting Units:** mg/kg

#### MATRIX SPIKE / MATRIX SPIKE DUPLICATE RECOVERY 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	< 0.00144	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

Batch #:

Matrix: Soil

Date Analyzed:

03/15/2016

**Date Prepared:** 03/15/2016

Analyst: ARM

**Reporting Units:** mg/kg

#### MATRIX SPIKE / MATRIX SPIKE DUPLICATE RECOVERY STUDY

TPH by SW 8015B	Parent Sample Result	Spike	Spiked Sample Result	Sample	Spike	Duplicate Spiked Sample	. 1	RPD	Control Limits	Control Limits	Flag
Analytes	[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	

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

SL - sludge O - Oil	C - Charcoal tube SL - P/O - Plastic or other		W - Water S - Soil SD - Solid L - Liquid A - Air Bag A/G - Amber / Or Glass 1 Liter 250 ml - Glass wide mouth	W - Water S A/G - Amber / Or	Matrix WW - Wastewater Container VOA - 40 ml vial
	Time:	Date:	Time: Received by: (Signature)	Date: T	Relinquished by (Signature)
# NM sample M	Time:	Date:	Time: Received by: (Signature)	Date: T	Relinquished by (Signature)
* 24 hour rusk		Date:	_		Relinquished by (Signature)
NOTES:	D: CO NC	Date:	Time: Received by: (Signature)	Date: 7	Heinquished by (Signature)
			□ 50% Rush	☐ 25% Rush ☐	Turn around time ☐ Normal
			916	de	
			3/1	100	
	×××	×	١	SP-6	5 3/4/16 1245 X
	X X X		1	SP-5	1 1 1240 X
	× × ×		1	50-4	X cap,
	×		(RE) 13'	X R.P.C	1204
	×××		(2015) (RE) 14"	10-20	1152
	×		11 (RE) 8:	s-Way	1/35
	×	<b>×</b>	) (RE)	X CS-1 (205	5 3/14/16 1049
	S Ca	ml Glass Jar P/O	Identifying Marks of Sample(s) Start Depth VOA A/G 1 Lt. 250	a Identifying Mai	Matrix Date Time o
	7 P. S.				72501112096 30.
		tainers	No/Type of Containers	Project Name	Proj. No. Projec
	80		Sampler's Signature		Sampler's Name
	23	01	PO/SO#: 725010112096	wetter	Project Manager Karalam
Page of	Z.		Phone:		
			Contact:		
when received (C°): 7.9			Milland TX	ma	Office Location Mole
D Due Date:	REQUESTED		Laboratory: KENCO		ADEX
Lab use only	ANALYSIS				5
CHAIN OF CUSTODY RECORD					•

Apex TITAN, Inc. • 505 N. Big Springs Drive, Suite 301A • Midland, Texas 79701 • Office: 432-695-6016



# XENCO Laboratories Prelogin/Nonconformance Report- Sample Log-In



Client: APEX/Titan

.. 270 111.011

Date/ Time Received: 03/15/2016 08:40:00 AM

Acceptable Temperature Range: 0 - 6 degC Air and Metal samples Acceptable Range: Ambient

Work Order #: 526802

Temperature Measuring device used: r8

	Sample Receipt 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 cor	ntainer/ cooler?	N/A				
#5 Custody Seals intact on sample bottle	es?	N/A				
#6 *Custody Seals Signed and dated?		N/A				
#7 *Chain of Custody present?		Yes				
#8 Sample instructions complete on Cha	in of Custody?	Yes				
#9 Any missing/extra samples?		No				
#10 Chain of Custody signed when relind	quished/ received?	Yes				
#11 Chain of Custody agrees with sampl	e label(s)?	Yes				
#12 Container label(s) legible and intact?	?	Yes				
#13 Sample matrix/ properties agree with	n 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 indicate	ed test(s)?	Yes				
#18 All samples received within hold time	e?	Yes				
#19 Subcontract of sample(s)?		No				
#20 VOC samples have zero headspace	(less than 1/4 inch bubble)?	N/A				
#21 <2 for all samples preserved with HN samples for the analysis of HEM or HEM-analysts.		N/A				
#22 >10 for all samples preserved with N	laAsO2+NaOH, ZnAc+NaOH?	N/A				
* Must be completed for after-hours de	livery of samples prior to placing in	the refrigerator				
Analyst:	PH Device/Lot#:					
Checklist completed by:  Checklist reviewed by:	Carley Owens  Of March	Date: <u>03/15/2016</u>				
Checklist reviewed by:	Knus froak	Date: 03/15/2016				

Kelsey Brooks

Date: 03/15/2016



**APPENDIX E** 

Initial C-141 Documentation District IV 1220 S. St. Francis Dr., Santa Fe, NM 87505

#### **NM OIL CONSERVATION**

FEB **2 4** 2015

District 1
1625 N. French Dr., Hobbs, NM 88240
District II
1301 W. Grand Avenue, Artesia, NM 88210
District III
1000 Rio Brazos Road, Aztec, NM 87410

State of New Mexico
Energy Minerals and Natural Resources
Oil Conservation Division

Oil Conservation Division 1220 South St. Francis Dr. Santa Fe, NM 87505 FEB **2 4** 2015 Form C-141
Revised August 8, 2011
Submit 1 Copy to appropriate District Office in

Submit 1 Copy to appropriate District Office in **RECEIVED** ance with 19.15.29 NMAC.

HAB   43284   1543 Release Notification and Corrective Action										
NAB1506228797	OPERATOR									
Name of Company Enterprise Field Services LLC	Contact Dina Babinski									
PO Box 4324, Houston, TX 77210	Telephone No. 210-528-3824									
Facility Name Pipeline ROW, 30137 Gathering Lateral	Facility Type: Gas Gathering Pipeline									
Surface Owner State of New Mexico Mineral Ow	wner NA - Pipeline Lease No. NA									
	TION OF RELEASE									
Unit Letter Section Township Range Feet from the 1  O 13 19S 28E 97	North/South Line Feet from the East/West Line County South 562 West Eddy									
Latitude: N 32.0										
NATURE 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 Discovery									
Source of Release Tipetine Leuk.	02/15/2015 @ 09:10 MST									
Was Immediate Notice Given? If YES, To Whom?										
By Whom? Dina Babinski Was a Watercourse Reached?	Date and Hour 02/15/2015 @ 12:43 MST  If YES, Volume Impacting the Watercourse.									
Was a Watercourse Reached? ☐ Yes ⊠ No	If 1E5, volume impacing the watercourse.									
If a Watercourse was Impacted, Describe Fully.*										
•										
Describe Cause of Problem and Remedial Action Taken.*										
Pipeline leak was detected by pipeline technician. Pipeline segmen	nt was clamped and blown down, and leaking portion was repaired.									
Describe Area Affected and Cleanup Action Taken.*	A CONTRACTOR OF THE CONTRACTOR									
	currently being performed and additional sampling has been requested to confirm									
cleanup is satisfactory.	te to the best of my knowledge and understand that pursuant to NMOCD rules and									
	ease notifications and perform corrective actions for releases which may endanger									
public health or the environment. The acceptance of a C-141 report	t by the NMOCD marked as "Final Report" does not relieve the operator of liability									
	nediate contamination that pose a threat to ground water, surface water, human health									
federal, state, or local laws and/or regulations.	port does not relieve the operator of responsibility for compliance with any other									
	OIL CONSERVATION DIVISION									
Signature										
Signature	Approved by District Supervisor May Demand									
Printed Name: Ivan W. Zirbes	Approved by District Supervisor:									
Title: Sr. Director, Field Environmental	Approval Date: 3315 Expiration Date: WA									
E-mail Address: snolan@eprod.com Conditions of Approval:										
	emediation per O.C.D. Rules & Guidelines									
Attach Additional Sheets If Necessary	UBMIT REMEDIATION PROPOSAL NO									
<i>u</i>	ATER THAN: 413115 2RP-2846									

Received 8/7/15 NMOCD Dist 2

Page 185 of 189

District I
1625 N. French Dr., Hobbs, NM 88240
District II
1301 W. Grand Avenue, Artesia, NM 88210
District III
1000 Rio Brazos Road, Aztec, NM 87410
District IV
1220 S. St. Francis Dr., Santa Fe, NM 87505

State of New Mexico
Energy Minerals and Natural Resources

Form C-141 Revised August 8, 2011

Oil Conservation Division 1220 South St. Francis Dr. Santa Fe. NM 87505 Submit 1 Copy to appropriate District Office in accordance with 19.15.29 NMAC.

Bailta	110, 1111 67303								
fAB1432841543 Release Notificati	ion and Corre	ective A	ction						
nMLB1521930490	OPERATOR	R	⊠ Initi	al Report	- Finat Repor				
Name of Company Enterprise Field Services LLC		Dina Fergu			_				
PO Box 4324, Houston, TX 77210	Telephone No. 2								
Facility Name Pipeline ROW, 30137 Gathering Lateral	Facility Type:	Gas Gatheri	ng Pipeline						
Surface Owner State of New Mexico Mineral Owner	er <i>NA - Pipeline</i>		Lease N	No. NA					
LOCATI	ON OF RELEA	SE							
Unit Letter Section Township Range Feet from the No 13 19S 28E 97	orth/South Line Fee	t from the 562	East/West Line West	County					
				Eddy					
Latitude: <u>N 32,6538</u>			<u>/</u>						
	E OF RELEAS		a- 1						
Type of Release Natural Gas, Pipeline Liquids	Volume of Release	ase: 1,257 M	CF, Volume F	Recovered: 1	V/A				
Source of Release Pipeline Leak.	Date and Hour o			Hour of Disc	-				
Was Immediate Notice Given?	04/29/2015 @ 10 If YES, To Who		04/29/201	<u>!5@10:05                                   </u>	MDT				
Yes ☐ No ☐ Not Require			lstrict 2						
By Whom? Osman De Leon	Date and Hour	04/29/2015	@ 12:43 MDT						
Was a Watercourse Reached?	Date and Hour 04/29/2015 @ 12:43 MDT  If YES, Volume Impacting the Watercourse.								
☐ Yes ⊠ No									
If a Watercourse was Impacted, Describe Fully.*									
Describe Cause of Problem and Remedial Action Taken.*									
District and the second									
Pipeline leak was detected by pumper passing by. Pipeline segment was standard One-Call.	vas clamped and blow	n down, and	leaking portion w	as 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 standard	e carried out in accord	dance with E	nterprise's Gener	al release N	otification,				
documentation, and will make available to NMOCD upon request.				_					
I hereby certify that the information given above is true and complete to	o the best of my know	ledge and und	derstand that purs	uant to NMC	CD rules and				
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	e notifications and per	form correcti	ve actions for rele	ases which r	nay endanger				
should their operations have failed to adequately investigate and remed	iate contamination that	as "rinai Kep it pose a threa	t to ground water	eve the opera	er human health				
or the environment. In addition, NMOCD acceptance of a C-141 report	t does not relieve the	operator of re	sponsibility for co	mpliance wi	ith any other				
federal, state, or local laws and/or regulations.									
D V DI	<u>O</u>	IL CONS	ERVATION	<u>DIVISIO</u>	N				
Signature: The Kulds									
Printed Name: Jon E. Fields	Approved by Distri	ct Supervisor	Accepted as	Initial Re	port only				
Timeed range Jon 1. Preus			1		. ,				
Title: Director, Field Environmental	Approval Date: 8/	7/15	Expiration I	)ate:					
E-mail Address: jefields@eprod.com	Conditions of Appre	oval-Remed	diation per						
	1		•	Attached					
Date: 3 - 15 - 7015 Phone: 713-381-6684	OCD Rules an	ia Guiaeli	nes						

2RP-3191

\* Attach Additional Sheets If Necessary

#### Received by OCD: 4/12/2023 7:12:17 AMEVISED

Rec'd 8/12/2015

Page 186 of 189

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

<u>District IV</u> 1220 S. St. Francis Dr., Santa Fe, NM 87505 State of New Mexico NMOCD Dist 2
Energy Minerals and Natural Resources

Form C-141 Revised August 8, 2011

Oil Conservation Division 1220 South St. Francis Dr. Santa Fe, NM 87505 Submit 1 Copy to appropriate District Office in accordance with 19.15.29 NMAC.

fAB1432841543 Release Notificati	on and Corrective Action						
nMLB1521930490	OPERATOR   Initial Report   Fir	nal Repo					
Name of Company Enterprise Field Services LLC	Contact Dina Ferguson						
Facility Name Po Box 4324, Houston, TX 77210 Pipeline ROW, 30137 Gathering Lateral	Telephone No. 210-528-3824 Facility Type: Gas Gathering Pipeline						
Surface Owner State of New Mexico Mineral Owner	NA - Pipeline Lease No. NA						
LOCATION OF RELEASE							
Unit Letter Section Township Range Feet from the No 13 19S 28E 97	th/South Line Feet from the East/West Line County  South 562 West Eddy						
		-					
Latitude: <u>N 32.6538</u>	Longitude: <u>W-104.12857</u>						
	E OF RELEASE						
Type of Release Natural Gas, Pipeline Liquids	Volume of Release: 1,257 MCF, Volume Recovered: N/A						
Source of Release Pipeline Leak.	8.5 BBL Liquids (updated)  Date and Hour of Occurrence  Date and Hour of Discovery						
Was Immediate Notice Given?	04/29/2015 @ 10:05 MDT						
✓ Yes ☐ No ☐ Not Require	Mike Bratcher – NMOCD District 2						
By Whom? Osman De Leon	Date and Hour 04/29/2015 @ 12:43 MDT						
Was a Watercourse Reached?  ☐ Yes ☒ No	If YES, Volume Impacting the Watercourse.						
If a Watercourse was Impacted, Describe Fully.*							
in a watercourse was impacted, Describe runy.							
Describe Cause of Problem and Remedial Action Taken.*							
Pipeline leak was detected by pumper passing by. Pipeline segment w standard One-Call.	s clamped and blown down, and leaking portion was repaired following						
Describe Area Affected and Cleanup Action Taken.*							
Response and Remediation Plan (dated March 9, 2015). Operations p	carried out in accordance with Enterprise's General release Notification, rsonnel originally estimated approximately 2 bbl pipeline liquids spilled to	o the					
ground within pipeline right-of-way. After further investigation and e pipeline liquids. NMOCD Reference 2RP-3191.	ground within pipeline right-of-way. After further investigation and excavation, it was determined that the liquid spill volume is approximately 8.5 bbl.						
I hereby certify that the information given above is true and complete to	the best of my knowledge and understand that pursuant to NMOCD rules a	nd					
regulations all operators are required to report and/or file certain release	notifications and perform corrective actions for releases which may end and	er					
should their operations have failed to adequately investigate and remedi	ne NMOCD marked as "Final Report" does not relieve the operator of liabil te contamination that pose a threat to ground water, surface water, human h	realth					
or the environment. In addition, NMOCD acceptance of a C-141 report federal, state, or local laws and/or regulations.	does not relieve the operator of responsibility for compliance with any othe	T					
redetal, state, or local laws and/or regulations.	OIL CONSERVATION DIVISION						
Signature: Am Fulls	OIL CONSERVATION DIVISION						
Digitature.	Approved by District Supervisor:						
Printed Name: Jon E. Fields	Approved by District Supervisor.						
Title: Director, Field Environmental	Approval Date: 8/21/15 Expiration Date:						
E-mail Address: jefields@eprod.com	Conditions of Approval: Remediation per	-					
	NMOCD Rules & Guidelines						
Date: 8-12-205 Phone: 713-381-6684  * Attach Additional Sheets If Necessary	2DD 2101						

## NM OIL CONSERVATION

ARTESIA DISTRICT

<u>District I</u> 1625 N. French Dr., Hobbs, NM 88240 District II
1301 W. Grand Avenue, Artesia, NM 88210 District IV
1220 S. St. Francis Dr., Santa Fe, NM 87505

State of New Mexico Energy Minerals and Natural Resources

JUN 1.0 2015

Form C-141 Revised August 8, 2011

Submit Eight appropriate District Office in accordance with 19.15.29 NMAC.

Oil Conservation Division 1220 South St. Francis Dr. Santa Fe. NM 27505

Santa Fe, INM 67303							
FAB143284154.3 Release Notification and Corrective Action							
NAB1516226673	OPERATOR `						
Name of Company Enterprise Field Services LLC	Contact Dina Ferguson						
PO Box 4324, Houston, TX 77210	Telephone No. 210-528-3824						
Facility Name Pipeline ROW, 30137 Gathering Lateral	Facility Type: Gas Gathering Pi	peline					
Surface Owner State of New Mexico Mineral Owner	NA - Pipeline	Lease No. NA					
LOCATION OF RELEASE							
Unit Letter Section Township Range Feet from the Nort  O 13 19S 28E 70	,	West Line County West Eddy					
Latitude: N 32.653899	***************************************	The Daily					
	E OF RELEASE						
Type of Release Natural Gas, Pipeline Liquids	Volume of Release: 1,574 MCF, Volume Recovered: N/A 3 BBL Liquids						
Source of Release Pipeline Leak.	Date and Hour of Occurrence 06/08/2015 @ 8:50 MDT	Date and Hour of Discovery 06/08/2015 @ 9:38 MDT					
Was Immediate Notice Given?	If YES, To Whom?	1 00 00 2010 (6 7.30 1.37)					
☐ Yes ☐ No ☐ Not Required		2					
By Whom? Osman De Leon	Date and Hour 06/08/2015 @ 9:3	8 MDT					
Was a Watercourse Reached?	If YES, Volume Impacting the Wat	ercourse.					
☐ Yes ⊠ No							
If a Watercourse was Impacted, Describe Fully.*							
The framework of the state of t							
Describe Cause of Problem and Remedial Action Taken.*							
Pipeline leak was detected by an Enterprise Inspector. Pipeline segme	nt was clamped and blown down, and l	leaking portion will be repaired following					
standard One-Call.	·						
Describe Asso Affected and Cleanur Assign Televit							
Describe Area Affected and Cleanup Action Taken.*							
Liquid spill occurred within pipeline ROW. Clean-up activities will be carried out in accordance with Enterprise's General release Notification, Response and Remediation Plan according as defined in the housekeeping standards. Enterprise will maintain records of sampling results and disposal							
documentation, and will make available to NMOCD upon request.							
I hereby certify that the information given above is true and complete to the best of my knowledge and understand that pursuant to NMOCD rules and							
regulations all operators are required to report and/or file certain release	notifications and perform corrective act	tions for releases which may endanger					
public health or the environment. The acceptance of a C-141 report by t							
should their operations have failed to adequately investigate and remedia							
or the environment. In addition, NMOCD acceptance of a C-141 report	does not relieve the operator of respons	ibility for compliance with any other					
federal, state, or local laws and/or regulations.							
	<u>OIL CONSERV</u>	ATION DIVISION					
Signature: Jan Freelos		11 ft / 11					
organical of the second	Signed By	MILLY DEMENLES					
Printed Name: Jon E. Fields	Approved by District Supervisor:						
Title: Director, Field Environmental	Approval Date: 11115	Expiration Date: NH					
E-mail Address: jeftelds@eprod.com	Conditions of Approval:						
LINIAI Attached							
Date: 6-8-2015 Phone: 713-381-6684	1 (11/71)	<b>└</b>					

\* Attach Additional Sheets If Necessary

2RP-3044

#### NM OIL CONSERVATION

ARTESIA DISTRICT

<u>District I</u>
1625 N. French Dr., Hobbs, NM 88240
<u>District II</u>
1301 W. Grand Avenue, Artesia, NM 88210
<u>District III</u>
1000 Rio Brazos Road, Aztec, NM 87410
<u>District IV</u>
1220 S. St. Francis Dr., Santa Fe, NM 87505

State of New Mexico Energy Minerals and Natural Resources JUL 0 7 2015

Form C-141 Revised August 8, 2011

Sulprit Copyrigappropriate District Office in activitiance with 19.15.29 NMAC.

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

fAB1432841543 Release Notification and Corrective Action												
NAB1519449044					OPERATOR							
						Contact	Dina Fergi					
						lo. <i>210-528-38</i>						
Facility Nar	ne <i>Pi</i> į	oeline ROW,	30137 G	athering Later	ıl i	Facility Typ	e: Gas Gather	ing Pip	peline			
Surface Ow	ner <i>Si</i>	ate of New A	1exico	Mineral C	wner	NA - Pipel	lne		Lease 1	lo. <i>NA</i>		
						OF REI		·		<b>,</b>		
Unit Letter O	Section 13	Township 198	Range 28E	Feet from the 70		South Line   South	Feet from the 388	1	Vest Line West	County Eddy		ge l
:				atitude: <u>N 32,6</u>	53899		de: <u><i>W-104.129.</i></u>			1 23447		.•
Type of Rele	ase Natur	al Gas, Pipelii	ne Liquid:				Release: 1,532 M	ICF,	Volume l	Recovered: N/A		
Source of Re	lease Pipe	eline Leak.				Date and H	our of Occurrence	e		Hour of Dis		
Was Immedia			Yes [	No 🗌 Not Re	quired		her – NMOCD 1			(Per	e-ma	ii]),
By Whom?	Osman D						our 07/02/2015			+ (18/1)	5	434RM
Was a Water	course Reac	ined?	Yes 🗵	No No		II YES, Vo	lume Impacting t	ne wate	ercourse.			-
If a Watercou	rse was Im	pacted, Descri	be Fully.*	-		1				* *************************************		. :
Describe Cau Pipeline leak standard One	was detect			1 Taken.* pector. Pipeline s	segmeni	was clamped	l and blown dow	n, and l	eaking por	tion was rej	paired f	Collowing
Describe Area Affected and Cleanup Action Taken.*  Liquid spill occurred within pipeline ROW. Clean-up activities will be carried out in accordance with Enterprise's General release Notification,  Response and Remediation Plan (dated March 9, 2015) as defined in the housekeeping standards. Enterprise will maintain records of sampling results  and disposal documentation, and will make available to NMOCD upon request.												
regulations al public health should their o	l operators or the envir perations h ment. In a	are required to comment. The ave failed to a ddition, NMO	report an acceptance dequately CD accep	is true and compled/or file certain rece of a C-141 repoinvestigate and retance of a C-141 received.	elease no rt by the emediate	otifications and NMOCD made contamination	d perform correct arked as "Final Roon that pose a three the operator of a	tive acti eport" d eat to gr responsi	ions for rel loes not rel round wate bility for c	eases which ieve the ope r, surface wa ompliance v	may er rator of iter, hur vith any	ndanger `liability man health
Signature: Jan Fulls  Printed Name: Jon E. Fields				OIL CONSERVATION DIVISION  Signed By Mile Exames  Approved by District Supervisor:								
Title:	Direct	or, Field Env	ironmenta	ıl		Approval Dat	1131	5	Expiration	Date: N	A	
E-mail Addre	/					Conditions of	Approval:	JAI		Attached		
Date: 7/7 Attach Addit	/2015 ional Shee	Phone: 713 ets If Necessa		4		ţ.					100	. 7 3

2RP.3100

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

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

Action 206593

#### **CONDITIONS**

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

#### CONDITIONS

Created By		Condition Date
amaxwell	None None	4/13/2023