Leidos Innovations Corporation Scientific, Engineering, Response and Analytical Services 2890 Woodbridge Ave, Building 209 Annex Edison, NJ 08837-3679



DATE: November 13, 2018

TO: Joe Schaefer, U.S. EPA/ERT Work Assignment Manager

THROUGH:

FROM: TONAWANDA COKE AIR, TONAWANDA, NY SUBJECT: WORK ASSIGNMENT #SER00359 - TRIP REPORT

## BACKGROUND

Under this Work Assignment (WA), Scientific, Engineering, Response and Analytical Services (SERAS) contract personnel provided assistance to the Environmental Protection Agency/Environmental Response Team (EPA/ERT) and EPA Region 2 by performing air monitoring and sampling in neighborhoods surrounding the Tonawanda Coke Corporation located at 3875 River Road in Tonawanda, Erie County, New York (NY). The purpose of this project was to monitor for benzene as volatile organic compounds (VOCs), sulfur dioxide (SO<sub>2</sub>) and particulates. Twenty-four hour air samples were also collected in SUMMA<sup>®</sup> canisters and analyzed for benzene only.

In 1917, the first coke ovens were put into service at the Tonawanda Coke Corporation. On October 9, 2018, The New York State Department of Environmental Conservation (NYSDEC) announced that it would take up a request from the U.S. Attorney's Office to oversee the shutdown of the Tonawanda Coke facility on River Road (Niagara Gazette, accessed 10/13/18). The shutdown of the plant began on Sunday, October 14, 2018.

The EPA/ERT was requested by EPA Region 2 to perform air sampling and monitoring. All of the initial work was carried out under the Emergency Response Work Assignment (WA) 0-001 and was later transferred to this site specific WA.

## **OBSERVATIONS AND ACTIVITIES**

Equipment and technical support to conduct continuous air monitoring for particulate fraction of 2.5 microns ( $\mu$ m) (PM<sub>2.5</sub>), VOCs as benzene and SO<sub>2</sub> were deployed on site. In addition, 24-hour ambient air sampling for benzene was conducted using SUMMA<sup>40</sup> canisters.

Particulate monitoring was performed using the TSI Inc., DustTrak DRX Model 8533 aerosol monitor (DustTrak). Additional monitoring was performed for VOCs as benzene and SO<sub>2</sub> using RAE Systems MultiRAE monitors.

All air monitoring instrumentation was connected to ERT's wireless data acquisition system (VIPER). This allowed EPA Region 2, EPA/ERT, and SERAS personnel to remotely access air monitoring data in real-time from multiple locations. SERAS personnel utilized the VIPER data acquisition management system to generate real-time time-weighted averages for the monitored compounds to assist EPA Region 2/ERT.

Six fixed monitoring locations were selected where MultiRAEs and DustTraks were deployed; all locations were selected in consultation with EPA Region 2 and EPA/ERT. These fixed monitoring locations were based on wind direction and/or other factors deemed to be relevant to health and safety of the public.

The monitoring and sampling event began on October 14, 2018 (at TCP-01, TCP-02, TCP-03, TCP-04 and TCP-05) and was completed on October 21, 2018. Sampling locations coincided with the monitoring locations. Location TCP-06 began air monitoring and sampling activities on October 15, 2018. Additionally, location TCP-06 was moved to a different location on the property due to access issues on October 19, 2018. Figure 1 depicts the air monitoring and sampling locations. Appendix A contains VIPER Work Sheets and field notes taken by SERAS personnel during onsite activities throughout the air monitoring event.

## AIR MONITORING

Air monitoring began on October 14, 2018 at approximately 2100 and continued through October 21, 2018 to approximately 1050. Air monitoring for particulates was performed utilizing a DustTrak, a particulate monitor which continuously monitors the real-time concentration of airborne dust, smoke, mists and fumes. The DustTrak covers a measurement range from 0.001 milligrams per cubic meter ( $mg/m^3$ ) to 150 ( $mg/m^3$ ).

Air monitoring for VOCs was performed utilizing MultiRAE monitors, manufactured by RAE Systems. The MultiRAE is an active portable gas multi-sensor monitor designed to provide continuous air monitoring in hazardous environments. A photo-ionization detector (PID) was used to detect organic vapors using a 10.6 eV (electron volts) lamp. The unit can detect trace quantities of volatile organics in the air with a range of 0.1 to 2,000 parts per million (ppm). MultiRAE units were also equipped with a sensor to monitor SO<sub>2</sub> with a range of 0.1 to 20 ppm.

MultiRAEs and DustTrak monitors were connected to ERT's VIPER data acquisition system. The VIPER system utilizes ERT's VIPER Survey Controller application to manage data collection using Safe Environment Engineering's LifeLine wireless monitoring system. LifeLine is comprised of a Lifeline Interoperable Network Communicator (LINC) which is physically connected to each air monitoring instrument. The LINC connects the instrument to a Gateway via Wi-Fi. The Gateways provided a data connection from Survey Controller to the LINC through internet access using cellular air cards and Wi-Fi, transmitting the monitoring data from the instrument to Survey Controller. The data was presented and archived on the ERT VIPER Deployment Manager website. The regional OSCs and ERT personnel were provided with access to site-specific monitoring data through the VIPER Deployment Manager website.

The Deployment Manager website for this site was monitored by EPA and SERAS personnel while on site to monitor for hardware or software issues. If a hardware or software issue was detected that needed on-site attention, SERAS personnel responded to the issue as quickly as possible. All monitoring units were regularly inspected and calibrated as needed by SERAS field personnel in order to provide a continuous data stream to VIPER. The Region 2 OSC was provided with access to site-specific monitoring data through the VIPER Deployment Manager website.

Routine maintenance included voltage readings and battery replacement on LINCs, Gateways, DustTraks and MultiRAEs; calibration and replacement of sensors and PID lamps when required; and inspection of water trap filters for obstructions and moisture.

## AIR SAMPLING

Ambient air sampling began on October 14, 2018 and concluded on October 21, 2018, samples were taken from the breathing zone outside in the vicinity of the facility. Initially five sample locations were utilized for the first 24-hours sampling period; an additional sixth location (TCP-06) was added during all of the remaining sampling periods. A total of 53 SUMMA<sup>®</sup> samples, including trip blanks, were collected for 24-hour sampling periods from October 14, 2018 to October 21, 2018. Samples collected on October 15, 2018 were collected over an approximate 18-hour period. Samples collected on October 20, 2018 and October 21, 2018 had an approximate six hour overlap due to the timing of gas flaring ceasing at the facility on October 20, 2018 at approximately 0800.

All samples were collected using SUMMA<sup>®</sup> canisters equipped with restrictive orifices set at an approximate flow rate of 3.5 milliliters per minute (mL/min) to collect between four to five liters of air during each 24-hour sampling period. Collocated ambient air samples were collected every other day.

After the 24-hour sampling period had elapsed, the ambient air samples collected in SUMMA<sup>®</sup> canisters were retrieved from each location and properly documented in accordance with SERAS Standard Operating Procedure (SOP) #1704, *SUMMA<sup>®</sup> Canister Sampling* and SOP #2002, *Sample Documentation*.

Fifty-three SUMMA Canisters were collected and delivered under chain of custody (COC) to SERAS Laboratory for analysis in accordance to SERAS SOP #1814, Analysis of Volatile Organic Compounds (VOCs) in SUMMA Canister Air Samples by Gas Chromatography/Mass Spectrometry (GC/MS).

Appendix B contains the SUMMA<sup>®</sup> Sampling Work Sheets for the monitoring event.

## RESULTS

Benzene was not detected in any of the SUMMA® samples.

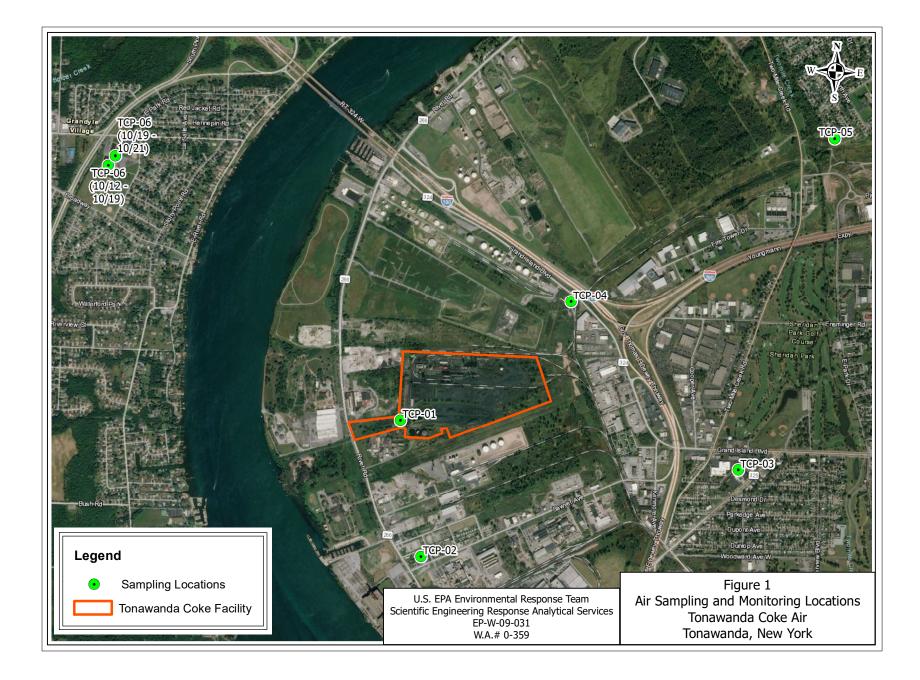
Appendix C contains the Final Analytical Report for all of the samples collected.

MultiRAE data measurements did not exceed the action level of 5.0 ppm for VOCs nor a 10 minute time-weighted average of 0.2 ppm for SO<sub>2</sub> at any location. There were no exceedances of the PM<sub>2.5</sub> 24-hour time weighted average of  $35\mu g/m^3$  for the DustTrak data measurements at any location.

## **FUTURE ACTIVITIES:**

No further activities are anticipated at this time.

cc: Central File WA SER00359 (w/attachments) Electronic File: I:/Archive/SERAS/0359/D/TR/0359-DTR-111318 Paul Carter, SERAS Program Manager (cover page only) Figure Sampling and Monitoring Locations Tonawanda Coke Air Tonawanda, New York November 2018



## APPENDIX A Viper Work Sheets Tonawanda Coke Air Tonawanda, New York November 2018



Site: TOWMWANDA COKE Sampler: SIMONETTE / DUBOES / VOLKER / MAGAN Date: 10/14/18

WA# <u>369</u> U.S. EPA/ERT WAM: <u>SCHAEFER</u> SERAS Task Leader: <u>SEMONETTI</u>

Gateway#/	Legacy (Y/N)	Mesh # (Y/N)	LNC #	Fixed/ Mobile	Instrument	Location /Sensors/Power/Notes
9			97		MR	TCP-02
			49		DT	
16-150			104		mr	TLP-03
1			92		DT	
6			98		me	700-01
			90		50	
4A			102		inz	TCP-04
			94		DT	
2			101		MR	
			96		DT	- TCP-05
17			103		MR	TCP-05 TCP-06 SHAMA # 001900 2 3: 57
			95		DT	
Notes:					- 1975 - 18 - 1975 - 18	

**Viper Work Sheet** 

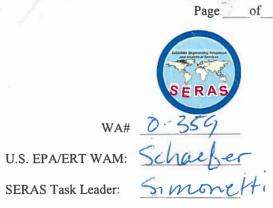
APPENDIX B SUMMA<sup>®</sup> Sampling Work Sheets Tonawanda Coke Air Tonawanda, New York November 2018



Site: <u>Tonawanda</u> Coke Sampler: <u>Volker</u>, <u>Magan</u> Date Start: <u>10/1/18</u> Date S

## EPA/Environmental Response Team Scientific, Engineering, Response and Analytical Services Lockheed Martin Corp., Edison, NJ U.S. EPA Contract No. EP-W-09-031

SUMMA Sampling Work Sheet



Sample #	Location	L Sub-Location	Matrix	Summa #	Orifice ID	M	alysis/ ethod	Start Pressure	Flow Rate (Start)	Time/(Start)	Time/(Stop)	End Pressure
359	FILE COAD	AmB	ATE	610567	V	10.		-28.5	-33	20-13	1505	-70
354 C=	TCP-02	AMB-CO		610601	13856	(908)	7814)	- 28.5	-3.7	20-13	1505	-705
359-003	TCP-03	AMB		C10500	14011		NO	-28 -26	-3,6	2114	1500	-8.0
- 0204	JCP-01	AmB		C10573	225024		(b)	-the	-3,3	ng	1543	-10,5
- 0005	TCP-04	AMB		C561506	140091			- 28	-3.4	23/6	1555	-11.0
-0006	TEP-05	AMB		C 10591	13790			-27.5	-3,-1	2349	1613	-10.5
-0007	TRIP	(	V	13744	_			-28,5	_	2000	1530	-28.5
	· · · · · · · · · · · · · · · · · · ·	)r										1000(/2-
MET Station on	Site?: Y / N		Flow meter:	F541034	\	NIST	Gauge#:	00112188		1	VIST Gauge#:	000944

Date Stop: 10/15/18

**SUMMA Sampling Work Sheet** 

onawanda Coke Site: Sampler: Strowstrie / MAGAN VOUKOR Du BIERS Date Start: 10/15/18 Date Stop: 10/16/1 18

WA# 359 U.S. EPA/ERT WAM: Schaefer SERAS Task Leader: Simoneth

Page

of

Sample #	Location	Sub-Location	Matrix	Summa #	Orifice ID	Analysis/ Method	Start Pressure	Flow Rate (Start)	Time/(Start)	Time/(Stop)	End Pressure
359-0008	TCP-02	AMB			1 .	30R1814	-28.5	3.4	1508	1500	-1.5
-0069	JCP.03			10593	13942		-28.5	3.4	1525	1513	-3.5
-0010	TCBOI			10531	129159		-28.5	3.4	7545	1533 B	-2.0
- 0011	TCP-DY			10597	223029		-28.5	3,3	1557	1517	- 2.5
- 0012	10P-05			2033	14040		-28,5	3,5	1616	1631	- 1,0
- 0013	1CP:06	$\checkmark$		1900	223010		-28	3.5	1557	1612	5
- 0014	TRIP	~		15201		ď	-27:5		00:21		
MET Station or	1 Site?: Y / N	Flo	w meter: •	F54034		NIST Gauge#	42188		1	NIST Gauge#:	42206
				<u> </u>							United States



Site: JONAWANSA LOKE Sampler: SEMONSTEF VOLKSE Date Stop: 10/17/18 Date Start: 10/16/18

SUMMA Sampling Work Sheet



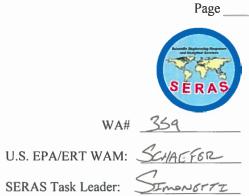
SERAS Task Leader: SEMONETTE

Sample #	Location	Sub-Location	Matrix	Summa #	Orifice ID	Analysis/ Method	Start Pressure	Flow Rate (Start)	Time/(Start)	Time/(Stop)	End Pressure
35A-0015	TCP-02	AMB	AFR	10554	39.2.1	50P /814	- 27.5	-3.3	1501	1501	-6.5
- 0016	TCP-03	Amis		10590	13998		- 27.5	-3.3	1514	1514	-4.5
-0017	TCP-03	AMB-CO		2046	1-1017		-28	-3.7	1514	1514	-20
0018	TCP-01	Am:3		105+16	22303	×	- 27.5	-3.7	1533	1533	-2.5
0019	TCP-04	AMB		14401	1-1024		-20	-3.3	15-17	15-16	-0.0
20	-769 - 06			1991	13793		- 28	-3, 4	1612	1609	-3,0
21	TCR - 05			2048	223034		- 20	-3.5	1631	1626	-2.5
22	12-59	4		2008	14021	L	-28.5	03.3		1630	-205
	a										
	0'- 0 - W / N						112100				12110-
MET Station on	n Site?: Y / N	Flo	ow meter: 1	54034		NIST Gauge#:	42183		<u> </u>	NIST Gauge#:	3

Page \_\_\_\_of

Site: IONAWANDA COKE Sampler: Stronottz / VOLKOR Date Stop: 10/18/18 Date Start: 10/17/18

SUMMA Sampling Work Sheet

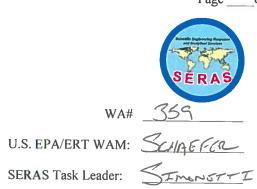


Sample #	Location	Sub-Location	Matrix	Summa #	Orifice ID	Analysis/ Method	Start Pressure	Flow Rate (Start)	Time/(Start)	Time/(Stop)	End Pressure
369-0023	TCP-02	AMB	ATR	10584	139:22	SERAS SOP /814	- 29	-3.4	1302	1500	- 2.4
24	-CP-03	)		2021	13952		-285	-3,-1	1515	1313	- 2,0
25	169-01			13740	13917		-28.5	-3,4	K33	1530	-1.5
26	TCP-04			10539	22303	7	-28.5	-3,4	15416	15413	-0.0
	TCP-06			2060	13908		-29	-3,5	1609	1559	-0.0
23	TCP-05			10598	13997		-29.5	- 3.3	1627	614	-15
22	TRIP BLANK		1	13735		1	- 20,5			1620	-28.5
MET Station or	Site?: Y/N	Fl	ow meter:	F5+103+1		NIST Gauge#:	412488		۱	NIST Gauge#:	47.700



Site: TONAWANDA Coké Sampler: SEMONSTIE / VOLKSR Date Start: 10/15/18 Date Stop: 10/19/16

**SUMMA Sampling Work Sheet** 



Sample #	Location	Sub-Location	Matrix	Summa #	Orifice ID	Analysis/ Method	Start Pressure	Flow Rate (Start)	Time/(Start)	Time/(Stop)	End Pressure
369-0030	TCP-02	AMBZENT	ATR	10604	13911	Soras Sop 18141	- 29.5	- 3,4	1300	1+155	-3.0
3(	TEP-03			1059+1	13988		-30	-3.4	15/4	1507	- 2.0
32				10583	13990		-30	-3,4	1514	1507	- 2.0
33	TUP-EROI			10616	223024		-30	-3.5	1530	1523	-2.0
	TCP-04			10543	13953		- 29.5	-3.4	1543	1534	-35
- 35	TCP-66			10595	13951		- 30	- 3.4	1559	1550	-015
36	TLP-05			16620	13925		- 29.5	-3.5	1615	1617	-1.5
37	TREP BLANK		¥	2057	-	7	-	-	_	1625	- 295
MET Station on	Site?: Y/N	Flor	w meter: 1	-5+10341		NIST Gauge#:	42/88		N	VIST Gauge#:	42206
											4

Page of

TONAWANDA COKE Site: Sampler: DIMONETTE/ TOLKSE Date Stop: 10/20/18 Date Start: 10 18 191

**EPA/Environmental Response Team** Scientific, Engineering, Response and Analytical Services Lockheed Martin Corp., Edison, NJ U.S. EPA Contract No. EP-W-09-031

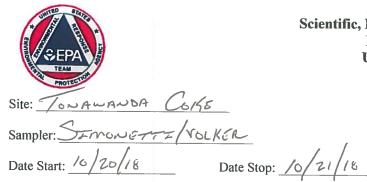
**SUMMA Sampling Work Sheet** 



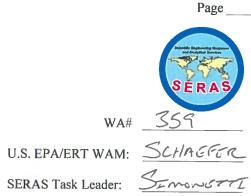
SERAS Task Leader:

Sample #	Location	Sub-Locati	on N	/latrix	Summa #	Orifice ID	M	alysis/ ethod	Start Pressure	Flow Rate (Start)	Time/(Start)	Time/(Stop)	End Pressure
359-038	TCP-02	AMBZEN	-	AFR	10542	13927	SER		- 29	-3.1	1455	1450	- 2,5
0039	107-03				10599	13991			-29.5	-3.4	1508	1503	-5.0
0040	TCP-01				2049	1404			-29.5	-3.3	1523	1517	- 4.5
0041	TCP-04				1822	139133			-29.5	-3.3	1534	1530	-9.0
0042	TCP-06				19:66	13950			- 29	- 315	1601	1557	- 2.0
0043	TCP-05				10552	13961			10553	-3,5	1621	1617	- 4,0
0044	FICOS BLANK	1		$\checkmark$	2028						615		- 29
							-						
/IET Station on	Site? V / N		Flow		C. L. a. I		NUCT						
			FIOWIT	neter: r	54034		NIST	Gauge#:	42188		N	IST Gauge#:	42206

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**SUMMA Sampling Work Sheet** 



Sample #	Location	Sub-Location	Matrix	Summa #	Orifice ID	Analysis/ Method	Start Pressure	Flow Rate (Start)	Time/(Start)	Time/(Stop)	End Pressure
359-0045 359-003	TEP-02	AMBZENT ATC	AIR	10529	223018	50RAS SEP 18/41	- 29	-3,-1	0903	857	-6.5
0046	TCP-03			1-1397	13915		- 29	-3.4	0917	910	-2.0
004/7	TCP-01			10615	223015		-29	-3.4	0936	924	-1.0
0048	TCP-04			16563	13987		- 29	- 3.4	8948	939	-0.5
00219	TCP-04 CO			10617	223016		-29	-3,4	0948	939	-1.5
0050	TCP-06			1547	22304		-29	-3.4	1000	957	-1.5
0051	TCP-05			10596	223020		-29	-3,4	1024	1016	- 1.0
0052	FIELD BLANK	4		1980		1	498 198			1619	-79.0
MET Station or	Site?: Y / N	Flo	w meter:	F540341		NIST Gauge#:	4/2/88		Ν	NST Gauge#:	472266

of

APPENDIX C Final Analytical Reports Tonawanda Coke Air Tonawanda, New York November 2018

## ANALYTICAL REPORT

Prepared by Leidos Innovations Corporation Scientific, Engineering, Response and Analytical Services

> Tonawanda Coke Site Buffalo, NY

> > October 2018

EPA Work Assignment No. SERAS-359 LEIDOS Work Order No. SER00359 EPA Contract No. EP-W-09-031

> Submitted to J. Schaefer EPA/ERT 2890 Woodbridge Avenue Edison, NJ 08837

018 2018 Min D. Killeen Dale QA/QC Officer

10/18/18

P. Carter Program Manager

Date

Analysis by: ERT/SERAS Laboratory

Prepared by:/Reviewed by: S. Capil/ R. Varsolona



Table of Contents

<u>Topic</u>

Testing Laboratories Information Detailed Sample Information Introduction Case Narrative Summary of Abbreviations

## Section I

Results of the Analysis for Benzene (ppbv) in Air	Table 1.1a
Results of the Analysis for Benzene $(\mu g/m^3)$ in Air	Table 1.1b

## Section II

Results of the LCS Analysis for Benzene in Air	Table 2.1
Results of the Duplicate Analysis for Benzene in Air	Table 2.2

## Section III

Correspondence Chains of Custody

## Appendices

Appendix A Data for VOC in Air

Appendix A will be furnished on request.

AD 042





## TESTING LABORATORIES INFORMATION

Analysis of Volatile Organic Compounds in Air by SERAS Method #1814 "Analysis of Volatile Organic Compounds (VOCs) in SUMMA Canister Air Samples by Gas Chromatography/Mass Spectrometry (GC/MS)"

ERT/SERAS Laboratory 2890 Woodbridge Avenue Edison, NJ 08837

All analyses were performed according to our NELAP-approved quality assurance program. The test results meet the requirements of the current NELAP standards, where applicable, except as noted in the laboratory case narrative provided. Results are intended to be considered in their entirety and apply only to those analyzed and reported herein.

ERT/SERAS Laboratory is certified by the New Jersey Department of Environmental Protection, NELAP Laboratory Certification ID # 12023 for VOC analysis in air.





## **Detailed Sample Information**

SERAS Sample #	<u>Field Sample #</u>
R810001-01	359-0002
R810001-02	359-0003
R810001-03	359-0004
R810001-04	359-0005
R810001-05	359-0006
R810001-06	359-0001
R810001-07	359-0007



## Introduction

SERAS personnel, in response to WA# SERAS-359, provided analytical support for environmental samples collected from the Tonawanda Coke Site in Buffalo, NY as described in the following table. The support also included QA/QC, data review and preparation of an analytical report containing analytical and QA/QC results.

The samples analyzed at SERAS were treated with procedures consistent with those specified in SERAS SOP #1008, *Sample Receiving, Handling and Storage*.

Chain of Custody #	Number of Samples	Sampling Date	Date Received	Date Analyzed	Matrix	Analysis/ Method	Laboratory	Data Package
2-101518-142808- 0001	2	10/15/18	10/16/18	10/16/18	Ambient Air	VOC/SERAS SOP #1814	ERT/SERAS	AD 042
2-101518-143956- 0002	2				Ambient Air			
2-101518-144039- 0003	2				Ambient Air			
2-101518-144158- 0004	1	1			Air			

## **Case Narrative**

Sampling was conducted as per the site-specific Quality Assurance Project Plan (QAPP) and analyzed by the analytical methods as stated in the QAPP. The laboratory reported the data to three significant figures. Any other representation of the data is the responsibility of the user. Data were validated using a Stage 4 validation done manually (S4VM) in accordance with the "Guidance for Labeling Externally Validated Data for Superfund Use." All data validation flags have been inserted into the results tables.

## VOCs in Air Package AD 042

The data package was examined and found to be acceptable.

The results presented in this report only relate to the samples analyzed. All results are intended to be considered in their entirety. The Environmental Response Team/Scientific, Engineering, Response and Analytical Services laboratory is not responsible for utilization of less than the complete report.

## Summary of Abbreviations

BFB	Bromofluorober	izene				
BS BSD	Blank Spike Blank Spike Du	alicata				
°C	Degree Centigra					
COC	Chain of Custod					
conc	concentration	5				
cont	continued					
PCDD/PCDF	Polychlorinated	dibenzo-p-dioxins (PCI	DD) and Polychlo	rinated dibenzofu	rans (PCDF	)
DFTPP	Decafluorotriph					
EMPC		num possible concentra				
GC/ECD		aphy/Electron Capture				
GC/MS		aphy/ Mass Spectromet				
Hg-CVAA ICP-AES		apor Atomic Absorption pled Plasma- Atomic Er		onv		
ID	Identification	pied i lasina- Atomie El	inssion spectrose	ору		
IS	Internal Standar	d				
LCS	Laboratory Cont	rol Sample				
LCSD	Laboratory Cont	rol Sample Duplicate				
MDA	Minimum Detec					
MDL	Method Detection	on Limit				
MS	Matrix Spike	1				
MSD MW	Matrix Spike Du Molecular Weig	•				
NA	Not Applicable					
NAD	Normalized Abs					
NC	Not Calculated					
NR	Not Requested/N	Not Reported				
% D	Percent Differen					
% R	Percent Recover	~				
SOP	Standard Operat					
PCB PDS	Polychlorinated Post Digestion S	1 0				
Percent RSD	-	Standard Deviation				
ppbv	parts per billion					
ppm	parts per million					
pptv	parts per trillion					
QA/QC		ce/Quality Control				
QAPP	Quality Assuran					
RL RPD	Reporting Limit Relative Percent					
S4VM		on done manually				
SIM	Selected Ion Mo					
SERAS		eering Response and Ar	nalytical Services			
TIC		tified Compound				
TCLP		teristic Leaching Proced	lure			
SVOC		rganic Compound				
VOC *	Volatile Organic					
4.	value exceeds ti	ne acceptable QC limits				
m <sup>3</sup> cubic m	eter g	gram	kg	kilogram	L	liter
µg microgr	-	microliter	mg	milligram	mL	milliliter
ng nanogra	•	picogram	pČi	picocurie	σ	sigma
						-
		Data	Validation Flags			
J Value is	estimated		R	Rejected or Va	lue is unusa	ble
	s estimated high		Ŭ	Not detected	i i unaba	
	s estimated low		ŪJ	Not detected an	nd RL is est	imated
Rev. 01/01/15, YRM						



Page 1 of 1

#### Table 1.1a Results of the Analysis for Benzene (ppbv) in Air WA# SERAS-359, Tonawanda Coke Site

Method: SERAS SOP#1814 Lab Name: ERT/SERAS

Lab Name: ERT/SERAS									
Lab Sample Number		NA		F	R810001-0	7	F	R810001-0	)3
Sample Number	PS-Met	hodBlank-	101618		359-0007			359-0004	
Sample Location					Trip Blank			TCP-01	
Date Analyzed		10/16/2018	3		10/16/2018	3		10/16/201	8
Matrix		Air			Air			Ambient A	ir
Test Type		Initial			Initial			Initial	
Total or Dissolved		Ν			Ν			Ν	
CAS No Analyte	Result ppbv	RL ppbv	MDL ppbv	Result ppbv	RL ppbv	MDL ppbv	Result ppbv	RL ppbv	MDL ppbv
71-43-2 Benzene	U	0.0200	0.00342	U	0.0200	0.00342	U	0.400	0.0685

## Table 1.1a (cont) Results of the Analysis for Benzene (ppbv) in Air WA# SERAS-359, Tonawanda Coke Site

Method: SERAS SOP#1814 Lab Name: ERT/SERAS

Lab Sample Number Sample Number	F	R810001-0 359-0001	-	F	R810001-0 359-0002		F	R810001-0 359-0003	
Sample Location		TCP-02			TCP-02C0			TCP-03	)
Date Analyzed Matrix		10/16/201 Ambient A	-		10/16/201 Ambient A	-		10/16/201 Ambient A	-
Test Type	,	Initial		,	Initial		,	Initial	
Total or Dissolved		Ν			Ν			Ν	
CAS No Analyte	Result ppbv	<i>RL</i> ppbv	<i>MDL</i> ppbv	Result ppbv	<i>RL</i> ppbv	<i>MDL</i> ppbv	Result ppbv	<i>RL</i> ppbv	<i>MDL</i> ppbv
71-43-2 Benzene	U	0.400	0.0685	U	0.400	0.0685	U	0.400	0.0685

Table 1.1a (cont) Results of the Analysis for Benzene (ppbv) in Air WA# SERAS-359, Tonawanda Coke Site

Method: SERAS SOP#1814 Lab Name: ERT/SERAS						
Lab Sample Number	F	R810001-0	)4	F	R810001-0	05
Sample Number		359-0005	5		359-0006	5
Sample Location		TCP-04			TCP-05	
Date Analyzed		10/16/201	8		10/16/201	8
Matrix		Ambient A	Jr		Ambient A	ir
Test Type		Initial			Initial	
Total or Dissolved		Ν			Ν	
	Result	RL	MDL	Result	RL	MDL
CAS No Analyte	ppbv	ppbv	ppbv	ppbv	ppbv	ppbv
71-43-2 Benzene	U	0.400	0.0685	U	0.400	0.0685

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Page 1 of 1

#### Table 1.1b Results of the Analysis for Benzene (μg/m<sup>3</sup>) in Air WA# SERAS-359, Tonawanda Coke Site

Method: SERAS SOP#1814 Lab Name: FRT/SERAS

Lab Name:	ERT/SERAS									
Lab Sample	Number		NA		F	R810001-0	7	F	R810001-0	3
Sample Nur	nber	PS-Met	hodBlank-	101618		359-0007			359-0004	
Sample Loc	ation					Trip Blank			TCP-01	
Date Analyz	ed		10/16/2018	3		10/16/2018	3		10/16/2018	3
Matrix			Air			Air		/	Ambient A	ir
Test Type			Initial			Initial			Initial	
Total or Dise	solved		Ν			Ν			Ν	
CAS No	Analyte	Result µg/m3	<i>RL</i> μg/m3	<i>MDL</i> µg/m3	Result µg/m3	<i>RL</i> µg/m3	<i>MDL</i> μg/m3	Result µg/m3	<i>RL</i> µg/m3	<i>MDL</i> µg/m3
71-43-2	Benzene	U	0.0639	0.0109	U	0.0639	0.0109	U	1.28	0.219

## Table 1.1b (cont) Results of the Analysis for Benzene (µg/m<sup>3</sup>) in Air WA# SERAS-359, Tonawanda Coke Site

### Method: SERAS SOP#1814 Lab Name: ERT/SERAS

Lab Sample N Sample Numb Sample Locati Date Analyzed Matrix Test Type Total or Disso	ber ion d		810001-0 359-0001 TCP-02 10/16/2018 Ambient Ai Initial N	3		R810001-0 359-0002 TCP-02C0 10/16/201 Ambient A Initial N	D 8	R810001-02 359-0003 TCP-03 10/16/2018 Ambient Air Initial N		8
CAS No 71-43-2	Analyte Benzene	Result µg/m3 U	<i>RL</i> μg/m3	<i>MDL</i> μg/m3 0.219	Result µg/m3 U	<i>RL</i> μg/m3 1.28	<i>MDL</i> μg/m3 0.219	Result µg/m3 U	<i>RL</i> μg/m3	<i>MDL</i> μg/m3 0.219

## Table 1.1b (cont) Results of the Analysis for Benzene ( $\mu$ g/m<sup>3</sup>) in Air WA# SERAS-359, Tonawanda Coke Site

#### Method: SERAS SOP#1814 Lab Name: ERT/SERAS Lab Sample Number R810001-04 R810001-05 Sample Number 359-0005 359-0006 Sample Location TCP-04 TCP-05 Date Analyzed 10/16/2018 10/16/2018 Matrix Ambient Air Ambient Air Test Type Initial Initial Total or Dissolved Ν Ν Result RL MDL Result RL MDL CAS No Analyte µg/m3 µg/m3 µg/m3 µg/m3 µg/m3 µg/m3 71-43-2 Benzene U 1.28 0.219 U 1.28 0.219

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# Table 2.1 Results of the LCS Analysis for Benzene in Air WA# SERAS-359, Tonawanda Coke Site

Page 1 of 1

## Sample ID: LCS 101618

Analyte	LCS Spike Amount ppbv	LCS Recovered ppbv	% Recovery		C Lim Recov	
Benzene	1.00	0.949	95	78	-	122





# Table 2.2 Results of the Duplicate Analysis for Benzene in Air WA# SERAS-359, Tonawanda Coke Site

Sample ID: 359-0006				Page 1 of 1
Analyte	Initial Analysis ppbv	Duplicate Analysis ppbv	RPD	QC Limit RPD
Benzene	U	U	NC	≤25



Page 1 of 1

# SERAS-359-DAR-101818 USEPA

## CHAIN OF CUSTODY RECORD Site #: 359

Contact Name: Larry Martin/Samples Receiving

No: 2-101518-142808-0001

Cooler #:

Lab: ERT/SERAS

DateShipped: 10/15/2018 CarrierName:

AlrbillNo:

<i>∧\O</i> ⁼ .ab #	Sample #	Location	Sub Location	Analyses	TAT	TAT Units	Matrix	Sample Date	Sample Time	Pump #	OrificeID	Stop_Da te	Stop_T Ime	Start Press ure	Stop Press ure
01	359-0002	TCP-02 CO	Ambient Collocated	SERAS SOP#1814	24	Hours	Amblent Air	10/15/20 18	1505	10607	13956	10/15/20 18	1505	-28.5	-7,5
02	359-0003	TCP-03	Ambient	SERAS SOP#1814	24	Hours	Ambient Air	10/15/20 18	1522	10580	14011	10/15/20 18	1522	-28	-8.0
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Special Instructio	ns: Benzene only, 24-hour TAT prelims, 48-hour Final	CH	CHAIN OF CUSTODY #			
,						
				<u>.</u>		
Items/Reason	Relinquished by (Signature and Organization) Da	te/Time Received	by (Signature and Organization)	Date/Time	Sample Condition Upon Receipt	

Item	s/Reason	Reinquished by (Signature an	d Organization) Date/Til	me Received by (Signature a	and Organization) Date/Time	Sample Condition Upon Receipt
2/An	wyqis	1- son	AS 10/15/18	1520 mg Perini !!	SERIAS 10/16/18 8:00	Intert
Ant	Anglysis	Try Pare ISE	RAS 10/16/18	10:00 Blufind lazman /	SERAS 10/16/18 10:00	
0						

Page	1 or	1
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## USEPA

DateShipped: 10/15/2018

## CHAIN OF CUSTODY RECORD Site #: 359

## Contact Name: Larry Martin/Samples Receiving

## No: 2-101518-143956-0002

Cooler #: Lab: ERT/SERAS

CarrierName:

AirbillNo: WO# R8000 (

Lab #	Sample #	Location	Sub Location	Analyses	TAT	TAT Units	Matrix	Sample Date	Sample Time	Pump #	OrificeID	Stop_Da te	Stop_T ime	Start Press ure	Stop Press ure
03	359-0004	TCP-01	Ambient	SERAS SOP#1814	24	Hours	Ambient Air	10/15/20 18	1543	10573	223026	10/15/20 18	15.43	-28	-10.5
04	359-0005	TCP-04	Ambient	SERAS SOP#1814	24	Hours	Ambient Air	10/15/20 18	1555	561506 - P	14009 30	10/15/20 18	1555	-28	-71
	-										91612				~
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	SAMPLES TRANSFERRED FROM
Special Instructions: Benzene only, 24-hour TAT prelims, 48-hour Final	CHAIN OF CUSTODY #

	Items/Reason	Relinquished by (Signature and Organization)	Date/Time	Received by (Signature and Organization)	Date/Time	Sample Condition Upon Receipt
	2/ Analysis (	( SERAS	10/15/18	Jung Maturi /SERAS	10/16/18 8:00	Intact
	All Anglysis	Try The ISERAS	10/16/18 10:00	Enternan SERAS	10/16/18 10:00	
Î						
0						
$\widetilde{\mathbf{\omega}}$						

SERAS-359-DAR-101818

Page	1	of	1
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#### の ロ ロ DateShir

DateShipped: 10/15/2018

## CHAIN OF CUSTODY RECORD Site #: 359 Contact Name: Larry Martin/Samples Receiving

## No: 2-101518-144039-0003

Cooler #: Lab: ERT/SERAS

CarrierName:

## AirbillNo: WO# R810001

Lab #	Sample #	Location	Sub Location	Analyses	TAT	TAT Units	Matrix	Sample Date	Sample Time	Pump #	OrlficeID	Stop_Da te	Stop_T Ime	Start Press ure	Stop Press ure
05	359-0006	TCP-05	Ambient	SERAS SOP#1814	24	Hours	Ambient Air	10/15/20 18	1505	10591	13790	10/15/20 18	1505	-27.5	-7:0
06	359-0001	TCP-02	Ambient	SERAS SOP#1814	24	Hours	Ambient Air	10/15/20 18	1613	10567	2230013	10/15/20 18	1613	-28.5	-105
					<del>nund</del> i			B							
			-				A	(1)							
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							-								
	-														

	SAMPLES TRANSFERRED FROM
Special Instructions: Benzene only, 24-hour TAT prelims, 48-hour Final	CHAIN OF CUSTODY #

Items/Reason	Relinguished by (Signature and Organization)	Date/Time	Received by (Signature and Organization)	Date/Time	Sample Condition Upon Receipt
MAnalysis (	C/ ISGRAS	10/15/18,1625	Tomy TERAS	10/16/18 8.00	Interct
All Anerbysis	Truy Monte / SERAS	10:00 10116118	Blupindu lamas (SERAS	16/16/18 10:00	
				-	
3					

SERAS-359-DAR-101818

	Page 1 of	f 1						0							0	
SERAS-359-DAR-101818	USEPA DateShi CarrierN Airbl!INo	pped: 10/15 lame:			CHAIN OF CUSTODY RECORD Site #: 359 Contact Name: Larry Martin/Samples Receiving								No: 2-101518-144158-0004 Cooler #: Lab: ERT/SERAS			oler #:
AR-101	Lab #		Location	Sub Location	Analyses	TAT	TAT Units	Matrix	Sample Date	Sample Time	Pump #	OrificeID	Stop_Da te	Stop_T ime	Start Press ure	Stop Press ure
1818	07	359-0007	Trip Blank		SERAS SOP#1814	24	Hours	Air	10/15/20 18	15:30	13744	MA	10/15/20 18	3:30:00 PM	-28.5	-28.5
											-					
						<u> </u>		AGI								
		-												+		

	SAMPLES TRANSFERRED FROM		
Special Instructions: Benzene only, 24-hour TAT prelims, 48-hour Final	CHAIN OF CUSTODY #		

Items/Reason	Relinquished by (Signature and Organization)	Date/Time	Received by (Signature and Organization)	Date/Time	Sample Condition Upon Receipt
1/Analysis	- / SERAS	1535/01/11/8	Imy Huma ISERAS	10 (16/18 8)00	Intact
All/Analysis	Tony Motion ISERAS	10/16/18 10:00	Brupsinen annun SERAS	16/16/18 10:00	-
	V		· / /		

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## ANALYTICAL REPORT

Prepared by Leidos Innovations Corporation Scientific, Engineering, Response and Analytical Services

> Tonawanda Coke Site Buffalo, NY

> > October 2018

EPA Work Assignment No. SERAS-359 LEIDOS Work Order No. SER00359 EPA Contract No. EP-W-09-031

> Submitted to J. Schaefer EPA/ERT 2890 Woodbridge Avenue Edison, NJ 08837

10 19 19 ller D. Killeen QA/QC Officer

Date

10/19/18

P. Carter Program Manager

Date

Analysis by: ERT/SERAS Laboratory

Prepared by:/Reviewed by: S. Capil/ R. Varsolona



Table of Contents

## <u>Topic</u>

Testing Laboratories Information Detailed Sample Information Introduction Case Narrative Summary of Abbreviations

## Section I

Results of the Analysis for Benzene (ppbv) in Air	Table 1.1a
Results of the Analysis for Benzene $(\mu g/m^3)$ in Air	Table 1.1b

## Section II

Results of the LCS Analysis for Benzene in Air	Table 2.1
Results of the Duplicate Analysis for Benzene in Air	Table 2.2

## Section III

Correspondence Chains of Custody

## Appendices

Appendix A Data for VOC in Air

Appendix A will be furnished on request.

AD 043





## TESTING LABORATORIES INFORMATION

Analysis of Volatile Organic Compounds in Air by SERAS Method #1814 "Analysis of Volatile Organic Compounds (VOCs) in SUMMA Canister Air Samples by Gas Chromatography/Mass Spectrometry (GC/MS)"

ERT/SERAS Laboratory 2890 Woodbridge Avenue Edison, NJ 08837

All analyses were performed according to our NELAP-approved quality assurance program. The test results meet the requirements of the current NELAP standards, where applicable, except as noted in the laboratory case narrative provided. Results are intended to be considered in their entirety and apply only to those analyzed and reported herein.

ERT/SERAS Laboratory is certified by the New Jersey Department of Environmental Protection, NELAP Laboratory Certification ID # 12023 for VOC analysis in air.





## **Detailed Sample Information**

SERAS Sample #	Field Sample #
L810002-01	359-0008
L810002-02	359-0009
L810002-03	359-0010
L810002-04	359-0011
L810002-05	359-0012
L810002-06	359-0013
L810002-07	359-0014





## Introduction

SERAS personnel, in response to WA# SERAS-359, provided analytical support for environmental samples collected from the Tonawanda Coke Site in Buffalo, NY as described in the following table. The support also included QA/QC, data review and preparation of an analytical report containing analytical and QA/QC results.

The samples analyzed at SERAS were treated with procedures consistent with those specified in SERAS SOP #1008, *Sample Receiving, Handling and Storage.* 

Chain of Custody #	Number of Samples	Sampling Date	Date Received	Date Analyzed	Matrix	Analysis/ Method	Laboratory	Data Package
2-101618-115057- 0005	4	10/16/18	10/17/18	10/17/18	Ambient Air	VOC/SERAS SOP #1814	ERT/SERAS	AD 043
2-101618-121630- 0006	2				Ambient Air			
2-101618-152205- 0007	1				Air			

## **Case Narrative**

Sampling was conducted as per the site-specific Quality Assurance Project Plan (QAPP) and analyzed by the analytical methods as stated in the QAPP. The laboratory reported the data to three significant figures. Any other representation of the data is the responsibility of the user. Data were validated using a Stage 4 validation done manually (S4VM) in accordance with the "Guidance for Labeling Externally Validated Data for Superfund Use." All data validation flags have been inserted into the results tables.

## VOCs in Air Package AD 043

The data package was examined and found to be acceptable.

The results presented in this report only relate to the samples analyzed. All results are intended to be considered in their entirety. The Environmental Response Team/Scientific, Engineering, Response and Analytical Services laboratory is not responsible for utilization of less than the complete report.





## Summary of Abbreviations

BFB BS BSD <sup>o</sup> C COC conc cont PCDD/PCDF DFTPP EMPC GC/ECD GC/MS Hg-CVAA ICP-AES ID IS LCS LCSD MDA MDL MS MSD MW NA NAD NC NR % D % R SOP PCB PDS Percent RSD ppbv ppm pptv	Blank S Blank S Degree G Chain o concentr continue Polychle Decaflu Estimate Gas Chr Gas Chr Gas Chr Mercury Inductiv Identific Internal Laborate Matrix S Molecul Not App Normali Not Call Not Rec Percent Standare Polychle Percent parts pe parts pe	pike Dupl Centigrado f Custody ration ed orinated di orotriphen ed maximu romatograp comatograp y-Cold Va rely Coupl cation Standard ory Contro ory Contro ory Contro ory Contro ory Contro Detection Spike Duplar Weight blicable or ized Absol culated puested/No Difference Recovery d Operatin orinated B gestion Sp Relative S r billion b r million r trillion b	icate benzo-p-dioxin ylphosphine im possible com ohy/Electron Ca ohy/ Mass Spec por Atomic Abs ed Plasma- Ato ol Sample ol Sample Dupli ble Activity Limit licate Not Available ute Difference of Reported of Repo	ion	·	inated dibenzof	'urans (PCDF)	
pptv QA/QC QAPP	parts per trillion by volume Quality Assurance/Quality Control Quality Assurance Project Plan							
RL	Reporting Limit							
RPD S4VM	Relative Percent Difference       I     Stage 4 validation done manually							
SIM	Stage 4 vandation done manually Selected Ion Monitoring							
SERAS	Scientific Engineering Response and Analytical Services							
TIC TCLP	Tentatively Identified Compound Toxicity Characteristic Leaching Procedure							
SVOC								
VOC	Volatile Organic Compound							
*	Value e	xceeds the	acceptable QC	limits				
m <sup>3</sup> cubic	meter	g	gram		kg	kilogram	L	liter
µg micro		μL	microliter		mg	milligram	mL	milliliter
ng nanog	rams	pg	picogram		pČi	picocurie	σ	sigma
				Data Walidatia				
				Data Validatio	n Flags			
J Value	is estimated	1			R	Rejected or V	alue is unusal	ole
	is estimated				U	Not detected		
J- Value								mated
Rev. 01/01/15, YRM								





Page 1 of 1

#### Table 1.1a Results of the Analysis for Benzene (ppbv) in Air WA# SERAS-359, Tonawanda Coke Site

Method: SERAS SOP#1814 Lab Name: ERT/SERAS

Lab Name: ERT/SERAS										
Lab Sample Number		NA		L	_810002-0	7	I	_810002-0	)3	
Sample Number	PS-Met	hodBlank-	101718		359-0014		359-0010			
Sample Location					Trip Blank			TCP-01 Ambient		
Date Analyzed		10/17/2018	3		10/17/2018	3		10/17/201	8	
Matrix		Air			Air			Ambient A	ir	
Test Type		Initial			Initial			Initial		
Total or Dissolved		Ν		Ν				Ν		
CAS No Analyte	Result ppbv	RL ppbv	MDL ppbv	Result ppbv	RL ppbv	MDL ppbv	Result ppbv	RL ppbv	MDL ppbv	
71-43-2 Benzene	U	0.0200	0.00342	U	0.0200	0.00342	U	0.400	0.0685	

# Table 1.1a (cont) Results of the Analysis for Benzene (ppbv) in Air WA# SERAS-359, Tonawanda Coke Site

Method: SERAS SOP#1814 Lab Name: ERT/SERAS

Lab Sample Number Sample Number	l	_810002-0 359-0008	-	l	_810002-0	-	L	_810002-0 359-0011	-
Sample Location	тс	P-02 Amb		тс	P-03 Amb		TCP-04 Ambient		
Date Analyzed		10/17/201	8		10/17/201	8		10/17/201	8
Matrix		Ambient A	ir	1	Ambient A	ir	1	Ambient A	ir
Test Type		Initial			Initial			Initial	
Total or Dissolved		Ν			Ν			Ν	
CAS No Analyte	Result ppbv	<i>RL</i> ppbv	<i>MDL</i> ppbv	Result ppbv	<i>RL</i> ppbv	<i>MDL</i> ppbv	Result ppbv	<i>RL</i> ppbv	MDL ppbv
71-43-2 Benzene	U	0.400	0.0685	U	0.400	0.0685	U	0.400	0.0685

Table 1.1a (cont) Results of the Analysis for Benzene (ppbv) in Air WA# SERAS-359, Tonawanda Coke Site

Method: SERAS SOP#1814 Lab Name: ERT/SERAS							
Lab Sample Number	l	_810002-0		I	_810002-0		
Sample Number		359-0012	2		359-0013		
Sample Location	TC	P-05 Amb	pient	TC	P-06 Amb	ient	
Date Analyzed		10/17/201	8		10/17/201	3	
Matrix		Ambient A	ir		Ambient A	ir	
Test Type		Initial			Initial		
Total or Dissolved		Ν			Ν		
	Result	RL	MDL	Result	RL	MDL	
CAS No Analyte	ppbv	ppbv	ppbv	ppbv	ppbv	ppbv	
71-43-2 Benzene	U	0.400	0.0685	U	0.400	0.0685	

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Page 1 of 1

#### Table 1.1b Results of the Analysis for Benzene (μg/m<sup>3</sup>) in Air WA# SERAS-359, Tonawanda Coke Site

Method: SERAS SOP#1814 Lab Name: ERT/SERAS

Lab Name:	ERT/SERAS									
Lab Sample	Number		NA		L	_810002-0	7	I	_810002-0	3
Sample Nur	nber	PS-Met	hodBlank-	101718		359-0014		359-0010		
Sample Loc	ation					Trip Blank		TC	P-01 Amb	ient
Date Analyz	ed		10/17/2018	3		10/17/2018	3		10/17/201	8
Matrix			Air			Air			Ambient A	ir
Test Type	Туре		Initial			Initial			Initial	
Total or Dise	solved		Ν			Ν			Ν	
CAS No	Analyte	Result µg/m3	<i>RL</i> μg/m3	<i>MDL</i> µg/m3	Result µg/m3	<i>RL</i> µg/m3	<i>MDL</i> µg/m3	Result µg/m3	RL µg/m3	MDL µg/m3
71-43-2	Benzene	U	0.0639	0.0109	U	0.0639	0.0109	U	1.28	0.219

# Table 1.1b (cont) Results of the Analysis for Benzene $(\mu g/m^3)$ in Air WA# SERAS-359, Tonawanda Coke Site

#### Method: SERAS SOP#1814 Lab Name: ERT/SERAS

Sample Numb	Test Type		.810002-0 359-0008 P-02 Amb 10/17/2013 Ambient A Initial	ient 3	L810002-02 359-0009 TCP-03 Ambient 10/17/2018 Ambient Air Initial			L810002-04 359-0011 TCP-04 Ambient 10/17/2018 Ambient Air Initial			
Total or Disso		Result	N RL	MDL	Result	N RL	MDL	Result	N RL	MDL	
CAS No 71-43-2	Analyte Benzene	μg/m3 U	μg/m3 1.28	μg/m3 0.219	μg/m3 U	μg/m3 1.28	μg/m3 0.219	μg/m3 U	μg/m3 1.28	μg/m3 0.219	

# Table 1.1b (cont) Results of the Analysis for Benzene ( $\mu$ g/m<sup>3</sup>) in Air WA# SERAS-359, Tonawanda Coke Site

# Method: SERAS SOP#1814 Lab Name: ERT/SERAS

Lab Sample I Sample Numl		l	.810002-0 359-0012		L	.810002-0 359-0013	3	
Sample Location		TCP-05 Ambient			тс	P-06 Amb	ent	
Date Analyzed			10/17/2018			10/17/201	}	
Matrix		/	Ambient Ai	ir	1	Ambient A	r	
Test Type			Initial			Initial		
Total or Disso	olved		Ν			Ν		
CAS No	Analyte	Result µg/m3	<i>RL</i> µg/m3	<i>MDL</i> µg/m3	Result µg/m3	<i>RL</i> µg/m3	<i>MDL</i> µg/mЗ	
71-43-2	Benzene	U	1.28	0.219	U	1.28	0.219	

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### Table 2.1 Results of the LCS Analysis for Benzene in Air WA# SERAS-359, Tonawanda Coke Site

Page 1 of 1

### Sample ID: LCS 101718

Analyte	LCS Spike Amount ppbv	LCS Recovered ppbv	% Recovery		C Lim Recov	
Benzene	1.00	0.917	92	78	-	122





# Table 2.2 Results of the Duplicate Analysis for Benzene in Air WA# SERAS-359, Tonawanda Coke Site

Page 1 of 1

Sample ID: 359-0010

Analyte	Initial Analysis ppbv	Duplicate Analysis ppbv	RPD	QC Limit RPD
Benzene	U	U	NC	≤25





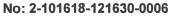
### CHAIN OF CUSTODY RECORD Site #: 359

Lab #	Sample #	E Im Join Location	Sub Location	Analyses	TAT	TAT Units	Matrix	Sample Date	Sample Time	#	Container	Summa #	OrificeID	Start Pres sure	Pres
01	359-0008	TCP-02	Ambient	SERAS SOP#1814	24	Hours	Ambient Air	10/16/20 18	1502	1	Summa Canister	1934	223042	-28.5	-1.4
σZ	359-0009	TCP-03	Ambient	SERAS SOP#1814	24	Hours	Ambient Air	10/16/20 18	1513	1	Summa Canister	10593	13942	-28.5	-3.
- 03	359-0010	TCP-01	Ambient	SERAS SOP#1814	24	Hours	Ambient Air	10/16/20 18	1533	1	Summa Canister	10531	13959	-28.5	-2.0
-04	359-0011	TCP-04	Ambient	SERAS SOP#1814	24	Hours	Ambient Air	10/16/20 18	15.17	1	Summa Canister	10597	223029	-28.5	-2:
							Ric	5							

	SAMPLES TRANSFERRED FROM
Special Instructions: Benzene only, 24-hour TAT prelims, 48-hour Final	CHAIN OF CUSTODY #

Items/Reason	Relinquished by (Signature and Organization)	Date/Time	Received by (Signature and Organization)	Date/Time	Sample Condition Upon Receipt
SUMMAS FOR ANALISES	Son LETDES/SERAS	10/16/18 1554	Joy Putel / SERAS	10/17/18 083	o Intact
All/Amalysi3	J-PR.M / SERAS	10/17/18 11:30	Bhupindu Paruran /SERAS	10/17/18 11:30	
		name meneti aka akapaneng pi menusakanggan () pane pendikananan pina a			

		1	
Page	1	01	



### CHAIN OF CUSTODY RECORD

Site #: 359

### Contact Name: Larry Martin/Samples Receiving

Cooler #: Lab: ERT/SERAS

Sample # Location Sub Location TAT TAT Matri x Sample Sample # Container Summa # OrificeID Start Stop **Analyses** Units Date Time Pres Pres sure sure SERAS SOP#1814 Ambient 10/16/20 2033 14040 Ambient 24 Hours 1 Summa -28.5 1631 -1.0 18 Air Canister 223010 -28.5 359-0013 TCP-06 Ambient SERAS SOP#1814 24 Hours Ambient 10/16/20 1 Summa 1900 -0.5 -06 1612 Air 18 Canister 535

	SAMPLES TRANSFERRED FROM
Special Instructions: Benzene only, 24-hour TAT prelims, 48-hour Final	CHAIN OF CUSTODY #

Items/Reason	Religquished by (Signature and Organization)	Date/Time	Received by (Signature and Organization)	Date/Time	Sample Condition Upon Receipt
Summas Fue Amauses	Splan LEIDOS SERAS	10/16/18 1636	Jy Party/ SERAS	10/17/18 88:30	Intact
AII Annigsis	Jy Patel / SERAS	10/17/18 C 11.30	Bhupindu Corunar SERAS	10/17/18 1130	
	,				
00					

Page 1 of 1

## CHAIN OF CUSTODY RECORD

# Contact Name: Larry Martin/Samples Receiving

<b>USEPA</b> DateShi	inned <sup>,</sup> 10/16/	2018		CHAIN OF CUSTODY RECORD Site #: 359 Contact Name: Larry Martin/Samples Receiving									No: 2-101618-152205-0007 Cooler #:				
	ipped: 10/16/ Jame: ): 2 ↓ 0 0 0 2 Sample # 359-0014	10002 - 71 1011	8/15										Lab: ERT/SERAS				
Lab #	Sample #	Location	Sub Location	Analyses	TAT	TAT Units	Matrix	Sample Date	Sample Time	#	Container	Summa #	OrificeID	Start Pres sure	Ste Pr su		
07	359-0014	Trip Blank		SERAS SOP#1814	24	Hours	Air	10/16/20 18	1500	1	Summa Canister	10571		-27.5			
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	SAMPLES TRANSFERRED FROM
Special Instructions: Benzene only, 24-hour TAT prelims, 48-hour Final	CHAIN OF CUSTODY #

Items/Reason	Relinquished by (Signature and Organization)	Date/Time	Received by (Signature and Organization)	Date/Time	Sample Condition Upon Receipt
Summa Fil Aracis=s	Sille LEEDUS/SGRAS	16/16/18 16:37	Jon Patel / SERAS	10/17/18 8:30	Intact.
An dy sis	Jos Pital / SERAP	10/17/18 C 11:30	Bhubindu Parura / SERAS	10/17/18 @	

### ANALYTICAL REPORT

Prepared by Leidos Innovations Corporation Scientific, Engineering, Response and Analytical Services

> Tonawanda Coke Site Buffalo, NY

> > October 2018

EPA Work Assignment No. SERAS-359 LEIDOS Work Order No. SER00359 EPA Contract No. EP-W-09-031

> Submitted to J. Schaefer EPA/ERT 2890 Woodbridge Avenue Edison, NJ 08837

I de D. Killeen Date QA/QC Officer

P. Carter Program Manager 10/21/18 Date Analysis by: ERT/SERAS Laboratory

Prepared by:/Reviewed by: S. Capil/ R. Varsolona



Table of Contents

# Topic

**Testing Laboratories Information Detailed Sample Information** Introduction Case Narrative Summary of Abbreviations Section I Table 1.1a Results of the Analysis for Benzene (ppbv) in Air Results of the Analysis for Benzene  $(\mu g/m^3)$  in Air Table 1.1b Section II Table 2.1 Results of the LCS Analysis for Benzene in Air Table 2.2 Results of the Duplicate Analysis for Benzene in Air Section III Correspondence Chains of Custody

# Appendices

Appendix A Data for VOC in Air

Appendix A will be furnished on request.

AD 044





## TESTING LABORATORIES INFORMATION

Analysis of Volatile Organic Compounds in Air by SERAS Method #1814 "Analysis of Volatile Organic Compounds (VOCs) in SUMMA Canister Air Samples by Gas Chromatography/Mass Spectrometry (GC/MS)"

ERT/SERAS Laboratory 2890 Woodbridge Avenue Edison, NJ 08837

All analyses were performed according to our NELAP-approved quality assurance program. The test results meet the requirements of the current NELAP standards, where applicable, except as noted in the laboratory case narrative provided. Results are intended to be considered in their entirety and apply only to those analyzed and reported herein.

ERT/SERAS Laboratory is certified by the New Jersey Department of Environmental Protection, NELAP Laboratory Certification ID # 12023 for VOC analysis in air.





# **Detailed Sample Information**

SERAS Sample #	Field Sample #
L810003-01	359-0015
L810003-02	359-0016
L810003-03	359-0017
L810003-04	359-0018
L810003-05	359-0019
L810003-06	359-0020
L810003-07	359-0021
L810003-08	359-0022





# Introduction

SERAS personnel, in response to WA# SERAS-359, provided analytical support for environmental samples collected from the Tonawanda Coke Site in Buffalo, NY as described in the following table. The support also included QA/QC, data review and preparation of an analytical report containing analytical and QA/QC results.

The samples analyzed at SERAS were treated with procedures consistent with those specified in SERAS SOP #1008, *Sample Receiving, Handling and Storage.* 

Chain of Custody #	Number of Samples	Sampling Date	Date Received	Date Analyzed	Matrix	Analysis/ Method	Laboratory	Data Package
2-101718-141909- 0008	4	10/17/18	10/18/18	10/18/18	Ambient Air	VOC/SERAS SOP #1814	ERT/SERAS	AD 044
2-101718-142725- 0009	3				Ambient Air			
	1				Blank			

### **Case Narrative**

Sampling was conducted as per the site-specific Quality Assurance Project Plan (QAPP) and analyzed by the analytical methods as stated in the QAPP. The laboratory reported the data to three significant figures. Any other representation of the data is the responsibility of the user. Data were validated using a Stage 4 validation done manually (S4VM) in accordance with the "Guidance for Labeling Externally Validated Data for Superfund Use." All data validation flags have been inserted into the results tables.

### VOCs in Air Package AD 044

The data package was examined and found to be acceptable.

The results presented in this report only relate to the samples analyzed. All results are intended to be considered in their entirety. The Environmental Response Team/Scientific, Engineering, Response and Analytical Services laboratory is not responsible for utilization of less than the complete report.





### **Summary of Abbreviations**

LCSD Laboratory Control Sample Duplicate MDA Minimum Detectable Activity MDL Method Detection Limit MS Matrix Spike Duplicate MW Molecular Weight NA Not Applicable or Not Available NAD Normalized Absolute Difference NC Not Calculated NR Not Calculated NR Not Requested/Not Reported % D Percent Difference % R Percent Recovery SOP Standard Operating Procedure PCB Polychlorinated Biphenyl PDS Post Digestion Spike Percent RSDD Percent Relative Standard Deviation ppbv parts per billion by volume QA/QC Quality Assurance Quality Control QA/P Quality Assurance Quality Control QA/P Quality Assurance Quality Control QA/P Quality Assurance Quality Control QA/P Quality Assurance Quality Control QA/QC Semi Volatidation done manually SIM Selected Ion Monitoring SERAS Scientific Engineering Response and Analytical Services TIC Tentatively Identified Compound YCC Volatel Organic Compound YCC Volatel Organic Compound YCC Value is estimated SVOC Semi Volatie Organic Compound YCC Value is estimated Bip in picogram picolation ppico picourie g gram kg kilogram L lifer mg naicrogram μL microlter MG Aule is estimated J Value is estimated Iow X Recevent SK Recevent Start S Sigma J Value is estimated Iow X Recevent Start S R Rejected or Value is unusable J Value is estimated Iow X Recevent K R Rejected or Value is estimated Iow X Recevent Start S R Rejected or Value is estimated Iow X Recevent Start S R Rejected or Value is estimated Iow X Recevent Start S R Rejected or Value is estimated Iow X Recevent Start S R Rejected or Value is estimated Iow X Recevent Start S R R Sigma X R Rejected Ion X Recevent Start S R R Rejected Ion X R R R Rejected Ion X R R R Rejected Ion X R R R R R R R R R R R R R R R R R R	BFB BS BSD <sup>o</sup> C COC conc cont PCDD/PCDF DFTPP EMPC GC/ECD GC/MS Hg-CVAA ICP-AES ID IS LCS	Blank S Blank S Degree Chain c concent continu Polychl Decaflu Estimat Gas Ch Gas Ch Mercur Inductiv Identifi Internal	spike Dupl Centigrado of Custody tration ed orinated di orotriphen ed maximu romatograj romatograj y-Cold Va vely Coupl		inated dibenzo opy	furans (PCDF	)		
MDLMethod Detection LimitMSMatrix SpikeMSDMatrix Spike DuplicateMWMolecular WeightNANot Applicable or Not AvailableNADNormalized Absolute DifferenceNCNot CalculatedNRNot CalculatedWBDPercent Difference% RPercent RecoverySOPStandard Operating ProcedurePCBPolychlorinated BiphenylPDSPost Digestion SpikePercent RSDPercent Relative Standard Deviationpptvparts per billion by volumeppmparts per billion by volumeQA/QCQuality Assurance Project PlanRLReporting LimitRPDRelative Percent DifferenceS4VMStage 4 validation done manuallySIMSelected Ion MonitoringSERASScientific Engineering Response and Analytical ServicesTICTentatively Identified CompoundVCCSemi Volatile Organic CompoundVOCVolatile Organic CompoundVOCVolatile Organic CompoundVCCSemi Volatile Organic CompoundVOCVolatile Organic Compound*Value exceeds the acceptable QC limitsmaicrogramµmaicrogramµmaicrogramµmaicrogramµmaicrogramµmaicrogramµmaicrogramµmaicrogramµmaicrogramµmaicrogramµmaicrogramµ<					icate				
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<ul> <li>Value exceeds the acceptable QC limits</li> <li>m<sup>3</sup> cubic meter g gram microliter microgram μL microliter picogram pCi</li> <li>Manograms pg picogram</li> <li>Mathematical Science Science</li></ul>		Semi V	olatile Org	anic Compound					
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J- Value is estimated low UJ Not detected and RL is estimated									
Rev. 01/01/15, YRM									imated
	Rev. 01/01/15, YRM								





Table 1.1a Results of the Analysis for Benzene (ppbv) in Air
WA# SERAS-359, Tonawanda Coke Site

		VVA# 3	DERAS-359,	Tonawanu	a Coke Sil	e				
Method: SERAS SOP#1814 Lab Name: ERT/SERAS							ŀ	Page 1 of	1	
Lab Sample Number		NA		l	L810003-0	8	L810003-01			
Sample Number	PS-Methodblank-101818				359-0022		359-0015			
Sample Location					Trip Blank		TCP-02			
Sublocation				Ambient			Ambient			
Date Analyzed	10/18/2018				10/18/2018			10/18/2018		
Matrix		Air			Blank			Ambient Air		
Test Type		Initial		Initial			Initial			
Total or Dissolved		Ν			Ν			Ν		
CAS No Analyte	Result ppbv	RL ppbv	MDL ppbv	Result ppbv	RL ppbv	MDL ppbv	Result ppbv	RL ppbv	MDL ppbv	
71-43-2 Benzene	U	0.0200	0.00769	U	0.0200	0.00769	U	0.400	0.154	

# Table 1.1a (cont) Results of the Analysis for Benzene (ppbv) in Air WA# SERAS-359, Tonawanda Coke Site

#### Method: SERAS SOP#1814 Lab Name: ERT/SERAS

Lab Sample Number	L810003-02			l	_810003-0	-	L810003-04			
Sample Number		359-0016	5		359-0017			359-0018		
Sample Location		TCP-03		-	TCP-03 CO			TCP-01		
Sublocation	Ambient		Ambient Collocated			Ambient				
Date Analyzed	10/18/2018		10/18/2018			10/18/2018				
Matrix	Ambient Air		Ambient Air			Ambient Air				
Test Type	Initial		Initial			Initial				
Total or Dissolved		Ν		Ν			Ν			
CAS No Analyte	Result ppbv	<i>RL</i> ppbv	<i>MDL</i> ppbv	Result ppbv	<i>RL</i> ppbv	<i>MDL</i> ppbv	Result ppbv	<i>RL</i> ppbv	<i>MDL</i> ppbv	
71-43-2 Benzene	U	0.400	0.154	U	0.400	0.154	U	0.400	0.154	

# Table 1.1a (cont) Results of the Analysis for Benzene (ppbv) in Air WA# SERAS-359, Tonawanda Coke Site

Method: SERAS SOP#1814 Lab Name: ERT/SERAS											
Lab Sample Number	L	_810003-0	5	l	_810003-0	6	L810003-07				
Sample Number	359-0019				359-0020			359-0021			
Sample Location	TCP-04				TCP-06			TCP-05			
Sublocation	Ambient			Ambient			Ambient				
Date Analyzed	10/18/2018		10/18/2018			10/18/2018					
Matrix	Ambient Air		Ambient Air			Ambient Air					
Test Type		Initial		Initial			Initial				
Total or Dissolved		Ν		Ν			Ν				
CAS No Analyte	Result ppbv	<i>RL</i> ppbv	<i>MDL</i> ppbv	Result ppbv	<i>RL</i> ppbv	<i>MDL</i> ppbv	Result ppbv	<i>RL</i> ppbv	MDL ppbv		
71-43-2 Benzene	U	0.400	0.154	U	0.400	0.154	U	0.400	0.154		

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Page 1 of 1

#### Table 1.1b Results of the Analysis for Benzene (μg/m<sup>3</sup>) in Air WA# SERAS-359, Tonawanda Coke Site

Method: SERAS SOP#1814 Lab Name: ERT/SERAS

71-43-2	Benzene	U	0.0639	0.0246	U	0.0639	0.0246	U	1.28	0.491	
CAS No	Analyte	Result µg/m3	RL µg/m3	<i>MDL</i> μg/m3	Result µg/m3	RL µg/m3	<i>MDL</i> μg/m3	Result µg/m3	<i>RL</i> µg/m3	MDL µg/m3	
Test Type Total or Dissolved		N				N		N			
Matrix			Air Initial			Blank Initial		Ambient Air Initial			
Date Analyz	ed		10/18/2018	3		10/18/2018	3	10/18/2018			
Sublocation						Ambient		Ambient			
Sample Loca	ation					Trip Blank	i	TCP-02			
Sample Num	nber	PS-Met	thodblank-	101818		359-0022			359-0015		
Lab Sample	Number		NA		L	_810003-0	8	L810003-01			

# Table 1.1b (cont) Results of the Analysis for Benzene $(\mu g/m^3)$ in Air WA# SERAS-359, Tonawanda Coke Site

Method: SERAS SOP#1814 Lab Name: ERT/SERAS

Method: SERAS SOP#1814

Lab Sample	Number	L	_810003-0	2	I	_810003-0	3	L	_810003-0	4	
Sample Nur			359-0016			359-0017		359-0018			
Sample Loc	ation		TCP-03		-	CP-03 C	С		TCP-01		
Sublocation			Ambient		Amb	ient Collo	cated	Ambient			
Date Analyz	ed		10/18/2018			10/18/201	8	10/18/2018			
Matrix		Ambient Air				Ambient A	ir	Ambient Air			
Test Type			Initial			Initial			Initial		
Total or Dissolved		Ν				Ν		Ν			
CAS No	Analyte	Result µg/m3	<i>RL</i> µg/m3	<i>MDL</i> µg/m3	Result µg/m3	<i>RL</i> µg/m3	<i>MDL</i> µg/m3	Result µg/m3	<i>RL</i> µg/m3	<i>MDL</i> μg/m3	
71-43-2	Benzene	U	1.28	0.491	U	1.28	0.491	U	1.28	0.491	

# Table 1.1b (cont) Results of the Analysis for Benzene $(\mu g/m^3)$ in Air WA# SERAS-359, Tonawanda Coke Site

Lab Name: Ef	RT/SERAS										
Lab Sample N	lumber	L	.810003-0	5	L	_810003-0	6	L	_810003-0	7	
Sample Numb	ber		359-0019			359-0020			359-0021		
Sample Locat	ion		TCP-04			TCP-06			TCP-05		
Sublocation			Ambient			Ambient			Ambient		
Date Analyzed	d		10/18/2018	3		10/18/201	3		10/18/2018	8	
Matrix	Ambient Air		ir		Ambient A	ir		Ambient A	ir		
Test Type		Initial				Initial		Initial			
Total or Disso	lved		Ν			Ν			Ν		
CAS No	Analyte	Result µg/m3	<i>RL</i> µg/m3	MDL µg/m3	Result µg/m3	RL µg/m3	<i>MDL</i> µg/m3	Result µg/m3	<i>RL</i> µg/m3	<i>MDL</i> μg/m3	
71-43-2	Benzene	U	1.28	0.491	U	1.28	0.491	U	1.28	0.491	

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# Table 2.1 Results of the LCS Analysis for Benzene in Air WA# SERAS-359, Tonawanda Coke Site

Page 1 of 1

### Sample ID: LCS 101818

Analyte	LCS Spike Amount ppbv	LCS Recovered ppbv	% Recovery		C Limi Recov	
Benzene	1.00	1.01	101	92	-	120





#### Table 2.2 Results of the Duplicate Analysis for Benzene in Air WA# SERAS-359, Tonawanda Coke Site

Page 1 of 1

Sample ID: 359-0021

Analyte	Initial Analysis ppbv	Duplicate Analysis ppbv	RPD	QC Limit RPD
Benzene	U	U	NC	≤25



USEPA					CHA	INOFC	USTODY RE	ECORD				No: 2-1	01718-14	1909-0	800	
DateShi	ipped: 10/17/	2018				Si	te #: 359							Cool	er #:	
Carrier	Name: FedEx	(			Cont	act Name	: Stephen S	imonetti				Lab: ERT/SERAS				
AirbillNo	D:															
Valor	#L810	1003														
Lab #		Location	Sub Location	Anal yses	TAT	TAT Units	Matrix	Sample Date	Sample Time	#	Container	Summa #	OrificeID	Start Pres sure	Stop Pres sure	
01	359-0015	TCP-02	Ambient	SERAS SOP#1814	24	Hours	Ambient Air	10/17/20 18	1500	1	Summa Canister	10554	13924	-27.5	-6.5	
02	359-0016	TCP-03	Ambient	SERAS SOP#1814	24	Hours	Ambient Air	10/17/20 18	BIN	1	Summa Canister	10590	13998	-27.5		
03	359-0017	TCP-03 CO	Ambient Collocated	SERAS SOP#1814	24	Hours	Ambient Air	10/17/20 18	1514	1	Summa Canister	2046	14017	-28	-2.0	
04	359-0018	TCP-01	Ambient	SERAS SOP#1814	24	Hours	Ambient Air	10/17/20 18	(533	1	Summa Canister	10546	223031	-27.5	-2.5	
					430											
											1					

	SAMPLES TRANSFERRED FROM
Special Instructions: Benzene only, 24-hour TAT prelims, 48-hour Final	CHAINOF CUSTODY #

Items/Reason	Relinquished by (Signature and Organization)	Date/Time	Received by (Signature and Organization)	Date/Time	Sample Condition Upon Receipt
SAMPLES FEE	LEFDES/SERANS	10/17/18	my Matri ISERAS	10/18/189:00	That
ANALISES	J/	13-1-1	The Dents	10/10/10 1.00	+njaci
All/Analys.3	Ingt June / SERAS	10/18/18 12:00	J. Patel/SERAS	10/18/18 12:00	
			-		

CHAINOF CUSTODY RECORD



07

Pag	е	1	ot
I Ug	<u> </u>	•	<b>U</b> 1

### CHAIN OF CUSTODY RECORD Site #: 359

# No: 2-101718-142725-0009

OrificeID

14024

13793

223034

Summa #

14401

1991

2048

Cooler #: Lab: ERT/SERAS

sure

-28

-28

-28

Start Stop Pres

Pres

sure

-0,0

-3,0

-2.5

CarrierName:	FedEx	1	810003
		1.	

SERAS-359			L8100	03 MIS/18/18			Sit	JSTODY RE e #: 359 : Stephen Si					
-DAR-102218	Lab #	Sample #	Location	Sub Location	Analyses	TAT	TAT Units	Matrix	Sample Date	Sample Time	#	Container	
0221	OS	359-0019	TCP-04	Ambient	SERAS SOP#1814	24	Hours	Ambient Air	10/17/20 18	1546	1	Summa Canister	
00	06	359-0020	TCP-06	Ambient	SERAS SOP#1814	24	Hours	Ambient Air	10/17/20 18	1609	1	Summa Canister	
	07	359-0021	TCP-05	Ambient	SERAS SOP#1814	24	Hours	Ambient Air	10/17/20 18	1626	1	Summa Canister	
	09	359-0022	Trip	Ambient	SERAS SOP#1814	24	Hours	Blank	10/17/20	10.00	1	Summa	

08	359-0022	Blank	Ambient	SERAS SOP#1814	24	Hours	Віапк	18	1630		Canister	2002	-285
	-												
	**							-		-			
								5					
	1							<u>MJZI</u>					_

		SAMPLES TRANSFERRED FROM
Special Instructions: BENIZENE ONLY, 24 - HOUR TAT PRELIMS, 412 HOUR F	TNAL	CHAIN OF CUSTODY #

Items/Reason	Relinquished by (Signature and Organization)	Date/Time	Received by (Signature and Organization)	Date/Time	Sample Condition Upon Receipt
SAMAPLES	There LEZDOS/SCRAS	10/17/18	Thurs Martin /SERAS	10/18/18 9:00	Tradact
FOR ANALYSES		1631	ANT ANT IST	10110118 1.00	-n'rac I
All/Analysis	Thay THOME SERAS	10/18/18/2:00	Jy Patel / SERAS	10/18/18 12:00	
			, , ,		
				and the second s	

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## ANALYTICAL REPORT

Prepared by Leidos Innovations Corporation Scientific, Engineering, Response and Analytical Services

#### Tonawanda Coke Site Buffalo, NY

#### October 2018

EPA Work Assignment No. SERAS-359 LEIDOS Work Order No. SER00359 EPA Contract No. EP-W-09-031

> Submitted to J. Schaefer EPA/ERT 2890 Woodbridge Avenue Edison, NJ 08837

22/18 Nich D. Killeeb QA/QC Officer Date

P. Carter

Program Manager

0/21/18

Date

Analysis by: **ERT/SERAS** Laboratory

Prepared by:/Reviewed by: S. Capil/ R. Varsolona



Table of Contents

# Topic

Testing Laboratories Information Detailed Sample Information Introduction Case Narrative Summary of Abbreviations Section I Results of the Analysis for Benzene (ppbv) in Air Results of the Analysis for Benzene (μg/m<sup>3</sup>) in Air Section II Results of the LCS Analysis for Benzene in Air

## Section III

Correspondence Chains of Custody

### Appendices

Appendix A Data for VOC in Air

Appendix A will be furnished on request.

Results of the Duplicate Analysis for Benzene in Air

AD 045

Table 1.1a

Table 1.1b

Table 2.1

Table 2.2





## TESTING LABORATORIES INFORMATION

Analysis of Volatile Organic Compounds in Air by SERAS Method #1814 "Analysis of Volatile Organic Compounds (VOCs) in SUMMA Canister Air Samples by Gas Chromatography/Mass Spectrometry (GC/MS)"

ERT/SERAS Laboratory 2890 Woodbridge Avenue Edison, NJ 08837

All analyses were performed according to our NELAP-approved quality assurance program. The test results meet the requirements of the current NELAP standards, where applicable, except as noted in the laboratory case narrative provided. Results are intended to be considered in their entirety and apply only to those analyzed and reported herein.

ERT/SERAS Laboratory is certified by the New Jersey Department of Environmental Protection, NELAP Laboratory Certification ID # 12023 for VOC analysis in air.





# Detailed Sample Information

SERAS Sample #	Field Sample #
L810005-01	359-0023
L810005-02	359-0024
L810005-03	359-0025
L810005-04	359-0026
L810005-05	359-0027
L810006-06	359-0028
L810005-07	359-0029





# Introduction

SERAS personnel, in response to WA# SERAS-359, provided analytical support for environmental samples collected from the Tonawanda Coke Site in Buffalo, NY as described in the following table. The support also included QA/QC, data review and preparation of an analytical report containing analytical and QA/QC results.

The samples analyzed at SERAS were treated with procedures consistent with those specified in SERAS SOP #1008, *Sample Receiving, Handling and Storage.* 

Chain of Custody #	Number of Samples	Sampling Date	Date Received	Date Analyzed	Matrix	Analysis/ Method	Laboratory	Data Package
2-101818-135423- 0011	4	10/18/18	10/19/18	10/19/18	Ambient Air	VOC/SERAS SOP #1814	ERT/SERAS	AD 045
2-101818-135955- 0012	2				Ambient Air			
2-101818-140213- 0013	1				Blank			

### **Case Narrative**

Sampling was conducted as per the site-specific Quality Assurance Project Plan (QAPP) and analyzed by the analytical methods as stated in the QAPP. The laboratory reported the data to three significant figures. Any other representation of the data is the responsibility of the user. Data were validated using a Stage 4 validation done manually (S4VM) in accordance with the "Guidance for Labeling Externally Validated Data for Superfund Use." All data validation flags have been inserted into the results tables.

### VOCs in Air Package AD 045

The data package was examined and found to be acceptable.

The results presented in this report only relate to the samples analyzed. All results are intended to be considered in their entirety. The Environmental Response Team/Scientific, Engineering, Response and Analytical Services laboratory is not responsible for utilization of less than the complete report.





### **Summary of Abbreviations**

BFB BS BSD <sup>o</sup> C COC conc cont PCDD/F DFTPP EMPC GC/ECI GC/MS Hg-CVA ICP-AE ID IS LCS LCSD MDA MDL MS MSD MV NA NAD NC NR % D % R SOP PCB PDS PCCB PDS PCCB PDS PCB PDS PCB PDS PCCB PDS PCB PDS PCCB PDS PCB PDS PCB PDS PCB PDS PCB PDS PCB PDS PCCB PDS PCB PDS PCB PDS PCB PDS PCB PDS PCB PDS PCB PDS PCB PDS PCB PDS PCB PDS PCC PCB PDS PCC PCB PDS PCC PCB PDS PCB PDS PCC PCC PCB PDS PCC PCC PCC PCC PCD PCC PCC PCC PCC PCC	D AA S	Blank S Blank S Degree Chain o concent continue Polychle Decaflu Estimate Gas Chi Gas Chi Gas Chi Mercury Inductiv Identific Internal Laborat Laborat Matrix S Molecu Not App Normal Not Cal Not Rec Percent Percent Parts pe parts pe parts pe Quality Reportin Relative Stage 4	pike Dupl Centigrad f Custody ration ed orinated d orotripher ed maximu romatogra y-Cold Va y-Cold Va y-Co	icate e ibenzo-p-dioxi ylphosphine um possible co phy/Electron C phy/ Mass Spe por Atomic Ab ed Plasma- Ato ol Sample ol Sample Dup ble Activity Limit licate Not Available lute Difference of Reported e g Procedure iphenyl ike Standard Devia y volume y volume y volume /Quality Contic Project Plan Difference done manually itoring pring Response fied Compound	ncentration Capture Detector ctrometry poorption omic Emission licate tion rol	Spectrosco	rinated dibenzofi	ırans (PCDF	)
TIC		Tentativ	ely Identi	fied Compound	d	Services			
TCLP SVOC		Semi V	olatile Org	ristic Leaching ganic Compour					
VOC *				Compound acceptable Q0	C limits				
m <sup>3</sup>	cubic me microgra		g μL	gram microliter		kg mg	kilogram milligram	L mL	liter milliliter
μg ng	nanograi		pg	picogram		pCi	picocurie	σ	sigma
					Data Validatio	on Flags			
J J+		estimated estimated				R U	Rejected or V Not detected	alue is unusa	ble
J-		estimated				ŪJ	Not detected a	ind RL is esti	imated
Rev. 01/01/1	15, YRM								





#### Table 1.1a Results of the Analysis for Benzene (ppbv) in Air WA# SERAS-359, Tonawanda Coke Site

							F	Page 1 of	1
Method: SERAS SOP#1814 Lab Name: ERT/SERAS									
Lab Sample Number		NA		I	_810005-0	7	I	_810005-0	)1
Sample Number	PS-Me	thodblank-	101918		359-0029			359-0023	3
Sample Location					Trip Blank			TCP-02	
Sublocation					•			Ambient	
Date Analyzed		10/19/2018	3		10/19/2018	3		10/19/201	8
Matrix		Air			Blank			Ambient A	ir
Test Type		Initial			Initial			Initial	
Total or Dissolved		Ν			Ν			Ν	
CAS No Analyte	Result ppbv	RL ppbv	MDL ppbv	Result ppbv	RL ppbv	MDL ppbv	Result ppbv	RL ppbv	MDL ppbv
71-43-2 Benzene	U	0.0200	0.00769	U	0.0200	0.00769	U	0.400	0.154

# Table 1.1a (cont) Results of the Analysis for Benzene (ppbv) in Air WA# SERAS-359, Tonawanda Coke Site

#### Method: SERAS SOP#1814 Lab Name: ERT/SERAS

Lab Sample Number	L	L810005-02		L	_810005-0	3	L810053-04			
Sample Number		359-0024	1	359-0025				359-0026	5	
Sample Location		TCP-03			TCP-01			TCP-04		
Sublocation	Ambient		Ambient				Ambient			
Date Analyzed	10/19/2018			10/19/2018			10/19/201	8		
Matrix	Ambient Air		Ambient Air			Ambient Air				
Test Type	Initial		Initial				Initial			
Total or Dissolved		Ν			Ν		Ν			
CAS No Analvte	Result	RL	MDL	Result	RL	MDL	Result	RL	MDL	
CAS NO Analyle	ppbv	ppbv	ppbv	ppbv	ppbv	ppbv	ppbv	ppbv	ppbv	
71-43-2 Benzene	U	0.400	0.154	U	0.400	0.154	U	0.400	0.154	

# Table 1.1a (cont) Results of the Analysis for Benzene (ppbv) in Air WA# SERAS-359, Tonawanda Coke Site

Method: SERAS SOP#1814 Lab Name: ERT/SERAS						
Lab Sample Number	L	_810005-0	5	L	_810005-0	6
Sample Number		359-0027	,		359-0028	
Sample Location		TCP-06			TCP-05	
Sublocation		Ambient			Ambient	
Date Analyzed		10/19/201	8		10/19/201	8
Matrix		Ambient A	ir	1	Ambient A	ir
Test Type		Initial			Initial	
Total or Dissolved		Ν			Ν	
	Result	RL	MDL	Result	RL	MDL
CAS No Analyte	ppbv	ppbv	ppbv	ppbv	ppbv	ppbv
71-43-2 Benzene	U	0.400	0.154	U	0.400	0.154

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#### Table 1.1b Results of the Analysis for Benzene (µg/m<sup>3</sup>) in Air WA# SERAS-359, Tonawanda Coke Site Page 1 of 1 Method: SERAS SOP#1814 Lab Name: ERT/SERAS

Lab Name:	ERT/SERAS									
Lab Sample	Number	NA			I	_810005-0	7	L810005-01		
Sample Number		PS-Me	thodblank-	101918		359-0029			359-0023	<b>i</b>
Sample Location					Trip Blank			TCP-02		
Sublocation								Ambient		
Date Analyz	ed		10/19/2018	3		10/19/2018	3		10/19/201	8
Matrix			Air			Blank			Ambient A	ir
Test Type		Initial				Initial			Initial	
Total or Dis	solved		Ν			Ν			Ν	
CAS No	Analyte	Result µg/m3	<i>RL</i> µg/m3	<i>MDL</i> µg/m3	Result µg/m3	<i>RL</i> µg/m3	<i>MDL</i> µg/m3	Result µg/m3	<i>RL</i> µg/m3	MDL µg/m3
71-43-2	Benzene	U	0.0639	0.0246	U	0.0639	0.0246	U	1.28	0.491

# Table 1.1b (cont) Results of the Analysis for Benzene $(\mu g/m^3)$ in Air WA# SERAS-359, Tonawanda Coke Site

#### Method: SERAS SOP#1814 Lab Name: ERT/SERAS

Lab Sample Number		L	.810005-0	_	l	L810005-03			L810053-04		
Sample Number Sample Location			359-0024 TCP-03			359-0025 TCP-01		359-0026 TCP-04			
Sublocation			Ambient			Ambient					
Date Analyz	ed	10/19/2018			10/19/201	8		10/19/201	8		
Matrix		Ambient Air		Ambient Air			Ambient Air				
Test Type			Initial			Initial			Initial		
Total or Dise	Total or Dissolved		Ν			Ν			Ν		
CAS No	Analyte	Result µg/m3	<i>RL</i> μg/m3	<i>MDL</i> µg/m3	Result µg/m3	<i>RL</i> µg/m3	MDL µg/m3	Result µg/m3	<i>RL</i> µg/m3	<i>MDL</i> µg/m3	
71-43-2	Benzene	U	1.28	0.491	U	1.28	0.491	U	1.28	0.491	

# Table 1.1b (cont) Results of the Analysis for Benzene $(\mu g/m^3)$ in Air WA# SERAS-359, Tonawanda Coke Site

Method: SERAS SOP#1814 Lab Name: ERT/SERAS						
Lab Sample Number	L	.810005-0	5	L	_810005-0	6
Sample Number		359-0027			359-0028	
Sample Location		TCP-06			TCP-05	
Sublocation		Ambient			Ambient	
Date Analyzed		10/19/2018	3		10/19/2018	3
Matrix	ŀ	Ambient Ai	r		Ambient A	ir
Test Type	Initial				Initial	
Total or Dissolved	Ν			Ν		
	Result	RL	MDL	Result	RL	MDL
CAS No Analyte	µg/m3	µg/m3	µg/m3	µg/m3	µg/m3	µg/m3
71-43-2 Benzene	U	1.28	0.491	U	1.28	0.491

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# Table 2.1 Results of the LCS Analysis for Benzene in Air WA# SERAS-359, Tonawanda Coke Site

Page 1 of 1

#### Sample ID: LCS 101918

Analyte	LCS Spike Amount ppbv	LCS Recovered ppbv	% Recovery		C Lim Recov	
Benzene	1.00	1.04	104	92	-	120





# Table 2.2 Results of the Duplicate Analysis for Benzene in Air WA# SERAS-359, Tonawanda Coke Site

Page 1 of 1

Sample ID: 359-0027

Analyte	Initial Analysis ppbv	Duplicate Analysis ppbv	RPD	QC Limit RPD
Benzene	U	U	NC	≤25





DateShipped: 10/18/2018

CarrierName: FedEx

AirbillNo: WO# L810005

# No: 2-101818-135423-0011

Cooler #: Lab: ERT/SERAS

VV V	F DIO -	J									
Lab #	Sample #	Location	Sub Location	Analyses	Matrix	Numb Cont	Pump #	OrificeID	Stop Pressure	Stop_Date	Stop_Time
01	359-0023	TCP-02	Ambient	SERAS SOP#1814	Ambient Air	1	10584	13922	-2.5	10/18/2018	3:00:00 PM
02	359-0024	TCP-03	Ambient	SERAS SOP#1814	Ambient Air	1	2021	13952	-2	10/18/2018	3:13:00 PM
03	359-0025	TCP-01	Ambient	SERAS SOP#1814	Ambient Air	1	13740	13917	-1.5	10/18/2018	3:30:00 PM
04	359-0026	TCP-04	Ambient	SERAS SOP#1814	Ambient Air	1	10539	223037	0	10/18/2018	3:43:00 PM
		· · · · · · · · · · · · · · · · · · ·									

	SAMPLES TRANSFERRED FROM
Special Instructions: Benzene only, 24-hour TAT prelims, 48-hour Final	CHAIN OF CUSTODY #

Items/Reason	Relinquished by (Signature and Organization)	Date/Time	Received by (Signature and Organization)	Date/Time	Sample Condition Upon Receipt
SAMPLES	Che LEFDES/SERAS	10/18/15	Jumy THING / SERAS	intration and	That
FOL ANAUSS	4	1651	MIT INTEL JEKTS	10/19/18 8:00	+n790
Au/Analysi's	Juny Arte /SERAS	10/19/18 10:45	Bhubinda larman ISERAS	10/19/18 11:00	
5			A		

SERAS-359-DAR-102218

		1
Page	1	۱

# CHAIN OF CUSTODY RECORD Site #: 359 Contact Name: Larry Martin

No: 2-101818-135955-0012

10										110. E	101010-100	000-0012
Ē	DateShi	pped: 10/18/2018			Site #:	: 359						Cooler #:
AA	CarrierN	lame: FedEx	Contact Name: Larry Martin								Lab: E	ERT/SERAS
SERAS-359-DAR-102218	AirbillNo	# L8100	05									
-DAR	Lab #	Sample #	Location	Sub Location	Analyses	Matrix	Numb Cont	Pump #	OrificeID	Stop Pressure	Stop_Date	Stop_Time
-1022	05	359-0027	TCP-06	Ambient	SERAS SOP#1814	Ambient Air	1	2060	13908	0	10/18/2018	3:59:00 PM
218	06	359-0028	TCP-05	Ambient	SERAS SOP#1814	Ambient Air	1	10598	13997	- 1.5	10/18/2018	4:14:00 PM
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											<u> </u>	
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	/					=						

	SAMPLES TRANSFERRED FROM
Special Instructions: Benzene only, 24-hour TAT prelims, 48-hour Final	CHAIN OF CUSTODY #

Items/Reason	Relinquished by (Signature and Organization)	Date/Time	Received by (Signature and Organization)	Date/Time	Sample Condition Upon Receipt
SAMPLOS Fo	- GIL LETIXOS/SORAS	10/18/12	- In the - 10 - and	5:00	
ANAL'STS	Min 15	1650	My tome ISERAS	10/19/18	Latact
All Analysis	7my Motor ISERAS	10119118 10.45	Blaufindularuna /SERAS	10/19/18 11:00	

80

Faye I
--------

SERAS-359-DAR-102218 DateShipped: 10/18/2018

CarrierName: FedEx

AirbillNo: WO# L810005

Lab # Sample # Sub Location Analyses Matrix Numb Pump # OrificeID Stop Stop\_Date Stop\_Time Location Cont Pressure 359-0029 Trip Blank SERAS SOP#1814 1 13735 -28.5 10/18/2018 4:20:00 PM Blank 07

				SAMPLES TRANSF	ERRED FROM
Special Instructi	ons: Benzene only, 24-hour TAT prelims, 48-hour Fi	CHAIN OF CUSTOR	DY #		
Items/Reason	Relinquished by (Signature and Organization)	Date/Time	Received by (Signature and Organization)	Date/Time	Sample Condition Upon Receipt

	Items/Reason	Relinquished by (Signature and Organization)	Date/Time	Received by (Signature and Organization)	Date/Time	Sample Condition Upon Receipt
	SAMPLOS	LEIDUS SORAS	10/13/12	Im PANTES SERAS	indial a area	Totart
	FUR ANAL'SES	the	1640	AND SERMS	10/19/15 800	TULACI
	All/Analysis	Tomy Hother SERAS	10/19/18 10:45	Rhubindu larma ISERAS	10/19/18 (1:00	
					- / / /	
_						
<b>BO</b>						

# CHAIN OF CUSTODY RECORD Site #: 359

# Contact Name: Larry Martin

# No: 2-101818-140213-0013

Cooler #: Lab: ERT/SERAS

#### ANALYTICAL REPORT

Prepared by Leidos Innovations Corporation Scientific, Engineering, Response and Analytical Services

> Tonawanda Coke Site Buffalo, NY

> > October 2018

EPA Work Assignment No. SERAS-359 LEIDOS Work Order No. SER00359 EPA Contract No. EP-W-09-031

> Submitted to J. Schaefer EPA/ERT 2890 Woodbridge Avenue Edison, NJ 08837

10 02 18 llam D. Killeen Date QA/QC Officer

1

P. Carter Program Manager

(0/21/18 Date

Analysis by: ERT/SERAS Laboratory

Prepared by:/Reviewed by: S. Capil/ R. Varsolona



Table of Contents

# Topic

Testing Laboratories Information Detailed Sample Information Introduction Case Narrative Summary of Abbreviations

### Section I

Results of the Analysis for Benzene (ppbv) in Air	Table 1.1a
Results of the Analysis for Benzene $(\mu g/m^3)$ in Air	Table 1.1b

# Section II

Results of the LCS Analysis for Benzene in Air	Table 2.1
Results of the Duplicate Analysis for Benzene in Air	Table 2.2

## Section III

Correspondence Chains of Custody

### Appendices

Appendix A Data for VOC in Air

Appendix A will be furnished on request.

AD 046





## TESTING LABORATORIES INFORMATION

Analysis of Volatile Organic Compounds in Air by SERAS Method #1814 "Analysis of Volatile Organic Compounds (VOCs) in SUMMA Canister Air Samples by Gas Chromatography/Mass Spectrometry (GC/MS)"

ERT/SERAS Laboratory 2890 Woodbridge Avenue Edison, NJ 08837

All analyses were performed according to our NELAP-approved quality assurance program. The test results meet the requirements of the current NELAP standards, where applicable, except as noted in the laboratory case narrative provided. Results are intended to be considered in their entirety and apply only to those analyzed and reported herein.

ERT/SERAS Laboratory is certified by the New Jersey Department of Environmental Protection, NELAP Laboratory Certification ID # 12023 for VOC analysis in air.





# Detailed Sample Information

SERAS Sample #	Field Sample #
L810006-01	359-0030
L810006-02	359-0031
L810006-03	359-0032
L810006-04	359-0033
L810006-05	359-0034
L810006-06	359-0035
L810006-07	359-0036
L810006-08	359-0037





#### Introduction

SERAS personnel, in response to WA# SERAS-359, provided analytical support for environmental samples collected from the Tonawanda Coke Site in Buffalo, NY as described in the following table. The support also included QA/QC, data review and preparation of an analytical report containing analytical and QA/QC results.

The samples analyzed at SERAS were treated with procedures consistent with those specified in SERAS SOP #1008, *Sample Receiving, Handling and Storage.* 

Chain of Custody #	Number of Samples	Sampling Date	Date Received	Date Analyzed	Matrix	Analysis/ Method	Laboratory	Data Package
2-101918-132939- 0014	4	10/19/18	10/20/18	10/20/18	Ambient Air	VOC/SERAS SOP #1814	ERT/SERAS	AD 046
2-101918-133220- 0015	3				Ambient Air			
	1				Blank			

#### **Case Narrative**

Sampling was conducted as per the site-specific Quality Assurance Project Plan (QAPP) and analyzed by the analytical methods as stated in the QAPP. The laboratory reported the data to three significant figures. Any other representation of the data is the responsibility of the user. Data were validated using a Stage 4 validation done manually (S4VM) in accordance with the "Guidance for Labeling Externally Validated Data for Superfund Use." All data validation flags have been inserted into the results tables.

#### VOCs in Air Package AD 046

The data package was examined and found to be acceptable.

The results presented in this report only relate to the samples analyzed. All results are intended to be considered in their entirety. The Environmental Response Team/Scientific, Engineering, Response and Analytical Services laboratory is not responsible for utilization of less than the complete report.





#### **Summary of Abbreviations**

BFB BS OC COC conc cont PCDD/F DFTPP EMPC GC/ECI GC/MS Hg-CV/A ICP-AE ID IS LCS LCSD MDA	) AA	Blank S Blank S Degree Chain o concent continue Polychle Decaflu Estimate Gas Chi Gas Chi Mercury Inductiv Identifie Internal Laborat Laborat	pike Dupl Centigrad f Custody ration ed orinated d orotripher ed maxim romatogra romatogra y-Cold Va y-Cold Va y-Cold Va cation Standard ory Contro	icate e ibenzo-p-dioxi nylphosphine um possible co phy/Electron C phy/ Mass Spe por Atomic Ab led Plasma- At	Capture Detector ectrometry osorption omic Emission	ŗ		ofurans (PCDI	F)
MDL			Detection						
MS		Matrix		Linit					
MSD			Spike Dup	licate					
MW			lar Weigh						
NA				Not Available					
NAD NC		Not Cal		lute Difference	5				
NR				ot Reported					
% D			Differenc						
% R		Percent	Recovery						
SOP				ng Procedure					
PCB			orinated E						
PDS	DCD		gestion Sp		.:				
Percent	RSD			Standard Devia	ition				
ppbv		· ·	r billion b r million	y volume					
ppm pptv		· ·	r trillion b	v volume					
QA/QC				e/Quality Cont	rol				
QAPP				e Project Plan					
RL			ng Limit						
RPD				Difference					
S4VM				done manuall	У				
SIM SERAS			l Ion Mon		e and Analytical	Services			
TIC				fied Compound		Services			
TCLP			2	ristic Leaching					
SVOC		Semi V	olatile Org	ganic Compour					
VOC				Compound					
*		Value e	xceeds the	e acceptable Q0	C limits				
m <sup>3</sup>	cubic me	eter	g	gram		kg	kilogram	L	liter
μg	microgra		g μL	microliter		mg	milligram	mL	milliliter
ng	nanogra		pg	picogram		pCi	picocurie	σ	sigma
C	U		10	1 0		1	1		C
					Data Validatio	on Flags			
т	Val	antis+	1			р	Daiastal - J	Value	ahla
J J+		estimated				R U	Not detected	Value is unus	able
J+ J-		estimated estimated				U UJ		and RL is es	timated
<u>J</u> –	v anue 18	connaice	# 10 W			03			mateu
Rev. 01/01/	15, YRM								





#### Table 1.1a Results of the Analysis for Benzene (ppbv) in Air WA# SERAS-359, Tonawanda Coke Site

Method: SERAS SOP#1814 Lab Name: ERT/SERAS				ronawana			F	Page 1 of	1
Lab Sample Number		NA		L	_810006-0	8	l	_810006-0	)1
Sample Number	PS-Met	thodblank-	102018		359-0037			359-0030	)
Sample Location					Trip Blank			TCP-02	
Sublocation								Ambient	
Date Analyzed		10/20/2018	3		10/20/2018	3		10/20/201	8
Matrix		Air			Air			Ambient A	ir
Test Type		Initial			Initial			Initial	
Total or Dissolved		Ν			Ν			Ν	
	Result	RL	MDL	Result	RL	MDL	Result	RL	MDL
CAS No Analyte	ppbv	ppbv	ppbv	ppbv	ppbv	ppbv	ppbv	ppbv	ppbv
71-43-2 Benzene	U	0.0200	0.00769	U	0.0200	0.00769	U	0.400	0.154

#### Table 1.1a (cont) Results of the Analysis for Benzene (ppbv) in Air WA# SERAS-359, Tonawanda Coke Site

#### Method: SERAS SOP#1814 Lab Name: ERT/SERAS

Lab Sample Number	L	.810006-0	-	L	_810006-0	-	L	_810006-0	
Sample Number		359-0031			359-0032	2		359-0033	8
Sample Location		TCP-03		-	CP-03 C	0		TCP-01	
Sublocation		Ambient		Amb	ient Collo	cated		Ambient	
Date Analyzed		10/20/201	8		10/20/201	8		10/20/201	8
Matrix	1	Ambient A	ir		Ambient A	ir	/	Ambient A	ir
Test Type		Initial			Initial			Initial	
Total or Dissolved		Ν			Ν			Ν	
CAS No Analyte	Result ppbv	<i>RL</i> ppbv	<i>MDL</i> ppbv	Result ppbv	<i>RL</i> ppbv	<i>MDL</i> ppbv	Result ppbv	<i>RL</i> ppbv	<i>MDL</i> ppbv
71-43-2 Benzene	U	0.400	0.154	U	0.400	0.154	U	0.400	0.154

## Table 1.1a (cont) Results of the Analysis for Benzene (ppbv) in Air WA# SERAS-359, Tonawanda Coke Site

Method: SERAS SOP#1814 Lab Name: ERT/SERAS									
Lab Sample Number	L	.810006-0	5	l	_810006-0	6	L	_810006-0	7
Sample Number		359-0034			359-0035			359-0036	i
Sample Location		TCP-04			TCP-06			TCP-05	
Sublocation		Ambient			Ambient			Ambient	
Date Analyzed		10/20/2018	8		10/20/201	8		10/20/201	8
Matrix	1	Ambient A	ir		Ambient A	ir	/	Ambient A	ir
Test Type		Initial			Initial			Initial	
Total or Dissolved		Ν			Ν			Ν	
CAS No Analyte	Result ppbv	<i>RL</i> ppbv	<i>MDL</i> ppbv	Result ppbv	<i>RL</i> ppbv	<i>MDL</i> ppbv	Result ppbv	<i>RL</i> ppbv	<i>MDL</i> ppbv
71-43-2 Benzene	U	0.400	0.154	U	0.400	0.154	U	0.400	0.154

#### REPORT OF LABORATORY ANALYSIS

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Page 1 of 1

#### Table 1.1b Results of the Analysis for Benzene (μg/m<sup>3</sup>) in Air WA# SERAS-359, Tonawanda Coke Site

Method: SERAS SOP#1814
Lab Name: ERT/SERAS

Lab Name:	ERT/SERAS									
Lab Sample Number NA		I	L810006-08			L810006-01				
Sample Nur	Number PS-Methodblank-102018		359-0037			359-0030				
Sample Loc	ation					Trip Blank			TCP-02	
Sublocation	l								Ambient	
Date Analyz	zed	·	10/20/2018	3		10/20/2018	3		10/20/201	8
Matrix			Air			Air			Ambient A	ir
Test Type			Initial			Initial			Initial	
Total or Dis	solved		Ν			Ν			Ν	
CAS No	Analyte	Result µg/m3	<i>RL</i> µg/m3	<i>MDL</i> μg/m3	Result µg/m3	<i>RL</i> µg/m3	<i>MDL</i> μg/m3	Result µg/m3	<i>RL</i> µg/m3	<i>MDL</i> µg/m3
71-43-2	Benzene	U	0.0639	0.0246	U	0.0639	0.0246	U	1.28	0.491

### Table 1.1b (cont) Results of the Analysis for Benzene $(\mu g/m^3)$ in Air WA# SERAS-359, Tonawanda Coke Site

#### Method: SERAS SOP#1814 Lab Name: ERT/SERAS

Lab Sample Sample Nur		l	_810006-0 359-0031	_	I	_810006-0 359-0032	-	L810006-04 359-0033		
Sample Loc			TCP-03		-	TCP-03 C			TCP-01	
Sublocation			Ambient		Amb	ient Collo	cated		Ambient	
Date Analyz	ed		10/20/201	8		10/20/201	8		10/20/201	8
Matrix		1	Ambient A	ir		Ambient A	ir	/	Ambient A	ir
Test Type			Initial			Initial			Initial	
Total or Diss	solved		Ν			Ν			Ν	
CAS No	Analyte	Result µg/m3	<i>RL</i> µg/m3	MDL µg/m3	Result µg/m3	<i>RL</i> µg/m3	MDL µg/m3	Result µg/m3	<i>RL</i> µg/m3	<i>MDL</i> µg/m3
71-43-2	Benzene	U	1.28	0.491	U	1.28	0.491	U	1.28	0.491

### Table 1.1b (cont) Results of the Analysis for Benzene $(\mu g/m^3)$ in Air WA# SERAS-359, Tonawanda Coke Site

Method: SEF Lab Name: E	RAS SOP#1814 ERT/SERAS									
Lab Sample	Number	L	.810006-0	5	L	_810006-0	6	L	.810006-0	7
Sample Num	nber		359-0034			359-0035			359-0036	
Sample Loca	ation		TCP-04			TCP-06			TCP-05	
Sublocation			Ambient			Ambient			Ambient	
Date Analyze	ed		10/20/2018	В		10/20/201	8		10/20/2018	В
Matrix		ŀ	Ambient Ai	ir		Ambient A	ir		Ambient A	ir
Test Type			Initial			Initial			Initial	
Total or Diss	olved		Ν			Ν			Ν	
CAS No	Analyte	Result µg/m3	<i>RL</i> μg/m3	<i>MDL</i> μg/m3	Result µg/m3	<i>RL</i> µg/m3	<i>MDL</i> µg/m3	Result µg/m3	<i>RL</i> µg/m3	<i>MDL</i> μg/m3
71-43-2	Benzene	U	1.28	0.491	U	1.28	0.491	U	1.28	0.491

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## Table 2.1 Results of the LCS Analysis for Benzene in Air WA# SERAS-359, Tonawanda Coke Site

Page 1 of 1

#### Sample ID: LCS 102018

Analyte	LCS Spike Amount ppbv	LCS Recovered ppbv	% Recovery		C Lim Recov	
Benzene	1.00	1.01	101	92	-	120





#### Table 2.2 Results of the Duplicate Analysis for Benzene in Air WA# SERAS-359, Tonawanda Coke Site

Page 1 of 1

Sample ID: 359-0033

Analyte	Initial Analysis ppbv	Duplicate Analysis ppbv	RPD	QC Limit RPD
Benzene	U	U	NC	≤25



P	a	n	0	
г	a	ч	e	

### USEPA

#### DateShipped: 10/19/2018

#### Site #: 359

#### Contact Name: Larry Martin/samples receiving

No: 2-101918-132939-0014

	USEPA				CHAINOF CUST	ODY RECORL	J			NO: 2-	101918-132	2939-0014
SE	DateShi	pped: 10/19/2018			Site #:	359						Cooler #:
R		ame: FedEx			Contact Name: Larry Ma	rtin/samples re	ceivina				Lab. F	ERT/SERAS
RAS	AirbillNo				Contact Name. Larry Ma	in an isoan pies re	Jochung				200. 2	
Mon'	LAI	0006										
-DAF	Lab #	Sample #	Location	Sub Location	Analyses	Matrix	Numb Cont	Pump #	OrificeID	Stop Pressure	Stop_Date	Stop_Time
- 59-DAR-102218	01	359-0030	TCP-02	Ambient	SERAS SOP#1814	Ambient Air	1	10604	13911	-3	10/19/2018	2:55:00 PM
218	01	359-0031	TCP-03	Ambient	SERAS SOP#1814	Ambient Air	1	10594	13988	-2	10/19/2018	3:07:00 PM
	03	359-0032	TCP-03 CO	Ambient Collocated	SERAS SOP#1814	Ambient Air	1	10583	13990	-2	10/19/2018	. 3:07:00 PM
	04	359-0033	TCP-01	Ambient	SERAS SOP#1814	Ambient Air	1	10616	223024	-2	10/19/2018	3:23:00 PM
	~							-				
1												
					1 1.5						1	
					1535	/	1			-		
				4			1					
										-		
	3											

	SAMPLES TRANSFERRED FROM
Special Instructions: Benzene only, 24-hour TAT prelims, 48-hour Final	CHAINOF CUSTODY #

Items/Reason	Relinguished by (Signature and Organization)	Date/Time	Received by (Signature and Organization)	Date/Time	Sample Condition Upon Receipt
ANAUSIES FOR	The LEEDOS SERAS	10/19/18 1659	Tony Hommin SERAS	10120118 10:30	Intact
All/Analysis	hun there SERHS	02:31 81/0C10	Brupinon arma (SERAS	10/20/18 10:50	

07

Page	1

### USEPA

#### DateShipped: 10/19/2018

pped: 10/19/2018 lame: FedEx o: OOOG Sample #			Site #: Contact Name: Larry Ma		!					Cooler #:		
); 0006			Contact Name: Larry Ma	rtin/samples re								
0006				in an earlipide re	ceiving	Contact Name: Larry Martin/samples receiving						
		DateShipped: 10/19/2018Site #: 359CarrierName: FedExContact Name: Larry Martin/samples receivingAirbillNo:L 8   0 () () CLab #Sample #LocationSub LocationAnalysesMatrixNumb ContPump #OrificeID 105430.5359-0034TCP-04AmbientSERAS SOP#1814Ambient Air110543139530.6359-0035TCP-06AmbientSERAS SOP#1814Ambient Air11059513951										
Sample #												
eampie #	Location	Sub Location	Analyses	Matrix	Numb Cont	Pump #	OrificeID	Stop Pressure	Stop_Date	Stop_Time		
359-0034	TCP-04	Ambient	SERAS SOP#1814	Ambient Air	1	10543	13953	-3.5	10/19/2018	3:34:00 PM		
359-0035	TCP-06	Ambient	SERAS SOP#1814	Ambient Air	1	10595	13951	-0.5	10/19/2018	3:50:00 PM		
359-0036	TCP-05	Ambient	SERAS SOP#1814	Ambient Air	1	10620	13925	-1.5	10/19/2018	4:17:00 PM		
359-0037	Trip Blank		SERAS SOP#1814	Air	1	2057		-29.5	10/19/2018	4:25:00 PM		
									-			
*												
			655)									
										1		
	359-0035 359-0036	359-0035         TCP-06           359-0036         TCP-05	359-0035         TCP-06         Ambient           359-0036         TCP-05         Ambient	359-0035         TCP-06         Ambient         SERAS SOP#1814           359-0036         TCP-05         Ambient         SERAS SOP#1814	359-0035TCP-06AmbientSERAS SOP#1814Ambient Air359-0036TCP-05AmbientSERAS SOP#1814Ambient Air	359-0034TCP-04AmbientSERAS SOP#1814Ambient Air1359-0035TCP-06AmbientSERAS SOP#1814Ambient Air1359-0036TCP-05AmbientSERAS SOP#1814Ambient Air1	359-0034         TCP-04         Ambient         SERAS SOP#1814         Ambient Air         1         10543           359-0035         TCP-06         Ambient         SERAS SOP#1814         Ambient Air         1         10595           359-0036         TCP-05         Ambient         SERAS SOP#1814         Ambient Air         1         10595	359-0034         TCP-04         Ambient         SERAS SOP#1814         Ambient Air         1         10543         13953           359-0035         TCP-06         Ambient         SERAS SOP#1814         Ambient Air         1         10595         13951           359-0036         TCP-05         Ambient         SERAS SOP#1814         Ambient Air         1         10620         13925	359-0034         TCP-04         Ambient         SERAS SOP#1814         Ambient Air         1         10543         13953         -3.5           359-0035         TCP-06         Ambient         SERAS SOP#1814         Ambient Air         1         10595         13951         -0.5           359-0036         TCP-05         Ambient         SERAS SOP#1814         Ambient Air         1         10620         13925         -1.5	359-0034         TCP-04         Ambient         SERAS SOP#1814         Ambient Air         1         10543         13953         -3.5         10/19/2018           359-0035         TCP-06         Ambient         SERAS SOP#1814         Ambient Air         1         10595         13951         -0.5         10/19/2018           359-0036         TCP-05         Ambient         SERAS SOP#1814         Ambient Air         1         10620         13925         -1.5         10/19/2018		

	SAMPLES TRANSFERRED FROM
Special Instructions: Benzene only, 24-hour TAT prelims, 48-hour Final	CHAIN OF CUSTODY #

Items/Reason	Relinquished by (Signature and Organization)	Date/Time	Received by (Signature and Organization)	Date/Time	Sample Condition Upon Receipt
SAMPLES For	ALLA LEFDOS SERAS	10/19/18	1 70 .11-0		
ANALYSTS 6	hope 1	1700	Immy Thomas SERAS	10/20/18 10.30	1 ntuct
All/Analysis	Ting Houng ISERAS	10/20/18 10:50	Ch. 1	10/20/18 10:50	
	V				

#### ANALYTICAL REPORT

Prepared by Leidos Innovations Corporation Scientific, Engineering, Response and Analytical Services

> Tonawanda Coke Site Buffalo, NY

> > November 2018

EPA Work Assignment No. SERAS-359 LEIDOS Work Order No. SER00359 EPA Contract No. EP-W-09-031

> Submitted to J. Schaefer EPA/ERT 2890 Woodbridge Avenue Edison, NJ 08837

11/16/18 hu D. Killeen Date QA/QC Officer

P. Carter Program Manager

11/16/18

Date

Analysis by: ERT/SERAS Laboratory

Prepared by:/Reviewed by: S. Capil/ R. Varsolona



AD 047

Table of Contents

#### Topic

Testing Laboratories Information Detailed Sample Information Introduction Case Narrative Summary of Abbreviations

#### Section I

Results of the Analysis for Benzene (ppbv) in Air	Table 1.1a
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#### Section II

Results of the LCS Analysis for Benzene in Air	Table 2.1
Results of the Duplicate Analysis for Benzene in Air	Table 2.2

#### Section III

Correspondence Chains of Custody

#### Appendices

Appendix A Data for VOC in Air

Appendix A will be furnished on request.





#### TESTING LABORATORIES INFORMATION

Analysis of Volatile Organic Compounds in Air by SERAS Method #1814 "Analysis of Volatile Organic Compounds (VOCs) in SUMMA Canister Air Samples by Gas Chromatography/Mass Spectrometry (GC/MS)"

ERT/SERAS Laboratory 2890 Woodbridge Avenue Edison, NJ 08837

All analyses were performed according to our NELAP-approved quality assurance program. The test results meet the requirements of the current NELAP standards, where applicable, except as noted in the laboratory case narrative provided. Results are intended to be considered in their entirety and apply only to those analyzed and reported herein.

ERT/SERAS Laboratory is certified by the New Jersey Department of Environmental Protection, NELAP Laboratory Certification ID # 12023 for VOC analysis in air.

ARA



#### Detailed Sample Information

SERAS	Sample	#
-------	--------	---

L810007-01 L810007-02 L810007-03 L810007-04 L810007-06 L810007-06 L810007-07 L810007-08 L810007-09 L810007-10 L810007-10 L810007-11 L810007-13 L810007-14 L810007-15

### Field Sample #

359-0038
359-0039
359-0040
359-0041
359-0042
359-0043
359-0044
359-0045
359-0046
359-0047
359-0048
359-0049
359-0050
359-0051
359-0052

640



#### Introduction

SERAS personnel, in response to WA# SERAS-359, provided analytical support for environmental samples collected from the Tonawanda Coke Site in Buffalo, NY as described in the following table. The support also included QA/QC, data review and preparation of an analytical report containing analytical and QA/QC results.

The samples analyzed at SERAS were treated with procedures consistent with those specified in SERAS SOP #1008, *Sample Receiving, Handling and Storage.* 

Chain of Custody #	Number of Samples	Sampling Date	Date Received	Date Analyzed	Matrix	Analysis/ Method	Laboratory	Data Package
2-102218-100059- 0017	6 1 7 1	10/20/18	10/22/18	10/2218 Through 10/23/18	Ambient Air Blank Ambient Air Blank	VOC/SERAS SOP #1814	ERT/SERAS	AD 047

#### **Case Narrative**

Sampling was conducted as per the site-specific Quality Assurance Project Plan (QAPP) and analyzed by the analytical methods as stated in the QAPP. The laboratory reported the data to three significant figures. Any other representation of the data is the responsibility of the user. Data were validated using a Stage 4 validation done manually (S4VM) in accordance with the "Guidance for Labeling Externally Validated Data for Superfund Use." All data validation flags have been inserted into the results tables.

#### VOCs in Air Package AD 047

The data package was examined and found to be acceptable.

The results presented in this report only relate to the samples analyzed. All results are intended to be considered in their entirety. The Environmental Response Team/Scientific, Engineering, Response and Analytical Services laboratory is not responsible for utilization of less than the complete report.

AND A



#### Summary of Abbreviations

Rev. 01 01 1	5, YRM						
J J+ J-	Value is estima Value is estima Value is estima	ted high		R U UJ	Rejected or Va Not detected Not detected a		
			Data	Validation Flags			
ng	nanograms	pg	picogram	pCi	picocurie	σ	sigma
μg	microgram	μL	microliter	mg	milligram	mL	milliliter
m <sup>3</sup>	cubic meter	g	gram	kg	kilogram	L	liter
*			he acceptable QC limits	5			
VOC			c Compound				
SVOC			rganic Compound	uule			
TCLP			teristic Leaching Proce	dure			
TIC			eering Response and A tified Compound	nalytical Services	i i i i i i i i i i i i i i i i i i i		
SIM SERAS		ted Ion Mo tific Engin		nalution! Comisso			
S4VM			on done manually				
RPD			t Difference				
RL	Repo	rting Limit					
QAPP			ice Project Plan				
QA/QC			ice/Quality Control				
ppm pptv			by volume				
ppbv	•	per billion per million	by volume				
Percent			e Standard Deviation				
PDS		Digestion S					
PCB		chlorinated					
SOP	Stand	dard Opera	ting Procedure				
% R		ent Recove					
% D		ent Differen					
NR		Calculated Requested/	Not Reported				
NAD NC			solute Difference				
NA			or Not Available				
MW	Mole	ecular Weig	ght				
MSD		ix Spike D	uplicate				
MS		ix Spike	on Linn				
MDL		nd Detecti					
MDA			trol Sample Duplicate ctable Activity				
LCS LCSD			itrol Sample				
IS		nal Standa					
ID		tification					
ICP-AE	S Indu	ctively Cou	upled Plasma- Atomic I		сору		
Hg-CV	AA Mere	cury-Cold	Vapor Atomic Absorpti	ion			
GC/MS	Gas	Chromatog	raphy/ Mass Spectrom	etry			
GC/ECI			raphy/Electron Capture				
EMPC			mum possible concenti	ration			
PCDD/I DFTPP			l dibenzo-p-dioxins (PC penylphosphine	טט) and Polychl	orinated dibenzof	urans (PCD	F)
cont		inued				(0.00	
conc		entration					
COC		n of Custo	dy				
<sup>o</sup> C	Deg	ree Centigr	ade				
BSD		k Spike Di	uplicate				
BS	Blan	ik Spike					

AND



Page 1 of 2

#### Table 1.1a Results of the Analysis for Benzene (ppbv) in Air WA# SERAS-359, Tonawanda Coke Site

Method: SERAS SOP#1814 Lab Name: ERT/SERAS								5		
Lab Sample Number Sample Number Sample Location Sublocation	PS-Me	NA thodblank	102218	I	L810007-0 359-0044 Trip Blank		L	-810007-1 359-0052 Trip Blank	_	
Date Analyzed Matrix Test Type Total or Dissolved	10/22/2018 Air Initial N				10/22/2018 Blank Initial N			10/22/2018 Blank Initial N		
CAS No Analyte	Result ppbv	RL _ppbv	MDL ppbv	Result ppbv	RL ppbv	MDL ppbv	Result ppbv	RL ppbv	MDL ppbv	
71-43-2 Benzene	U	0.0200	0.00769	U	0.0200	0.00769	U	0.0200	0.00769	

#### Table 1.1a (cont) Results of the Analysis for Benzene (ppbv) in Air WA# SERAS-359, Tonawanda Coke Site

Method: SERAS SOP#1814 Lab Name: ERT/SERAS	1									
Lab Sample Number	I	L810007-01			L810007-0	)2	L810007-03			
Sample Number		359-0038	3		359-0039			359-0040		
Sample Location		TCP-02		TCP-03				TCP-01		
Sublocation		Ambient		Ambient			Ambient			
Date Analyzed		10/22/201	8	10/22/2018			10/22/2018			
Matrix	Ambient Air			Ambient Air			Ambient Air			
Test Type		Initial			Initial			Initial		
Total or Dissolved		Ν			Ν			N		
	Result	RL	MDL	Result	RL	MDL	Result	RL	MDL	
CAS No Analyte	ppbv	ppbv	ppbv	ppbv	ppbv	ppbv	ppbv	ppbv	ppbv	
71-43-2 Benzene	U	0.400	0.154	U	0.400	0.154	U	0.400	0.154	

### Table 1.1a (cont) Results of the Analysis for Benzene (ppbv) in Air WA# SERAS-359, Tonawanda Coke Site

Method: SERAS SOP#1814 Lab Name: ERT/SERAS										
Lab Sample Number	L	.810007-0	4		L810007-0	5	L810007-06			
Sample Number		359-0041		359-0042				359-0043		
Sample Location	TCP-04			TCP-06				TCP-05		
Sublocation	Ambient				Ambient		Ambient			
Date Analyzed	10/22/2018			10/22/2018			10/22/2018			
Matrix	Ambient Air				Ambient A	ir		Ambient A	ir	
Test Type		Initial		Initial				Initial		
Total or Dissolved		N			N			N		
CAS No Analyte	Result ppbv	RL ppbv	MDL ppbv	Result	RL ppbv	MDL ppbv	Result ppbv	<i>RL</i> ppbv	MDL ppbv	
71-43-2 Benzene	U	0.400	0.154	U	0.400	0.154	U	0.400	0.154	





#### Table 1.1a (cont) Results of the Analysis for Benzene (ppbv) in Air WA# SERAS-359, Tonawanda Coke Site

Method: SERAS SOP#1814 Lab Name: ERT/SERAS							1	Page 2 of	2	
Lab Sample Number	L	810007-0	8	I	_810007-0	9	L810007-10			
Sample Number		359-0045		359-0046				359-0047	-	
Sample Location		TCP-02		TCP-03				TCP-01		
Sublocation	Ambient			Ambient			Ambient			
Date Analyzed	10/22/2018			10/22/2018			10/23/2018			
Matrix	Ambient Air				Ambient A	- ir		Ambient A	-	
Test Type		Initial		Initial				Initial		
Total or Dissolved		N		N			N			
CAS No Analyte	Result ppbv	RL ppbv	MDL ppbv	Result ppbv	RL ppbv	MDL ppbv	Result ppbv	<i>RL</i> ppbv	MDL ppbv	
71-43-2 Benzene	U	0.400	0.154	U	0.400	0.154	U	0.400	0.154	

#### Table 1.1a (cont) Results of the Analysis for Benzene (ppbv) in Air WA# SERAS-359, Tonawanda Coke Site

#### Method: SERAS SOP#1814 Lab Name: ERT/SERAS

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Lab Sample Number	1	L810007-11			L810007-1	12	L810007-13				
Sample Number		359-0048			359-0049	9	359-0050				
Sample Location		TCP-04			TCP-04C	0	TCP-06				
Sublocation		Ambient		Amt	pient Collo	cated		Ambient			
Date Analyzed		10/23/2018			10/23/201	8	10/23/2018				
Matrix	Ambient Air				Ambient A	\ir	Ambient Air				
Test Type	Initial				Initial			Initial			
Total or Dissolved		N			Ν			Ν			
CAS No Analyte	Result ppbv	<i>RL</i> ppbv	MDL ppbv	Result ppbv	<i>RL</i> ppbv	MDL ppbv	Result	<i>RL</i> ppbv	MDL ppbv		
71-43-2 Benzene	U	0.400	0.154	U	0.400	0.154	U	0.400	0.154		

#### Table 1.1a (cont) Results of the Analysis for Benzene (ppbv) in Air WA# SERAS-359, Tonawanda Coke Site

#### Method: SERAS SOP#1814 Lab Name: ERT/SERAS Lab Sample Number L810007-14 Sample Number 359-0051 Sample Location TCP-05 Sublocation Date Analyzed Ambient 10/23/2018 Matrix Ambient Air Test Type Initial Total or Dissolved N Result RL MDL CAS No Analyte ppbv \_ppbv ppbv 71-43-2 Benzene U 0.400 0.154





#### Table 1.1b Results of the Analysis for Benzene (µg/m<sup>3</sup>) in Air WA# SERAS-359, Tonawanda Coke Site

Method: SER Lab Name: E	AS SOP#1814 RT/SERAS				ronawanda	ooke one		Page 1 of 2			
Lab Sample I			NA		l	.810007-0		L810007-15			
Sample Num	ber	PS-Me	thodblank	102218		359-0044			359-0052		
Sample Loca Sublocation	tion					Trip Blank			(		
Date Analyze	d		10/22/2018			10/22/2018	3	10/22/2018			
Matrix	-	Air			Blank			Blank			
Test Type			Initial		Initial				Initial		
Total or Diss	aluad		N		N			N			
TOTAL OF DISSU	nved		IN		N			14			
CAS No	Analyte	Result µg/m3	RL µg/m3	MDL µg/m3	Result µg/m3	RL µg/m3	MDL µg/m3	Result µg/m3	<i>RL</i> µg/m3	MDL µg/m3	
71-43-2	Benzene	U	0.0639	0.0246	U	0.0639	0.0246	U	0.0639	0.0246	

### Table 1.1b (cont) Results of the Analysis for Benzene (µg/m<sup>3</sup>) in Air WA# SERAS-359, Tonawanda Coke Site

Method: SERAS SOP#1814
Lab Name: ERT/SERAS

Lab Sample	Number	i	.810007-0	1	L	.810007-0	2	Ł	.810007-0	3	
Sample Num	nber		359-0038			359-0039		359-0040			
Sample Location			TCP-02			TCP-03			TCP-01		
Sublocation			Ambient			Ambient			Ambient		
Date Analyzed			10/22/2018			10/22/201	8		10/22/201	8	
Matrix		Ambient Air			,	Ambient A	ir	Ambient Air			
Test Type			Initial			Initial			Initial		
Total or Dissolved			N			N			N		
10101010101010											
		Result	RL	MDL	Result	RL	MDL	Result	RL	MDL	
CAS No	Analyte	µg/m3	µg/m3	_µg/m3	µg/m3	µg/m3	µg/m3	µg/m3	µg/m3	µg/m3	
71-43-2	Benzene	U	1.28	0.491	U	1.28	0.491	U	1.28	0.491	

## Table 1.1b (cont) Results of the Analysis for Benzene (µg/m<sup>3</sup>) in Air WA# SERAS-359, Tonawanda Coke Site

Method: SER Lab Name: El	AS SOP#1814 RT/SERAS									
Lab Sample N Sample Numb Sample Locat Sublocation Date Analyzer Matrix Test Type Total or Disso	ber d		-810007-0 359-0041 TCP-04 Ambient 10/22/201 Ambient A Initial N	8		-810007-0 359-0042 TCP-06 Ambient 10/22/201 Ambient A Initiai N	8		L810007-0 359-0043 TCP-05 Ambient 10/22/201 Ambient A Initial N	8
CAS No	Analyte	Result µg/m3	RL µg/m3	MDL µg/m3	Result µg/m3	RL µg/m3	MDL µg/m3	Result µg/m3	RL µg/m3	MDL µg/m3
71-43-2	Benzene	U	1.28	0.491	U	1.28	0.491	U	1.28	0.491



#### Table 1.1b (cont) Results of the Analysis for Benzene (µg/m<sup>3</sup>) in Air WA# SERAS-359, Tonawanda Coke Site

Method: SERAS Lab Name: ERT							F	Page 2 of 2	2		
Lab Sample Number Sample Number Sample Location Sublocation Date Analyzed Matrix Test Type Total or Dissolved			810007-0 359-0045 TCP-02 Ambient 10/22/2018 Ambient Ai Initial N	3		L810007-09 359-0046 TCP-03 Ambient 10/22/2018 Ambient Air Initial N			L810007-10 359-0047 TCP-01 Ambient 10/23/2018 Ambient Air Initial N		
CAS No 71-43-2	Analyte Benzene	Result µg/m3 U	RL _µg/m3 1.28	<i>MDL</i> µg/m3 0.491	Result µg/m3 U	RL _µg/m3 1.28	MDL _µg/m3 0.491	Result µg/m3 U	<i>RL</i> μg/m3 1.28	MDL µg/m3 0.491	

### Table 1.1b (cont) Results of the Analysis for Benzene (µg/m<sup>3</sup>) in Air WA# SERAS-359, Tonawanda Coke Site

Method: SER/ Lab Name: EF											
Lab Sample Number Sample Number Sample Location Sublocation Date Analyzed Matrix Test Type Total or Dissolved		-	.810007-1 359-0048 TCP-04 Ambient 10/23/2018 Ambient A Initial N	В	Amb	.810007-1 359-0049 TCP-04C0 ient Collo 10/23/201 Ambient A Initial N	D Cated 8		.810007-1 359-0050 TCP-06 Ambient 10/23/201 Ambient A Initial N	8	
CAS No	Analyte	Result µg/m3	RL µg/m3	MDL µg/m3	Result µg/m3	RL _ug/m3	MDL µg/m3	Result µg/m3	RL µg/m3	MDL µg/m3	
71-43-2	Benzene	U	1.28	0.491	U	1,28	0.491	U	1.28	0.491	

### Table 1.1b (cont) Results of the Analysis for Benzene (µg/m<sup>3</sup>) in Air WA# SERAS-359, Tonawanda Coke Site

Method: SER Lab Name: E	AS SOP#1814 RT/SERAS						
Lab Sample Number Sample Number Sample Location Sublocation Date Analyzed Matrix Test Type Total or Dissolved		L810007-14 359-0051 TCP-05 Ambient 10/23/2018 Ambient Air Initial N		3			
CAS No	Analyte	Result _ug/m3	RL µg/m3	MDL µg/m3		 	 
71-43-2	Benzene	U	1.28	0.491			





#### Table 2.1 Results of the LCS Analysis for Benzene in Air WA# SERAS-359, Tonawanda Coke Site

Page 1 of 1

Sample ID: LCS 102218

2

Analyte	LCS Spike Amount ppbv	LCS Recovered ppbv	% Recovery	QC Limits % Recovery		
Benzene	1.00	1.04	104	92	-	120





#### Table 2.2 Results of the Duplicate Analysis for Benzene in Air WA# SERAS-359, Tonawanda Coke Site

Page 1 of 1

#### Sample ID: 359-0042

Analyte	Initial Analysis ppbv	Duplicate Analysis ppbv	RPD	QC Limit RPD
Benzene	U	U	NC	≤25

#### Sample ID: 359-0045

Analyte	Initial Analysis ppbv	Duplicate Analysis ppbv	RPD	QC Limit RPD
Benzene	U	U	NC	≤25

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Page 1

### USEPA

### CHAIN OF CUSTODY RECORD

Site #: 359

#### Contact Name: Larry Martin/samples receiving

No: 2-102218-100059-0017

Cooler #: Lab: ERT/SERAS

CarrierName: Hand Delivered

	E 81000		Outbleast	A	Bladatu	Manuala	Dunna #	OrificalD	Cton	Cton Data	Cton Time
Lab #	Sample #	Location	Sub Location	Analyses	Matrix	Numb Cont	Pump #	OrificeID	Stop Pressure	Stop_Date	Stop_Time
01	359-0038	TCP-02	Ambient	SERAS SOP#1814	Ambient Air	1	10542	13927	-2.5	10/20/2018	2:50:00 PM
02	359-0039	TCP-03	Ambient	SERAS SOP#1814	Ambient Air	1	10599	13991	-5	10/20/2018	3:03:00 PM
05	359-0040	TCP-01	Ambient	SERAS SOP#1814	Ambient Air	1	2049	14019	-4.5	10/20/2018	3:17:00 PM
04	359-0041	TCP-04	Ambient	SERAS SOP#1814	Ambient Air	1	1822	13933	-9	10/20/2018	3:30:00 PM
05	359-0042	TCP-06	Ambient	SERAS SOP#1814	Ambient Air	1	1986	13950	-2	10/20/2018	3:57:00 PM
06	359-0043	TCP-05	Ambient	SERAS SOP#1814	Ambient Air	1	10552	13961	-4	10/20/2018	4:17:00 PM
07	359-0044	Trip Blank		SERAS SOP#1814	Blank	1	2028		-29	10/20/2018	4:15:00 PM
08	359-0045	TCP-02	Ambient	SERAS SOP#1814	Ambient Air	1	10529	223018	-0.5	10/21/2018	8:57:00 AM
Øg	359-0046	TCP-03	Ambient	SERAS SOP#1814	Ambient Air	1	14397	13915	-2	10/21/2018	9:10:00 AM

Special Instructions: Benzene only, 24-hour TAT prelims, 48-hour Final

SAMPLES TRANSFERRED FROM CHAIN OF CUSTODY #

Items/Reason	Relinquished by (Signature and Organization)	Date/Time	Received by (Signature and Organization)	Date/Time	Sample Condition Upon Receipt
SAMPLES Foc ANALISES	The LEFDIS/SERAS	10/22/18 1007	my Marin SERAS	10122/18 10:15	Intact
All /Analysis	my Tome SERAS	10/22/18 11:00	Jay Patel/SERAS	10/22/18 11:00	
			n	, 	
2					

SERAS-238-DARR :-111816

DateShipped: 10/22/2018



#### USEPA DateShipped: 10/22/2018

### CHAIN OF CUSTODY RECORD

#### Site #: 359

#### Contact Name: Larry Martin/samples receiving

No: 2-102218-100059-0017

14

Cooler #: Lab: ERT/SERAS

CarrierName: Hand Delivered

SERAS-359-DARP1-111618

# WO# L810007

Lat	) #	Sample #	Location	Sub Location	Analyses	Matrix	Numb Cont	Pump #	OrificeID	Stop Pressure	Stop_Date	Stop_Time
1	0	359-0047	TCP-01	Ambient	SERAS SOP#1814	Ambient Air	1	10615	223015	-1	10/21/2018	9:24:00 AM
l	l	359-0048	TCP-04	Ambient	SERAS SOP#1814	Ambient Air	1	10563	13987	-0.5	10/21/2018	9:39:00 AM
1	ג	359-0049	TCP-04 CO	Ambient Collocated	SERAS SOP#1814	Ambient Air	1	10617	223016	-1.5	10/21/2018	9:39:00 AM
1	3	359-0050	TCP-06	Ambient	SERAS SOP#1814	Ambient Air	1	10547	223049	-1.5	10/21/2018	9:57:00 AM
l	4	359-0051	TCP-05	Ambient	SERAS SOP#1814	Ambient Air	1	10596	223020	-1	10/21/2018	10:16:00 AM
)	5	359-0052	Trip Blank		SERAS SOP#1814	Blank	1	1980		-29	10/21/2018	10:19:00 AM
-												
				- 1.0								
							SI	\$	_			
	_											

	SAMPLES TRANSFERRED FROM
Special Instructions: Benzene only, 24-hour TAT prelims, 48-hour Final	CHAIN OF CUSTODY #

Items/Reason	Relinguished by (Signature and Organization)	Date/Time	Received by (Signature and Organization)	Date/Time	Sample Condition Upon Receipt
SAMPLES FOR	CALLA LERDIS/SERAS	10/22/18	7 94 1-221:		
ANAUSTS	affa centspectures	1002	Inon thorne /SERAS	10/22/18 10:15	faturt
All / Anglysi's	Tony Aforman /SERHS	10/22/18 11:00	Jay Intel / SERAS	10/22/18 11:00	

10