Tioga
ENVIRONMENTAL
CONSULTANTS

February 16, 2023

Mr. Jason Morat
TDEC – Division of Remediation
Memphis Environmental Field Office
8383 Wolf Lake Drive
Bartlett, TN 38133-4119

RE: Additional Environmental Assessment Report
1215 Springdale Street
Memphis, Tennessee
TDEC Facility #79-983

Dear Mr. Morat,

Tioga Environmental Consultants, Inc. (Tioga) is pleased to deliver the attached Additional Environmental Assessment for 1215 Springdale Street in Memphis, Tennessee. A risk of exposure to contaminated soil vapor through sub-slab vapor intrusion was previously identified in a Vapor Assessment performed by Tioga in November 2022. This additional assessment was performed to provide further information regarding the source and extent of contamination present at the Property in soil and soil vapor.

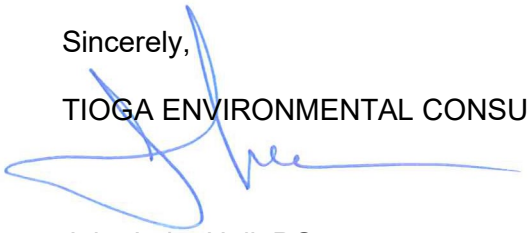
On January 19, 2023, Tioga personnel collected soil and soil vapor samples outside of the western apartment building located at the Property. Analytical data from soil samples collected identified numerous species of pesticide above the residential soil screening levels. The pesticide dieldrin was also identified above the approved Remedial Action Levels established by TDEC during previous remedial efforts. Additionally, soil vapor contamination in the form of hexachloro-1,3-butadiene was identified above the EPA initial soil gas concentrations in two of the four soil vapor samples collected (SS-AA-1 and SS-AA-2). Based on the data from this assessment, the main area of concern for both soil and soil vapor contamination is believed to be located along the southern portion of the western building immediately adjacent to Cypress Creek.

Given the results of this assessment, soil contamination related to historical activities of the Velsicol plant, known to have caused the release into Cypress Creek, still remains at the Property. A correlation between the soil contamination located at the Property and the vapor concentrations identified during this and previous assessments is likely present. Based on this, it is the opinion of Tioga that removal of the contaminant soil source should significantly reduce soil vapor concentrations in the area of concern. It is the recommendation of Tioga that the soils located in the area between the western building of the Property and Cypress Creek are added to the ongoing remedial work under the direction of Velsicol and are removed.

If you have any questions about our report or we may be of further service, please contact me at (901)791-2432.

Sincerely,

TIOGA ENVIRONMENTAL CONSULTANTS, INC.



John Luke Hall, PG
Geologist

Additional Environmental Assessment Report

TDEC FACILITY #79-983

1215 SPRINGDALE STREET

MEMPHIS, SHELBY COUNTY, TENNESSEE

February 2023

Project No. 561417.00

Prepared For:

UE Cypress Gardens, LLC
1215 Springdale Street
Memphis, TN 38108

Prepared By:

Tioga
ENVIRONMENTAL CONSULTANTS
357 North Main Street
Memphis, Tennessee 38103

Additional Environmental Assessment Report

TDEC Facility #79-983
1215 Springdale Street
Memphis, TN 38108
Project No. 561417.00

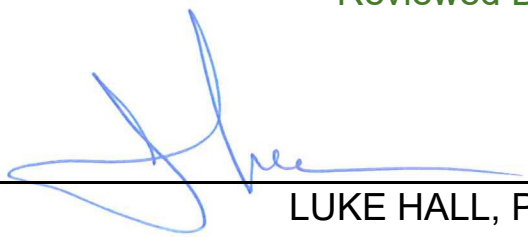
Prepared For Submission to:

TDEC, Division of Remediation
8383 Wolf Lake Drive
Memphis, TN

Prepared By:

KARIM BOUZEID, PG

Reviewed By:



LUKE HALL, PG

Table of Contents

APPENDICES

1.0 EXECUTIVE SUMMARY

An Additional Environmental Assessment was performed by Tioga Environmental Consultants, Inc. (Tioga) on the property addressed as 1215 Springdale Street (Property) in Memphis, Shelby County, Tennessee. The purpose of the assessment was to provide additional information regarding the source and extent of contamination present at the Property identified during the previous Soil Vapor Assessment conducted at the subject Property by Tioga in November 2022. A Vicinity Map showing the Property is offered in Appendix 1.

The primary goals of this Additional Assessment were to determine the extent of soil and soil vapor contamination adjacent to the western apartment building at the Property. On January 19, 2023, Tioga personnel collected six soil samples from three locations and four soil vapor samples at the Property. Analytical data from soil samples collected identified numerous species of pesticide above the residential soil screening levels. The pesticide dieldrin was also identified above the approved Remedial Action Levels established by TDEC during previous remedial efforts. Additionally, vapor contamination in the form of hexachloro-1,3-butadiene was identified above the EPA initial soil gas concentrations in two of the four soil vapor samples collected (SS-AA-1 and SS-AA-2). No soil vapor concentrations above either the EPA residential soil screening levels were identified in either of the other two vapor samples collected (SS-AA-3 and SS-AA-4). Based on these results, the main area of concern for both soil and soil vapor contamination is believed to be located along the southern portion of the western building immediately adjacent to Cypress Creek.

Given the results of this assessment, soil contamination related to historical activities of the Velsicol plant, known to have caused the release into Cypress Creek, still remains at the Property. A correlation between the soil contamination located at the Property and the vapor concentrations identified during this and previous assessments is likely present. Based on this, it is the opinion of Tioga that removal of the contaminant soil source should significantly reduce soil vapor concentrations in the area of concern. It is the recommendation of Tioga that the soils located between the western building of the Property and Cypress Creek are added to the ongoing remedial work under the direction of Velsicol and are removed.

2.0 SITE BACKGROUND

2.1 LOCATION

The Property consists of an approximately 1.43 acre parcel addressed as 1215 Springdale Street in Memphis, Shelby County, Tennessee. The approximate latitude and longitude for the Property is 35 degrees, 10 minutes, 9.87 seconds, north; and 89 degrees, 59 minutes, 4.69 seconds west, respectively.

A vicinity map and sample location maps are included in Appendix 1 for reference.

2.2 PHYSICAL SETTING, GEOLOGY, AND HYDROGEOLOGY

The Property is approximately 232 feet above Mean Sea Level (MSL) and is relatively level. Topography for the area is generally flat and generally slopes south towards Cypress Creek. All adjoining properties are of a similar elevation to the subject Property. A portion of Cypress Creek runs through the southern portion of the subject Property.

The U.S. Geological Survey Water – Resources Investigations Report 85-4295 for the Memphis, Tennessee area, indicates the geology of the general area is of loess at a thickness of 0-65 feet. This material consists of silt, silty clay, and minor sand and tends to retard downward movement of water.

The principal freshwater aquifers in the Memphis area, in descending order, are: (1) the alluvium, (2) the fluvial (terrace) deposits, (3) the Memphis Sand (“500-foot” sand), and (4) the Fort Pillow Sand (“1,400-foot” sand). The alluvium and fluvial deposits make up the shallow water table (unconfined) aquifers, which are usually separated from the underlying artesian aquifers by the Jackson-Upper Claiborne confining bed. Most of the water used for municipal and industrial supplies in the Memphis area is derived from the Memphis Sand.

Based on the U.S.G.S. Water Resources Investigations Report 90-4092, Plate 2, the depth to shallow groundwater is approximately 10 to 30 feet below ground surface. However, perched zones of groundwater may be evident at varying depths. Direction of shallow groundwater flow may vary locally due to subsurface conditions. Groundwater flow for this Property is generally to the north.

2.3 SUMMARY OF PREVIOUS ASSESSMENTS

In January 2017, Tioga performed a Phase I Environmental Site Assessment (ESA) for the Property located at 1215 Springdale Street. According to reports obtained from a Tennessee Department of Environment and Conservation (TDEC) file review performed as part of the Phase I ESA, the Velsicol plant located at 1199 Warford Street released wastewater containing organic pesticides into Cypress Creek during its operation from approximately 1940 to 1980. The concrete lined stream and adjacent bank at the Property have been impacted by this contamination.

In January 2017, Tioga Environmental Consultants collected 10 surficial soil samples at the Property. Numerous species of pesticides were detected in the samples collected,

including aldrin, dieldrin, endrin, and endrin ketone. TDEC Division of Solid Waste (DSW) was notified of the results due to their exceedance of the Remedial Action Level of 2.5 mg/kg. Following the reporting to TDEC DSW by Tioga, Earthcon Consultants, Inc. was contracted to facilitate in remediation of the contaminated soils. A Soil Removal Workplan was submitted and approved by TDEC DSW with a Soil Removal Summary Report submitted following soil removal activities.

According to the Soil Removal Summary Report by Earthcon, subsequent sampling and removal of contaminated soils in the affected areas was conducted in May 2018 which included additional sampling of the excavated area following contaminated soil removal. A No Further Action letter, dated June 2018, was issued by TDEC stating that no further action is required at the Cypress Garden Apartments. The Property was accepted into the Voluntary Cleanup Oversight and Assistance Program (VOAP) on August 17, 2022.

In July 2022, a Phase I ESA, completed by Tioga, was performed on the Property. The results of this Phase I ESA were consistent with the findings of the previous Tioga Phase I ESA performed in January 2017. In November 2022, Tioga performed a Soil Vapor Assessment on the Property. Tioga collected 12 soil vapor samples along the perimeter of the three apartment buildings located on the Property. Analytical results from the assessment identified minor vapor contamination at the Property in the form of chloroform and hexachloro-1,3-butadiene. The assessment indicated that chloroform concentrations identified were likely attributable to leaking water pipes while the hexachloro-1,3-butadiene is believed to be associated with the historical presence of aldrin contaminated soils onsite.

3.0 ADDITIONAL ASSESSMENT

3.1 SCOPE OF ASSESSMENT

The scope of work and sampling an analysis plan performed for this Additional Assessment was agreed upon with the Tennessee Department of Environment and Conservation and Tioga in a meeting on December 14, 2022.

3.1.1 Target Analytes

The previous Vapor Assessment identified volatile constituents with an association to pesticides. Based on this data, the suite of VOCs as well as pesticides/herbicides are the target analytes for this project.

Sources of Target Analytes

The Property has known historical soil contamination related to the discharge of untreated wastewater from the Velsicol plant located on Jackson Avenue in Memphis. Previous assessments have identified numerous species of pesticides including dieldrin and aldrin. Based on the USEPA Office of Chemical Safety and Pollution Prevention document *Preliminary Information on Manufacturing, Processing, Distribution, Use and Disposal Hexachlorobutadiene,* the pesticide aldrin can have impurities of up to 0.5% by weight of hexachloro-1,3-butadiene.

3.1.2 Sampling and Analysis Plan

The following sampling plan was developed to further delineate vapor concentrations identified near the western apartment building at the Property in the previous Tioga Vapor Assessment:

- Tioga will collect six soil samples from three locations at the Property. Soil sampled will be collected in between the western building at the Property and Cypress Creek. Soil samples will be collected with a stainless-steel hand auger. Two soil samples will be collected from each location at separate intervals based on results from a photoionization detector which will be used to screen soils during hand auger advancement. Soil samples will be analyzed for volatile organic compounds and pesticides/herbicides.

- Tioga will collect four soil vapor samples from beneath the slab at the Property. Temporary soil vapor collection points will be installed at an angle beneath the slab as close to the terminal depth of the slab as possible. Soil vapor samples will be analyzed for volatile organic compounds.

3.2 EXPLORATION, SAMPLING, AND TEST SCREENING METHODS

On January 19, 2023, Luke Hall, PG and Karim Bouzeid, PG of Tioga collected soil and soil vapor samples at the Property. Locations of soil borings and soil gas samples from the current assessment and the previous sub-slab sample locations from the Vapor Assessment are shown on Figures 2, 3, and 4 in Appendix 1.

All work was performed under a project specific Health and Safety Plan (HASP) and Tioga's corporate Quality Management Plan for field investigations. These documents are available for review on request.

3.2.1 Soil

During the Additional Environmental Assessment field activities, soil samples were collected using a stainless-steel hand auger which was decontaminated in between sample locations. Photographs of soil sampling activities are included in Appendix 3.

Soils from the boreholes were predominately brown silty clay. Samples were taken every two feet for the entire interval to a terminal depth of eight feet. A portion of soil from each two-foot interval was preserved in a polyethylene bag equipped with a zipper-like closure for screening. After approximately 15 minutes, a headspace reading was attempted using a photoionization detector (PID). The PID detects total organic vapors relative to a benzene-mimic calibration standard. The PID was calibrated at the beginning of the sampling event using factory-supplied calibration gas.

The results of the field screening and requested laboratory analyses are presented in Table 1, Soil Field Screening Results.

Table 1
Soil Field Screening Results

Sample ID	Depth (ft)	PID (ppm)	Analysis
HA-AA-1 (0-2)	0-2	16	VOC and Pesticides/Herbicides
HA-AA-1 (2-4)	2-4	0	NS
HA-AA-1 (4-6)	4-6	0	NS
HA-AA -1 (6-8)	6-8	0	VOC and Pesticides/Herbicides
HA-AA-2 (0-2)	0-2	14	VOC and Pesticides/Herbicides
HA-AA-2 (2-4)	2-4	0	NS
HA-AA-2 (4-6)	4-6	0	NS
HA-AA-2 (6-8)	6-8	0	VOC and Pesticides/Herbicides
HA-AA-3 (0-2)	0-2	0	VOC and Pesticides/Herbicides
HA-AA-3 (2-4)	2-4	0	NS
HA-AA-3 (4-6)	4-6	0	NS
HA-AA-3 (6-8)	6-8	0	VOC and Pesticides/Herbicides

NS = Not Sampled

All soil samples were placed in labeled containers and stored on ice in the field. A chain-of-custody form was filled out for samples submitted to the laboratory. A copy is included in Appendix 2. The samples were delivered on ice under chain-of-custody to Waypoint Analytical for analysis.

3.2.2 Soil Gas

Soil gas samples were collected using laboratory supplied six liter Summa canisters. During sample collection, a rotary hammer-drill was used to advance four temporary soil vapor points at an angle which coincided with the terminal depth of the building slab. A polyethylene point capable of collecting vapor samples was then inserted beneath the slab and sealed with hydrated bentonite. Prior to sample collection, the hole that was dug to allow angled drilling below the slab was refilled with soil. Disposable polyurethane tubing connected to the polyethylene point was attached to a sample train comprised of a three-way ball valve, an air flow regulator, and a Summa canister for sample collection. After the train was constructed, an approximate volume equivalent to the volume contained in three sampling trains was purged from the vapor monitoring point. A tightness test lasting two minutes was performed to ensure that a leak in the sampling train was not present. After successful completion of the tightness test, the Summa canister was opened and the soil gas sample was collected from each location. Additionally, paper towels with isopropyl alcohol were applied and used as a tracer gas to determine if a leak in the sample train was present.

Soil gas samples were shipped under chain-of-custody via FedEx to Pace Analytical in Mt. Juliet, TN for analysis.

3.3 CHEMICAL ANALYTICAL METHODS

All soil samples were analyzed by Waypoint Analytical of Memphis, TN. Soil gas samples were shipped to Pace Analytical Laboratories in Mt. Juliet, Tennessee. Laboratory analysis results and chain-of-custody forms are included in Appendix 2.

Laboratory analyses employed EPA / State approved methods capable of reaching the detection limits necessary for regulatory comparisons, including appropriate QA/QC as prescribed by the method(s). The following EPA methods were used to analyze samples collected at the Property:

- VOCs and Pesticides/Herbicides (soil) – EPA Methods 8260B, 8081B, and 8151A
- VOCs (soil gas) – EPA Method TO-15

4.0 PRESENTATION AND EVALUATION OF RESULTS

4.1 ANALYTICAL DATA

Soil and soil gas laboratory analytical data are compared to applicable regulatory screening levels as described in the following sections.

4.1.1 Soil Analytical Data

Subsurface soil analytical data is compared to the EPA residential soil screening levels, where established and the Remedial Action Levels (RALs), established by TDEC during previous remedial efforts at the Property. The EPA residential soil screening levels are developed as a relative comparison tool to determine when exposure to contamination by direct contact with contaminated soils could potentially be hazardous to human health. These soil screening levels are more conservative as the assumption for a residential scenario incorporates exposure by children.

Subsurface soil laboratory analytical data for the target analytes detected at concentrations above laboratory screening levels in at least one sample are offered as Table 2. Full laboratory analytical reports are offered in Appendix 2.

Subsurface soil analytical results for Pesticides/Herbicides identified multiple constituents above the risk-based soil screening levels as shown in Table 2. Dieldrin was identified above the previously approved RAL established by TDEC. No VOCs were detected above the EPA MCL or risk-based screening levels in any soil sample collected.

4.1.2 Soil Gas Analytical Data

Soil gas analytical data is compared to the EPA target soil gas concentrations as developed by the EPA Vapor Intrusion Screening Level (VISL) calculator using a residential scenario, a target hazard quotient of 0.1 and a target risk for carcinogens of $1x10^{-6}$. The EPA residential screening levels are used as relative comparison tools to determine when a risk to human health from vapor encroachment may be present.

Hexachloro-1,3-butadiene was identified at concentrations above the EPA target soil gas concentrations for a residential scenario in two samples collected. Constituent 1,2-dibromoethane was listed as being under the laboratory detection limit in all samples collected. However, the laboratory detection limit used for 1,2-dibromoethane is above the EPA target soil gas concentrations for a residential scenario for this constituent. The implications of the results for this constituent are discussed in further detail in Section 4.2.2. Laboratory analytical data from the soil gas samples collected during the current assessment are offered as Table 1.

Table 1
Subsurface Soil Sample Detection Summary
In mg/kg

Pesticide/Herbicide Constituent	EPA Residential SSL	Previously Established Remedial Action Levels	Sample ID					
			HA-AA-1 (0-2 ft)	HA-AA-1 (6-8 ft)	HA-AA-2 (0-2 ft)	HA-AA-2 (6-8 ft)	HA-AA-3 (0-2 ft)	HA-AA-3 (6-8 ft)
Aldrin	0.039	N/A	0.482	6.24	0.241	2.40	0.0205	3.30
Alpha-Chlordane	3.6	N/A	0.210	0.612	0.0726	0.113	0.0628	0.381
Gamma-Chlordane	3.6	N/A	1.57	4.08	0.592	0.892	0.493	2.78
Dieldrin	0.034	2.5	3.05	3.81	1.90	0.505	1.81	2.43
Endrin	1.9	N/A	12.7Q	5.96Q	6.93	<0.0020	3.87Q	2.95Q
Endrin Aldehyde	N/A	N/A	<0.0020	<0.0020	0.355Q	<0.0020	<0.0020	<0.0020
Endrin Ketone	N/A	N/A	39.7Q	50.2Q	20.2	5.30	24.8Q	25.0
Heptachlor	0.13	N/A	0.159Q	<0.0020	0.0467Q	<0.0020	<0.0020	<0.0020
Heptachlor Epoxide	0.07	N/A	0.0627Q	<0.0020	<0.0020	<0.0020	0.0463	<0.0020
2,4-DB	N/A	N/A	0.0268Q	<0.0020	<0.0020	<0.0020	<0.0020	<0.0020

N/A: Screening level not established
Q -Relative Percentage Difference (RPD) >40% dual column results
E – Above calibration range

Table 2
Soil Vapor Laboratory Analytical Results
(ug/m³)

Analyte		ACETONE	ALLYL CHLORIDE	BENZENE	BENZYL CHLORIDE	BROMODICHLOROMETHANE	BROMOFORM	BROMOMETHANE	1,3-BUTADIENE	CARBON DISULFIDE	CARBON TETRACHLORIDE	CHLOROBENZENE	CHLOROETHANE	CHLOROFORM	CHLOROMETHANE	2-CHLOROTOLUENE	CYCLOHEXANE	CHLORODIBROMOMETHANE	1,2-DIBROMOETHANE	1,2-DICHLOROBENZENE	1,3-DICHLOROBENZENE	1,4-DICHLOROBENZENE	1,2-DICHLOROETHANE	1,1-DICHLOROETHANE	1,1-DICHLOROETHENE	CIS-1,2-DICHLOROETHENE
EPA Target Soil Gas Concentrations (Residential)	**THQ-0.1 TRC-1E-6**	**N/A**	**3.48**	**12**	**1.91**	**2.53**	**85.1**	**17.4**	**3.12**	**2,430**	**15.6**	**174**	**13,900**	**4.07**	**313**	**N/A**	**20,900**	**N/A**	**0.156**	**266**	**N/A**	**8.51**	**3.6**	**58.5**	**695**	**139**
Sample ID	**Date**																									
SS-AA-1	1/19/23	**25.2**	<0.626	**8.46**	<1.04	<1.34	<6.21	<0.776	<0.23	**2.8**	**1.06J**	<0.924	<0.528	**2.45**	**11.2**	<1.03	**2.98**	<1.70	**<0.554**	<1.20	<1.20	<1.20	<0.810	<0.802	<0.793	<0.793
SS-AA-2	1/19/23	**22.6**	<0.626	**6.45**	<1.04	<1.34	<6.21	<0.776	<0.23	**6.47**	**1.11J**	<0.924	<0.528	**3.93**	**43.4**	<1.03	**2.29**	<1.70	**<0.554**	<1.20	<1.20	<1.20	<0.810	<0.802	<0.793	<0.793
SS-AA-3	1/19/23	**11.6**	<0.626	**7.86**	<1.04	<1.34	<6.21	<0.776	<0.23	**3.27**	<1.26	<0.924	<0.528	**0.41J**	**6.24**	<1.03	**2.33**	<1.70	**<0.554**	<1.20	<1.20	<1.20	<0.810	<0.802	<0.793	<0.793
SS-AA-4	1/19/23	**9.53**	<0.626	**6.77**	<1.04	<1.34	<6.21	<0.776	<0.23	**0.921**	<1.26	<0.924	<0.528	**0.91J**	**0.673**	<1.03	**2.55**	<1.70	**<0.554**	<1.20	<1.20	<1.20	<0.810	<0.802	<0.793	<0.793

Concentrations identified above laboratory detection levels are illustrated **BOLD**
Concentrations which exceed the EPA target soil gas concentration (THQ 0.1 TRC 1E-6) are illustrated in **RED,**
J - Result is less than the RL but greater than or equal to the MDL and the concentration is an approximate value
N/A – no target concentrations established

Table 2
Soil Vapor Laboratory Analytical Results
(ug/m³)

Analyte		TRANS-1,2-DICHLOROETHENE	1,2-DICHLOROPROPANE	CIS-1,3-DICHLOROPROPENE	TRANS-1,3-DICHLOROPROPENE	1,4-DIOXANE	ETHANOL	ETHYLBENZENE	4-ETHYLTOLUENE	TRICHLOROFLUOROMETHANE	DICHLORODIFLUOROMETHANE	1,1,2-TRICHLOROTRIFLUOROETHANE	1,2-DICHLOROTETRAFLUOROETHANE	HEPTANE	HEXACHLORO-1,3-BUTADIENE	N-HEXANE	ISOPROPYLBENZENE	METHYLENE CHLORIDE	METHYL BUTYL KETONE	2-BUTANONE (MEK)	4-METHYL-2-PENTANONE (MIBK)	METHYL METHACRYLATE	METHYL TERT-BUTYL ETHER	NAPHTHALENE	2-PROPANOL (used as tracer)
EPA Target Soil Gas Concentrations (Residential)	THQ-0.1 TRC-1E-6	139	13.9	N/A	N/A	18.7	N/A	37.4	N/A	N/A	348	17,400	N/A	1,390	4.25	2,430	1,390	2,090	104	17,400	10,400	2,430	360	2.75	---
Sample ID	**Date**																								
SS-AA-1	1/19/23	<0.793	<0.924	<0.908	<0.908	<0.721	**15.7**	**12.6**	<0.982	**1.38**	**2.54**	<1.53	<1.40	**21.8**	**22.2**	**11.5**	<0.983	**0.587J**	<5.11	**3.98**	<5.12	<0.819	<0.721	<1.83	**1.17J**
SS-AA-2	1/19/23	<0.793	<0.924	<0.908	<0.908	<0.721	**10.7**	**10.2**	<0.982	**1.41**	**2.28**	<1.53	<1.40	**16.5**	**174**	**9.84**	<0.983	**0.524J**	<5.11	**2.39J**	<5.12	<0.819	<0.721	**2.28J**	**1.09J**
SS-AA-3	1/19/23	<0.793	<0.924	<0.908	<0.908	<0.721	**11.1**	**22.2**	**72.6**	**0.983J**	**1.71**	<1.53	<1.40	**11.2**	<1.12	**6.59**	<0.983	<0.694	<5.11	**3.1J**	<5.12	<0.819	<0.721	<1.83	**0.855J**
SS-AA-4	1/19/23	<0.793	<0.924	<0.908	<0.908	<0.721	**25.3**	**17.4**	**9.77**	**0.955J**	**1.64**	<1.53	<1.40	**9.57**	<1.12	**8.95**	**2.37**	<0.694	<5.11	**4.98**	**0.402J**	<0.819	<0.721	<1.83	**3.12**

Concentrations identified above laboratory detection levels are illustrated **BOLD**
Concentrations which exceed the EPA residential target soil gas concentration (THQ 0.1 TRC 1E-6) are illustrated in **RED.**
J - Result is less than the RL but greater than or equal to the MDL and the concentration is an approximate value
N/A – not target concentrations established

Table 2
Soil Vapor Laboratory Analytical Results
(ug/m³)

Analyte		PROPENE	STYRENE	1,1,2,2-TETRACHLOROETHANE	TETRACHLOROETHENE	TETRAHYDROFURAN	TOLUENE	1,2,4-TRICHLOROBENZENE	1,1,1-TRICHLOROETHANE	1,1,2-TRICHLOROETHANE	TRICHLOROETHENE	1,2,4-TRIMETHYLBENZENE	1,3,5-TRIMETHYLBENZENE	2,2,4-TRIMETHYLPENTANE	VINYL CHLORIDE	VINYL BROMIDE	VINYL ACETATE	M&P-XYLENE	O-XYLENE
EPA Target Soil Gas Concentrations (Residnetial)	**THQ-0.1 TRC-1E-6**	**10,400**	**3,480**	**1.61**	**139**	**6,950**	**17,400**	**6.95**	**17,400**	**0.695**	**6.95**	**209**	**209**	**N/A**	**5.59**	**6.24**	**695**	**348**	**348**
Sample ID	**Date**																		
SS-AA-1	1/19/23	**16.1**	**0.506J**	<1.37	<1.36	<0.590	**68.2**	<4.66	<1.09	<0.422	<1.07	**15**	**4.16**	**8.36**	<0.511	<0.875	<0.704	**48.6**	**19.9**
SS-AA-2	1/19/23	**13.5**	**0.498J**	<1.37	**2.64**	<0.590	**52.7**	<4.66	<1.09	<0.422	<1.07	<0.982	<0.982	**7.15**	<0.511	<0.875	<0.704	**39.2**	**17.4**
SS-AA-3	1/19/23	**24.6**	**0.613J**	<1.37	<1.36	<0.590	**57.3**	<4.66	<1.09	<0.422	<1.07	**120**	**29.4**	<0.934	<0.511	<0.875	<0.704	**104**	**51.2**
SS-AA-4	1/19/23	**11.5**	<0.851	<1.37	**1.22J**	<0.590	**52.7**	<4.66	<1.09	<0.422	<1.07	**39.9**	**10.7**	**8.5**	<0.511	<0.875	<0.704	**77.6**	**36**

Concentrations identified above laboratory detection levels are illustrated **BOLD**
Concentrations which exceed the EPA target soil gas concentration (THQ 0.1 TRC 1E-6) are illustrated in **RED,**
J - Result is less than the RL but greater than or equal to the MDL and the concentration is an approximate value
N/A – not target concentrations established

4.2 SUMMARY COMPARISON TO REGULATORY CRITERIA

The most elevated concentrations of subsurface soil and soil vapor contamination were identified in soil boring HA-AA-1 (0-2 ft) and (6-8 ft) and soil vapor samples SS-AA-1 and SS-AA-2, respectively. Based on the soil vapor analytical data from the previous assessment and the analytical data from this assessment, the source for the identified soil and soil vapor contamination at the Property is in the vicinity of soil boring HA-AA-1 and sub-slab vapor sample SS-AA-1 and SS-AA-2, located along the border between the western building and Cypress Creek.

Below are the findings that involve detected constituents at variance with published standards specifically.

4.2.1 Subsurface Soil

Ten constituents, aldrin, alpha-chlordane, gamma-chlordane, dieldrin, endrin, endrin aldehyde, endrin ketone ,heptachlor, heptachlor epoxide, and 2,4-DB were detected above the screening level in subsurface soils as follows:

- Aldrin was identified above the EPA residential soil screening level of 0.039 mg/kg in HA-AA-1 (0-2 ft) and (6-8 ft), HA-AA-2 (0-2 ft), and HA-AA-3 (0-2 ft) and (6-8 ft) at 0.482 mg/kg, 6.24 mg/kg, 0.241 mg/kg, 2.40 mg/kg, and 3.30 mg/kg, respectively.

- Gamma-chlordane was identified above the EPA residential soil screening level of 3.6 mg/kg in HA-AA-1 (6-8 ft) at 4.08 mg/kg.

- Dieldrin was identified above the EPA residential soil screening level of 0.034 mg/kg in HA-AA-1 (0-2 ft) and (6-8 ft), HA-AA-2 (0-2 ft) and (6-8 ft), and HA-AA-3 (0-2 ft) and (6-8 ft) at 3.05 mg/kg, 3.81 mg/kg, 1.90 mg/kg, 0.505 mg/kg, 1.81 mg/kg, and 2.43 mg/kg, respectively. Additionally, dieldrin was identified above the previously established RAL of 2.5 mg/kg in HA-AA-1 (0-2 ft) and (6-8 ft) at 3.05 mg/kg and 3.81 mg/kg, respectively.

- Endrin was identified above the EPA residential soil screening level of 1.9 mg/kg in HA-AA-1 (0-2 ft) and (6-8 ft), HA-AA-2 (0-2 ft), and HA-AA-3 (0-2 ft) and (6-8 ft) at 12.7 mg/kg, 5.96 mg/kg, 6.93 mg/kg, 3.87 mg/kg, and 2.95 mg/kg, respectively.

- Heptachlor was identified above the EPA residential soil screening level of 0.13 mg/kg in HA-AA-1 (0-2 ft) at 0.159 mg/kg.

4.2.2 Vapor Intrusion

One constituent from this Additional Environmental Assessment, hexachloro-1,3-butadiene, was identified at concentrations above the initial target soil gas concentrations for a residential scenario as follows:

- Hexachloro-1,3-butadiene was identified above the initial target soil gas concentrations of 4.25 ug/m^3 in SS-AA-1 and SS-AA-2 at 22.2 ug/m^3 and 174 ug/m^3 , respectively.

- Due to limitations inherent with the laboratory equipment used to perform TO-15 analysis, constituent 1,2-dibromoethane was reported at a laboratory detection level of 0.554 ug/m^3, above the EPA initial screening level of 0.156 ug/m^3. Communication with laboratory staff identified that no lower screening levels could be achieved for this constituent. The TDEC document *Guidance on Evaluation of the Vapor Intrusion Pathway through the Collection of Soil Gas Data at Sites Enrolled in the Brownfield Projects Voluntary Oversight and Assistance Program* states that "If the detection limit (DL) is above the initial screening value(s), then it is suggested that half of the DL is used as the screening concentration." For the detection level used for 1,2-dibromoethane, the suggested screening concentration would be 0.277 ug/m^3. This represents a difference of 0.121 ug/m^3. Due to this relatively small difference, it is the opinion of Tioga that the use of an elevated screening level for 1,2-dibromoethane will have a negligible effect on the risk assessment (discussed further in section 4.2.3) for the Property.

4.2.3 Risk Assessment

Due to concentrations of soil vapor in samples collected at the Property which exceed the EPA target soil gas concentrations, Tioga performed a risk-analysis based on the analytical data from this assessment. The results of the risk analysis are discussed below.

Four samples (SS-AA-1 through SS-AA-4) were collected along the perimeter of the western building. Hexachloro-1,3-butadiene was identified at a concentration above the target soil gas concentration in two samples (SS-AA-1 and SS-AA-2). No other constituents were identified at concentrations above the initial target soil gas concentrations. When the cumulative risk for this area is considered, including half of the laboratory detection level for 1,2-dibromoethene, the target risk for carcinogens for the western building is calculated by the EPA Vapor Intrusion Screening Level Calculator at 4.27 $x10^{-5}$ and a target hazard quotient of 0.000885

According to TDEC DoR, a cumulative carcinogen risk greater than $1x10^{-5}$ or a sum non-carcinogenic risk (hazard quotient) of greater than 1.0 as the threshold where mitigation or remediation would be required if the site were enrolled in a TDEC sponsored program.

5.0 CONCLUSIONS

Due to the exceedance of vapor analytical results above the target soil gas concentrations, Tioga performed a risk-analysis on the vapor results collected from beneath the western building. The results of the risk analysis are discussed below.

- Four samples (SS-AA-1 through SS-AA-4) were collected along the perimeter of the western building. Hexachloro-1,3-butadiene was identified at a concentration above the target soil gas concentration in two samples (SS-AA-1 and SS-AA-2). No other constituents were identified at concentrations above the initial target soil gas concentrations. When the cumulative risk for this area is considered, including half of the laboratory detection level for 1,2-dibromoethene, the target risk for carcinogens for the western building is calculated by the EPA Vapor Intrusion Screening Level Calculator at 4.27×10^{-5} and a target hazard quotient of 0.000885. Based on the data collected, the risk assessment for the western building is above the threshold where TDEC DoR would require vapor mitigation or remediation.

Analytical results from this Additional Assessment and the previous Vapor Assessment indicate limited contamination by pesticides/herbicides is present in soil and soil vapor at the Property. The most significant contamination identified was from the constituent hexachloro-1,3-butadiene. As stated in the previous Vapor Assessment, based on the USEPA Office of Chemical Safety and Pollution Prevention document *Preliminary Information on Manufacturing, Processing, Distribution, Use and Disposal Hexachlorobutadiene,* the pesticide aldrin can have impurities of up to 0.5% by weight of hexachloro-1,3-butadiene. Given that contamination in the form of various species of chlorinated pesticides has been identified in soils on the Property which are known to be potentially associated with hexachloro-1,3-butadiene, it is likely that the vapor contamination identified in soil vapor samples SS-AA-1 and SS-AA-2 is due to historical activities associated with the former Velsicol plant.

Analytical data from soil samples collected identified numerous species of pesticide above the residential soil screening levels. The pesticide dieldrin was also identified above the approved Remedial Action Levels established by TDEC during previous remedial efforts. Increased concentrations of aldrin were observed in soil sample HA-AA-1 (6-8 ft) which is in close proximity to the highest concentration of vapor contamination in the form of hexachloro-1,3-butadiene (SS-AA-2). Additionally, analytical results from soil sample HA-AA-1 identified dieldrin above the previously approved RAL of 2.5 mg/kg, as established by TDEC, at 3.05 mg/kg (0-2 ft) and 3.81 mg/kg (6-8 ft).

Given the potential association between aldrin and hexachloro-1,3-butadiene, and the lack of identifiable hexachloro-1,3-butadiene above the target soil gas concentrations in vapor samples SS-AA-3 and SS-AA-4, soil and associated soil vapor contamination beneath the western building are likely limited to the areas of the building immediately adjacent to Cypress Creek.

5.1 REMEDIATION / MITIGATION OF CONTAMINATED MEDIA

Soil contamination above the TDEC approved RAL for dieldrin was identified in soil sample HA-AA-1. Previous remedial efforts have taken place under the direction of the responsible party for the release to remove dieldrin contaminated soils to below the RAL at the Property. The findings of this assessment indicate that soil contamination associated with the former Velsicol plant still remains on the Property and could potentially pose a continued risk. Based on the analytical data from this assessment, the main area

of concern is located south of the western building and immediately adjacent to Cypress Creek. It is the recommendation of Tioga that the soils located between the western building of the Property and Cypress Creek should be added to the ongoing remedial work under the direction of Velsicol and should be removed.

Given the identification of numerous forms of pesticides above the EPA residential soil screening levels, the identification of dieldrin above the previously established RAL, and the identification and correlation between aldrin and hexachloro-1,3-butadiene, it is the opinion of Tioga that removal of the contaminant soil source should significantly reduce soil vapor concentrations in the area of concern.

Tioga is available for clarification and detailing of the above-listed recommendations.

6.0 REFERENCES

ASTM Designation E1903-11: Standard Practice for Environmental Site Assessments: Phase II Environmental Site Assessment Process. 2011. ASTM, West Conshohocken, Pennsylvania.

Google Earth. Available [online] Recent Aerial Photograph. http://googleearth.com/.

Limited Soils Assessment, 1215 Springdale Street, Tioga Environmental Consultants, January 2017.

Phase I Environmental Site Assessment, 1215 Springdale Street, Tioga Environmental Consultants, January 2017.

Phase I Environmental Site Assessment Report. 1215 Springdale Street. Tioga Environmental Consultants, Inc. July 2022.

Soil Vapor Assessment Report. Tioga Environmental Consultants. December, 2022.

Soil Removal Summary Report, Earthcon Consultants, Inc., June 2018.

Tennessee Department of Environment and Conservation Division of Remediation. Guidance on Evaluating the Vapor Intrusion Pathway through the Collection of Soil Gas Data at Sites Enrolled in the Brownfield Projects Voluntary Oversight and Assistance Program. 2022

United States Environmental Protection Agency Regions 3, 6, and 9. Regional Screening Levels for Chemical Contaminants at Superfund Sites. http://www.epa.gov/risk/regional-screening-table

U.S. Department of the Interior. 1985. Potential for Leakage Among Principal Aquifers in the Memphis Area, Tennessee, U.S. Geological Survey, Water–Resources Investigation Report 85-4295.

U.S. Department of the Interior. 1990. Hydrogeology and Preliminary Assessment of the Potential for Contamination of the Memphis Aquifer in the Memphis Area, Tennessee, U.S. Geological Survey Water – Resources Investigation Report 90-4092, Plate 2 [Altitude of the water table in the alluvium and fluvial deposits in the Memphis area, Tennessee, fall 1988].

USEPA. Vapor Intrusion Screening Level Calculator. https://www.epa.gov/vaporintrusion/vapor-intrusion-screening-level-calculator

7.0 QUALIFICATIONS OF ENVIRONMENTAL PROFESSIONALS

We declare that, to the best of our professional knowledge and belief, we meet the definition of Environmental Professional as defined in § 312.10 of 40CFR 312 and we have the specific qualifications based on education, training, and experience to assess a property of the nature, history, and setting of the Property. We have developed and performed the all appropriate inquiries in conformance with the standards and practices set forth in 40 CFR Part 312.

Luke Hall, PG

Professional Geologist
Education: Degree(s)/Year/Specialization
M.S./2011/Earth Sciences
B.S./1997/Geology
Alabama PG license #1363
Arkansas PG license #1990
Mississippi PG license #0975
Tennessee PG license #5698
2011 Certified, OSHA 40 Hr, Hazwoper

Years in Environmental Practice: 13

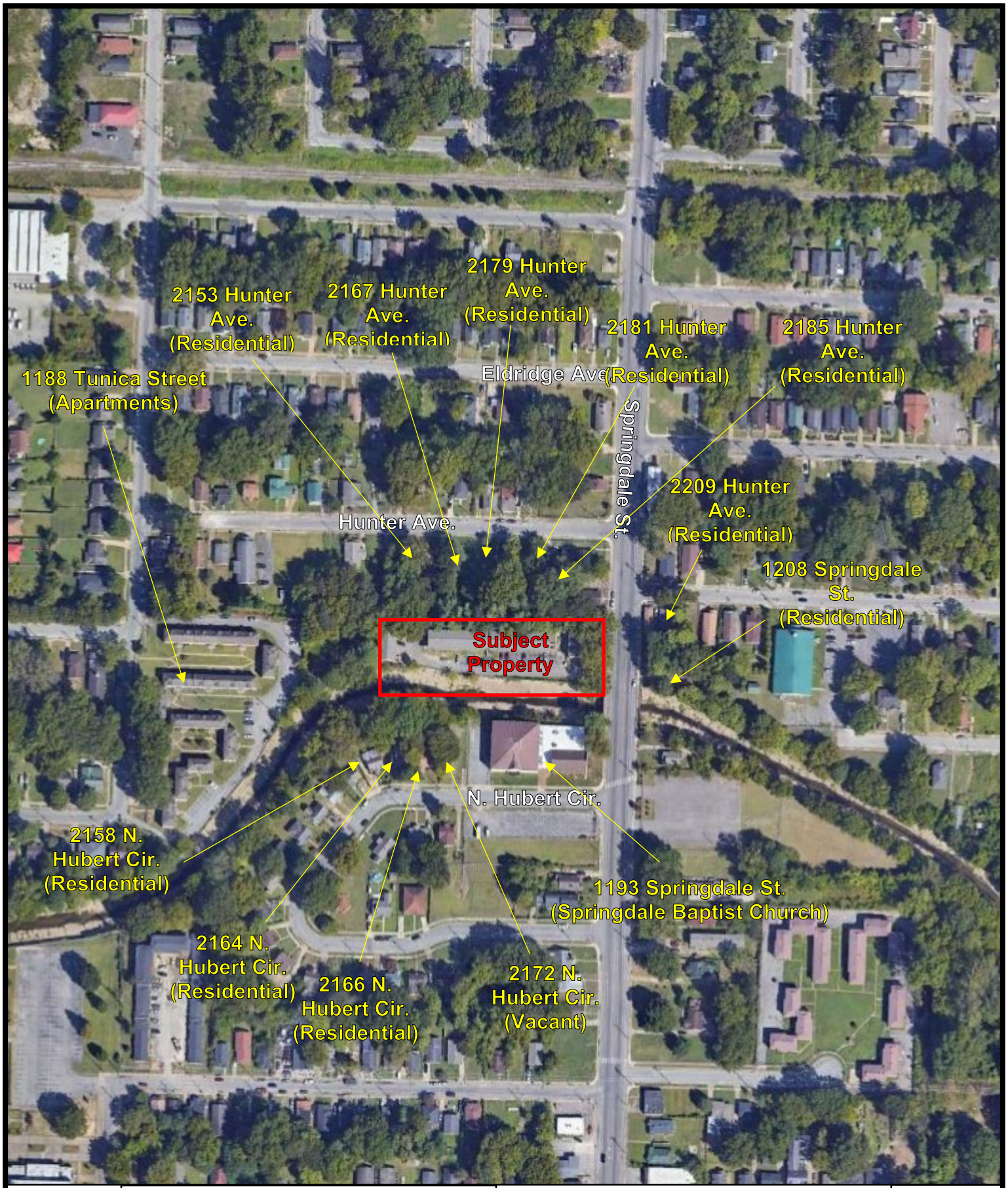
Karim Bouzeid

Professional Geologist
Education: Degree(s)/Year/Specialization
B.S./2016/Geology
Tennessee PG license #6254
OSHA 40 Hour HAZWOPER, 2021 Certified

Years in Environmental Practice: 6

APPENDIX 1

FIGURES



NOT TO SCALE

Tioga
ENVIRONMENTAL CONSULTANTS

ADDITIONAL ASSESSMENT
1215 SPRINGDALE STREET

DESCRIPTION:	PROJECT #:
VICINITY MAP	561417.00
LOCATION:	DATE:
MEMPHIS, TENNESSEE	FEBRUARY 2023

1

NOT TO SCALE

Tioga
ENVIRONMENTAL CONSULTANTS

ADDITIONAL ASSESSMENT
1215 SPRINGDALE STREET

DESCRIPTION:
PREVIOUS SAMPLE LOCATION

LOCATION:
MEMPHIS, TENNESSEE

PROJECT #:
561417.00

DATE:
FEBRUARY 2023

2

Hunter Ave.

Springdale St.

Cypress Creek

SV-12
SV-6
SV-5
SV-3
SV-4
CENTRAL
WEST
SV-10
SV-7
SV-8
SV-9
EAST
SV-2
SV-11
SV-1

Legend

Soil Vapor Sampling Location

NOT TO SCALE

Tioga
ENVIRONMENTAL CONSULTANTS

ADDITIONAL ASSESSMENT
1215 SPRINGDALE STREET

DESCRIPTION: VAPOR SAMPLE LOCATION

LOCATION: MEMPHIS, TENNESSEE

PROJECT #: 561417.00

DATE: FEBRUARY 2023

3

Hunter Ave.

Springdale St.

Cypress Creek

Highest hexachloro-1,3-butadiene concentration from December 2022 assessment.

SS-AA-4

WEST

CENTRAL

EAST

SS-AA-3

SS-AA-2

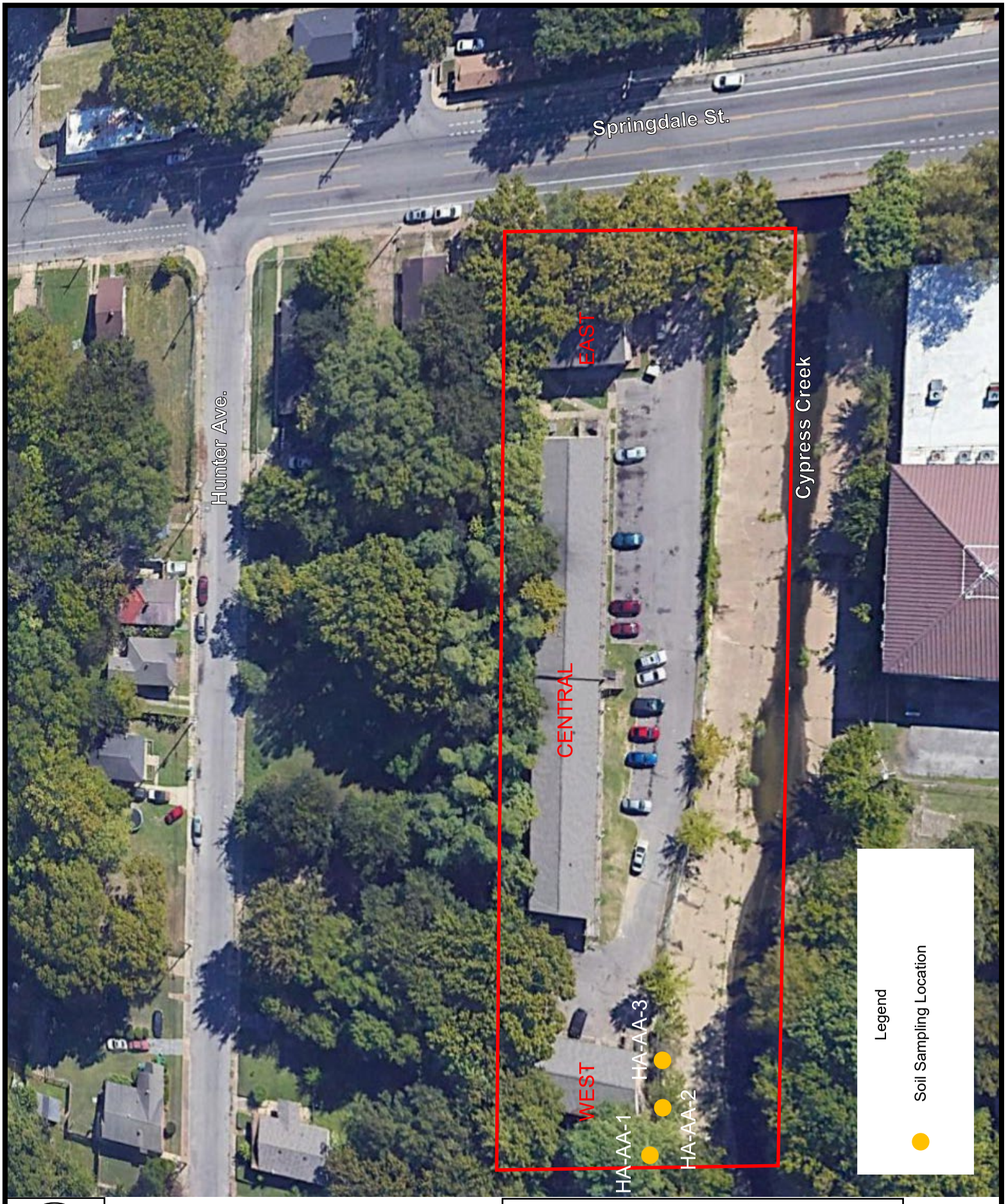
SV-11

SS-AA-1

Legend

Vapor Sampling Location

Vapor Sampling Location Dec. 2022



NOT TO SCALE

Tioga
ENVIRONMENTAL CONSULTANTS

ADDITIONAL ASSESSMENT
1215 SPRINGDALE STREET

DESCRIPTION:	PROJECT #:
SOIL SAMPLE LOCATION MAP	561417.00
LOCATION: MEMPHIS, TENNESSEE	DATE: FEBRUARY 2023

APPENDIX 2

LABORATORY ANALYSIS WITH CHAIN OF CUSTODY

Waypoint ANALYTICAL

2790 Whitten Road, Memphis, TN 38133
Main 901.213.2400 ⁰ Fax 901.213.2440
www.waypointanalytical.com

2/2/2023

Tioga Environmental Consultants
Mr. Luke Hall
357 N. Main Street
Memphis, TN, 38103

Ref: Analytical Testing
Lab Report Number: 23-019-0202
Client Project Description: 1215 Springdale-Memphis, TN
Additional Assessment
Project #561417.00

Dear Mr. Luke Hall:
Waypoint Analytical, LLC. received sample(s) on 1/19/2023 for the analyses presented in the following report.

The above referenced project has been analyzed per your instructions. The analyses were performed in accordance with the applicable analytical method. Where the laboratory was not responsible for the sampling stage (refer to the chain of custody) results apply to the sample as received.

The analytical data has been validated using standard quality control measures performed as required by the analytical method. Quality Assurance, method validations, instrumentation maintenance and calibration for all parameters (NELAP and non-NELAP) were performed in accordance with guidelines established by the USEPA (including 40 CFR 136 Method Update Rule May 2021) and NELAC unless otherwise indicated. Any parameter for which the laboratory is not officially NELAP accredited is indicated by a '~' symbol. These are not included in the scope because NELAP accreditation is either not available or has not been applied for. Additional certifications may be held/are available for parameters, where NELAP accreditation is not required or applicable. A full list of certifications is available upon request.

Certain parameters (chlorine, pH, dissolved oxygen, sulfite...) are required to be analyzed within 15 minutes of sampling. Usually, but not always, any field parameter analyzed at the laboratory is outside of this holding time. Refer to sample analysis time for confirmation of holding time compliance.

The results are shown on the attached Report of Analysis(s). Results for solid matrices are reported on an as-received basis unless otherwise indicated. This report shall not be reproduced except in full and relates only to the samples included in this report.

Please do not hesitate to contact me or client services if you have any questions or need additional information.

Sincerely,

Rebekah Ross

Rebekah Ross
Project Manager

Laboratory's liability in any claim relating to analyses performed shall be limited to, at laboratory's option, repeating the analysis in question at laboratory's expense, or the refund of the charges paid for performance of said analysis.

2790 Whitten Road, Memphis, TN 38133
Main 901.213.2400 ⁰ Fax 901.213.2440
www.waypointanalytical.com

Certification Summary

Laboratory ID: WP MTN: Waypoint Analytical, LLC., Memphis, TN

State	Program	Lab ID	Expiration Date
Alabama	State Program	40750	02/28/2023
Arkansas	State Program	88-0650	02/07/2023
California	State Program	2904	06/30/2023
Florida	State Program - NELAP	E871157	06/30/2023
Georgia	State Program	C044	02/18/2023
Georgia	State Program	04015	06/30/2023
Illinois	State Program - NELAP	200078	10/10/2023
Kentucky	State Program	80215	06/30/2023
Kentucky	State Program	KY90047	12/31/2023
Louisiana	State Program - NELAP	LA037	12/31/2023
Louisiana	State Program - NELAP	04015	06/30/2023
Mississippi	State Program	MS	02/11/2023
North Carolina	State Program	47701	07/31/2023
North Carolina	State Program	415	12/31/2023
Pennsylvania	State Program - NELAP	68-03195	05/31/2023
South Carolina	State Program	84002	06/30/2023
Tennessee	State Program	02027	11/14/2025
Texas	State Program - NELAP	T104704180	09/30/2023
Virginia	State Program	00106	06/30/2023
Virginia	State Program - NELAP	460181	09/14/2023

2790 Whitten Road, Memphis, TN 38133
Main 901.213.2400 ⁰ Fax 901.213.2440
www.waypointanalytical.com

Sample Summary Table

Report Number: **23-019-0202**

Client Project Description: **1215 Springdale-Memphis, TN**
Additional Assessment
Project #561417.00

Lab No	Client Sample ID	Matrix	Date Collected	Date Received
95437	HA-1 (0-2)	Solids	01/19/2023 11:50	01/19/2023
95438	HA-1 (6-8)	Solids	01/19/2023 12:00	01/19/2023
95439	HA-2 (0-2)	Solids	01/19/2023 12:12	01/19/2023
95440	HA-2 (6-8)	Solids	01/19/2023 12:18	01/19/2023
95441	HA-3 (0-2)	Solids	01/19/2023 12:30	01/19/2023
95442	HA-3 (6-8)	Solids	01/19/2023 12:40	01/19/2023

2790 Whitten Road, Memphis, TN 38133
Main 901.213.2400 ⁰ Fax 901.213.2440
www.waypointanalytical.com

Client: Tioga Environmental Consultants
Project: 1215 Springdale-Memphis, TN
Lab Report Number: 23-019-0202
Date: 2/2/2023

CASE NARRATIVE

Organochlorine Pesticides by GC Method 8081B
Sample 95438 (HA-1 (6-8))
Analyte: Decachlorobiphenyl
QC Batch No: L661306/L660932
Surrogate recovery(s) was flagged as outside QC limits due to high levels of target and/or non-target analytes. Batch QC samples (method blank and laboratory control samples) all showed surrogates within QC limits.

Sample 95439 (HA-2 (0-2))
Analyte: Decachlorobiphenyl
QC Batch No: L661306/L660932
Surrogate recovery(s) was flagged as outside QC limits due to high levels of target and/or non-target analytes. Batch QC samples (method blank and laboratory control samples) all showed surrogates within QC limits.

Sample 95442 (HA-3 (6-8))
Analyte: Decachlorobiphenyl
QC Batch No: L661306/L660932
Surrogate(s) exhibited a high bias in this project sample where no target analytes were detected. The high recovery(s) had no impact on the data. Batch QC samples (method blank and laboratory control samples) all showed surrogates within QC limits.

Sample 95437 (HA-1 (0-2))
Analyte: Tetrachloro-m-xylene
QC Batch No: L661306/L660932
Surrogate recovery(s) was flagged as outside QC limits due to high levels of target and/or non-target analytes. Batch QC samples (method blank and laboratory control samples) all showed surrogates within QC limits.

Sample 95438 (HA-1 (6-8))
Analyte: Tetrachloro-m-xylene
QC Batch No: L661306/L660932
Surrogate recovery(s) was flagged as outside QC limits due to high levels of target and/or non-target analytes. Batch QC samples (method blank and laboratory control samples) all showed surrogates within QC limits.

Sample 95439 (HA-2 (0-2))
Analyte: Tetrachloro-m-xylene
QC Batch No: L661306/L660932
Surrogate recovery(s) was flagged as outside QC limits due to high levels of target and/or non-target analytes. Batch QC samples (method blank and laboratory control samples) all showed surrogates within QC limits.

Sample 95440 (HA-2 (6-8))
Analyte: Tetrachloro-m-xylene
QC Batch No: L661306/L660932
Surrogate recovery(s) was flagged as outside QC limits due to high levels of target and/or non-target analytes. Batch QC samples (method blank and laboratory control samples) all showed surrogates within QC limits.

Sample 95442 (HA-3 (6-8))

2790 Whitten Road, Memphis, TN 38133
Main 901.213.2400 ⁰ Fax 901.213.2440
www.waypointanalytical.com

Analyte: Tetrachloro-m-xylene
QC Batch No: L661306/L660932
Surrogate recovery(s) was flagged as outside QC limits due to high levels of target and/or non-target analytes. Batch QC samples (method blank and laboratory control samples) all showed surrogates within QC limits.

Phenoxy Acid Herbicides - GC/ECD Method 8151A
Sample 95437 (HA-1 (0-2))
Analyte: 2,4-DB
QC Batch No: L661720/L660471
Analyte was detected in both the primary and confirmatory analyses, with a relative percent difference (RPD) of greater than 40% between the two results. These results are flagged Q and the lower of the two values is reported. Analytes with RPD values greater than 100% are reported as non-detect.

Volatile Organic Compounds - GC/MS Method 8260B
Analyte: 2-Chloroethyl vinyl ether
QC Batch No: L660116/L660093
This target analyte was flagged for recoveries outside QC limits in the associated LCS/LCSD. Data for this analyte is flagged "M" to indicate that results should be considered minimum concentration due to the potential for a low bias.

Waypoint ANALYTICAL
2790 Whitten Road, Memphis, TN 38133
Main 901.213.2400 º Fax 901.213.2440
www.waypointanalytical.com

06510
Tioga Environmental Consultants
Mr. Luke Hall
357 N. Main Street
Memphis , TN 38103

Project 1215 Springdale-Memphis, TN
Information : Additional Assessment
Project #561417.00

Report Date : 02/02/2023
Received : 01/19/2023

Rebekah Ross
Project Manager

Report Number : **23-019-0202**

REPORT OF ANALYSIS

Lab No : **95437**
Sample ID : **HA-1 (0-2)**

Matrix: **Solids**
Sampled: **1/19/2023 11:50**

Analytical Method: 8081B **Prep Batch(es):** **L660932** 01/27/23 10:30
Prep Method: 3546

Test	Results	Units	MQL	DF	Date / Time Analyzed	By	Analytical Batch
Aldrin	**0.482**	mg/Kg	0.0200	100	01/31/23 02:36	VIC	L661306
alpha-BHC	<0.0020	mg/Kg	0.0020	10	01/28/23 09:35	VIC	L661306
beta-BHC	<0.0020	mg/Kg	0.0020	10	01/28/23 09:35	VIC	L661306
delta-BHC	<0.0020	mg/Kg	0.0020	10	01/28/23 09:35	VIC	L661306
Chlordane	<0.0200	mg/Kg	0.0200	10	01/28/23 09:35	VIC	L661306
alpha-Chlordane	**0.210**	mg/Kg	0.0020	10	01/28/23 09:35	VIC	L661306
gamma-Chlordane	**1.57**	mg/Kg	0.0200	100	01/31/23 02:36	VIC	L661306
4,4'-DDD	<0.0020	mg/Kg	0.0020	10	01/28/23 09:35	VIC	L661306
4,4'-DDE	<0.0020	mg/Kg	0.0020	10	01/28/23 09:35	VIC	L661306
4,4'-DDT	<0.0020	mg/Kg	0.0020	10	01/28/23 09:35	VIC	L661306
Dieldrin	**3.05**	mg/Kg	0.200	1000	01/31/23 05:35	VIC	L661306
Endosulfan I	<0.0020	mg/Kg	0.0020	10	01/28/23 09:35	VIC	L661306
Endosulfan II	<0.0020	mg/Kg	0.0020	10	01/28/23 09:35	VIC	L661306
Endosulfan Sulfate	<0.0020	mg/Kg	0.0020	10	01/28/23 09:35	VIC	L661306
Endrin	**12.7 Q**	mg/Kg	0.200	1000	01/31/23 05:35	VIC	L661306
Endrin Aldehyde	<0.0020	mg/Kg	0.0020	10	01/28/23 09:35	VIC	L661306
Endrin Ketone	**39.7 Q**	mg/Kg	0.200	1000	01/31/23 05:35	VIC	L661306
gamma-BHC	<0.0020	mg/Kg	0.0020	10	01/28/23 09:35	VIC	L661306
Heptachlor	**0.159 Q**	mg/Kg	0.0020	10	01/28/23 09:35	VIC	L661306
Heptachlor Epoxide	**0.0627 Q**	mg/Kg	0.0200	100	01/31/23 02:36	VIC	L661306
Methoxychlor	<0.0020	mg/Kg	0.0020	10	01/28/23 09:35	VIC	L661306

Qualifiers/ Definitions

*	Outside QC Limit	DF	Dilution Factor
M	Minimum value	MQL	Method Quantitation Limit
Q	RPD >40% dual column results		

Waypoint ANALYTICAL

2790 Whitten Road, Memphis, TN 38133
Main 901.213.2400 º Fax 901.213.2440
www.waypointanalytical.com

06510
Tioga Environmental Consultants
Mr. Luke Hall
357 N. Main Street
Memphis , TN 38103

Project 1215 Springdale-Memphis, TN

Information : Additional Assessment
Project #561417.00

Report Date : 02/02/2023
Received : 01/19/2023

Rebekah Ross
Project Manager

Report Number : **23-019-0202**

REPORT OF ANALYSIS

Lab No : **95437**
Sample ID : **HA-1 (0-2)**

Matrix: **Solids**
Sampled: **1/19/2023 11:50**

Analytical Method: 8081B **Prep Batch(es):** **L660932** 01/27/23 10:30
Prep Method: 3546

Test	Results	Units	MQL	DF	Date / Time Analyzed	By	Analytical Batch
Toxaphene	<0.200	mg/Kg	0.200	10	01/28/23 09:35	VIC	L661306
Surrogate: Decachlorobiphenyl	62.8		Limits: 37-165%	10	01/28/23 09:35	VIC	L661306
Surrogate: Tetrachloro-m-xylene	**0 ***		Limits: 18-158%	10	01/28/23 09:35	VIC	L661306

Analytical Method: 8151A **Prep Batch(es):** **L660471** 01/25/23 13:20
Prep Method: 8151A

Test	Results	Units	MQL	DF	Date / Time Analyzed	By	Analytical Batch
2,4-D	<0.0133	mg/Kg	0.0133	1	01/30/23 19:44	NFP	L661720
Dalapon	<0.0334	mg/Kg	0.0334	1	01/30/23 19:44	NFP	L661720
2,4-DB	**0.0268 Q**	mg/Kg	0.0133	1	01/30/23 19:44	NFP	L661720
Dicamba	<0.0013	mg/Kg	0.0013	1	01/30/23 19:44	NFP	L661720
Dichlorprop	<0.0133	mg/Kg	0.0133	1	01/30/23 19:44	NFP	L661720
Dinoseb	<0.0133	mg/Kg	0.0133	1	01/30/23 19:44	NFP	L661720
MCPA	<3.32	mg/Kg	3.32	1	01/30/23 19:44	NFP	L661720
MCPP	<3.32	mg/Kg	3.32	1	01/30/23 19:44	NFP	L661720
Picloram	<0.0033	mg/Kg	0.0033	1	01/30/23 19:44	NFP	L661720
2,4,5-T	<0.0033	mg/Kg	0.0033	1	01/30/23 19:44	NFP	L661720
2,4,5-TP (Silvex)	<0.0050	mg/Kg	0.0050	1	01/30/23 19:44	NFP	L661720
Surrogate: DCAA	71.7		Limits: 20-150%	1	01/30/23 19:44	NFP	L661720

Qualifiers/ Definitions

*	Outside QC Limit	DF	Dilution Factor
M	Minimum value	MQL	Method Quantitation Limit
Q	RPD >40% dual column results		

Waypoint ANALYTICAL
2790 Whitten Road, Memphis, TN 38133
Main 901.213.2400 º Fax 901.213.2440
www.waypointanalytical.com

06510
Tioga Environmental Consultants
Mr. Luke Hall
357 N. Main Street
Memphis , TN 38103

Project 1215 Springdale-Memphis, TN

Information : Additional Assessment
Project #561417.00

Report Date : 02/02/2023
Received : 01/19/2023

Rebekah Ross
Project Manager

Report Number : **23-019-0202**

REPORT OF ANALYSIS

Lab No : **95437**
Sample ID : **HA-1 (0-2)**

Matrix: **Solids**
Sampled: **1/19/2023 11:50**

Analytical Method: 8260B **Prep Batch(es):** **L660093** 01/23/23 08:40
Prep Method: 5030A

Test	Results	Units	MQL	DF	Date / Time Analyzed	By	Analytical Batch
Acetone	<0.040	mg/Kg	0.040	1	01/23/23 17:25	ASH	L660116
Acetonitrile	<0.100	mg/Kg	0.100	1	01/23/23 17:25	ASH	L660116
Acrolein	<0.040	mg/Kg	0.040	1	01/23/23 17:25	ASH	L660116
Acrylonitrile	<0.040	mg/Kg	0.040	1	01/23/23 17:25	ASH	L660116
Benzene	<0.002	mg/Kg	0.002	1	01/23/23 17:25	ASH	L660116
Bromobenzene	<0.002	mg/Kg	0.002	1	01/23/23 17:25	ASH	L660116
Bromochloromethane	<0.002	mg/Kg	0.002	1	01/23/23 17:25	ASH	L660116
Bromodichloromethane	<0.002	mg/Kg	0.002	1	01/23/23 17:25	ASH	L660116
Bromoform	<0.002	mg/Kg	0.002	1	01/23/23 17:25	ASH	L660116
Bromomethane	<0.002	mg/Kg	0.002	1	01/23/23 17:25	ASH	L660116
Methyl Ethyl Ketone (MEK)	<0.040	mg/Kg	0.040	1	01/23/23 17:25	ASH	L660116
n-Butylbenzene	<0.002	mg/Kg	0.002	1	01/23/23 17:25	ASH	L660116
sec-Butyl benzene	<0.002	mg/Kg	0.002	1	01/23/23 17:25	ASH	L660116
tert-Butyl benzene	<0.002	mg/Kg	0.002	1	01/23/23 17:25	ASH	L660116
Carbon Disulfide	<0.002	mg/Kg	0.002	1	01/23/23 17:25	ASH	L660116
Carbon Tetrachloride	<0.002	mg/Kg	0.002	1	01/23/23 17:25	ASH	L660116
Chlorobenzene	<0.002	mg/Kg	0.002	1	01/23/23 17:25	ASH	L660116
Chlorodibromomethane	<0.002	mg/Kg	0.002	1	01/23/23 17:25	ASH	L660116
Chloroethane	<0.002	mg/Kg	0.002	1	01/23/23 17:25	ASH	L660116
2-Chloroethylvinyl Ether	<0.010 M	mg/Kg	0.010	1	01/23/23 17:25	ASH	L660116
Chloroform	<0.002	mg/Kg	0.002	1	01/23/23 17:25	ASH	L660116
Chloromethane	<0.002	mg/Kg	0.002	1	01/23/23 17:25	ASH	L660116

Qualifiers/ Definitions

*	Outside QC Limit	DF	Dilution Factor
M	Minimum value	MQL	Method Quantitation Limit
Q	RPD >40% dual column results		

2790 Whitten Road, Memphis, TN 38133
Main 901.213.2400 º Fax 901.213.2440
www.waypointanalytical.com

06510
Tioga Environmental Consultants
Mr. Luke Hall
357 N. Main Street
Memphis , TN 38103

Project 1215 Springdale-Memphis, TN

Information : Additional Assessment
Project #561417.00

Report Date : 02/02/2023
Received : 01/19/2023

Rebekah Ross
Project Manager

Report Number : **23-019-0202**

REPORT OF ANALYSIS

Lab No : **95437**
Sample ID : **HA-1 (0-2)**

Matrix: **Solids**
Sampled: **1/19/2023 11:50**

Analytical Method: 8260B **Prep Batch(es):** **L660093** 01/23/23 08:40
Prep Method: 5030A

Test	Results	Units	MQL	DF	Date / Time Analyzed	By	Analytical Batch
2-Chlorotoluene	<0.002	mg/Kg	0.002	1	01/23/23 17:25	ASH	L660116
4-Chlorotoluene	<0.002	mg/Kg	0.002	1	01/23/23 17:25	ASH	L660116
1,2-Dibromo-3-Chloropropane	<0.010	mg/Kg	0.010	1	01/23/23 17:25	ASH	L660116
1,2-Dibromoethane	<0.002	mg/Kg	0.002	1	01/23/23 17:25	ASH	L660116
Dibromomethane	<0.002	mg/Kg	0.002	1	01/23/23 17:25	ASH	L660116
1,2-Dichlorobenzene	<0.002	mg/Kg	0.002	1	01/23/23 17:25	ASH	L660116
1,3-Dichlorobenzene	<0.002	mg/Kg	0.002	1	01/23/23 17:25	ASH	L660116
1,4-Dichlorobenzene	<0.002	mg/Kg	0.002	1	01/23/23 17:25	ASH	L660116
Dichlorodifluoromethane	<0.002	mg/Kg	0.002	1	01/23/23 17:25	ASH	L660116
1,1-Dichloroethane	<0.002	mg/Kg	0.002	1	01/23/23 17:25	ASH	L660116
1,2-Dichloroethane	<0.002	mg/Kg	0.002	1	01/23/23 17:25	ASH	L660116
1,1-Dichloroethene	<0.002	mg/Kg	0.002	1	01/23/23 17:25	ASH	L660116
cis-1,2-Dichloroethene	<0.002	mg/Kg	0.002	1	01/23/23 17:25	ASH	L660116
trans-1,2-Dichloroethene	<0.002	mg/Kg	0.002	1	01/23/23 17:25	ASH	L660116
1,2-Dichloroethene (Total)	<0.002	mg/Kg	0.002	1	01/23/23 17:25		L660116
1,2-Dichloropropane	<0.002	mg/Kg	0.002	1	01/23/23 17:25	ASH	L660116
1,3-Dichloropropane	<0.002	mg/Kg	0.002	1	01/23/23 17:25	ASH	L660116
2,2-Dichloropropane	<0.002	mg/Kg	0.002	1	01/23/23 17:25	ASH	L660116
1,1-Dichloropropene	<0.002	mg/Kg	0.002	1	01/23/23 17:25	ASH	L660116
cis-1,3-Dichloropropene	<0.002	mg/Kg	0.002	1	01/23/23 17:25	ASH	L660116
trans-1,3-Dichloropropene	<0.002	mg/Kg	0.002	1	01/23/23 17:25	ASH	L660116
Ethyl Acetate	<0.040	mg/Kg	0.040	1	01/23/23 17:25	ASH	L660116

Qualifiers/ Definitions

*	Outside QC Limit	DF	Dilution Factor
M	Minimum value	MQL	Method Quantitation Limit
Q	RPD >40% dual column results		

2790 Whitten Road, Memphis, TN 38133
Main 901.213.2400 º Fax 901.213.2440
www.waypointanalytical.com

06510
Tioga Environmental Consultants
Mr. Luke Hall
357 N. Main Street
Memphis , TN 38103

Project 1215 Springdale-Memphis, TN

Information : Additional Assessment
Project #561417.00

Report Date : 02/02/2023
Received : 01/19/2023

Rebekah Ross
Project Manager

Report Number : **23-019-0202**

REPORT OF ANALYSIS

Lab No : **95437**
Sample ID : **HA-1 (0-2)**

Matrix: **Solids**
Sampled: **1/19/2023 11:50**

Analytical Method: 8260B **Prep Batch(es):** **L660093** 01/23/23 08:40
Prep Method: 5030A

Test	Results	Units	MQL	DF	Date / Time Analyzed	By	Analytical Batch
Ethylbenzene	<0.002	mg/Kg	0.002	1	01/23/23 17:25	ASH	L660116
Hexachlorobutadiene	<0.002	mg/Kg	0.002	1	01/23/23 17:25	ASH	L660116
2-Hexanone	<0.010	mg/Kg	0.010	1	01/23/23 17:25	ASH	L660116
Iodomethane	<0.010	mg/Kg	0.010	1	01/23/23 17:25	ASH	L660116
Isopropylbenzene	<0.002	mg/Kg	0.002	1	01/23/23 17:25	ASH	L660116
4-Isopropyl toluene	<0.002	mg/Kg	0.002	1	01/23/23 17:25	ASH	L660116
4-Methyl-2-Pentanone	<0.010	mg/Kg	0.010	1	01/23/23 17:25	ASH	L660116
Methylene Chloride	<0.040	mg/Kg	0.040	1	01/23/23 17:25	ASH	L660116
Methyl tert-butyl ether (MTBE)	<0.002	mg/Kg	0.002	1	01/23/23 17:25	ASH	L660116
m,p-Xylene	<0.004	mg/Kg	0.004	1	01/23/23 17:25	ASH	L660116
Naphthalene	<0.010	mg/Kg	0.010	1	01/23/23 17:25	ASH	L660116
o-Xylene	<0.002	mg/Kg	0.002	1	01/23/23 17:25	ASH	L660116
n-Propylbenzene	<0.002	mg/Kg	0.002	1	01/23/23 17:25	ASH	L660116
Styrene	<0.002	mg/Kg	0.002	1	01/23/23 17:25	ASH	L660116
1,1,1,2-Tetrachloroethane	<0.002	mg/Kg	0.002	1	01/23/23 17:25	ASH	L660116
1,1,2,2-Tetrachloroethane	<0.002	mg/Kg	0.002	1	01/23/23 17:25	ASH	L660116
Tetrachloroethene	<0.002	mg/Kg	0.002	1	01/23/23 17:25	ASH	L660116
Toluene	<0.010	mg/Kg	0.010	1	01/23/23 17:25	ASH	L660116
1,2,3-Trichlorobenzene	<0.002	mg/Kg	0.002	1	01/23/23 17:25	ASH	L660116
1,2,4-Trichlorobenzene	<0.002	mg/Kg	0.002	1	01/23/23 17:25	ASH	L660116
1,1,1-Trichloroethane	<0.002	mg/Kg	0.002	1	01/23/23 17:25	ASH	L660116
1,1,2-Trichloroethane	<0.002	mg/Kg	0.002	1	01/23/23 17:25	ASH	L660116

Qualifiers/ Definitions

*	Outside QC Limit	DF	Dilution Factor
M	Minimum value	MQL	Method Quantitation Limit
Q	RPD >40% dual column results		

2790 Whitten Road, Memphis, TN 38133
Main 901.213.2400 ⁰ Fax 901.213.2440
www.waypointanalytical.com

06510
Tioga Environmental Consultants
Mr. Luke Hall
357 N. Main Street
Memphis , TN 38103

Project 1215 Springdale-Memphis, TN

Information : Additional Assessment
Project #561417.00

Report Date : 02/02/2023
Received : 01/19/2023

Rebekah Ross
Project Manager

Report Number : **23-019-0202**

REPORT OF ANALYSIS

Lab No : **95437**
Sample ID : **HA-1 (0-2)**

Matrix: **Solids**
Sampled: **1/19/2023 11:50**

Analytical Method: 8260B **Prep Batch(es):** **L660093** 01/23/23 08:40
Prep Method: 5030A

Test	Results	Units	MQL	DF	Date / Time Analyzed	By	Analytical Batch
Trichloroethene	<0.002	mg/Kg	0.002	1	01/23/23 17:25	ASH	L660116
Trichlorofluoromethane	<0.002	mg/Kg	0.002	1	01/23/23 17:25	ASH	L660116
1,2,3-Trichloropropane	<0.002	mg/Kg	0.002	1	01/23/23 17:25	ASH	L660116
1,2,4-Trimethylbenzene	<0.002	mg/Kg	0.002	1	01/23/23 17:25	ASH	L660116
1,3,5-Trimethylbenzene	<0.002	mg/Kg	0.002	1	01/23/23 17:25	ASH	L660116
Vinyl Acetate	<0.040	mg/Kg	0.040	1	01/23/23 17:25	ASH	L660116
Vinyl Chloride	<0.002	mg/Kg	0.002	1	01/23/23 17:25	ASH	L660116
Xylene (Total)	<0.002	mg/Kg	0.002	1	01/23/23 17:25		L660116
Surrogate: 4-Bromofluorobenzene	92.1		Limits: 60-130%	1	01/23/23 17:25	ASH	L660116
Surrogate: 1,2-Dichloroethane - d4	102		Limits: 60-132%	1	01/23/23 17:25	ASH	L660116
Surrogate: Toluene-d8	87.1		Limits: 70-130%	1	01/23/23 17:25	ASH	L660116

Qualifiers/ Definitions

*	Outside QC Limit	DF	Dilution Factor
M	Minimum value	MQL	Method Quantitation Limit
Q	RPD >40% dual column results		

2790 Whitten Road, Memphis, TN 38133
Main 901.213.2400 ⁰ Fax 901.213.2440
www.waypointanalytical.com

06510
Tioga Environmental Consultants
Mr. Luke Hall
357 N. Main Street
Memphis , TN 38103

Project 1215 Springdale-Memphis, TN

Information : Additional Assessment
Project #561417.00

Report Date : 02/02/2023
Received : 01/19/2023

Rebekah Ross
Project Manager

Report Number : **23-019-0202**

REPORT OF ANALYSIS

Lab No : **95438**
Sample ID : **HA-1 (6-8)**

Matrix: **Solids**
Sampled: **1/19/2023 12:00**

Analytical Method: 8081B **Prep Batch(es):** **L660932** 01/27/23 10:30
Prep Method: 3546

Test	Results	Units	MQL	DF	Date / Time Analyzed	By	Analytical Batch
Aldrin	**6.24**	mg/Kg	0.200	1000	01/31/23 05:58	VIC	L661306
alpha-BHC	<0.0020	mg/Kg	0.0020	10	01/28/23 09:57	VIC	L661306
beta-BHC	<0.0020	mg/Kg	0.0020	10	01/28/23 09:57	VIC	L661306
delta-BHC	<0.0020	mg/Kg	0.0020	10	01/28/23 09:57	VIC	L661306
Chlordane	<0.0200	mg/Kg	0.0200	10	01/28/23 09:57	VIC	L661306
alpha-Chlordane	**0.612**	mg/Kg	0.0200	100	01/31/23 02:58	VIC	L661306
gamma-Chlordane	**4.08**	mg/Kg	0.200	1000	01/31/23 05:58	VIC	L661306
4,4'-DDD	<0.0020	mg/Kg	0.0020	10	01/28/23 09:57	VIC	L661306
4,4'-DDE	<0.0020	mg/Kg	0.0020	10	01/28/23 09:57	VIC	L661306
4,4'-DDT	<0.0020	mg/Kg	0.0020	10	01/28/23 09:57	VIC	L661306
Dieldrin	**3.81**	mg/Kg	0.200	1000	01/31/23 05:58	VIC	L661306
Endosulfan I	<0.0020	mg/Kg	0.0020	10	01/28/23 09:57	VIC	L661306
Endosulfan II	<0.0020	mg/Kg	0.0020	10	01/28/23 09:57	VIC	L661306
Endosulfan Sulfate	<0.0020	mg/Kg	0.0020	10	01/28/23 09:57	VIC	L661306
Endrin	**5.96 Q**	mg/Kg	0.200	1000	01/31/23 05:58	VIC	L661306
Endrin Aldehyde	<0.0020	mg/Kg	0.0020	10	01/28/23 09:57	VIC	L661306
Endrin Ketone	**50.2 Q**	mg/Kg	0.200	1000	01/31/23 05:58	VIC	L661306
gamma-BHC	<0.0020	mg/Kg	0.0020	10	01/28/23 09:57	VIC	L661306
Heptachlor	<0.0020	mg/Kg	0.0020	10	01/28/23 09:57	VIC	L661306
Heptachlor Epoxide	<0.0020	mg/Kg	0.0020	10	01/28/23 09:57	VIC	L661306
Methoxychlor	<0.0020	mg/Kg	0.0020	10	01/28/23 09:57	VIC	L661306

Qualifiers/ Definitions

*	Outside QC Limit	DF	Dilution Factor
M	Minimum value	MQL	Method Quantitation Limit
Q	RPD >40% dual column results		

Waypoint ANALYTICAL
2790 Whitten Road, Memphis, TN 38133
Main 901.213.2400 º Fax 901.213.2440
www.waypointanalytical.com

06510
Tioga Environmental Consultants
Mr. Luke Hall
357 N. Main Street
Memphis , TN 38103

Project 1215 Springdale-Memphis, TN
Information : Additional Assessment
Project #561417.00

Report Date : 02/02/2023
Received : 01/19/2023

Rebekah Ross
Project Manager

Report Number : **23-019-0202**

REPORT OF ANALYSIS

Lab No : **95438**
Sample ID : **HA-1 (6-8)**

Matrix: **Solids**
Sampled: **1/19/2023 12:00**

Analytical Method: 8081B **Prep Batch(es):** **L660932** 01/27/23 10:30
Prep Method: 3546

Test	Results	Units	MQL	DF	Date / Time Analyzed	By	Analytical Batch
Toxaphene	<0.200	mg/Kg	0.200	10	01/28/23 09:57	VIC	L661306
Surrogate: Tetrachloro-m-xylene	**0** *		Limits: 18-158%	10	01/28/23 09:57	VIC	L661306
Surrogate: Decachlorobiphenyl	**4.66** *		Limits: 37-165%	100	01/31/23 02:58	VIC	L661306

Analytical Method: 8151A **Prep Batch(es):** **L660471** 01/25/23 13:20
Prep Method: 8151A

Test	Results	Units	MQL	DF	Date / Time Analyzed	By	Analytical Batch
2,4-D	<0.0133	mg/Kg	0.0133	1	01/30/23 20:09	NFP	L661720
Dalapon	<0.0334	mg/Kg	0.0334	1	01/30/23 20:09	NFP	L661720
2,4-DB	<0.0133	mg/Kg	0.0133	1	01/30/23 20:09	NFP	L661720
Dicamba	<0.0013	mg/Kg	0.0013	1	01/30/23 20:09	NFP	L661720
Dichlorprop	<0.0133	mg/Kg	0.0133	1	01/30/23 20:09	NFP	L661720
Dinoseb	<0.0133	mg/Kg	0.0133	1	01/30/23 20:09	NFP	L661720
MCPA	<3.32	mg/Kg	3.32	1	01/30/23 20:09	NFP	L661720
MCPP	<3.32	mg/Kg	3.32	1	01/30/23 20:09	NFP	L661720
Picloram	<0.0033	mg/Kg	0.0033	1	01/30/23 20:09	NFP	L661720
2,4,5-T	<0.0033	mg/Kg	0.0033	1	01/30/23 20:09	NFP	L661720
2,4,5-TP (Silvex)	<0.0050	mg/Kg	0.0050	1	01/30/23 20:09	NFP	L661720
Surrogate: DCAA	46.9		Limits: 20-150%	1	01/30/23 20:09	NFP	L661720

Qualifiers/ Definitions

*	Outside QC Limit	DF	Dilution Factor
M	Minimum value	MQL	Method Quantitation Limit
Q	RPD >40% dual column results		

Waypoint ANALYTICAL
2790 Whitten Road, Memphis, TN 38133
Main 901.213.2400 º Fax 901.213.2440
www.waypointanalytical.com

06510
Tioga Environmental Consultants
Mr. Luke Hall
357 N. Main Street
Memphis , TN 38103

Project 1215 Springdale-Memphis, TN

Information : Additional Assessment
Project #561417.00

Report Date : 02/02/2023
Received : 01/19/2023

Rebekah Ross
Project Manager

Report Number : **23-019-0202**

REPORT OF ANALYSIS

Lab No : **95438**
Sample ID : **HA-1 (6-8)**

Matrix: **Solids**
Sampled: **1/19/2023 12:00**

Analytical Method: 8260B **Prep Batch(es):** **L660093** 01/23/23 08:40
Prep Method: 5030A

Test	Results	Units	MQL	DF	Date / Time Analyzed	By	Analytical Batch
Acetone	<0.040	mg/Kg	0.040	1	01/23/23 17:46	ASH	L660116
Acetonitrile	<0.100	mg/Kg	0.100	1	01/23/23 17:46	ASH	L660116
Acrolein	<0.040	mg/Kg	0.040	1	01/23/23 17:46	ASH	L660116
Acrylonitrile	<0.040	mg/Kg	0.040	1	01/23/23 17:46	ASH	L660116
Benzene	<0.002	mg/Kg	0.002	1	01/23/23 17:46	ASH	L660116
Bromobenzene	<0.002	mg/Kg	0.002	1	01/23/23 17:46	ASH	L660116
Bromochloromethane	<0.002	mg/Kg	0.002	1	01/23/23 17:46	ASH	L660116
Bromodichloromethane	<0.002	mg/Kg	0.002	1	01/23/23 17:46	ASH	L660116
Bromoform	<0.002	mg/Kg	0.002	1	01/23/23 17:46	ASH	L660116
Bromomethane	<0.002	mg/Kg	0.002	1	01/23/23 17:46	ASH	L660116
Methyl Ethyl Ketone (MEK)	<0.040	mg/Kg	0.040	1	01/23/23 17:46	ASH	L660116
n-Butylbenzene	<0.002	mg/Kg	0.002	1	01/23/23 17:46	ASH	L660116
sec-Butyl benzene	<0.002	mg/Kg	0.002	1	01/23/23 17:46	ASH	L660116
tert-Butyl benzene	<0.002	mg/Kg	0.002	1	01/23/23 17:46	ASH	L660116
Carbon Disulfide	<0.002	mg/Kg	0.002	1	01/23/23 17:46	ASH	L660116
Carbon Tetrachloride	<0.002	mg/Kg	0.002	1	01/23/23 17:46	ASH	L660116
Chlorobenzene	<0.002	mg/Kg	0.002	1	01/23/23 17:46	ASH	L660116
Chlorodibromomethane	<0.002	mg/Kg	0.002	1	01/23/23 17:46	ASH	L660116
Chloroethane	<0.002	mg/Kg	0.002	1	01/23/23 17:46	ASH	L660116
2-Chloroethylvinyl Ether	<0.010 M	mg/Kg	0.010	1	01/23/23 17:46	ASH	L660116
Chloroform	<0.002	mg/Kg	0.002	1	01/23/23 17:46	ASH	L660116
Chloromethane	<0.002	mg/Kg	0.002	1	01/23/23 17:46	ASH	L660116

Qualifiers/ Definitions

*	Outside QC Limit	DF	Dilution Factor
M	Minimum value	MQL	Method Quantitation Limit
Q	RPD >40% dual column results		

2790 Whitten Road, Memphis, TN 38133
Main 901.213.2400 º Fax 901.213.2440
www.waypointanalytical.com

06510
Tioga Environmental Consultants
Mr. Luke Hall
357 N. Main Street
Memphis , TN 38103

Project 1215 Springdale-Memphis, TN

Information : Additional Assessment
Project #561417.00

Report Date : 02/02/2023
Received : 01/19/2023

Rebekah Ross
Project Manager

Report Number : **23-019-0202**

REPORT OF ANALYSIS

Lab No : **95438**
Sample ID : **HA-1 (6-8)**

Matrix: **Solids**
Sampled: **1/19/2023 12:00**

Analytical Method: 8260B **Prep Batch(es):** **L660093** 01/23/23 08:40
Prep Method: 5030A

Test	Results	Units	MQL	DF	Date / Time Analyzed	By	Analytical Batch
2-Chlorotoluene	<0.002	mg/Kg	0.002	1	01/23/23 17:46	ASH	L660116
4-Chlorotoluene	<0.002	mg/Kg	0.002	1	01/23/23 17:46	ASH	L660116
1,2-Dibromo-3-Chloropropane	<0.010	mg/Kg	0.010	1	01/23/23 17:46	ASH	L660116
1,2-Dibromoethane	<0.002	mg/Kg	0.002	1	01/23/23 17:46	ASH	L660116
Dibromomethane	<0.002	mg/Kg	0.002	1	01/23/23 17:46	ASH	L660116
1,2-Dichlorobenzene	<0.002	mg/Kg	0.002	1	01/23/23 17:46	ASH	L660116
1,3-Dichlorobenzene	<0.002	mg/Kg	0.002	1	01/23/23 17:46	ASH	L660116
1,4-Dichlorobenzene	<0.002	mg/Kg	0.002	1	01/23/23 17:46	ASH	L660116
Dichlorodifluoromethane	<0.002	mg/Kg	0.002	1	01/23/23 17:46	ASH	L660116
1,1-Dichloroethane	<0.002	mg/Kg	0.002	1	01/23/23 17:46	ASH	L660116
1,2-Dichloroethane	<0.002	mg/Kg	0.002	1	01/23/23 17:46	ASH	L660116
1,1-Dichloroethene	<0.002	mg/Kg	0.002	1	01/23/23 17:46	ASH	L660116
cis-1,2-Dichloroethene	<0.002	mg/Kg	0.002	1	01/23/23 17:46	ASH	L660116
trans-1,2-Dichloroethene	<0.002	mg/Kg	0.002	1	01/23/23 17:46	ASH	L660116
1,2-Dichloroethene (Total)	<0.002	mg/Kg	0.002	1	01/23/23 17:46		L660116
1,2-Dichloropropane	<0.002	mg/Kg	0.002	1	01/23/23 17:46	ASH	L660116
1,3-Dichloropropane	<0.002	mg/Kg	0.002	1	01/23/23 17:46	ASH	L660116
2,2-Dichloropropane	<0.002	mg/Kg	0.002	1	01/23/23 17:46	ASH	L660116
1,1-Dichloropropene	<0.002	mg/Kg	0.002	1	01/23/23 17:46	ASH	L660116
cis-1,3-Dichloropropene	<0.002	mg/Kg	0.002	1	01/23/23 17:46	ASH	L660116
trans-1,3-Dichloropropene	<0.002	mg/Kg	0.002	1	01/23/23 17:46	ASH	L660116
Ethyl Acetate	<0.040	mg/Kg	0.040	1	01/23/23 17:46	ASH	L660116

Qualifiers/ Definitions

*	Outside QC Limit	DF	Dilution Factor
M	Minimum value	MQL	Method Quantitation Limit
Q	RPD >40% dual column results		

2790 Whitten Road, Memphis, TN 38133
Main 901.213.2400 º Fax 901.213.2440
www.waypointanalytical.com

06510
Tioga Environmental Consultants
Mr. Luke Hall
357 N. Main Street
Memphis , TN 38103

Project 1215 Springdale-Memphis, TN

Information : Additional Assessment
Project #561417.00

Report Date : 02/02/2023
Received : 01/19/2023

Rebekah Ross
Project Manager

Report Number : **23-019-0202**

REPORT OF ANALYSIS

Lab No : **95438**
Sample ID : **HA-1 (6-8)**

Matrix: **Solids**
Sampled: **1/19/2023 12:00**

Analytical Method: 8260B **Prep Batch(es):** **L660093** 01/23/23 08:40
Prep Method: 5030A

Test	Results	Units	MQL	DF	Date / Time Analyzed	By	Analytical Batch
Ethylbenzene	<0.002	mg/Kg	0.002	1	01/23/23 17:46	ASH	L660116
Hexachlorobutadiene	<0.002	mg/Kg	0.002	1	01/23/23 17:46	ASH	L660116
2-Hexanone	<0.010	mg/Kg	0.010	1	01/23/23 17:46	ASH	L660116
Iodomethane	<0.010	mg/Kg	0.010	1	01/23/23 17:46	ASH	L660116
Isopropylbenzene	<0.002	mg/Kg	0.002	1	01/23/23 17:46	ASH	L660116
4-Isopropyl toluene	<0.002	mg/Kg	0.002	1	01/23/23 17:46	ASH	L660116
4-Methyl-2-Pentanone	<0.010	mg/Kg	0.010	1	01/23/23 17:46	ASH	L660116
Methylene Chloride	<0.040	mg/Kg	0.040	1	01/23/23 17:46	ASH	L660116
Methyl tert-butyl ether (MTBE)	<0.002	mg/Kg	0.002	1	01/23/23 17:46	ASH	L660116
m,p-Xylene	<0.004	mg/Kg	0.004	1	01/23/23 17:46	ASH	L660116
Naphthalene	<0.010	mg/Kg	0.010	1	01/23/23 17:46	ASH	L660116
o-Xylene	<0.002	mg/Kg	0.002	1	01/23/23 17:46	ASH	L660116
n-Propylbenzene	<0.002	mg/Kg	0.002	1	01/23/23 17:46	ASH	L660116
Styrene	<0.002	mg/Kg	0.002	1	01/23/23 17:46	ASH	L660116
1,1,1,2-Tetrachloroethane	<0.002	mg/Kg	0.002	1	01/23/23 17:46	ASH	L660116
1,1,2,2-Tetrachloroethane	<0.002	mg/Kg	0.002	1	01/23/23 17:46	ASH	L660116
Tetrachloroethene	<0.002	mg/Kg	0.002	1	01/23/23 17:46	ASH	L660116
Toluene	<0.010	mg/Kg	0.010	1	01/23/23 17:46	ASH	L660116
1,2,3-Trichlorobenzene	<0.002	mg/Kg	0.002	1	01/23/23 17:46	ASH	L660116
1,2,4-Trichlorobenzene	<0.002	mg/Kg	0.002	1	01/23/23 17:46	ASH	L660116
1,1,1-Trichloroethane	<0.002	mg/Kg	0.002	1	01/23/23 17:46	ASH	L660116
1,1,2-Trichloroethane	<0.002	mg/Kg	0.002	1	01/23/23 17:46	ASH	L660116

Qualifiers/ Definitions

*	Outside QC Limit	DF	Dilution Factor
M	Minimum value	MQL	Method Quantitation Limit
Q	RPD >40% dual column results		

2790 Whitten Road, Memphis, TN 38133
Main 901.213.2400 ⁰ Fax 901.213.2440
www.waypointanalytical.com

06510
Tioga Environmental Consultants
Mr. Luke Hall
357 N. Main Street
Memphis , TN 38103

Project 1215 Springdale-Memphis, TN

Information : Additional Assessment
Project #561417.00

Report Date : 02/02/2023
Received : 01/19/2023

Rebekah Ross
Project Manager

Report Number : **23-019-0202**

REPORT OF ANALYSIS

Lab No : **95438**
Sample ID : **HA-1 (6-8)**

Matrix: **Solids**
Sampled: **1/19/2023 12:00**

Analytical Method: 8260B **Prep Batch(es):** **L660093** 01/23/23 08:40
Prep Method: 5030A

Test	Results	Units	MQL	DF	Date / Time Analyzed	By	Analytical Batch
Trichloroethene	<0.002	mg/Kg	0.002	1	01/23/23 17:46	ASH	L660116
Trichlorofluoromethane	<0.002	mg/Kg	0.002	1	01/23/23 17:46	ASH	L660116
1,2,3-Trichloropropane	<0.002	mg/Kg	0.002	1	01/23/23 17:46	ASH	L660116
1,2,4-Trimethylbenzene	<0.002	mg/Kg	0.002	1	01/23/23 17:46	ASH	L660116
1,3,5-Trimethylbenzene	<0.002	mg/Kg	0.002	1	01/23/23 17:46	ASH	L660116
Vinyl Acetate	<0.040	mg/Kg	0.040	1	01/23/23 17:46	ASH	L660116
Vinyl Chloride	<0.002	mg/Kg	0.002	1	01/23/23 17:46	ASH	L660116
Xylene (Total)	<0.002	mg/Kg	0.002	1	01/23/23 17:46		L660116
Surrogate: 4-Bromofluorobenzene	73.5		Limits: 60-130%	1	01/23/23 17:46	ASH	L660116
Surrogate: 1,2-Dichloroethane - d4	123		Limits: 60-132%	1	01/23/23 17:46	ASH	L660116
Surrogate: Toluene-d8	90.8		Limits: 70-130%	1	01/23/23 17:46	ASH	L660116

Qualifiers/ Definitions

*	Outside QC Limit	DF	Dilution Factor
M	Minimum value	MQL	Method Quantitation Limit
Q	RPD >40% dual column results		

Waypoint ANALYTICAL
2790 Whitten Road, Memphis, TN 38133
Main 901.213.2400 º Fax 901.213.2440
www.waypointanalytical.com

06510
Tioga Environmental Consultants
Mr. Luke Hall
357 N. Main Street
Memphis , TN 38103

Project 1215 Springdale-Memphis, TN
Information : Additional Assessment
Project #561417.00

Report Date : 02/02/2023
Received : 01/19/2023

Rebekah Ross
Project Manager

Report Number : **23-019-0202**

REPORT OF ANALYSIS

Lab No : **95439**
Sample ID : **HA-2 (0-2)**

Matrix: **Solids**
Sampled: **1/19/2023 12:12**

Analytical Method: 8081B **Prep Batch(es):** **L660932** 01/27/23 10:30
Prep Method: 3546

Test	Results	Units	MQL	DF	Date / Time Analyzed	By	Analytical Batch
Aldrin	**0.241**	mg/Kg	0.0020	10	01/28/23 10:20	VIC	L661306
alpha-BHC	<0.0020	mg/Kg	0.0020	10	01/28/23 10:20	VIC	L661306
beta-BHC	<0.0020	mg/Kg	0.0020	10	01/28/23 10:20	VIC	L661306
delta-BHC	<0.0020	mg/Kg	0.0020	10	01/28/23 10:20	VIC	L661306
Chlordane	<0.0200	mg/Kg	0.0200	10	01/28/23 10:20	VIC	L661306
alpha-Chlordane	**0.0726**	mg/Kg	0.0020	10	01/28/23 10:20	VIC	L661306
gamma-Chlordane	**0.592**	mg/Kg	0.0200	100	01/31/23 03:21	VIC	L661306
4,4'-DDD	<0.0020	mg/Kg	0.0020	10	01/28/23 10:20	VIC	L661306
4,4'-DDE	<0.0020	mg/Kg	0.0020	10	01/28/23 10:20	VIC	L661306
4,4'-DDT	<0.0020	mg/Kg	0.0020	10	01/28/23 10:20	VIC	L661306
Dieldrin	**1.90**	mg/Kg	0.0200	100	01/31/23 03:21	VIC	L661306
Endosulfan I	<0.0020	mg/Kg	0.0020	10	01/28/23 10:20	VIC	L661306
Endosulfan II	<0.0020	mg/Kg	0.0020	10	01/28/23 10:20	VIC	L661306
Endosulfan Sulfate	<0.0020	mg/Kg	0.0020	10	01/28/23 10:20	VIC	L661306
Endrin	**6.93**	mg/Kg	0.200	1000	01/31/23 06:20	VIC	L661306
Endrin Aldehyde	**0.355 Q**	mg/Kg	0.200	1000	01/31/23 06:20	VIC	L661306
Endrin Ketone	**20.2**	mg/Kg	0.200	1000	01/31/23 06:20	VIC	L661306
gamma-BHC	<0.0020	mg/Kg	0.0020	10	01/28/23 10:20	VIC	L661306
Heptachlor	**0.0467 Q**	mg/Kg	0.0020	10	01/28/23 10:20	VIC	L661306
Heptachlor Epoxide	<0.0020	mg/Kg	0.0020	10	01/28/23 10:20	VIC	L661306
Methoxychlor	<0.0020	mg/Kg	0.0020	10	01/28/23 10:20	VIC	L661306

Qualifiers/ Definitions

*	Outside QC Limit	DF	Dilution Factor
M	Minimum value	MQL	Method Quantitation Limit
Q	RPD >40% dual column results		

Waypoint ANALYTICAL
2790 Whitten Road, Memphis, TN 38133
Main 901.213.2400 º Fax 901.213.2440
www.waypointanalytical.com

06510
Tioga Environmental Consultants
Mr. Luke Hall
357 N. Main Street
Memphis , TN 38103

Project 1215 Springdale-Memphis, TN

Information : Additional Assessment
Project #561417.00

Report Date : 02/02/2023
Received : 01/19/2023

Rebekah Ross
Project Manager

Report Number : **23-019-0202**

REPORT OF ANALYSIS

Lab No : **95439**
Sample ID : **HA-2 (0-2)**

Matrix: **Solids**
Sampled: **1/19/2023 12:12**

Analytical Method: 8081B **Prep Batch(es):** **L660932** 01/27/23 10:30
Prep Method: 3546

Test	Results	Units	MQL	DF	Date / Time Analyzed	By	Analytical Batch
Toxaphene	<0.200	mg/Kg	0.200	10	01/28/23 10:20	VIC	L661306
Surrogate: Decachlorobiphenyl	**8.99** *		Limits: 37-165%	10	01/28/23 10:20	VIC	L661306
Surrogate: Tetrachloro-m-xylene	**0** *		Limits: 18-158%	10	01/28/23 10:20	VIC	L661306

Analytical Method: 8151A **Prep Batch(es):** **L660471** 01/25/23 13:20
Prep Method: 8151A

Test	Results	Units	MQL	DF	Date / Time Analyzed	By	Analytical Batch
2,4-D	<0.0133	mg/Kg	0.0133	1	01/30/23 20:33	NFP	L661720
Dalapon	<0.0334	mg/Kg	0.0334	1	01/30/23 20:33	NFP	L661720
2,4-DB	<0.0133	mg/Kg	0.0133	1	01/30/23 20:33	NFP	L661720
Dicamba	<0.0013	mg/Kg	0.0013	1	01/30/23 20:33	NFP	L661720
Dichlorprop	<0.0133	mg/Kg	0.0133	1	01/30/23 20:33	NFP	L661720
Dinoseb	<0.0133	mg/Kg	0.0133	1	01/30/23 20:33	NFP	L661720
MCPA	<3.32	mg/Kg	3.32	1	01/30/23 20:33	NFP	L661720
MCPP	<3.32	mg/Kg	3.32	1	01/30/23 20:33	NFP	L661720
Picloram	<0.0033	mg/Kg	0.0033	1	01/30/23 20:33	NFP	L661720
2,4,5-T	<0.0033	mg/Kg	0.0033	1	01/30/23 20:33	NFP	L661720
2,4,5-TP (Silvex)	<0.0050	mg/Kg	0.0050	1	01/30/23 20:33	NFP	L661720
Surrogate: DCAA	52.8		Limits: 20-150%	1	01/30/23 20:33	NFP	L661720

Qualifiers/ Definitions

*	Outside QC Limit	DF	Dilution Factor
M	Minimum value	MQL	Method Quantitation Limit
Q	RPD >40% dual column results		

2790 Whitten Road, Memphis, TN 38133
Main 901.213.2400 ⁰ Fax 901.213.2440
www.waypointanalytical.com

06510
Tioga Environmental Consultants
Mr. Luke Hall
357 N. Main Street
Memphis , TN 38103

Project 1215 Springdale-Memphis, TN

Information : Additional Assessment
Project #561417.00

Report Date : 02/02/2023
Received : 01/19/2023

Rebekah Ross
Project Manager

Report Number : **23-019-0202**

REPORT OF ANALYSIS

Lab No : **95439**
Sample ID : **HA-2 (0-2)**

Matrix: **Solids**
Sampled: **1/19/2023 12:12**

Analytical Method: 8260B **Prep Batch(es):** **L660093** 01/23/23 08:40
Prep Method: 5030A

Test	Results	Units	MQL	DF	Date / Time Analyzed	By	Analytical Batch
Acetone	<0.040	mg/Kg	0.040	1	01/23/23 18:06	ASH	L660116
Acetonitrile	<0.100	mg/Kg	0.100	1	01/23/23 18:06	ASH	L660116
Acrolein	<0.040	mg/Kg	0.040	1	01/23/23 18:06	ASH	L660116
Acrylonitrile	<0.040	mg/Kg	0.040	1	01/23/23 18:06	ASH	L660116
Benzene	<0.002	mg/Kg	0.002	1	01/23/23 18:06	ASH	L660116
Bromobenzene	<0.002	mg/Kg	0.002	1	01/23/23 18:06	ASH	L660116
Bromochloromethane	<0.002	mg/Kg	0.002	1	01/23/23 18:06	ASH	L660116
Bromodichloromethane	<0.002	mg/Kg	0.002	1	01/23/23 18:06	ASH	L660116
Bromoform	<0.002	mg/Kg	0.002	1	01/23/23 18:06	ASH	L660116
Bromomethane	<0.002	mg/Kg	0.002	1	01/23/23 18:06	ASH	L660116
Methyl Ethyl Ketone (MEK)	<0.040	mg/Kg	0.040	1	01/23/23 18:06	ASH	L660116
n-Butylbenzene	<0.002	mg/Kg	0.002	1	01/23/23 18:06	ASH	L660116
sec-Butyl benzene	<0.002	mg/Kg	0.002	1	01/23/23 18:06	ASH	L660116
tert-Butyl benzene	<0.002	mg/Kg	0.002	1	01/23/23 18:06	ASH	L660116
Carbon Disulfide	<0.002	mg/Kg	0.002	1	01/23/23 18:06	ASH	L660116
Carbon Tetrachloride	<0.002	mg/Kg	0.002	1	01/23/23 18:06	ASH	L660116
Chlorobenzene	<0.002	mg/Kg	0.002	1	01/23/23 18:06	ASH	L660116
Chlorodibromomethane	<0.002	mg/Kg	0.002	1	01/23/23 18:06	ASH	L660116
Chloroethane	<0.002	mg/Kg	0.002	1	01/23/23 18:06	ASH	L660116
2-Chloroethylvinyl Ether	<0.010 M	mg/Kg	0.010	1	01/23/23 18:06	ASH	L660116
Chloroform	<0.002	mg/Kg	0.002	1	01/23/23 18:06	ASH	L660116
Chloromethane	<0.002	mg/Kg	0.002	1	01/23/23 18:06	ASH	L660116

Qualifiers/ Definitions

*	Outside QC Limit	DF	Dilution Factor
M	Minimum value	MQL	Method Quantitation Limit
Q	RPD >40% dual column results		

Waypoint ANALYTICAL
2790 Whitten Road, Memphis, TN 38133
Main 901.213.2400 º Fax 901.213.2440
www.waypointanalytical.com

06510
Tioga Environmental Consultants
Mr. Luke Hall
357 N. Main Street
Memphis , TN 38103

Project 1215 Springdale-Memphis, TN

Information : Additional Assessment
Project #561417.00

Report Date : 02/02/2023
Received : 01/19/2023

Rebekah Ross
Project Manager

Report Number : **23-019-0202**

REPORT OF ANALYSIS

Lab No : **95439**
Sample ID : **HA-2 (0-2)**

Matrix: **Solids**
Sampled: **1/19/2023 12:12**

Analytical Method: 8260B **Prep Batch(es):** **L660093** 01/23/23 08:40
Prep Method: 5030A

Test	Results	Units	MQL	DF	Date / Time Analyzed	By	Analytical Batch
2-Chlorotoluene	<0.002	mg/Kg	0.002	1	01/23/23 18:06	ASH	L660116
4-Chlorotoluene	<0.002	mg/Kg	0.002	1	01/23/23 18:06	ASH	L660116
1,2-Dibromo-3-Chloropropane	<0.010	mg/Kg	0.010	1	01/23/23 18:06	ASH	L660116
1,2-Dibromoethane	<0.002	mg/Kg	0.002	1	01/23/23 18:06	ASH	L660116
Dibromomethane	<0.002	mg/Kg	0.002	1	01/23/23 18:06	ASH	L660116
1,2-Dichlorobenzene	<0.002	mg/Kg	0.002	1	01/23/23 18:06	ASH	L660116
1,3-Dichlorobenzene	<0.002	mg/Kg	0.002	1	01/23/23 18:06	ASH	L660116
1,4-Dichlorobenzene	<0.002	mg/Kg	0.002	1	01/23/23 18:06	ASH	L660116
Dichlorodifluoromethane	<0.002	mg/Kg	0.002	1	01/23/23 18:06	ASH	L660116
1,1-Dichloroethane	<0.002	mg/Kg	0.002	1	01/23/23 18:06	ASH	L660116
1,2-Dichloroethane	<0.002	mg/Kg	0.002	1	01/23/23 18:06	ASH	L660116
1,1-Dichloroethene	<0.002	mg/Kg	0.002	1	01/23/23 18:06	ASH	L660116
cis-1,2-Dichloroethene	<0.002	mg/Kg	0.002	1	01/23/23 18:06	ASH	L660116
trans-1,2-Dichloroethene	<0.002	mg/Kg	0.002	1	01/23/23 18:06	ASH	L660116
1,2-Dichloroethene (Total)	<0.002	mg/Kg	0.002	1	01/23/23 18:06		L660116
1,2-Dichloropropane	<0.002	mg/Kg	0.002	1	01/23/23 18:06	ASH	L660116
1,3-Dichloropropane	<0.002	mg/Kg	0.002	1	01/23/23 18:06	ASH	L660116
2,2-Dichloropropane	<0.002	mg/Kg	0.002	1	01/23/23 18:06	ASH	L660116
1,1-Dichloropropene	<0.002	mg/Kg	0.002	1	01/23/23 18:06	ASH	L660116
cis-1,3-Dichloropropene	<0.002	mg/Kg	0.002	1	01/23/23 18:06	ASH	L660116
trans-1,3-Dichloropropene	<0.002	mg/Kg	0.002	1	01/23/23 18:06	ASH	L660116
Ethyl Acetate	<0.040	mg/Kg	0.040	1	01/23/23 18:06	ASH	L660116

Qualifiers/ Definitions

*	Outside QC Limit	DF	Dilution Factor
M	Minimum value	MQL	Method Quantitation Limit
Q	RPD >40% dual column results		

Waypoint ANALYTICAL

2790 Whitten Road, Memphis, TN 38133
Main 901.213.2400 º Fax 901.213.2440
www.waypointanalytical.com

06510
Tioga Environmental Consultants
Mr. Luke Hall
357 N. Main Street
Memphis , TN 38103

Project 1215 Springdale-Memphis, TN

Information : Additional Assessment
Project #561417.00

Report Date : 02/02/2023
Received : 01/19/2023

Rebekah Ross
Project Manager

Report Number : **23-019-0202**

REPORT OF ANALYSIS

Lab No : **95439**
Sample ID : **HA-2 (0-2)**

Matrix: **Solids**
Sampled: **1/19/2023 12:12**

Analytical Method: 8260B **Prep Batch(es):** **L660093** 01/23/23 08:40
Prep Method: 5030A

Test	Results	Units	MQL	DF	Date / Time Analyzed	By	Analytical Batch
Ethylbenzene	<0.002	mg/Kg	0.002	1	01/23/23 18:06	ASH	L660116
Hexachlorobutadiene	<0.002	mg/Kg	0.002	1	01/23/23 18:06	ASH	L660116
2-Hexanone	<0.010	mg/Kg	0.010	1	01/23/23 18:06	ASH	L660116
Iodomethane	<0.010	mg/Kg	0.010	1	01/23/23 18:06	ASH	L660116
Isopropylbenzene	<0.002	mg/Kg	0.002	1	01/23/23 18:06	ASH	L660116
4-Isopropyl toluene	<0.002	mg/Kg	0.002	1	01/23/23 18:06	ASH	L660116
4-Methyl-2-Pentanone	<0.010	mg/Kg	0.010	1	01/23/23 18:06	ASH	L660116
Methylene Chloride	<0.040	mg/Kg	0.040	1	01/23/23 18:06	ASH	L660116
Methyl tert-butyl ether (MTBE)	<0.002	mg/Kg	0.002	1	01/23/23 18:06	ASH	L660116
m,p-Xylene	<0.004	mg/Kg	0.004	1	01/23/23 18:06	ASH	L660116
Naphthalene	<0.010	mg/Kg	0.010	1	01/23/23 18:06	ASH	L660116
o-Xylene	<0.002	mg/Kg	0.002	1	01/23/23 18:06	ASH	L660116
n-Propylbenzene	<0.002	mg/Kg	0.002	1	01/23/23 18:06	ASH	L660116
Styrene	<0.002	mg/Kg	0.002	1	01/23/23 18:06	ASH	L660116
1,1,1,2-Tetrachloroethane	<0.002	mg/Kg	0.002	1	01/23/23 18:06	ASH	L660116
1,1,2,2-Tetrachloroethane	<0.002	mg/Kg	0.002	1	01/23/23 18:06	ASH	L660116
Tetrachloroethene	<0.002	mg/Kg	0.002	1	01/23/23 18:06	ASH	L660116
Toluene	<0.010	mg/Kg	0.010	1	01/23/23 18:06	ASH	L660116
1,2,3-Trichlorobenzene	<0.002	mg/Kg	0.002	1	01/23/23 18:06	ASH	L660116
1,2,4-Trichlorobenzene	<0.002	mg/Kg	0.002	1	01/23/23 18:06	ASH	L660116
1,1,1-Trichloroethane	<0.002	mg/Kg	0.002	1	01/23/23 18:06	ASH	L660116
1,1,2-Trichloroethane	<0.002	mg/Kg	0.002	1	01/23/23 18:06	ASH	L660116

Qualifiers/ Definitions

*	Outside QC Limit	DF	Dilution Factor
M	Minimum value	MQL	Method Quantitation Limit
Q	RPD >40% dual column results		

Waypoint ANALYTICAL
2790 Whitten Road, Memphis, TN 38133
Main 901.213.2400 º Fax 901.213.2440
www.waypointanalytical.com

06510
Tioga Environmental Consultants
Mr. Luke Hall
357 N. Main Street
Memphis , TN 38103

Project 1215 Springdale-Memphis, TN

Information : Additional Assessment
Project #561417.00

Report Date : 02/02/2023
Received : 01/19/2023

Rebekah Ross
Project Manager

Report Number : **23-019-0202**

REPORT OF ANALYSIS

Lab No : **95439**
Sample ID : **HA-2 (0-2)**

Matrix: **Solids**
Sampled: **1/19/2023 12:12**

Analytical Method: 8260B **Prep Batch(es):** **L660093** 01/23/23 08:40
Prep Method: 5030A

Test	Results	Units	MQL	DF	Date / Time Analyzed	By	Analytical Batch
Trichloroethene	<0.002	mg/Kg	0.002	1	01/23/23 18:06	ASH	L660116
Trichlorofluoromethane	<0.002	mg/Kg	0.002	1	01/23/23 18:06	ASH	L660116
1,2,3-Trichloropropane	<0.002	mg/Kg	0.002	1	01/23/23 18:06	ASH	L660116
1,2,4-Trimethylbenzene	<0.002	mg/Kg	0.002	1	01/23/23 18:06	ASH	L660116
1,3,5-Trimethylbenzene	<0.002	mg/Kg	0.002	1	01/23/23 18:06	ASH	L660116
Vinyl Acetate	<0.040	mg/Kg	0.040	1	01/23/23 18:06	ASH	L660116
Vinyl Chloride	<0.002	mg/Kg	0.002	1	01/23/23 18:06	ASH	L660116
Xylene (Total)	<0.002	mg/Kg	0.002	1	01/23/23 18:06		L660116
Surrogate: 4-Bromofluorobenzene	82.9		Limits: 60-130%	1	01/23/23 18:06	ASH	L660116
Surrogate: 1,2-Dichloroethane - d4	104		Limits: 60-132%	1	01/23/23 18:06	ASH	L660116
Surrogate: Toluene-d8	86.1		Limits: 70-130%	1	01/23/23 18:06	ASH	L660116

Qualifiers/ Definitions

*	Outside QC Limit	DF	Dilution Factor
M	Minimum value	MQL	Method Quantitation Limit
Q	RPD >40% dual column results		

Waypoint ANALYTICAL
2790 Whitten Road, Memphis, TN 38133
Main 901.213.2400 º Fax 901.213.2440
www.waypointanalytical.com

06510
Tioga Environmental Consultants
Mr. Luke Hall
357 N. Main Street
Memphis , TN 38103

Project 1215 Springdale-Memphis, TN

Information : Additional Assessment
Project #561417.00

Report Date : 02/02/2023
Received : 01/19/2023

Rebekah Ross
Project Manager

Report Number : **23-019-0202**

REPORT OF ANALYSIS

Lab No : **95440**
Sample ID : **HA-2 (6-8)**

Matrix: **Solids**
Sampled: **1/19/2023 12:18**

Analytical Method: 8081B **Prep Batch(es):** **L660932** 01/27/23 10:30
Prep Method: 3546

Test	Results	Units	MQL	DF	Date / Time Analyzed	By	Analytical Batch
Aldrin	**2.40**	mg/Kg	0.0200	100	01/31/23 03:43	VIC	L661306
alpha-BHC	<0.0020	mg/Kg	0.0020	10	01/28/23 10:42	VIC	L661306
beta-BHC	<0.0020	mg/Kg	0.0020	10	01/28/23 10:42	VIC	L661306
delta-BHC	<0.0020	mg/Kg	0.0020	10	01/28/23 10:42	VIC	L661306
Chlordane	<0.0200	mg/Kg	0.0200	10	01/28/23 10:42	VIC	L661306
alpha-Chlordane	**0.113**	mg/Kg	0.0020	10	01/28/23 10:42	VIC	L661306
gamma-Chlordane	**0.892**	mg/Kg	0.0200	100	01/31/23 03:43	VIC	L661306
4,4'-DDD	<0.0020	mg/Kg	0.0020	10	01/28/23 10:42	VIC	L661306
4,4'-DDE	<0.0020	mg/Kg	0.0020	10	01/28/23 10:42	VIC	L661306
4,4'-DDT	<0.0020	mg/Kg	0.0020	10	01/28/23 10:42	VIC	L661306
Dieldrin	**0.505**	mg/Kg	0.0200	100	01/31/23 03:43	VIC	L661306
Endosulfan I	<0.0020	mg/Kg	0.0020	10	01/28/23 10:42	VIC	L661306
Endosulfan II	<0.0020	mg/Kg	0.0020	10	01/28/23 10:42	VIC	L661306
Endosulfan Sulfate	<0.0020	mg/Kg	0.0020	10	01/28/23 10:42	VIC	L661306
Endrin	<0.0020	mg/Kg	0.0020	10	01/28/23 10:42	VIC	L661306
Endrin Aldehyde	<0.0020	mg/Kg	0.0020	10	01/28/23 10:42	VIC	L661306
Endrin Ketone	**5.30**	mg/Kg	0.200	1000	01/31/23 06:43	VIC	L661306
gamma-BHC	<0.0020	mg/Kg	0.0020	10	01/28/23 10:42	VIC	L661306
Heptachlor	<0.0020	mg/Kg	0.0020	10	01/28/23 10:42	VIC	L661306
Heptachlor Epoxide	<0.0020	mg/Kg	0.0020	10	01/28/23 10:42	VIC	L661306
Methoxychlor	<0.0020	mg/Kg	0.0020	10	01/28/23 10:42	VIC	L661306

Qualifiers/ Definitions

*	Outside QC Limit	DF	Dilution Factor
M	Minimum value	MQL	Method Quantitation Limit
Q	RPD >40% dual column results		

2790 Whitten Road, Memphis, TN 38133
Main 901.213.2400 ⁰ Fax 901.213.2440
www.waypointanalytical.com

06510
Tioga Environmental Consultants
Mr. Luke Hall
357 N. Main Street
Memphis , TN 38103

Project 1215 Springdale-Memphis, TN

Information : Additional Assessment
Project #561417.00

Report Date : 02/02/2023
Received : 01/19/2023

Rebekah Ross
Project Manager

Report Number : **23-019-0202**

REPORT OF ANALYSIS

Lab No : **95440**
Sample ID : **HA-2 (6-8)**

Matrix: **Solids**
Sampled: **1/19/2023 12:18**

Analytical Method: 8081B **Prep Batch(es):** **L660932** 01/27/23 10:30
Prep Method: 3546

Test	Results	Units	MQL	DF	Date / Time Analyzed	By	Analytical Batch
Toxaphene	<0.200	mg/Kg	0.200	10	01/28/23 10:42	VIC	L661306
Surrogate: Tetrachloro-m-xylene	**0** *		Limits: 18-158%	10	01/28/23 10:42	VIC	L661306
Surrogate: Decachlorobiphenyl	54.9		Limits: 37-165%	1000	01/31/23 06:43	VIC	L661306

Analytical Method: 8151A **Prep Batch(es):** **L660471** 01/25/23 13:20
Prep Method: 8151A

Test	Results	Units	MQL	DF	Date / Time Analyzed	By	Analytical Batch
2,4-D	<0.0133	mg/Kg	0.0133	1	01/30/23 20:58	NFP	L661720
Dalapon	<0.0334	mg/Kg	0.0334	1	01/30/23 20:58	NFP	L661720
2,4-DB	<0.0133	mg/Kg	0.0133	1	01/30/23 20:58	NFP	L661720
Dicamba	<0.0013	mg/Kg	0.0013	1	01/30/23 20:58	NFP	L661720
Dichlorprop	<0.0133	mg/Kg	0.0133	1	01/30/23 20:58	NFP	L661720
Dinoseb	<0.0133	mg/Kg	0.0133	1	01/30/23 20:58	NFP	L661720
MCPA	<3.32	mg/Kg	3.32	1	01/30/23 20:58	NFP	L661720
MCPP	<3.32	mg/Kg	3.32	1	01/30/23 20:58	NFP	L661720
Picloram	<0.0033	mg/Kg	0.0033	1	01/30/23 20:58	NFP	L661720
2,4,5-T	<0.0033	mg/Kg	0.0033	1	01/30/23 20:58	NFP	L661720
2,4,5-TP (Silvex)	<0.0050	mg/Kg	0.0050	1	01/30/23 20:58	NFP	L661720
Surrogate: DCAA	30.7		Limits: 20-150%	1	01/30/23 20:58	NFP	L661720

Qualifiers/ Definitions

*	Outside QC Limit	DF	Dilution Factor
M	Minimum value	MQL	Method Quantitation Limit
Q	RPD >40% dual column results		

Waypoint ANALYTICAL
2790 Whitten Road, Memphis, TN 38133
Main 901.213.2400 º Fax 901.213.2440
www.waypointanalytical.com

06510
Tioga Environmental Consultants
Mr. Luke Hall
357 N. Main Street
Memphis , TN 38103

Project 1215 Springdale-Memphis, TN

Information : Additional Assessment
Project #561417.00

Report Date : 02/02/2023
Received : 01/19/2023

Rebekah Ross
Project Manager

Report Number : **23-019-0202**

REPORT OF ANALYSIS

Lab No : **95440**
Sample ID : **HA-2 (6-8)**

Matrix: **Solids**
Sampled: **1/19/2023 12:18**

Analytical Method: 8260B **Prep Batch(es):** **L660093** 01/23/23 08:40
Prep Method: 5030A

Test	Results	Units	MQL	DF	Date / Time Analyzed	By	Analytical Batch
Acetone	<0.040	mg/Kg	0.040	1	01/23/23 18:27	ASH	L660116
Acetonitrile	<0.100	mg/Kg	0.100	1	01/23/23 18:27	ASH	L660116
Acrolein	<0.040	mg/Kg	0.040	1	01/23/23 18:27	ASH	L660116
Acrylonitrile	<0.040	mg/Kg	0.040	1	01/23/23 18:27	ASH	L660116
Benzene	<0.002	mg/Kg	0.002	1	01/23/23 18:27	ASH	L660116
Bromobenzene	<0.002	mg/Kg	0.002	1	01/23/23 18:27	ASH	L660116
Bromochloromethane	<0.002	mg/Kg	0.002	1	01/23/23 18:27	ASH	L660116
Bromodichloromethane	<0.002	mg/Kg	0.002	1	01/23/23 18:27	ASH	L660116
Bromoform	<0.002	mg/Kg	0.002	1	01/23/23 18:27	ASH	L660116
Bromomethane	<0.002	mg/Kg	0.002	1	01/23/23 18:27	ASH	L660116
Methyl Ethyl Ketone (MEK)	<0.040	mg/Kg	0.040	1	01/23/23 18:27	ASH	L660116
n-Butylbenzene	<0.002	mg/Kg	0.002	1	01/23/23 18:27	ASH	L660116
sec-Butyl benzene	<0.002	mg/Kg	0.002	1	01/23/23 18:27	ASH	L660116
tert-Butyl benzene	<0.002	mg/Kg	0.002	1	01/23/23 18:27	ASH	L660116
Carbon Disulfide	<0.002	mg/Kg	0.002	1	01/23/23 18:27	ASH	L660116
Carbon Tetrachloride	<0.002	mg/Kg	0.002	1	01/23/23 18:27	ASH	L660116
Chlorobenzene	<0.002	mg/Kg	0.002	1	01/23/23 18:27	ASH	L660116
Chlorodibromomethane	<0.002	mg/Kg	0.002	1	01/23/23 18:27	ASH	L660116
Chloroethane	<0.002	mg/Kg	0.002	1	01/23/23 18:27	ASH	L660116
2-Chloroethylvinyl Ether	<0.010 M	mg/Kg	0.010	1	01/23/23 18:27	ASH	L660116
Chloroform	<0.002	mg/Kg	0.002	1	01/23/23 18:27	ASH	L660116
Chloromethane	<0.002	mg/Kg	0.002	1	01/23/23 18:27	ASH	L660116

Qualifiers/ Definitions

*	Outside QC Limit	DF	Dilution Factor
M	Minimum value	MQL	Method Quantitation Limit
Q	RPD >40% dual column results		

Waypoint ANALYTICAL
2790 Whitten Road, Memphis, TN 38133
Main 901.213.2400 º Fax 901.213.2440
www.waypointanalytical.com

06510
Tioga Environmental Consultants
Mr. Luke Hall
357 N. Main Street
Memphis , TN 38103

Project 1215 Springdale-Memphis, TN

Information : Additional Assessment
Project #561417.00

Report Date : 02/02/2023
Received : 01/19/2023

Rebekah Ross
Project Manager

Report Number : **23-019-0202**

REPORT OF ANALYSIS

Lab No : **95440**
Sample ID : **HA-2 (6-8)**

Matrix: **Solids**
Sampled: **1/19/2023 12:18**

Analytical Method: 8260B **Prep Batch(es):** **L660093** 01/23/23 08:40
Prep Method: 5030A

Test	Results	Units	MQL	DF	Date / Time Analyzed	By	Analytical Batch
2-Chlorotoluene	<0.002	mg/Kg	0.002	1	01/23/23 18:27	ASH	L660116
4-Chlorotoluene	<0.002	mg/Kg	0.002	1	01/23/23 18:27	ASH	L660116
1,2-Dibromo-3-Chloropropane	<0.010	mg/Kg	0.010	1	01/23/23 18:27	ASH	L660116
1,2-Dibromoethane	<0.002	mg/Kg	0.002	1	01/23/23 18:27	ASH	L660116
Dibromomethane	<0.002	mg/Kg	0.002	1	01/23/23 18:27	ASH	L660116
1,2-Dichlorobenzene	<0.002	mg/Kg	0.002	1	01/23/23 18:27	ASH	L660116
1,3-Dichlorobenzene	<0.002	mg/Kg	0.002	1	01/23/23 18:27	ASH	L660116
1,4-Dichlorobenzene	<0.002	mg/Kg	0.002	1	01/23/23 18:27	ASH	L660116
Dichlorodifluoromethane	<0.002	mg/Kg	0.002	1	01/23/23 18:27	ASH	L660116
1,1-Dichloroethane	<0.002	mg/Kg	0.002	1	01/23/23 18:27	ASH	L660116
1,2-Dichloroethane	<0.002	mg/Kg	0.002	1	01/23/23 18:27	ASH	L660116
1,1-Dichloroethene	<0.002	mg/Kg	0.002	1	01/23/23 18:27	ASH	L660116
cis-1,2-Dichloroethene	<0.002	mg/Kg	0.002	1	01/23/23 18:27	ASH	L660116
trans-1,2-Dichloroethene	<0.002	mg/Kg	0.002	1	01/23/23 18:27	ASH	L660116
1,2-Dichloroethene (Total)	<0.002	mg/Kg	0.002	1	01/23/23 18:27		L660116
1,2-Dichloropropane	<0.002	mg/Kg	0.002	1	01/23/23 18:27	ASH	L660116
1,3-Dichloropropane	<0.002	mg/Kg	0.002	1	01/23/23 18:27	ASH	L660116
2,2-Dichloropropane	<0.002	mg/Kg	0.002	1	01/23/23 18:27	ASH	L660116
1,1-Dichloropropene	<0.002	mg/Kg	0.002	1	01/23/23 18:27	ASH	L660116
cis-1,3-Dichloropropene	<0.002	mg/Kg	0.002	1	01/23/23 18:27	ASH	L660116
trans-1,3-Dichloropropene	<0.002	mg/Kg	0.002	1	01/23/23 18:27	ASH	L660116
Ethyl Acetate	<0.040	mg/Kg	0.040	1	01/23/23 18:27	ASH	L660116

Qualifiers/ Definitions

*	Outside QC Limit	DF	Dilution Factor
M	Minimum value	MQL	Method Quantitation Limit
Q	RPD >40% dual column results		

2790 Whitten Road, Memphis, TN 38133
Main 901.213.2400 ⁰ Fax 901.213.2440
www.waypointanalytical.com

06510
Tioga Environmental Consultants
Mr. Luke Hall
357 N. Main Street
Memphis , TN 38103

Project 1215 Springdale-Memphis, TN

Information : Additional Assessment
Project #561417.00

Report Date : 02/02/2023
Received : 01/19/2023

Rebekah Ross
Project Manager

Report Number : **23-019-0202**

REPORT OF ANALYSIS

Lab No : **95440**
Sample ID : **HA-2 (6-8)**

Matrix: **Solids**
Sampled: **1/19/2023 12:18**

Analytical Method: 8260B **Prep Batch(es):** **L660093** 01/23/23 08:40
Prep Method: 5030A

Test	Results	Units	MQL	DF	Date / Time Analyzed	By	Analytical Batch
Ethylbenzene	<0.002	mg/Kg	0.002	1	01/23/23 18:27	ASH	L660116
Hexachlorobutadiene	<0.002	mg/Kg	0.002	1	01/23/23 18:27	ASH	L660116
2-Hexanone	<0.010	mg/Kg	0.010	1	01/23/23 18:27	ASH	L660116
Iodomethane	<0.010	mg/Kg	0.010	1	01/23/23 18:27	ASH	L660116
Isopropylbenzene	<0.002	mg/Kg	0.002	1	01/23/23 18:27	ASH	L660116
4-Isopropyl toluene	<0.002	mg/Kg	0.002	1	01/23/23 18:27	ASH	L660116
4-Methyl-2-Pentanone	<0.010	mg/Kg	0.010	1	01/23/23 18:27	ASH	L660116
Methylene Chloride	<0.040	mg/Kg	0.040	1	01/23/23 18:27	ASH	L660116
Methyl tert-butyl ether (MTBE)	<0.002	mg/Kg	0.002	1	01/23/23 18:27	ASH	L660116
m,p-Xylene	<0.004	mg/Kg	0.004	1	01/23/23 18:27	ASH	L660116
Naphthalene	<0.010	mg/Kg	0.010	1	01/23/23 18:27	ASH	L660116
o-Xylene	<0.002	mg/Kg	0.002	1	01/23/23 18:27	ASH	L660116
n-Propylbenzene	<0.002	mg/Kg	0.002	1	01/23/23 18:27	ASH	L660116
Styrene	<0.002	mg/Kg	0.002	1	01/23/23 18:27	ASH	L660116
1,1,1,2-Tetrachloroethane	<0.002	mg/Kg	0.002	1	01/23/23 18:27	ASH	L660116
1,1,2,2-Tetrachloroethane	<0.002	mg/Kg	0.002	1	01/23/23 18:27	ASH	L660116
Tetrachloroethene	<0.002	mg/Kg	0.002	1	01/23/23 18:27	ASH	L660116
Toluene	<0.010	mg/Kg	0.010	1	01/23/23 18:27	ASH	L660116
1,2,3-Trichlorobenzene	<0.002	mg/Kg	0.002	1	01/23/23 18:27	ASH	L660116
1,2,4-Trichlorobenzene	<0.002	mg/Kg	0.002	1	01/23/23 18:27	ASH	L660116
1,1,1-Trichloroethane	<0.002	mg/Kg	0.002	1	01/23/23 18:27	ASH	L660116
1,1,2-Trichloroethane	<0.002	mg/Kg	0.002	1	01/23/23 18:27	ASH	L660116

Qualifiers/ Definitions

*	Outside QC Limit	DF	Dilution Factor
M	Minimum value	MQL	Method Quantitation Limit
Q	RPD >40% dual column results		

2790 Whitten Road, Memphis, TN 38133
Main 901.213.2400 ⁰ Fax 901.213.2440
www.waypointanalytical.com

06510
Tioga Environmental Consultants
Mr. Luke Hall
357 N. Main Street
Memphis , TN 38103

Project 1215 Springdale-Memphis, TN

Information : Additional Assessment
Project #561417.00

Report Date : 02/02/2023
Received : 01/19/2023

Rebekah Ross
Project Manager

Report Number : **23-019-0202**

REPORT OF ANALYSIS

Lab No : **95440**
Sample ID : **HA-2 (6-8)**

Matrix: **Solids**
Sampled: **1/19/2023 12:18**

Analytical Method: 8260B **Prep Batch(es):** **L660093** 01/23/23 08:40
Prep Method: 5030A

Test	Results	Units	MQL	DF	Date / Time Analyzed	By	Analytical Batch
Trichloroethene	<0.002	mg/Kg	0.002	1	01/23/23 18:27	ASH	L660116
Trichlorofluoromethane	<0.002	mg/Kg	0.002	1	01/23/23 18:27	ASH	L660116
1,2,3-Trichloropropane	<0.002	mg/Kg	0.002	1	01/23/23 18:27	ASH	L660116
1,2,4-Trimethylbenzene	<0.002	mg/Kg	0.002	1	01/23/23 18:27	ASH	L660116
1,3,5-Trimethylbenzene	<0.002	mg/Kg	0.002	1	01/23/23 18:27	ASH	L660116
Vinyl Acetate	<0.040	mg/Kg	0.040	1	01/23/23 18:27	ASH	L660116
Vinyl Chloride	<0.002	mg/Kg	0.002	1	01/23/23 18:27	ASH	L660116
Xylene (Total)	<0.002	mg/Kg	0.002	1	01/23/23 18:27		L660116
Surrogate: 4-Bromofluorobenzene	75.5		Limits: 60-130%	1	01/23/23 18:27	ASH	L660116
Surrogate: 1,2-Dichloroethane - d4	110		Limits: 60-132%	1	01/23/23 18:27	ASH	L660116
Surrogate: Toluene-d8	91.2		Limits: 70-130%	1	01/23/23 18:27	ASH	L660116

Qualifiers/ Definitions

*	Outside QC Limit	DF	Dilution Factor
M	Minimum value	MQL	Method Quantitation Limit
Q	RPD >40% dual column results		

Waypoint ANALYTICAL
2790 Whitten Road, Memphis, TN 38133
Main 901.213.2400 º Fax 901.213.2440
www.waypointanalytical.com

06510
Tioga Environmental Consultants
Mr. Luke Hall
357 N. Main Street
Memphis , TN 38103

Project 1215 Springdale-Memphis, TN
Information : Additional Assessment
Project #561417.00

Report Date : 02/02/2023
Received : 01/19/2023

Rebekah Ross
Project Manager

Report Number : **23-019-0202**

REPORT OF ANALYSIS

Lab No : **95441**
Sample ID : **HA-3 (0-2)**

Matrix: **Solids**
Sampled: **1/19/2023 12:30**

Analytical Method: 8081B **Prep Batch(es):** **L660932** 01/27/23 10:30
Prep Method: 3546

Test	Results	Units	MQL	DF	Date / Time Analyzed	By	Analytical Batch
Aldrin	**0.0205**	mg/Kg	0.0020	10	01/28/23 11:05	VIC	L661306
alpha-BHC	<0.0020	mg/Kg	0.0020	10	01/28/23 11:05	VIC	L661306
beta-BHC	<0.0020	mg/Kg	0.0020	10	01/28/23 11:05	VIC	L661306
delta-BHC	<0.0020	mg/Kg	0.0020	10	01/28/23 11:05	VIC	L661306
Chlordane	<0.0200	mg/Kg	0.0200	10	01/28/23 11:05	VIC	L661306
alpha-Chlordane	**0.0628**	mg/Kg	0.0020	10	01/28/23 11:05	VIC	L661306
gamma-Chlordane	**0.493**	mg/Kg	0.0200	100	01/31/23 04:06	VIC	L661306
4,4'-DDD	<0.0020	mg/Kg	0.0020	10	01/28/23 11:05	VIC	L661306
4,4'-DDE	<0.0020	mg/Kg	0.0020	10	01/28/23 11:05	VIC	L661306
4,4'-DDT	<0.0020	mg/Kg	0.0020	10	01/28/23 11:05	VIC	L661306
Dieldrin	**1.81**	mg/Kg	0.0200	100	01/31/23 04:06	VIC	L661306
Endosulfan I	<0.0020	mg/Kg	0.0020	10	01/28/23 11:05	VIC	L661306
Endosulfan II	<0.0020	mg/Kg	0.0020	10	01/28/23 11:05	VIC	L661306
Endosulfan Sulfate	<0.0020	mg/Kg	0.0020	10	01/28/23 11:05	VIC	L661306
Endrin	**3.87 Q**	mg/Kg	0.200	1000	01/31/23 07:05	VIC	L661306
Endrin Aldehyde	<0.0020	mg/Kg	0.0020	10	01/28/23 11:05	VIC	L661306
Endrin Ketone	**24.8 Q**	mg/Kg	0.200	1000	01/31/23 07:05	VIC	L661306
gamma-BHC	<0.0020	mg/Kg	0.0020	10	01/28/23 11:05	VIC	L661306
Heptachlor	<0.0020	mg/Kg	0.0020	10	01/28/23 11:05	VIC	L661306
Heptachlor Epoxide	**0.0463**	mg/Kg	0.0020	10	01/28/23 11:05	VIC	L661306
Methoxychlor	<0.0020	mg/Kg	0.0020	10	01/28/23 11:05	VIC	L661306

Qualifiers/ Definitions

*	Outside QC Limit	DF	Dilution Factor
M	Minimum value	MQL	Method Quantitation Limit
Q	RPD >40% dual column results		

Waypoint ANALYTICAL
2790 Whitten Road, Memphis, TN 38133
Main 901.213.2400 º Fax 901.213.2440
www.waypointanalytical.com

06510
Tioga Environmental Consultants
Mr. Luke Hall
357 N. Main Street
Memphis , TN 38103

Project 1215 Springdale-Memphis, TN

Information : Additional Assessment
Project #561417.00

Report Date : 02/02/2023
Received : 01/19/2023

Rebekah Ross
Project Manager

Report Number : **23-019-0202**

REPORT OF ANALYSIS

Lab No : **95441**
Sample ID : **HA-3 (0-2)**

Matrix: **Solids**
Sampled: **1/19/2023 12:30**

Analytical Method: 8081B **Prep Batch(es):** **L660932** 01/27/23 10:30
Prep Method: 3546

Test	Results	Units	MQL	DF	Date / Time Analyzed	By	Analytical Batch
Toxaphene	<0.200	mg/Kg	0.200	10	01/28/23 11:05	VIC	L661306
Surrogate: Decachlorobiphenyl	59.2		Limits: 37-165%	10	01/28/23 11:05	VIC	L661306
Surrogate: Tetrachloro-m-xylene	93.2		Limits: 18-158%	10	01/28/23 11:05	VIC	L661306

Analytical Method: 8151A **Prep Batch(es):** **L660471** 01/25/23 13:20
Prep Method: 8151A

Test	Results	Units	MQL	DF	Date / Time Analyzed	By	Analytical Batch
2,4-D	<0.0133	mg/Kg	0.0133	1	01/30/23 21:23	NFP	L661720
Dalapon	<0.0334	mg/Kg	0.0334	1	01/30/23 21:23	NFP	L661720
2,4-DB	<0.0133	mg/Kg	0.0133	1	01/30/23 21:23	NFP	L661720
Dicamba	<0.0013	mg/Kg	0.0013	1	01/30/23 21:23	NFP	L661720
Dichlorprop	<0.0133	mg/Kg	0.0133	1	01/30/23 21:23	NFP	L661720
Dinoseb	<0.0133	mg/Kg	0.0133	1	01/30/23 21:23	NFP	L661720
MCPA	<3.32	mg/Kg	3.32	1	01/30/23 21:23	NFP	L661720
MCPP	<3.32	mg/Kg	3.32	1	01/30/23 21:23	NFP	L661720
Picloram	<0.0033	mg/Kg	0.0033	1	01/30/23 21:23	NFP	L661720
2,4,5-T	<0.0033	mg/Kg	0.0033	1	01/30/23 21:23	NFP	L661720
2,4,5-TP (Silvex)	<0.0050	mg/Kg	0.0050	1	01/30/23 21:23	NFP	L661720
Surrogate: DCAA	57.5		Limits: 20-150%	1	01/30/23 21:23	NFP	L661720

Qualifiers/ Definitions

*	Outside QC Limit	DF	Dilution Factor
M	Minimum value	MQL	Method Quantitation Limit
Q	RPD >40% dual column results		

Waypoint ANALYTICAL
2790 Whitten Road, Memphis, TN 38133
Main 901.213.2400 º Fax 901.213.2440
www.waypointanalytical.com

06510
Tioga Environmental Consultants
Mr. Luke Hall
357 N. Main Street
Memphis , TN 38103

Project 1215 Springdale-Memphis, TN
Information : Additional Assessment
Project #561417.00

Report Date : 02/02/2023
Received : 01/19/2023

Rebekah Ross
Project Manager

Report Number : **23-019-0202**

REPORT OF ANALYSIS

Lab No : **95441**
Sample ID : **HA-3 (0-2)**

Matrix: **Solids**
Sampled: **1/19/2023 12:30**

Analytical Method: 8260B **Prep Batch(es):** **L660093** 01/23/23 08:40
Prep Method: 5030A

Test	Results	Units	MQL	DF	Date / Time Analyzed	By	Analytical Batch
Acetone	<0.040	mg/Kg	0.040	1	01/23/23 18:48	ASH	L660116
Acetonitrile	<0.100	mg/Kg	0.100	1	01/23/23 18:48	ASH	L660116
Acrolein	<0.040	mg/Kg	0.040	1	01/23/23 18:48	ASH	L660116
Acrylonitrile	<0.040	mg/Kg	0.040	1	01/23/23 18:48	ASH	L660116
Benzene	<0.002	mg/Kg	0.002	1	01/23/23 18:48	ASH	L660116
Bromobenzene	<0.002	mg/Kg	0.002	1	01/23/23 18:48	ASH	L660116
Bromochloromethane	<0.002	mg/Kg	0.002	1	01/23/23 18:48	ASH	L660116
Bromodichloromethane	<0.002	mg/Kg	0.002	1	01/23/23 18:48	ASH	L660116
Bromoform	<0.002	mg/Kg	0.002	1	01/23/23 18:48	ASH	L660116
Bromomethane	<0.002	mg/Kg	0.002	1	01/23/23 18:48	ASH	L660116
Methyl Ethyl Ketone (MEK)	<0.040	mg/Kg	0.040	1	01/23/23 18:48	ASH	L660116
n-Butylbenzene	<0.002	mg/Kg	0.002	1	01/23/23 18:48	ASH	L660116
sec-Butyl benzene	<0.002	mg/Kg	0.002	1	01/23/23 18:48	ASH	L660116
tert-Butyl benzene	<0.002	mg/Kg	0.002	1	01/23/23 18:48	ASH	L660116
Carbon Disulfide	<0.002	mg/Kg	0.002	1	01/23/23 18:48	ASH	L660116
Carbon Tetrachloride	<0.002	mg/Kg	0.002	1	01/23/23 18:48	ASH	L660116
Chlorobenzene	<0.002	mg/Kg	0.002	1	01/23/23 18:48	ASH	L660116
Chlorodibromomethane	<0.002	mg/Kg	0.002	1	01/23/23 18:48	ASH	L660116
Chloroethane	<0.002	mg/Kg	0.002	1	01/23/23 18:48	ASH	L660116
2-Chloroethylvinyl Ether	<0.010 M	mg/Kg	0.010	1	01/23/23 18:48	ASH	L660116
Chloroform	<0.002	mg/Kg	0.002	1	01/23/23 18:48	ASH	L660116
Chloromethane	<0.002	mg/Kg	0.002	1	01/23/23 18:48	ASH	L660116

Qualifiers/ Definitions

*	Outside QC Limit	DF	Dilution Factor
M	Minimum value	MQL	Method Quantitation Limit
Q	RPD >40% dual column results		

2790 Whitten Road, Memphis, TN 38133
Main 901.213.2400 ⁰ Fax 901.213.2440
www.waypointanalytical.com

06510
Tioga Environmental Consultants
Mr. Luke Hall
357 N. Main Street
Memphis , TN 38103

Project 1215 Springdale-Memphis, TN

Information : Additional Assessment
Project #561417.00

Report Date : 02/02/2023
Received : 01/19/2023

Rebekah Ross
Project Manager

Report Number : **23-019-0202**

REPORT OF ANALYSIS

Lab No : **95441**
Sample ID : **HA-3 (0-2)**

Matrix: **Solids**
Sampled: **1/19/2023 12:30**

Analytical Method: 8260B **Prep Batch(es):** **L660093** 01/23/23 08:40
Prep Method: 5030A

Test	Results	Units	MQL	DF	Date / Time Analyzed	By	Analytical Batch
2-Chlorotoluene	<0.002	mg/Kg	0.002	1	01/23/23 18:48	ASH	L660116
4-Chlorotoluene	<0.002	mg/Kg	0.002	1	01/23/23 18:48	ASH	L660116
1,2-Dibromo-3-Chloropropane	<0.010	mg/Kg	0.010	1	01/23/23 18:48	ASH	L660116
1,2-Dibromoethane	<0.002	mg/Kg	0.002	1	01/23/23 18:48	ASH	L660116
Dibromomethane	<0.002	mg/Kg	0.002	1	01/23/23 18:48	ASH	L660116
1,2-Dichlorobenzene	<0.002	mg/Kg	0.002	1	01/23/23 18:48	ASH	L660116
1,3-Dichlorobenzene	<0.002	mg/Kg	0.002	1	01/23/23 18:48	ASH	L660116
1,4-Dichlorobenzene	<0.002	mg/Kg	0.002	1	01/23/23 18:48	ASH	L660116
Dichlorodifluoromethane	<0.002	mg/Kg	0.002	1	01/23/23 18:48	ASH	L660116
1,1-Dichloroethane	<0.002	mg/Kg	0.002	1	01/23/23 18:48	ASH	L660116
1,2-Dichloroethane	<0.002	mg/Kg	0.002	1	01/23/23 18:48	ASH	L660116
1,1-Dichloroethene	<0.002	mg/Kg	0.002	1	01/23/23 18:48	ASH	L660116
cis-1,2-Dichloroethene	<0.002	mg/Kg	0.002	1	01/23/23 18:48	ASH	L660116
trans-1,2-Dichloroethene	<0.002	mg/Kg	0.002	1	01/23/23 18:48	ASH	L660116
1,2-Dichloroethene (Total)	<0.002	mg/Kg	0.002	1	01/23/23 18:48		L660116
1,2-Dichloropropane	<0.002	mg/Kg	0.002	1	01/23/23 18:48	ASH	L660116
1,3-Dichloropropane	<0.002	mg/Kg	0.002	1	01/23/23 18:48	ASH	L660116
2,2-Dichloropropane	<0.002	mg/Kg	0.002	1	01/23/23 18:48	ASH	L660116
1,1-Dichloropropene	<0.002	mg/Kg	0.002	1	01/23/23 18:48	ASH	L660116
cis-1,3-Dichloropropene	<0.002	mg/Kg	0.002	1	01/23/23 18:48	ASH	L660116
trans-1,3-Dichloropropene	<0.002	mg/Kg	0.002	1	01/23/23 18:48	ASH	L660116
Ethyl Acetate	<0.040	mg/Kg	0.040	1	01/23/23 18:48	ASH	L660116

Qualifiers/ Definitions

*	Outside QC Limit	DF	Dilution Factor
M	Minimum value	MQL	Method Quantitation Limit
Q	RPD >40% dual column results		

Waypoint ANALYTICAL
2790 Whitten Road, Memphis, TN 38133
Main 901.213.2400 º Fax 901.213.2440
www.waypointanalytical.com

06510
Tioga Environmental Consultants
Mr. Luke Hall
357 N. Main Street
Memphis , TN 38103

Project 1215 Springdale-Memphis, TN

Information : Additional Assessment
Project #561417.00

Report Date : 02/02/2023
Received : 01/19/2023

Rebekah Ross
Project Manager

Report Number : **23-019-0202**

REPORT OF ANALYSIS

Lab No : **95441**
Sample ID : **HA-3 (0-2)**

Matrix: **Solids**
Sampled: **1/19/2023 12:30**

Analytical Method: 8260B **Prep Batch(es):** **L660093** 01/23/23 08:40
Prep Method: 5030A

Test	Results	Units	MQL	DF	Date / Time Analyzed	By	Analytical Batch
Ethylbenzene	<0.002	mg/Kg	0.002	1	01/23/23 18:48	ASH	L660116
Hexachlorobutadiene	<0.002	mg/Kg	0.002	1	01/23/23 18:48	ASH	L660116
2-Hexanone	<0.010	mg/Kg	0.010	1	01/23/23 18:48	ASH	L660116
Iodomethane	<0.010	mg/Kg	0.010	1	01/23/23 18:48	ASH	L660116
Isopropylbenzene	<0.002	mg/Kg	0.002	1	01/23/23 18:48	ASH	L660116
4-Isopropyl toluene	<0.002	mg/Kg	0.002	1	01/23/23 18:48	ASH	L660116
4-Methyl-2-Pentanone	<0.010	mg/Kg	0.010	1	01/23/23 18:48	ASH	L660116
Methylene Chloride	<0.040	mg/Kg	0.040	1	01/23/23 18:48	ASH	L660116
Methyl tert-butyl ether (MTBE)	<0.002	mg/Kg	0.002	1	01/23/23 18:48	ASH	L660116
m,p-Xylene	<0.004	mg/Kg	0.004	1	01/23/23 18:48	ASH	L660116
Naphthalene	<0.010	mg/Kg	0.010	1	01/23/23 18:48	ASH	L660116
o-Xylene	<0.002	mg/Kg	0.002	1	01/23/23 18:48	ASH	L660116
n-Propylbenzene	<0.002	mg/Kg	0.002	1	01/23/23 18:48	ASH	L660116
Styrene	<0.002	mg/Kg	0.002	1	01/23/23 18:48	ASH	L660116
1,1,1,2-Tetrachloroethane	<0.002	mg/Kg	0.002	1	01/23/23 18:48	ASH	L660116
1,1,2,2-Tetrachloroethane	<0.002	mg/Kg	0.002	1	01/23/23 18:48	ASH	L660116
Tetrachloroethene	<0.002	mg/Kg	0.002	1	01/23/23 18:48	ASH	L660116
Toluene	<0.010	mg/Kg	0.010	1	01/23/23 18:48	ASH	L660116
1,2,3-Trichlorobenzene	<0.002	mg/Kg	0.002	1	01/23/23 18:48	ASH	L660116
1,2,4-Trichlorobenzene	<0.002	mg/Kg	0.002	1	01/23/23 18:48	ASH	L660116
1,1,1-Trichloroethane	<0.002	mg/Kg	0.002	1	01/23/23 18:48	ASH	L660116
1,1,2-Trichloroethane	<0.002	mg/Kg	0.002	1	01/23/23 18:48	ASH	L660116

Qualifiers/ Definitions

*	Outside QC Limit	DF	Dilution Factor
M	Minimum value	MQL	Method Quantitation Limit
Q	RPD >40% dual column results		

2790 Whitten Road, Memphis, TN 38133
Main 901.213.2400 ⁰ Fax 901.213.2440
www.waypointanalytical.com

06510
Tioga Environmental Consultants
Mr. Luke Hall
357 N. Main Street
Memphis , TN 38103

Project 1215 Springdale-Memphis, TN

Information : Additional Assessment
Project #561417.00

Report Date : 02/02/2023
Received : 01/19/2023

Rebekah Ross
Project Manager

Report Number : **23-019-0202**

REPORT OF ANALYSIS

Lab No : **95441**
Sample ID : **HA-3 (0-2)**

Matrix: **Solids**
Sampled: **1/19/2023 12:30**

Analytical Method: 8260B **Prep Batch(es):** **L660093** 01/23/23 08:40
Prep Method: 5030A

Test	Results	Units	MQL	DF	Date / Time Analyzed	By	Analytical Batch
Trichloroethene	<0.002	mg/Kg	0.002	1	01/23/23 18:48	ASH	L660116
Trichlorofluoromethane	<0.002	mg/Kg	0.002	1	01/23/23 18:48	ASH	L660116
1,2,3-Trichloropropane	<0.002	mg/Kg	0.002	1	01/23/23 18:48	ASH	L660116
1,2,4-Trimethylbenzene	<0.002	mg/Kg	0.002	1	01/23/23 18:48	ASH	L660116
1,3,5-Trimethylbenzene	<0.002	mg/Kg	0.002	1	01/23/23 18:48	ASH	L660116
Vinyl Acetate	<0.040	mg/Kg	0.040	1	01/23/23 18:48	ASH	L660116
Vinyl Chloride	<0.002	mg/Kg	0.002	1	01/23/23 18:48	ASH	L660116
Xylene (Total)	<0.002	mg/Kg	0.002	1	01/23/23 18:48		L660116
Surrogate: 4-Bromofluorobenzene	78.3		Limits: 60-130%	1	01/23/23 18:48	ASH	L660116
Surrogate: 1,2-Dichloroethane - d4	113		Limits: 60-132%	1	01/23/23 18:48	ASH	L660116
Surrogate: Toluene-d8	101		Limits: 70-130%	1	01/23/23 18:48	ASH	L660116

Qualifiers/ Definitions

*	Outside QC Limit	DF	Dilution Factor
M	Minimum value	MQL	Method Quantitation Limit
Q	RPD >40% dual column results		

Waypoint ANALYTICAL
2790 Whitten Road, Memphis, TN 38133
Main 901.213.2400 º Fax 901.213.2440
www.waypointanalytical.com

06510
Tioga Environmental Consultants
Mr. Luke Hall
357 N. Main Street
Memphis , TN 38103

Project 1215 Springdale-Memphis, TN
Information : Additional Assessment
Project #561417.00

Report Date : 02/02/2023
Received : 01/19/2023

Rebekah Ross
Project Manager

Report Number : **23-019-0202**

REPORT OF ANALYSIS

Lab No : **95442**
Sample ID : **HA-3 (6-8)**

Matrix: **Solids**
Sampled: **1/19/2023 12:40**

Analytical Method: 8081B **Prep Batch(es):** **L660932** 01/27/23 10:30
Prep Method: 3546

Test	Results	Units	MQL	DF	Date / Time Analyzed	By	Analytical Batch
Aldrin	**3.30**	mg/Kg	0.200	1000	01/31/23 07:28	VIC	L661306
alpha-BHC	<0.0020	mg/Kg	0.0020	10	01/28/23 11:27	VIC	L661306
beta-BHC	<0.0020	mg/Kg	0.0020	10	01/28/23 11:27	VIC	L661306
delta-BHC	<0.0020	mg/Kg	0.0020	10	01/28/23 11:27	VIC	L661306
Chlordane	<0.0200	mg/Kg	0.0200	10	01/28/23 11:27	VIC	L661306
alpha-Chlordane	**0.381**	mg/Kg	0.0200	100	01/31/23 04:28	VIC	L661306
gamma-Chlordane	**2.78**	mg/Kg	0.0200	100	01/31/23 04:28	VIC	L661306
4,4'-DDD	<0.0020	mg/Kg	0.0020	10	01/28/23 11:27	VIC	L661306
4,4'-DDE	<0.0020	mg/Kg	0.0020	10	01/28/23 11:27	VIC	L661306
4,4'-DDT	<0.0020	mg/Kg	0.0020	10	01/28/23 11:27	VIC	L661306
Dieldrin	**2.43**	mg/Kg	0.0200	100	01/31/23 04:28	VIC	L661306
Endosulfan I	<0.0020	mg/Kg	0.0020	10	01/28/23 11:27	VIC	L661306
Endosulfan II	<0.0020	mg/Kg	0.0020	10	01/28/23 11:27	VIC	L661306
Endosulfan Sulfate	<0.0020	mg/Kg	0.0020	10	01/28/23 11:27	VIC	L661306
Endrin	**2.95 Q**	mg/Kg	0.200	1000	01/31/23 07:28	VIC	L661306
Endrin Aldehyde	<0.0020	mg/Kg	0.0020	10	01/28/23 11:27	VIC	L661306
Endrin Ketone	**25.0**	mg/Kg	0.200	1000	01/31/23 07:28	VIC	L661306
gamma-BHC	<0.0020	mg/Kg	0.0020	10	01/28/23 11:27	VIC	L661306
Heptachlor	<0.0020	mg/Kg	0.0020	10	01/28/23 11:27	VIC	L661306
Heptachlor Epoxide	<0.0020	mg/Kg	0.0020	10	01/28/23 11:27	VIC	L661306
Methoxychlor	<0.0020	mg/Kg	0.0020	10	01/28/23 11:27	VIC	L661306

Qualifiers/ Definitions

*	Outside QC Limit	DF	Dilution Factor
M	Minimum value	MQL	Method Quantitation Limit
Q	RPD >40% dual column results		

Waypoint ANALYTICAL
2790 Whitten Road, Memphis, TN 38133
Main 901.213.2400 º Fax 901.213.2440
www.waypointanalytical.com

06510
Tioga Environmental Consultants
Mr. Luke Hall
357 N. Main Street
Memphis , TN 38103

Project 1215 Springdale-Memphis, TN
Information : Additional Assessment
Project #561417.00

Report Date : 02/02/2023
Received : 01/19/2023

Rebekah Ross
Project Manager

Report Number : **23-019-0202**

REPORT OF ANALYSIS

Lab No : **95442**
Sample ID : **HA-3 (6-8)**

Matrix: **Solids**
Sampled: **1/19/2023 12:40**

Analytical Method: 8081B **Prep Batch(es):** **L660932** 01/27/23 10:30
Prep Method: 3546

Test	Results	Units	MQL	DF	Date / Time Analyzed	By	Analytical Batch
Toxaphene	<0.200	mg/Kg	0.200	10	01/28/23 11:27	VIC	L661306
Surrogate: Decachlorobiphenyl	**233** *		Limits: 37-165%	10	01/28/23 11:27	VIC	L661306
Surrogate: Tetrachloro-m-xylene	**0** *		Limits: 18-158%	10	01/28/23 11:27	VIC	L661306

Analytical Method: 8151A **Prep Batch(es):** **L660471** 01/25/23 13:20
Prep Method: 8151A

Test	Results	Units	MQL	DF	Date / Time Analyzed	By	Analytical Batch
2,4-D	<0.0133	mg/Kg	0.0133	1	01/30/23 21:48	NFP	L661720
Dalapon	<0.0334	mg/Kg	0.0334	1	01/30/23 21:48	NFP	L661720
2,4-DB	<0.0133	mg/Kg	0.0133	1	01/30/23 21:48	NFP	L661720
Dicamba	<0.0013	mg/Kg	0.0013	1	01/30/23 21:48	NFP	L661720
Dichlorprop	<0.0133	mg/Kg	0.0133	1	01/30/23 21:48	NFP	L661720
Dinoseb	<0.0133	mg/Kg	0.0133	1	01/30/23 21:48	NFP	L661720
MCPA	<3.32	mg/Kg	3.32	1	01/30/23 21:48	NFP	L661720
MCPP	<3.32	mg/Kg	3.32	1	01/30/23 21:48	NFP	L661720
Picloram	<0.0033	mg/Kg	0.0033	1	01/30/23 21:48	NFP	L661720
2,4,5-T	<0.0033	mg/Kg	0.0033	1	01/30/23 21:48	NFP	L661720
2,4,5-TP (Silvex)	<0.0050	mg/Kg	0.0050	1	01/30/23 21:48	NFP	L661720
Surrogate: DCAA	52.4		Limits: 20-150%	1	01/30/23 21:48	NFP	L661720

Qualifiers/ Definitions

*	Outside QC Limit	DF	Dilution Factor
M	Minimum value	MQL	Method Quantitation Limit
Q	RPD >40% dual column results		

Waypoint ANALYTICAL
2790 Whitten Road, Memphis, TN 38133
Main 901.213.2400 º Fax 901.213.2440
www.waypointanalytical.com

06510
Tioga Environmental Consultants
Mr. Luke Hall
357 N. Main Street
Memphis , TN 38103

Project 1215 Springdale-Memphis, TN

Information : Additional Assessment
Project #561417.00

Report Date : 02/02/2023
Received : 01/19/2023

Rebekah Ross
Project Manager

Report Number : **23-019-0202**

REPORT OF ANALYSIS

Lab No : **95442**
Sample ID : **HA-3 (6-8)**

Matrix: **Solids**
Sampled: **1/19/2023 12:40**

Analytical Method: 8260B **Prep Batch(es):** **L660093** 01/23/23 08:40
Prep Method: 5030A

Test	Results	Units	MQL	DF	Date / Time Analyzed	By	Analytical Batch
Acetone	<0.040	mg/Kg	0.040	1	01/23/23 19:08	ASH	L660116
Acetonitrile	<0.100	mg/Kg	0.100	1	01/23/23 19:08	ASH	L660116
Acrolein	<0.040	mg/Kg	0.040	1	01/23/23 19:08	ASH	L660116
Acrylonitrile	<0.040	mg/Kg	0.040	1	01/23/23 19:08	ASH	L660116
Benzene	<0.002	mg/Kg	0.002	1	01/23/23 19:08	ASH	L660116
Bromobenzene	<0.002	mg/Kg	0.002	1	01/23/23 19:08	ASH	L660116
Bromochloromethane	<0.002	mg/Kg	0.002	1	01/23/23 19:08	ASH	L660116
Bromodichloromethane	<0.002	mg/Kg	0.002	1	01/23/23 19:08	ASH	L660116
Bromoform	<0.002	mg/Kg	0.002	1	01/23/23 19:08	ASH	L660116
Bromomethane	<0.002	mg/Kg	0.002	1	01/23/23 19:08	ASH	L660116
Methyl Ethyl Ketone (MEK)	<0.040	mg/Kg	0.040	1	01/23/23 19:08	ASH	L660116
n-Butylbenzene	<0.002	mg/Kg	0.002	1	01/23/23 19:08	ASH	L660116
sec-Butyl benzene	<0.002	mg/Kg	0.002	1	01/23/23 19:08	ASH	L660116
tert-Butyl benzene	<0.002	mg/Kg	0.002	1	01/23/23 19:08	ASH	L660116
Carbon Disulfide	<0.002	mg/Kg	0.002	1	01/23/23 19:08	ASH	L660116
Carbon Tetrachloride	<0.002	mg/Kg	0.002	1	01/23/23 19:08	ASH	L660116
Chlorobenzene	<0.002	mg/Kg	0.002	1	01/23/23 19:08	ASH	L660116
Chlorodibromomethane	<0.002	mg/Kg	0.002	1	01/23/23 19:08	ASH	L660116
Chloroethane	<0.002	mg/Kg	0.002	1	01/23/23 19:08	ASH	L660116
2-Chloroethylvinyl Ether	<0.010 M	mg/Kg	0.010	1	01/23/23 19:08	ASH	L660116
Chloroform	<0.002	mg/Kg	0.002	1	01/23/23 19:08	ASH	L660116
Chloromethane	<0.002	mg/Kg	0.002	1	01/23/23 19:08	ASH	L660116

Qualifiers/ Definitions

*	Outside QC Limit	DF	Dilution Factor
M	Minimum value	MQL	Method Quantitation Limit
Q	RPD >40% dual column results		

Waypoint ANALYTICAL
2790 Whitten Road, Memphis, TN 38133
Main 901.213.2400 º Fax 901.213.2440
www.waypointanalytical.com

06510
Tioga Environmental Consultants
Mr. Luke Hall
357 N. Main Street
Memphis , TN 38103

Project 1215 Springdale-Memphis, TN

Information : Additional Assessment
Project #561417.00

Report Date : 02/02/2023
Received : 01/19/2023

Rebekah Ross
Project Manager

Report Number : **23-019-0202**

REPORT OF ANALYSIS

Lab No : **95442**
Sample ID : **HA-3 (6-8)**

Matrix: **Solids**
Sampled: **1/19/2023 12:40**

Analytical Method: 8260B **Prep Batch(es):** **L660093** 01/23/23 08:40
Prep Method: 5030A

Test	Results	Units	MQL	DF	Date / Time Analyzed	By	Analytical Batch
2-Chlorotoluene	<0.002	mg/Kg	0.002	1	01/23/23 19:08	ASH	L660116
4-Chlorotoluene	<0.002	mg/Kg	0.002	1	01/23/23 19:08	ASH	L660116
1,2-Dibromo-3-Chloropropane	<0.010	mg/Kg	0.010	1	01/23/23 19:08	ASH	L660116
1,2-Dibromoethane	<0.002	mg/Kg	0.002	1	01/23/23 19:08	ASH	L660116
Dibromomethane	<0.002	mg/Kg	0.002	1	01/23/23 19:08	ASH	L660116
1,2-Dichlorobenzene	<0.002	mg/Kg	0.002	1	01/23/23 19:08	ASH	L660116
1,3-Dichlorobenzene	<0.002	mg/Kg	0.002	1	01/23/23 19:08	ASH	L660116
1,4-Dichlorobenzene	<0.002	mg/Kg	0.002	1	01/23/23 19:08	ASH	L660116
Dichlorodifluoromethane	<0.002	mg/Kg	0.002	1	01/23/23 19:08	ASH	L660116
1,1-Dichloroethane	<0.002	mg/Kg	0.002	1	01/23/23 19:08	ASH	L660116
1,2-Dichloroethane	<0.002	mg/Kg	0.002	1	01/23/23 19:08	ASH	L660116
1,1-Dichloroethene	<0.002	mg/Kg	0.002	1	01/23/23 19:08	ASH	L660116
cis-1,2-Dichloroethene	<0.002	mg/Kg	0.002	1	01/23/23 19:08	ASH	L660116
trans-1,2-Dichloroethene	<0.002	mg/Kg	0.002	1	01/23/23 19:08	ASH	L660116
1,2-Dichloroethene (Total)	<0.002	mg/Kg	0.002	1	01/23/23 19:08		L660116
1,2-Dichloropropane	<0.002	mg/Kg	0.002	1	01/23/23 19:08	ASH	L660116
1,3-Dichloropropane	<0.002	mg/Kg	0.002	1	01/23/23 19:08	ASH	L660116
2,2-Dichloropropane	<0.002	mg/Kg	0.002	1	01/23/23 19:08	ASH	L660116
1,1-Dichloropropene	<0.002	mg/Kg	0.002	1	01/23/23 19:08	ASH	L660116
cis-1,3-Dichloropropene	<0.002	mg/Kg	0.002	1	01/23/23 19:08	ASH	L660116
trans-1,3-Dichloropropene	<0.002	mg/Kg	0.002	1	01/23/23 19:08	ASH	L660116
Ethyl Acetate	<0.040	mg/Kg	0.040	1	01/23/23 19:08	ASH	L660116

Qualifiers/ Definitions

*	Outside QC Limit	DF	Dilution Factor
M	Minimum value	MQL	Method Quantitation Limit
Q	RPD >40% dual column results		

Waypoint ANALYTICAL

2790 Whitten Road, Memphis, TN 38133
Main 901.213.2400 º Fax 901.213.2440
www.waypointanalytical.com

06510
Tioga Environmental Consultants
Mr. Luke Hall
357 N. Main Street
Memphis , TN 38103

Project 1215 Springdale-Memphis, TN

Information : Additional Assessment
Project #561417.00

Report Date : 02/02/2023
Received : 01/19/2023

Rebekah Ross
Project Manager

Report Number : **23-019-0202**

REPORT OF ANALYSIS

Lab No : **95442**
Sample ID : **HA-3 (6-8)**

Matrix: **Solids**
Sampled: **1/19/2023 12:40**

Analytical Method: 8260B **Prep Batch(es):** **L660093** 01/23/23 08:40
Prep Method: 5030A

Test	Results	Units	MQL	DF	Date / Time Analyzed	By	Analytical Batch
Ethylbenzene	<0.002	mg/Kg	0.002	1	01/23/23 19:08	ASH	L660116
Hexachlorobutadiene	<0.002	mg/Kg	0.002	1	01/23/23 19:08	ASH	L660116
2-Hexanone	<0.010	mg/Kg	0.010	1	01/23/23 19:08	ASH	L660116
Iodomethane	<0.010	mg/Kg	0.010	1	01/23/23 19:08	ASH	L660116
Isopropylbenzene	<0.002	mg/Kg	0.002	1	01/23/23 19:08	ASH	L660116
4-Isopropyl toluene	<0.002	mg/Kg	0.002	1	01/23/23 19:08	ASH	L660116
4-Methyl-2-Pentanone	<0.010	mg/Kg	0.010	1	01/23/23 19:08	ASH	L660116
Methylene Chloride	<0.040	mg/Kg	0.040	1	01/23/23 19:08	ASH	L660116
Methyl tert-butyl ether (MTBE)	<0.002	mg/Kg	0.002	1	01/23/23 19:08	ASH	L660116
m,p-Xylene	<0.004	mg/Kg	0.004	1	01/23/23 19:08	ASH	L660116
Naphthalene	<0.010	mg/Kg	0.010	1	01/23/23 19:08	ASH	L660116
o-Xylene	<0.002	mg/Kg	0.002	1	01/23/23 19:08	ASH	L660116
n-Propylbenzene	<0.002	mg/Kg	0.002	1	01/23/23 19:08	ASH	L660116
Styrene	<0.002	mg/Kg	0.002	1	01/23/23 19:08	ASH	L660116
1,1,1,2-Tetrachloroethane	<0.002	mg/Kg	0.002	1	01/23/23 19:08	ASH	L660116
1,1,2,2-Tetrachloroethane	<0.002	mg/Kg	0.002	1	01/23/23 19:08	ASH	L660116
Tetrachloroethene	<0.002	mg/Kg	0.002	1	01/23/23 19:08	ASH	L660116
Toluene	<0.010	mg/Kg	0.010	1	01/23/23 19:08	ASH	L660116
1,2,3-Trichlorobenzene	<0.002	mg/Kg	0.002	1	01/23/23 19:08	ASH	L660116
1,2,4-Trichlorobenzene	<0.002	mg/Kg	0.002	1	01/23/23 19:08	ASH	L660116
1,1,1-Trichloroethane	<0.002	mg/Kg	0.002	1	01/23/23 19:08	ASH	L660116
1,1,2-Trichloroethane	<0.002	mg/Kg	0.002	1	01/23/23 19:08	ASH	L660116

Qualifiers/ Definitions

*	Outside QC Limit	DF	Dilution Factor
M	Minimum value	MQL	Method Quantitation Limit
Q	RPD >40% dual column results		

Waypoint ANALYTICAL
2790 Whitten Road, Memphis, TN 38133
Main 901.213.2400 º Fax 901.213.2440
www.waypointanalytical.com

06510
Tioga Environmental Consultants
Mr. Luke Hall
357 N. Main Street
Memphis , TN 38103

Project 1215 Springdale-Memphis, TN

Information : Additional Assessment
Project #561417.00

Report Date : 02/02/2023
Received : 01/19/2023

Rebekah Ross
Project Manager

Report Number : **23-019-0202**

REPORT OF ANALYSIS

Lab No : **95442**
Sample ID : **HA-3 (6-8)**

Matrix: **Solids**
Sampled: **1/19/2023 12:40**

Analytical Method: 8260B **Prep Batch(es):** **L660093** 01/23/23 08:40
Prep Method: 5030A

Test	Results	Units	MQL	DF	Date / Time Analyzed	By	Analytical Batch
Trichloroethene	<0.002	mg/Kg	0.002	1	01/23/23 19:08	ASH	L660116
Trichlorofluoromethane	<0.002	mg/Kg	0.002	1	01/23/23 19:08	ASH	L660116
1,2,3-Trichloropropane	<0.002	mg/Kg	0.002	1	01/23/23 19:08	ASH	L660116
1,2,4-Trimethylbenzene	<0.002	mg/Kg	0.002	1	01/23/23 19:08	ASH	L660116
1,3,5-Trimethylbenzene	<0.002	mg/Kg	0.002	1	01/23/23 19:08	ASH	L660116
Vinyl Acetate	<0.040	mg/Kg	0.040	1	01/23/23 19:08	ASH	L660116
Vinyl Chloride	<0.002	mg/Kg	0.002	1	01/23/23 19:08	ASH	L660116
Xylene (Total)	<0.002	mg/Kg	0.002	1	01/23/23 19:08		L660116
Surrogate: 4-Bromofluorobenzene	67.4		Limits: 60-130%	1	01/23/23 19:08	ASH	L660116
Surrogate: 1,2-Dichloroethane - d4	106		Limits: 60-132%	1	01/23/23 19:08	ASH	L660116
Surrogate: Toluene-d8	86.4		Limits: 70-130%	1	01/23/23 19:08	ASH	L660116

Qualifiers/ Definitions

*	Outside QC Limit	DF	Dilution Factor
M	Minimum value	MQL	Method Quantitation Limit
Q	RPD >40% dual column results		

Waypoint ANALYTICAL
2790 Whitten Road, Memphis, TN 38133
Main 901.213.2400 ° Fax 901.213.2440
www.waypointanalytical.com

Shipment Receipt Form

Customer Number: **06510**
Customer Name: **Tioga Environmental Consultants**
Report Number: **23-019-0202**

Shipping Method

◯ Fed Ex	◯ US Postal	◯ Lab	◯ Other :	
◯ UPS	◉ Client	◯ Courier	Thermometer ID:	T102

Shipping container/cooler uncompromised?	◉ Yes	◯ No	
Number of coolers/boxes received	1		
Custody seals intact on shipping container/cooler?	◯ Yes	◯ No	◉ Not Present
Custody seals intact on sample bottles?	◯ Yes	◯ No	◉ Not Present
Chain of Custody (COC) present?	◉ Yes	◯ No	
COC agrees with sample label(s)?	◉ Yes	◯ No	
COC properly completed	◉ Yes	◯ No	
Samples in proper containers?	◉ Yes	◯ No	
Sample containers intact?	◉ Yes	◯ No	
Sufficient sample volume for indicated test(s)?	◉ Yes	◯ No	
All samples received within holding time?	◉ Yes	◯ No	
Cooler temperature in compliance?	◉ Yes	◯ No	
Cooler/Samples arrived at the laboratory on ice. Samples were considered acceptable as cooling process had begun.	◯ Yes	◉ No	
Water - Sample containers properly preserved	◯ Yes	◯ No	◉ N/A
Water - VOA vials free of headspace	◯ Yes	◯ No	◉ N/A
Trip Blanks received with VOAs	◯ Yes	◯ No	◉ N/A
Soil VOA method 5035 – compliance criteria met	◯ Yes	◯ No	◉ N/A

☐ High concentration container (48 hr) ☐ Low concentration EnCore samplers (48 hr)
☐ High concentration pre-weighed (methanol -14 d) ☐ Low conc pre-weighed vials (Sod Bis -14 d)

Special precautions or instructions included?	◯ Yes	◉ No

Comments:

Signature: Makayla Weaver Date & Time: 01/19/2023 15:17:04

Client Name/Address	Client Project Manager/Contact	Billing Information	For Laboratory Use Only
Tioga	Luke Hall	357 N. Main St.	

Project Description	Project/Site Location (City/State)		Method of Shipment	Matrix Key
V215 Springdale Additional Assessment	Memphis, TN	☐ RUSH – Additional charges apply ☐ Special Detection Limit(s) Date Results Needed	☐ Fed Ex ☐ UPS ☐ USPS ☐ Courier ☒ Client Drop Off Other	WW – Wastewater GW – Groundwater DW – Drinking Water S – Soil /Solid O – Oil P - Product M - Misc

Project Number	Project Manager Phone #	Project Manager Email	Purchase Order Number	Site/Facility ID #
561417.00	(901) 741-2432	lhall@tiogaenv.com		

Waypoint ANALYTICAL
2790 Whitten Road
Memphis, TN 38133
(901) 213-2400

Unless noted, all containers per Table II of 40 CFR Part 136.

Key	
A	Cool < 10C Na2S2O3 (Micro Only)
B	Cool <= 6C
C	H2SO4 pH<2
D	None Required
E	NaOH pH>10
F	HNO3 pH<2
G	HCL pH<2
H	H3PO4 pH<2
I	Cool <= 6C NA2S2O3

Date	Time	Sample Identification	Number of Containers	Matrix (Refer to Key)	(G)rab or (C)omposite	Required Analysis / Preservative: VOC	Required Analysis / Preservative: Pesticides Herbicides	Comments/Notes
1/17/23	11:50	HA-1 (0-2)	2	S	G	X	X	
1/17/23	12:00	HA-1 (6-8)	2	S	G	X	X	
1/17/23	12:12	HA-2 (0-2)	2	S	G	X	X	
1/17/23	12:18	HA-2 (6-8)	2	S	G	X	X	
1/17/23	12:30	HA-3 (0-2)	2	S	G	X	X	
1/17/23	12:40	HA-3 (6-8)	2	S	G	X	X	

23-019-0202
06510
Tioga Environmental Consultants
1215 Springdale
01-19-2023
15:16:10

For Laboratory Use Only			Sampled by (Name – Print)	Client Remarks/Comments
Ice Y / N: Y	Custody Seals Y / N: N	Lab Comments	Karim Bouzeid	
Blank/Cooler Temp: 1.3 Room				

Relinquished by: (SIGNATURE)	Date Time	Received by: (SIGNATURE)	Date Time
	1/19/23		
Relinquished by: (SIGNATURE)	Date Time	Received by: (SIGNATURE)	Date Time
Relinquished by: (SIGNATURE)	Date Time	Received by: (SIGNATURE) Emily Peterson	Date Time 1/19/23 1416

Safeguard LITHO USA Form No. 811-2/E15CS000385 07/15

ANALYTICAL REPORT

January 25, 2023

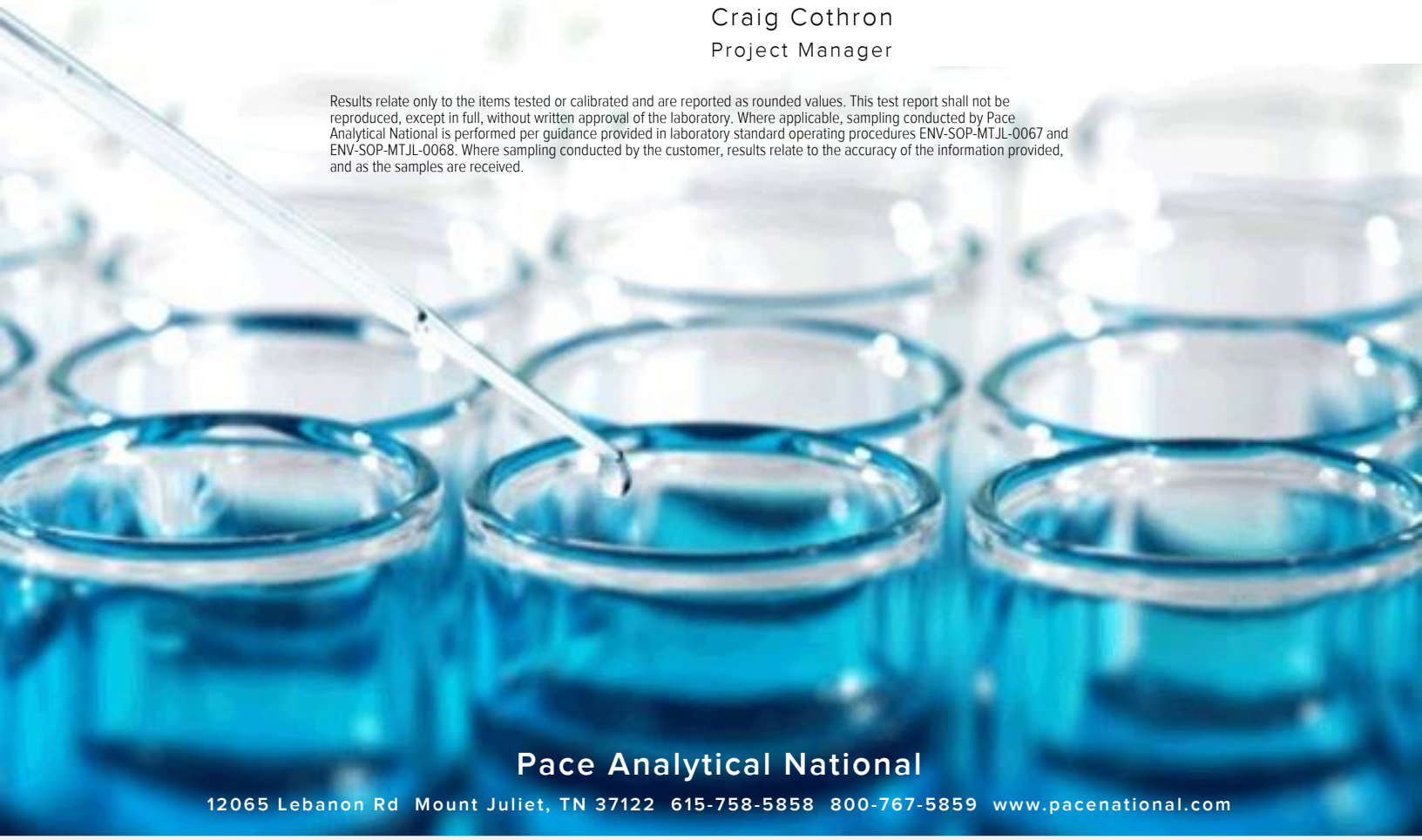
Tioga Environmental Consultants

Sample Delivery Group:	L1577986
Samples Received:	01/20/2023
Project Number:	
Description:	

Report To: Luke Hall
357 North Main Street
Memphis, TN 38103

Entire Report Reviewed By:

Craig Cothron
Project Manager



Pace Analytical National
12065 Lebanon Rd Mount Juliet, TN 37122 615-758-5858 800-767-5859 www.pacenational.com

TABLE OF CONTENTS

SAMPLE SUMMARY

SS-AA-1 L1577986-01 Air

Collected by | Collected date/time 01/19/23 10:33 | Received date/time 01/20/23 09:00

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Volatile Organic Compounds (MS) by Method TO-15	WG1993199	1	01/23/23 14:11	01/23/23 14:11	CEP	Mt. Juliet, TN

SS-AA-2 L1577986-02 Air

Collected by | Collected date/time 01/19/23 10:35 | Received date/time 01/20/23 09:00

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Volatile Organic Compounds (MS) by Method TO-15	WG1993199	1	01/23/23 14:40	01/23/23 14:40	CEP	Mt. Juliet, TN

SS-AA-3 L1577986-03 Air

Collected by | Collected date/time 01/19/23 10:37 | Received date/time 01/20/23 09:00

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Volatile Organic Compounds (MS) by Method TO-15	WG1993199	1	01/23/23 15:08	01/23/23 15:08	CEP	Mt. Juliet, TN

SS-AA-4 L1577986-04 Air

Collected by | Collected date/time 01/19/23 10:40 | Received date/time 01/20/23 09:00

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Volatile Organic Compounds (MS) by Method TO-15	WG1993199	1	01/23/23 15:36	01/23/23 15:36	CEP	Mt. Juliet, TN

CASE NARRATIVE

All sample aliquots were received at the correct temperature, in the proper containers, with the appropriate preservatives, and within method specified holding times, unless qualified or notated within the report. Where applicable, all MDL (LOD) and RDL (LOQ) values reported for environmental samples have been corrected for the dilution factor used in the analysis. All Method and Batch Quality Control are within established criteria except where addressed in this case narrative, a non-conformance form or properly qualified within the sample results. By my digital signature below, I affirm to the best of my knowledge, all problems/anomalies observed by the laboratory as having the potential to affect the quality of the data have been identified by the laboratory, and no information or data have been knowingly withheld that would affect the quality of the data.

Craig Cothron
Project Manager

Volatile Organic Compounds (MS) by Method TO-15

Analyte	CAS #	Mol. Wt.	MDL ug/m3	RDL ug/m3	Result ug/m3	Qualifier	Dilution	Batch
Acetone	67-64-1	58.10	1.39	2.97	25.2		1	WG1993199
Allyl chloride	107-05-1	76.53	0.357	0.626	U		1	WG1993199
Benzene	71-43-2	78.10	0.228	0.639	8.46		1	WG1993199
Benzyl Chloride	100-44-7	127	0.311	1.04	U		1	WG1993199
Bromodichloromethane	75-27-4	164	0.471	1.34	U		1	WG1993199
Bromoform	75-25-2	253	0.757	6.21	U		1	WG1993199
Bromomethane	74-83-9	94.90	0.381	0.776	U		1	WG1993199
1,3-Butadiene	106-99-0	54.10	0.230	4.43	U		1	WG1993199
Carbon disulfide	75-15-0	76.10	0.317	0.622	2.80		1	WG1993199
Carbon tetrachloride	56-23-5	154	0.461	1.26	1.06	J	1	WG1993199
Chlorobenzene	108-90-7	113	0.385	0.924	U		1	WG1993199
Chloroethane	75-00-3	64.50	0.263	0.528	U		1	WG1993199
Chloroform	67-66-3	119	0.349	0.973	2.45		1	WG1993199
Chloromethane	74-87-3	50.50	0.213	0.413	11.2		1	WG1993199
2-Chlorotoluene	95-49-8	126	0.427	1.03	U		1	WG1993199
Cyclohexane	110-82-7	84.20	0.259	0.689	2.98		1	WG1993199
Dibromochloromethane	124-48-1	208	0.618	1.70	U		1	WG1993199
1,2-Dibromoethane	106-93-4	188	0.554	1.54	U		1	WG1993199
1,2-Dichlorobenzene	95-50-1	147	0.770	1.20	U		1	WG1993199
1,3-Dichlorobenzene	541-73-1	147	1.09	1.20	U		1	WG1993199
1,4-Dichlorobenzene	106-46-7	147	0.335	1.20	U		1	WG1993199
1,2-Dichloroethane	107-06-2	99	0.283	0.810	U		1	WG1993199
1,1-Dichloroethane	75-34-3	98	0.290	0.802	U		1	WG1993199
1,1-Dichloroethene	75-35-4	96.90	0.302	0.793	U		1	WG1993199
cis-1,2-Dichloroethene	156-59-2	96.90	0.311	0.793	U		1	WG1993199
trans-1,2-Dichloroethene	156-60-5	96.90	0.267	0.793	U		1	WG1993199
1,2-Dichloropropane	78-87-5	113	0.351	0.924	U		1	WG1993199
cis-1,3-Dichloropropene	10061-01-5	111	0.313	0.908	U		1	WG1993199
trans-1,3-Dichloropropene	10061-02-6	111	0.331	0.908	U		1	WG1993199
1,4-Dioxane	123-91-1	88.10	0.300	0.721	U		1	WG1993199
Ethanol	64-17-5	46.10	0.500	2.36	15.7		1	WG1993199
Ethylbenzene	100-41-4	106	0.362	0.867	12.6		1	WG1993199
4-Ethyltoluene	622-96-8	120	0.384	0.982	U		1	WG1993199
Trichlorofluoromethane	75-69-4	137.40	0.460	1.12	1.38		1	WG1993199
Dichlorodifluoromethane	75-71-8	120.92	0.678	0.989	2.54		1	WG1993199
1,1,2-Trichlorotrifluoroethane	76-13-1	187.40	0.608	1.53	U		1	WG1993199
1,2-Dichlorotetrafluoroethane	76-14-2	171	0.622	1.40	U		1	WG1993199
Heptane	142-82-5	100	0.425	0.818	21.8		1	WG1993199
Hexachloro-1,3-butadiene	87-68-3	261	1.12	6.73	22.2		1	WG1993199
n-Hexane	110-54-3	86.20	0.726	2.22	11.5		1	WG1993199
Isopropylbenzene	98-82-8	120.20	0.382	0.983	U		1	WG1993199
Methylene Chloride	75-09-2	84.90	0.340	0.694	0.587	J	1	WG1993199
Methyl Butyl Ketone	591-78-6	100	0.544	5.11	U		1	WG1993199
2-Butanone (MEK)	78-93-3	72.10	0.240	3.69	3.98		1	WG1993199
4-Methyl-2-pentanone (MIBK)	108-10-1	100.10	0.313	5.12	U		1	WG1993199
Methyl methacrylate	80-62-6	100.12	0.359	0.819	U		1	WG1993199
MTBE	1634-04-4	88.10	0.233	0.721	U		1	WG1993199
Naphthalene	91-20-3	128	1.83	3.30	U		1	WG1993199
2-Propanol	67-63-0	60.10	0.649	3.07	1.17	J	1	WG1993199
Propene	115-07-1	42.10	0.160	2.15	16.1		1	WG1993199
Styrene	100-42-5	104	0.335	0.851	0.506	J	1	WG1993199
1,1,2,2-Tetrachloroethane	79-34-5	168	0.511	1.37	U		1	WG1993199
Tetrachloroethylene	127-18-4	166	0.553	1.36	U		1	WG1993199
Tetrahydrofuran	109-99-9	72.10	0.216	0.590	U		1	WG1993199
Toluene	108-88-3	92.10	0.328	1.88	68.2		1	WG1993199
1,2,4-Trichlorobenzene	120-82-1	181	1.10	4.66	U		1	WG1993199

1 Cp
2 Tc
3 Ss
4 Cn
5 Sr
6 Qc
7 Gl
8 Al
9 Sc

Volatile Organic Compounds (MS) by Method TO-15

Analyte	CAS #	Mol. Wt.	MDL ug/m3	RDL ug/m3	Result ug/m3	Qualifier	Dilution	Batch
1,1,1-Trichloroethane	71-55-6	133	0.400	1.09	U		1	WG1993199
1,1,2-Trichloroethane	79-00-5	133	0.422	1.09	U		1	WG1993199
Trichloroethylene	79-01-6	131	0.364	1.07	U		1	WG1993199
1,2,4-Trimethylbenzene	95-63-6	120	0.375	0.982	15.0		1	WG1993199
1,3,5-Trimethylbenzene	108-67-8	120	0.382	0.982	4.16		1	WG1993199
2,2,4-Trimethylpentane	540-84-1	114.22	0.621	0.934	8.36		1	WG1993199
Vinyl chloride	75-01-4	62.50	0.243	0.511	U		1	WG1993199
Vinyl Bromide	593-60-2	106.95	0.373	0.875	U		1	WG1993199
Vinyl acetate	108-05-4	86.10	0.408	0.704	U		1	WG1993199
m&p-Xylene	1330-20-7	106	0.585	1.73	48.6		1	WG1993199
o-Xylene	95-47-6	106	0.359	0.867	19.9		1	WG1993199
(S) 1,4-Bromofluorobenzene	*460-00-4*	*175*			*112*		*60.0-140*	WG1993199

Volatile Organic Compounds (MS) by Method TO-15

Analyte	CAS #	Mol. Wt.	MDL ug/m3	RDL ug/m3	Result ug/m3	Qualifier	Dilution	Batch
Acetone	67-64-1	58.10	1.39	2.97	22.6		1	WG1993199
Allyl chloride	107-05-1	76.53	0.357	0.626	U		1	WG1993199
Benzene	71-43-2	78.10	0.228	0.639	6.45		1	WG1993199
Benzyl Chloride	100-44-7	127	0.311	1.04	U		1	WG1993199
Bromodichloromethane	75-27-4	164	0.471	1.34	U		1	WG1993199
Bromoform	75-25-2	253	0.757	6.21	U		1	WG1993199
Bromomethane	74-83-9	94.90	0.381	0.776	U		1	WG1993199
1,3-Butadiene	106-99-0	54.10	0.230	4.43	U		1	WG1993199
Carbon disulfide	75-15-0	76.10	0.317	0.622	6.47		1	WG1993199
Carbon tetrachloride	56-23-5	154	0.461	1.26	1.11	J	1	WG1993199
Chlorobenzene	108-90-7	113	0.385	0.924	U		1	WG1993199
Chloroethane	75-00-3	64.50	0.263	0.528	U		1	WG1993199
Chloroform	67-66-3	119	0.349	0.973	3.93		1	WG1993199
Chloromethane	74-87-3	50.50	0.213	0.413	43.4		1	WG1993199
2-Chlorotoluene	95-49-8	126	0.427	1.03	U		1	WG1993199
Cyclohexane	110-82-7	84.20	0.259	0.689	2.29		1	WG1993199
Dibromochloromethane	124-48-1	208	0.618	1.70	U		1	WG1993199
1,2-Dibromoethane	106-93-4	188	0.554	1.54	U		1	WG1993199
1,2-Dichlorobenzene	95-50-1	147	0.770	1.20	U		1	WG1993199
1,3-Dichlorobenzene	541-73-1	147	1.09	1.20	U		1	WG1993199
1,4-Dichlorobenzene	106-46-7	147	0.335	1.20	U		1	WG1993199
1,2-Dichloroethane	107-06-2	99	0.283	0.810	U		1	WG1993199
1,1-Dichloroethane	75-34-3	98	0.290	0.802	U		1	WG1993199
1,1-Dichloroethene	75-35-4	96.90	0.302	0.793	U		1	WG1993199
cis-1,2-Dichloroethene	156-59-2	96.90	0.311	0.793	U		1	WG1993199
trans-1,2-Dichloroethene	156-60-5	96.90	0.267	0.793	U		1	WG1993199
1,2-Dichloropropane	78-87-5	113	0.351	0.924	U		1	WG1993199
cis-1,3-Dichloropropene	10061-01-5	111	0.313	0.908	U		1	WG1993199
trans-1,3-Dichloropropene	10061-02-6	111	0.331	0.908	U		1	WG1993199
1,4-Dioxane	123-91-1	88.10	0.300	0.721	U		1	WG1993199
Ethanol	64-17-5	46.10	0.500	2.36	10.7		1	WG1993199
Ethylbenzene	100-41-4	106	0.362	0.867	10.2		1	WG1993199
4-Ethyltoluene	622-96-8	120	0.384	0.982	U		1	WG1993199
Trichlorofluoromethane	75-69-4	137.40	0.460	1.12	1.41		1	WG1993199
Dichlorodifluoromethane	75-71-8	120.92	0.678	0.989	2.28		1	WG1993199
1,1,2-Trichlorotrifluoroethane	76-13-1	187.40	0.608	1.53	U		1	WG1993199
1,2-Dichlorotetrafluoroethane	76-14-2	171	0.622	1.40	U		1	WG1993199
Heptane	142-82-5	100	0.425	0.818	16.5		1	WG1993199
Hexachloro-1,3-butadiene	87-68-3	261	1.12	6.73	174		1	WG1993199
n-Hexane	110-54-3	86.20	0.726	2.22	9.84		1	WG1993199
Isopropylbenzene	98-82-8	120.20	0.382	0.983	U		1	WG1993199
Methylene Chloride	75-09-2	84.90	0.340	0.694	0.524	J	1	WG1993199
Methyl Butyl Ketone	591-78-6	100	0.544	5.11	U		1	WG1993199
2-Butanone (MEK)	78-93-3	72.10	0.240	3.69	2.39	J	1	WG1993199
4-Methyl-2-pentanone (MIBK)	108-10-1	100.10	0.313	5.12	U		1	WG1993199
Methyl methacrylate	80-62-6	100.12	0.359	0.819	U		1	WG1993199
MTBE	1634-04-4	88.10	0.233	0.721	U		1	WG1993199
Naphthalene	91-20-3	128	1.83	3.30	2.28	J	1	WG1993199
2-Propanol	67-63-0	60.10	0.649	3.07	1.09	J	1	WG1993199
Propene	115-07-1	42.10	0.160	2.15	13.5		1	WG1993199
Styrene	100-42-5	104	0.335	0.851	0.498	J	1	WG1993199
1,1,2,2-Tetrachloroethane	79-34-5	168	0.511	1.37	U		1	WG1993199
Tetrachloroethylene	127-18-4	166	0.553	1.36	2.64		1	WG1993199
Tetrahydrofuran	109-99-9	72.10	0.216	0.590	U		1	WG1993199
Toluene	108-88-3	92.10	0.328	1.88	52.7		1	WG1993199
1,2,4-Trichlorobenzene	120-82-1	181	1.10	4.66	U		1	WG1993199

Volatile Organic Compounds (MS) by Method TO-15

Analyte	CAS #	Mol. Wt.	MDL ug/m3	RDL ug/m3	Result ug/m3	Qualifier	Dilution	Batch
1,1,1-Trichloroethane	71-55-6	133	0.400	1.09	U		1	WG1993199
1,1,2-Trichloroethane	79-00-5	133	0.422	1.09	U		1	WG1993199
Trichloroethylene	79-01-6	131	0.364	1.07	U		1	WG1993199
1,2,4-Trimethylbenzene	95-63-6	120	0.375	0.982	U		1	WG1993199
1,3,5-Trimethylbenzene	108-67-8	120	0.382	0.982	U		1	WG1993199
2,2,4-Trimethylpentane	540-84-1	114.22	0.621	0.934	7.15		1	WG1993199
Vinyl chloride	75-01-4	62.50	0.243	0.511	U		1	WG1993199
Vinyl Bromide	593-60-2	106.95	0.373	0.875	U		1	WG1993199
Vinyl acetate	108-05-4	86.10	0.408	0.704	U		1	WG1993199
m&p-Xylene	1330-20-7	106	0.585	1.73	39.2		1	WG1993199
o-Xylene	95-47-6	106	0.359	0.867	17.4		1	WG1993199
(S) 1,4-Bromofluorobenzene	*460-00-4*	*175*			*122*		*60.0-140*	WG1993199

Volatile Organic Compounds (MS) by Method TO-15

Analyte	CAS #	Mol. Wt.	MDL ug/m3	RDL ug/m3	Result ug/m3	Qualifier	Dilution	Batch
Acetone	67-64-1	58.10	1.39	2.97	11.6		1	WG1993199
Allyl chloride	107-05-1	76.53	0.357	0.626	U		1	WG1993199
Benzene	71-43-2	78.10	0.228	0.639	7.86		1	WG1993199
Benzyl Chloride	100-44-7	127	0.311	1.04	U		1	WG1993199
Bromodichloromethane	75-27-4	164	0.471	1.34	U		1	WG1993199
Bromoform	75-25-2	253	0.757	6.21	U		1	WG1993199
Bromomethane	74-83-9	94.90	0.381	0.776	U		1	WG1993199
1,3-Butadiene	106-99-0	54.10	0.230	4.43	U		1	WG1993199
Carbon disulfide	75-15-0	76.10	0.317	0.622	3.27		1	WG1993199
Carbon tetrachloride	56-23-5	154	0.461	1.26	U		1	WG1993199
Chlorobenzene	108-90-7	113	0.385	0.924	U		1	WG1993199
Chloroethane	75-00-3	64.50	0.263	0.528	U		1	WG1993199
Chloroform	67-66-3	119	0.349	0.973	0.410	J	1	WG1993199
Chloromethane	74-87-3	50.50	0.213	0.413	6.24		1	WG1993199
2-Chlorotoluene	95-49-8	126	0.427	1.03	U		1	WG1993199
Cyclohexane	110-82-7	84.20	0.259	0.689	2.33		1	WG1993199
Dibromochloromethane	124-48-1	208	0.618	1.70	U		1	WG1993199
1,2-Dibromoethane	106-93-4	188	0.554	1.54	U		1	WG1993199
1,2-Dichlorobenzene	95-50-1	147	0.770	1.20	U		1	WG1993199
1,3-Dichlorobenzene	541-73-1	147	1.09	1.20	U		1	WG1993199
1,4-Dichlorobenzene	106-46-7	147	0.335	1.20	U		1	WG1993199
1,2-Dichloroethane	107-06-2	99	0.283	0.810	U		1	WG1993199
1,1-Dichloroethane	75-34-3	98	0.290	0.802	U		1	WG1993199
1,1-Dichloroethene	75-35-4	96.90	0.302	0.793	U		1	WG1993199
cis-1,2-Dichloroethene	156-59-2	96.90	0.311	0.793	U		1	WG1993199
trans-1,2-Dichloroethene	156-60-5	96.90	0.267	0.793	U		1	WG1993199
1,2-Dichloropropane	78-87-5	113	0.351	0.924	U		1	WG1993199
cis-1,3-Dichloropropene	10061-01-5	111	0.313	0.908	U		1	WG1993199
trans-1,3-Dichloropropene	10061-02-6	111	0.331	0.908	U		1	WG1993199
1,4-Dioxane	123-91-1	88.10	0.300	0.721	U		1	WG1993199
Ethanol	64-17-5	46.10	0.500	2.36	11.1		1	WG1993199
Ethylbenzene	100-41-4	106	0.362	0.867	22.2		1	WG1993199
4-Ethyltoluene	622-96-8	120	0.384	0.982	72.6		1	WG1993199
Trichlorofluoromethane	75-69-4	137.40	0.460	1.12	0.983	J	1	WG1993199
Dichlorodifluoromethane	75-71-8	120.92	0.678	0.989	1.71		1	WG1993199
1,1,2-Trichlorotrifluoroethane	76-13-1	187.40	0.608	1.53	U		1	WG1993199
1,2-Dichlorotetrafluoroethane	76-14-2	171	0.622	1.40	U		1	WG1993199
Heptane	142-82-5	100	0.425	0.818	11.2		1	WG1993199
Hexachloro-1,3-butadiene	87-68-3	261	1.12	6.73	U		1	WG1993199
n-Hexane	110-54-3	86.20	0.726	2.22	6.59		1	WG1993199
Isopropylbenzene	98-82-8	120.20	0.382	0.983	U		1	WG1993199
Methylene Chloride	75-09-2	84.90	0.340	0.694	U		1	WG1993199
Methyl Butyl Ketone	591-78-6	100	0.544	5.11	U		1	WG1993199
2-Butanone (MEK)	78-93-3	72.10	0.240	3.69	3.10	J	1	WG1993199
4-Methyl-2-pentanone (MIBK)	108-10-1	100.10	0.313	5.12	U		1	WG1993199
Methyl methacrylate	80-62-6	100.12	0.359	0.819	U		1	WG1993199
MTBE	1634-04-4	88.10	0.233	0.721	U		1	WG1993199
Naphthalene	91-20-3	128	1.83	3.30	U		1	WG1993199
2-Propanol	67-63-0	60.10	0.649	3.07	0.855	J	1	WG1993199
Propene	115-07-1	42.10	0.160	2.15	24.6		1	WG1993199
Styrene	100-42-5	104	0.335	0.851	0.613	J	1	WG1993199
1,1,2,2-Tetrachloroethane	79-34-5	168	0.511	1.37	U		1	WG1993199
Tetrachloroethylene	127-18-4	166	0.553	1.36	U		1	WG1993199
Tetrahydrofuran	109-99-9	72.10	0.216	0.590	U		1	WG1993199
Toluene	108-88-3	92.10	0.328	1.88	57.3		1	WG1993199
1,2,4-Trichlorobenzene	120-82-1	181	1.10	4.66	U		1	WG1993199

Volatile Organic Compounds (MS) by Method TO-15

Analyte	CAS #	Mol. Wt.	MDL ug/m3	RDL ug/m3	Result ug/m3	Qualifier	Dilution	Batch
1,1,1-Trichloroethane	71-55-6	133	0.400	1.09	U		1	WG1993199
1,1,2-Trichloroethane	79-00-5	133	0.422	1.09	U		1	WG1993199
Trichloroethylene	79-01-6	131	0.364	1.07	U		1	WG1993199
1,2,4-Trimethylbenzene	95-63-6	120	0.375	0.982	120		1	WG1993199
1,3,5-Trimethylbenzene	108-67-8	120	0.382	0.982	29.4		1	WG1993199
2,2,4-Trimethylpentane	540-84-1	114.22	0.621	0.934	U		1	WG1993199
Vinyl chloride	75-01-4	62.50	0.243	0.511	U		1	WG1993199
Vinyl Bromide	593-60-2	106.95	0.373	0.875	U		1	WG1993199
Vinyl acetate	108-05-4	86.10	0.408	0.704	U		1	WG1993199
m&p-Xylene	1330-20-7	106	0.585	1.73	104		1	WG1993199
o-Xylene	95-47-6	106	0.359	0.867	51.2		1	WG1993199
(S) 1,4-Bromofluorobenzene	*460-00-4*	*175*			*93.7*		*60.0-140*	WG1993199

Volatile Organic Compounds (MS) by Method TO-15

Analyte	CAS #	Mol. Wt.	MDL ug/m3	RDL ug/m3	Result ug/m3	Qualifier	Dilution	Batch
Acetone	67-64-1	58.10	1.39	2.97	9.53		1	WG1993199
Allyl chloride	107-05-1	76.53	0.357	0.626	U		1	WG1993199
Benzene	71-43-2	78.10	0.228	0.639	6.77		1	WG1993199
Benzyl Chloride	100-44-7	127	0.311	1.04	U		1	WG1993199
Bromodichloromethane	75-27-4	164	0.471	1.34	U		1	WG1993199
Bromoform	75-25-2	253	0.757	6.21	U		1	WG1993199
Bromomethane	74-83-9	94.90	0.381	0.776	U		1	WG1993199
1,3-Butadiene	106-99-0	54.10	0.230	4.43	U		1	WG1993199
Carbon disulfide	75-15-0	76.10	0.317	0.622	0.921		1	WG1993199
Carbon tetrachloride	56-23-5	154	0.461	1.26	U		1	WG1993199
Chlorobenzene	108-90-7	113	0.385	0.924	U		1	WG1993199
Chloroethane	75-00-3	64.50	0.263	0.528	U		1	WG1993199
Chloroform	67-66-3	119	0.349	0.973	0.910	J	1	WG1993199
Chloromethane	74-87-3	50.50	0.213	0.413	0.673		1	WG1993199
2-Chlorotoluene	95-49-8	126	0.427	1.03	U		1	WG1993199
Cyclohexane	110-82-7	84.20	0.259	0.689	2.55		1	WG1993199
Dibromochloromethane	124-48-1	208	0.618	1.70	U		1	WG1993199
1,2-Dibromoethane	106-93-4	188	0.554	1.54	U		1	WG1993199
1,2-Dichlorobenzene	95-50-1	147	0.770	1.20	U		1	WG1993199
1,3-Dichlorobenzene	541-73-1	147	1.09	1.20	U		1	WG1993199
1,4-Dichlorobenzene	106-46-7	147	0.335	1.20	U		1	WG1993199
1,2-Dichloroethane	107-06-2	99	0.283	0.810	U		1	WG1993199
1,1-Dichloroethane	75-34-3	98	0.290	0.802	U		1	WG1993199
1,1-Dichloroethene	75-35-4	96.90	0.302	0.793	U		1	WG1993199
cis-1,2-Dichloroethene	156-59-2	96.90	0.311	0.793	U		1	WG1993199
trans-1,2-Dichloroethene	156-60-5	96.90	0.267	0.793	U		1	WG1993199
1,2-Dichloropropane	78-87-5	113	0.351	0.924	U		1	WG1993199
cis-1,3-Dichloropropene	10061-01-5	111	0.313	0.908	U		1	WG1993199
trans-1,3-Dichloropropene	10061-02-6	111	0.331	0.908	U		1	WG1993199
1,4-Dioxane	123-91-1	88.10	0.300	0.721	U		1	WG1993199
Ethanol	64-17-5	46.10	0.500	2.36	25.3		1	WG1993199
Ethylbenzene	100-41-4	106	0.362	0.867	17.4		1	WG1993199
4-Ethyltoluene	622-96-8	120	0.384	0.982	9.77		1	WG1993199
Trichlorofluoromethane	75-69-4	137.40	0.460	1.12	0.955	J	1	WG1993199
Dichlorodifluoromethane	75-71-8	120.92	0.678	0.989	1.64		1	WG1993199
1,1,2-Trichlorotrifluoroethane	76-13-1	187.40	0.608	1.53	U		1	WG1993199
1,2-Dichlorotetrafluoroethane	76-14-2	171	0.622	1.40	U		1	WG1993199
Heptane	142-82-5	100	0.425	0.818	9.57		1	WG1993199
Hexachloro-1,3-butadiene	87-68-3	261	1.12	6.73	U		1	WG1993199
n-Hexane	110-54-3	86.20	0.726	2.22	8.95		1	WG1993199
Isopropylbenzene	98-82-8	120.20	0.382	0.983	2.37		1	WG1993199
Methylene Chloride	75-09-2	84.90	0.340	0.694	U		1	WG1993199
Methyl Butyl Ketone	591-78-6	100	0.544	5.11	U		1	WG1993199
2-Butanone (MEK)	78-93-3	72.10	0.240	3.69	4.98		1	WG1993199
4-Methyl-2-pentanone (MIBK)	108-10-1	100.10	0.313	5.12	0.402	J	1	WG1993199
Methyl methacrylate	80-62-6	100.12	0.359	0.819	U		1	WG1993199
MTBE	1634-04-4	88.10	0.233	0.721	U		1	WG1993199
Naphthalene	91-20-3	128	1.83	3.30	U		1	WG1993199
2-Propanol	67-63-0	60.10	0.649	3.07	3.12		1	WG1993199
Propene	115-07-1	42.10	0.160	2.15	11.5		1	WG1993199
Styrene	100-42-5	104	0.335	0.851	U		1	WG1993199
1,1,2,2-Tetrachloroethane	79-34-5	168	0.511	1.37	U		1	WG1993199
Tetrachloroethylene	127-18-4	166	0.553	1.36	1.22	J	1	WG1993199
Tetrahydrofuran	109-99-9	72.10	0.216	0.590	U		1	WG1993199
Toluene	108-88-3	92.10	0.328	1.88	52.7		1	WG1993199
1,2,4-Trichlorobenzene	120-82-1	181	1.10	4.66	U		1	WG1993199

Volatile Organic Compounds (MS) by Method TO-15

Analyte	CAS #	Mol. Wt.	MDL ug/m3	RDL ug/m3	Result ug/m3	Qualifier	Dilution	Batch
1,1,1-Trichloroethane	71-55-6	133	0.400	1.09	U		1	WG1993199
1,1,2-Trichloroethane	79-00-5	133	0.422	1.09	U		1	WG1993199
Trichloroethylene	79-01-6	131	0.364	1.07	U		1	WG1993199
1,2,4-Trimethylbenzene	95-63-6	120	0.375	0.982	39.9		1	WG1993199
1,3,5-Trimethylbenzene	108-67-8	120	0.382	0.982	10.7		1	WG1993199
2,2,4-Trimethylpentane	540-84-1	114.22	0.621	0.934	8.50		1	WG1993199
Vinyl chloride	75-01-4	62.50	0.243	0.511	U		1	WG1993199
Vinyl Bromide	593-60-2	106.95	0.373	0.875	U		1	WG1993199
Vinyl acetate	108-05-4	86.10	0.408	0.704	U		1	WG1993199
m&p-Xylene	1330-20-7	106	0.585	1.73	77.6		1	WG1993199
o-Xylene	95-47-6	106	0.359	0.867	36.0		1	WG1993199
(S) 1,4-Bromofluorobenzene	*460-00-4*	*175*			*93.8*		*60.0-140*	WG1993199

Method Blank (MB)

(MB) R3883805-3 01/23/23 08:59

Analyte	MB Result ug/m3	MB Qualifier	MB MDL ug/m3	MB RDL ug/m3
Acetone	U		1.39	2.97
Allyl Chloride	U		0.357	0.626
Benzene	U		0.228	0.639
Benzyl Chloride	U		0.311	1.04
Bromodichloromethane	U		0.471	1.34
Bromoform	U		0.757	6.21
Bromomethane	U		0.381	0.776
1,3-Butadiene	U		0.230	4.43
Carbon disulfide	U		0.317	0.622
Carbon tetrachloride	U		0.461	1.26
Chlorobenzene	U		0.385	0.924
Chloroethane	U		0.263	0.528
Chloroform	U		0.349	0.973
Chloromethane	U		0.213	0.413
2-Chlorotoluene	U		0.427	1.03
Cyclohexane	U		0.259	0.689
Dibromochloromethane	U		0.618	1.70
1,2-Dibromoethane	U		0.554	1.54
1,2-Dichlorobenzene	U		0.770	1.20
1,3-Dichlorobenzene	U		1.09	1.20
1,4-Dichlorobenzene	U		0.335	1.20
1,2-Dichloroethane	U		0.283	0.810
1,1-Dichloroethane	U		0.290	0.802
1,1-Dichloroethene	U		0.302	0.793
cis-1,2-Dichloroethene	U		0.311	0.793
trans-1,2-Dichloroethene	U		0.267	0.793
1,2-Dichloropropane	U		0.351	0.924
cis-1,3-Dichloropropene	U		0.313	0.908
trans-1,3-Dichloropropene	U		0.331	0.908
1,4-Dioxane	U		0.300	0.721
Ethanol	U		0.500	2.36
Ethylbenzene	U		0.362	0.867
4-Ethyltoluene	U		0.384	0.982
Trichlorofluoromethane	U		0.460	1.12
Dichlorodifluoromethane	U		0.678	0.989
1,1,2-Trichlorotrifluoroethane	U		0.608	1.53
1,2-Dichlorotetrafluoroethane	U		0.622	1.40
Heptane	U		0.425	0.818
Hexachloro-1,3-butadiene	U		1.12	6.73
n-Hexane	U		0.726	2.22

Method Blank (MB)

(MB) R3883805-3 01/23/23 08:59

Analyte	MB Result ug/m3	MB Qualifier	MB MDL ug/m3	MB RDL ug/m3
Isopropylbenzene	U		0.382	0.983
Methylene Chloride	U		0.340	0.694
Methyl Butyl Ketone	U		0.544	5.11
2-Butanone (MEK)	U		0.240	3.69
4-Methyl-2-pentanone (MIBK)	U		0.313	5.12
Methyl Methacrylate	U		0.359	0.819
MTBE	U		0.233	0.721
Naphthalene	U		1.83	3.30
2-Propanol	U		0.649	3.07
Propene	U		0.160	2.15
Styrene	U		0.335	0.851
1,1,2,2-Tetrachloroethane	U		0.511	1.37
Tetrachloroethylene	U		0.553	1.36
Tetrahydrofuran	U		0.216	0.590
Toluene	U		0.328	1.88
1,2,4-Trichlorobenzene	U		1.10	4.66
1,1,1-Trichloroethane	U		0.400	1.09
1,1,2-Trichloroethane	U		0.422	1.09
Trichloroethylene	U		0.364	1.07
1,2,4-Trimethylbenzene	U		0.375	0.982
1,3,5-Trimethylbenzene	U		0.382	0.982
2,2,4-Trimethylpentane	U		0.621	0.934
Vinyl chloride	U		0.243	0.511
Vinyl Bromide	U		0.373	0.875
Vinyl acetate	U		0.408	0.704
m&p-Xylene	U		0.585	1.73
o-Xylene	U		0.359	0.867
(S) 1,4-Bromofluorobenzene	*110*			*60.0-140*

Laboratory Control Sample (LCS) • Laboratory Control Sample Duplicate (LCSD)

(LCS) R3883805-1 01/23/23 08:02 • (LCSD) R3883805-2 01/23/23 08:31

Analyte	Spike Amount ug/m3	LCS Result ug/m3	LCSD Result ug/m3	LCS Rec. %	LCSD Rec. %	Rec. Limits %	LCS Qualifier	LCSD Qualifier	RPD %	RPD Limits %
Acetone	8.91	8.98	9.12	101	102	70.0-130			1.57	25
Allyl Chloride	11.7	11.2	11.4	95.5	97.3	70.0-130			1.94	25
Benzene	12.0	13.1	13.3	110	111	70.0-130			0.969	25
Benzyl Chloride	19.5	23.1	24.2	119	124	70.0-152			4.61	25
Bromodichloromethane	25.2	28.7	28.8	114	115	70.0-130			0.466	25

Laboratory Control Sample (LCS) • Laboratory Control Sample Duplicate (LCSD)

(LCS) R3883805-1 01/23/23 08:02 • (LCSD) R3883805-2 01/23/23 08:31

Analyte	Spike Amount ug/m3	LCS Result ug/m3	LCSD Result ug/m3	LCS Rec. %	LCSD Rec. %	Rec. Limits %	LCS Qualifier	LCSD Qualifier	RPD %	RPD Limits %
Bromoform	38.8	38.4	37.7	98.9	97.1	70.0-130			1.90	25
Bromomethane	14.6	15.8	15.9	108	109	70.0-130			0.980	25
1,3-Butadiene	8.30	8.19	8.34	98.7	101	70.0-130			1.87	25
Carbon disulfide	11.7	12.1	12.5	104	107	70.0-130			3.03	25
Carbon tetrachloride	23.6	24.6	23.9	104	101	70.0-130			2.86	25
Chlorobenzene	17.3	17.6	17.1	102	98.9	70.0-130			2.66	25
Chloroethane	9.89	10.0	10.7	101	108	70.0-130			6.39	25
Chloroform	18.3	20.0	19.8	109	109	70.0-130			0.734	25
Chloromethane	7.75	8.08	8.55	104	110	70.0-130			5.71	25
2-Chlorotoluene	19.3	20.5	20.8	106	107	70.0-130			1.50	25
Cyclohexane	12.9	12.9	12.8	100	99.2	70.0-130			1.07	25
Dibromochloromethane	31.9	34.3	33.2	107	104	70.0-130			3.28	25
1,2-Dibromoethane	28.8	30.3	29.9	105	104	70.0-130			1.28	25
1,2-Dichlorobenzene	22.5	23.0	23.3	102	103	70.0-130			1.30	25
1,3-Dichlorobenzene	22.5	22.7	22.6	101	100	70.0-130			0.531	25
1,4-Dichlorobenzene	22.5	22.8	23.3	101	103	70.0-130			2.08	25
1,2-Dichloroethane	15.2	18.2	18.5	120	122	70.0-130			1.76	25
1,1-Dichloroethane	15.0	13.9	16.4	92.8	109	70.0-130			16.1	25
1,1-Dichloroethene	14.9	14.8	15.1	99.7	102	70.0-130			1.85	25
cis-1,2-Dichloroethene	14.9	17.0	17.2	114	116	70.0-130			1.39	25
trans-1,2-Dichloroethene	14.9	14.2	14.5	95.7	97.9	70.0-130			2.20	25
1,2-Dichloropropane	17.3	20.6	20.8	119	120	70.0-130			0.670	25
cis-1,3-Dichloropropene	17.0	18.7	18.2	110	107	70.0-130			2.96	25
trans-1,3-Dichloropropene	17.0	19.7	20.4	116	120	70.0-130			3.62	25
1,4-Dioxane	13.5	14.6	14.2	108	105	70.0-140			3.01	25
Ethanol	7.07	7.49	7.71	106	109	55.0-148			2.98	25
Ethylbenzene	16.3	16.8	16.6	103	102	70.0-130			1.04	25
4-Ethyltoluene	18.4	19.3	19.6	105	107	70.0-130			1.51	25
Trichlorofluoromethane	21.1	22.2	22.5	105	107	70.0-130			1.51	25
Dichlorodifluoromethane	18.5	18.7	19.3	101	104	64.0-139			3.12	25
1,1,2-Trichlorotrifluoroethane	28.7	28.5	29.8	99.2	104	70.0-130			4.47	25
1,2-Dichlorotetrafluoroethane	26.2	27.0	27.8	103	106	70.0-130			3.06	25
Heptane	15.3	17.1	17.8	111	116	70.0-130			4.23	25
Hexachloro-1,3-butadiene	40.0	37.8	39.0	94.4	97.3	70.0-151			3.06	25
n-Hexane	13.2	14.3	15.1	108	114	70.0-130			5.51	25
Isopropylbenzene	18.4	18.4	18.4	100	100	70.0-130			0.000	25
Methylene Chloride	13.0	12.9	13.0	98.9	99.5	70.0-130			0.538	25
Methyl Butyl Ketone	15.3	18.2	18.0	119	117	70.0-149			1.36	25
Methyl Ethyl Ketone	11.1	11.3	11.4	102	103	70.0-130			1.04	25
4-Methyl-2-pentanone (MIBK)	15.4	17.1	17.0	111	111	70.0-139			0.240	25

Laboratory Control Sample (LCS) • Laboratory Control Sample Duplicate (LCSD)

(LCS) R3883805-1 01/23/23 08:02 • (LCSD) R3883805-2 01/23/23 08:31

Analyte	Spike Amount ug/m3	LCS Result ug/m3	LCSD Result ug/m3	LCS Rec. %	LCSD Rec. %	Rec. Limits %	LCS Qualifier	LCSD Qualifier	RPD %	RPD Limits %
Methyl Methacrylate	15.4	17.2	17.0	112	111	70.0-130			1.19	25
MTBE	13.5	12.9	13.4	95.7	99.2	70.0-130			3.56	25
Naphthalene	19.6	20.2	20.1	103	102	70.0-159			0.521	25
2-Propanol	9.22	9.12	9.37	98.9	102	70.0-139			2.66	25
Propene	6.46	6.94	7.16	107	111	64.0-144			3.17	25
Styrene	16.0	16.0	16.2	101	102	70.0-130			1.06	25
1,1,2,2-Tetrachloroethane	25.8	27.8	28.2	108	109	70.0-130			1.23	25
Tetrachloroethylene	25.5	23.0	23.5	90.4	92.3	70.0-130			2.04	25
Tetrahydrofuran	11.1	12.0	12.4	108	112	70.0-137			3.15	25
Toluene	14.1	14.2	14.7	101	104	70.0-130			3.39	25
1,2,4-Trichlorobenzene	27.8	27.8	27.4	100	98.7	70.0-160			1.61	25
1,1,1-Trichloroethane	20.4	21.5	21.7	106	106	70.0-130			0.755	25
1,1,2-Trichloroethane	20.4	21.1	21.1	103	103	70.0-130			0.258	25
Trichloroethylene	20.1	21.6	21.5	107	107	70.0-130			0.248	25
1,2,4-Trimethylbenzene	18.4	19.6	19.6	106	107	70.0-130			0.250	25
1,3,5-Trimethylbenzene	18.4	19.0	19.4	103	105	70.0-130			1.79	25
2,2,4-Trimethylpentane	17.5	19.6	19.7	112	112	70.0-130			0.238	25
Vinyl chloride	9.59	9.94	10.0	104	105	70.0-130			1.02	25
Vinyl Bromide	16.4	18.2	18.6	111	114	70.0-130			2.38	25
Vinyl acetate	13.2	15.0	13.5	114	102	70.0-130			11.1	25
m&p-Xylene	32.5	34.1	34.2	105	105	70.0-130			0.254	25
o-Xylene	16.3	16.6	16.9	102	104	70.0-130			1.55	25
(S) 1,4-Bromofluorobenzene				*111*	*112*	*60.0-140*				

GLOSSARY OF TERMS

Guide to Reading and Understanding Your Laboratory Report

The information below is designed to better explain the various terms used in your report of analytical results from the Laboratory. This is not intended as a comprehensive explanation, and if you have additional questions please contact your project representative.

Results Disclaimer - Information that may be provided by the customer, and contained within this report, include Permit Limits, Project Name, Sample ID, Sample Matrix, Sample Preservation, Field Blanks, Field Spikes, Field Duplicates, On-Site Data, Sampling Collection Dates/Times, and Sampling Location. Results relate to the accuracy of this information provided, and as the samples are received.

Abbreviations and Definitions

MDL	Method Detection Limit.
RDL	Reported Detection Limit.
Rec.	Recovery.
RPD	Relative Percent Difference.
SDG	Sample Delivery Group.
(S)	Surrogate (Surrogate Standard) - Analytes added to every blank, sample, Laboratory Control Sample/Duplicate and Matrix Spike/Duplicate; used to evaluate analytical efficiency by measuring recovery. Surrogates are not expected to be detected in all environmental media.
U	Not detected at the Reporting Limit (or MDL where applicable).
Analyte	The name of the particular compound or analysis performed. Some Analyses and Methods will have multiple analytes reported.
Dilution	If the sample matrix contains an interfering material, the sample preparation volume or weight values differ from the standard, or if concentrations of analytes in the sample are higher than the highest limit of concentration that the laboratory can accurately report, the sample may be diluted for analysis. If a value different than 1 is used in this field, the result reported has already been corrected for this factor.
Limits	These are the target % recovery ranges or % difference value that the laboratory has historically determined as normal for the method and analyte being reported. Successful QC Sample analysis will target all analytes recovered or duplicated within these ranges.
Qualifier	This column provides a letter and/or number designation that corresponds to additional information concerning the result reported. If a Qualifier is present, a definition per Qualifier is provided within the Glossary and Definitions page and potentially a discussion of possible implications of the Qualifier in the Case Narrative if applicable.
Result	The actual analytical final result (corrected for any sample specific characteristics) reported for your sample. If there was no measurable result returned for a specific analyte, the result in this column may state “ND” (Not Detected) or “BDL” (Below Detectable Levels). The information in the results column should always be accompanied by either an MDL (Method Detection Limit) or RDL (Reporting Detection Limit) that defines the lowest value that the laboratory could detect or report for this analyte.
Uncertainty (Radiochemistry)	Confidence level of 2 sigma.
Case Narrative (Cn)	A brief discussion about the included sample results, including a discussion of any non-conformances to protocol observed either at sample receipt by the laboratory from the field or during the analytical process. If present, there will be a section in the Case Narrative to discuss the meaning of any data qualifiers used in the report.
Quality Control Summary (Qc)	This section of the report includes the results of the laboratory quality control analyses required by procedure or analytical methods to assist in evaluating the validity of the results reported for your samples. These analyses are not being performed on your samples typically, but on laboratory generated material.
Sample Chain of Custody (Sc)	This is the document created in the field when your samples were initially collected. This is used to verify the time and date of collection, the person collecting the samples, and the analyses that the laboratory is requested to perform. This chain of custody also documents all persons (excluding commercial shippers) that have had control or possession of the samples from the time of collection until delivery to the laboratory for analysis.
Sample Results (Sr)	This section of your report will provide the results of all testing performed on your samples. These results are provided by sample ID and are separated by the analyses performed on each sample. The header line of each analysis section for each sample will provide the name and method number for the analysis reported.
Sample Summary (Ss)	This section of the Analytical Report defines the specific analyses performed for each sample ID, including the dates and times of preparation and/or analysis.

Qualifier	Description
J	The identification of the analyte is acceptable; the reported value is an estimate.

ACCREDITATIONS & LOCATIONS

Pace Analytical National 12065 Lebanon Rd Mount Juliet, TN 37122

Alabama	40660	Nebraska	NE-OS-15-05
Alaska	17-026	Nevada	TN000032021-1
Arizona	AZ0612	New Hampshire	2975
Arkansas	88-0469	New Jersey–NELAP	TN002
California	2932	New Mexico [1]	TN00003
Colorado	TN00003	New York	11742
Connecticut	PH-0197	North Carolina	Env375
Florida	E87487	North Carolina [1]	DW21704
Georgia	NELAP	North Carolina [3]	41
Georgia [1]	923	North Dakota	R-140
Idaho	TN00003	Ohio–VAP	CL0069
Illinois	200008	Oklahoma	9915
Indiana	C-TN-01	Oregon	TN200002
Iowa	364	Pennsylvania	68-02979
Kansas	E-10277	Rhode Island	LAO000356
Kentucky [1 6]	KY90010	South Carolina	84004002
Kentucky [2]	16	South Dakota	n/a
Louisiana	AI30792	Tennessee [1 4]	2006
Louisiana	LA018	Texas	T104704245-20-18
Maine	TN00003	Texas [5]	LAB0152
Maryland	324	Utah	TN000032021-11
Massachusetts	M-TN003	Vermont	VT2006
Michigan	9958	Virginia	110033
Minnesota	047-999-395	Washington	C847
Mississippi	TN00003	West Virginia	233
Missouri	340	Wisconsin	998093910
Montana	CERT0086	Wyoming	A2LA
A2LA – ISO 17025	1461.01	AIHA-LAP,LLC EMLAP	100789
A2LA – ISO 17025 [5]	1461.02	DOD	1461.01
Canada	1461.01	USDA	P330-15-00234
EPA–Crypto	TN00003		

[1] Drinking Water [2] Underground Storage Tanks [3] Aquatic Toxicity [4] Chemical/Microbiological [5] Mold [6] Wastewater n/a Accreditation not applicable

* Not all certifications held by the laboratory are applicable to the results reported in the attached report.

* Accreditation is only applicable to the test methods specified on each scope of accreditation held by Pace Analytical.

Company Name/Address:
Tioga Environmental Consultants

357 North Main Street
Memphis, TN 38103

Billing Information:
Ms. Maggie Strom
357 North Main Street
Memphis, TN 38103

Report To:
Luke Hall

Email To:
lhall@tiogaenv.com

Project Description: 1215 Springdale Add. As

City/State Collected: Memphis, TN

Please Circle: PT MT CT ET

Phone:
901-791-2432

Client Project #
561417.00

Lab Project #
TIOGATN-LUKE

Collected by (print):
HALL

Site/Facility ID #

P.O. #

Collected by (signature):

Rush? (Lab MUST Be Notified)
___ Same Day ___ Three Day
___ Next Day ___ Five Day
___ Two Day

Date Results Needed

Sample ID	Can #	Flow Cont. #	Collection Date	Collection Time	Canister Pressure/Vacuum Initial	Canister Pressure/Vacuum Final	TO-15 Summa
SS-AA-1	00[illegible]04	011212	1-19-23	1033	~30	~5	X
SS-AA-2	03[illegible]4A	012051	1-19-23	1035	29	~5	X
SS-AA-3	011278	00[illegible]4A	1-19-23	1037	~30	~5	X
SS-AA-4	012553	010999	1-19-23	1040	~30	~5	X
							X
							X

Sample Receipt Checklist
COC Seal Present/Intact: Y N
COC Signed/Accurate: Y N
Bottles arrive intact: Y N
Correct bottles used: Y N
Sufficient volume sent: Y N
RAD Screen <0.5 mR/hr: Y N
If Applicable
VOA Zero Headspace: Y N
Pres.Correct/Check: Y N

Remarks:

Samples returned via:
__ UPS __ FedEx __ Courier __ _____

Tracking # 6040 5533 3983

Hold #

Relinquished by : (Signature)	Date:	Time:	Received by: (Signature)	Date:	Time:
	1-19-23	1600			
Relinquished by : (Signature)	Date:	Time:	Received by: (Signature)	Date:	Time:
Relinquished by : (Signature)	Date:	Time:	Received for lab by: (Signature)	Date: 1.20.23	Time: 0900

Condition: (lab use only) OK

COC Seal Intact: ___Y ___N ___NA

NCF:

Chain of Custody Page ___ of ___

Pace
PEOPLE ADVANCING SCIENCE

MT JULIET, TN

12065 Lebanon Road Mt Juliet, TN 37122
Phone: 615-758-5858 Alt: 800-767-5859
Submitting a sample via this chain of custody constitutes acknowledgment and acceptance of the Pace Terms and Conditions found at: https://info.pacelabs.com/hubfs/pas-standard-terms.pdf

SDG # L1577986

C160

Acctnum: TIOGATN
Template: T212708
Prelogin: P972927
PM: 034 - Craig Cothron
PB: CSC 01/06/23

Shipped Via: FedEX Ground

Rem./Contaminant	Sample # (lab only)
	01
	02
	03
	04

APPENDIX 3

SITE PHOTOGRAPHS

Tioga
ENVIRONMENTAL CONSULTANTS

PHOTOGRAPHIC LOG

Client Name: UE Cypress Gardens, LLC	**Site Location:** 1215 Springdale Street, Memphis, Tennessee	**Project No.** 561417.00

Photo No. 1	**Date:** 1/19/2023

Description:

Soil Vapor Point SS-AA-1.

Photo No. 2	**Date:** 1/19/2023

Description:

Soil Vapor Point SS-AA-2.

Tioga
ENVIRONMENTAL CONSULTANTS

PHOTOGRAPHIC LOG

Client Name: UE Cypress Gardens, LLC	**Site Location:** 1215 Springdale Street, Memphis, Tennessee	**Project No.** 561417.00

Photo No. 3	**Date:** 1/19/2023

Description:

Soil Vapor Point SS-AA-3.

Photo No. 4	**Date:** 1/19/2023

Description:

Soil Vapor Point SS-AA-4.

Tioga
ENVIRONMENTAL CONSULTANTS

PHOTOGRAPHIC LOG

Client Name: UE Cypress Gardens, LLC	**Site Location:** 1215 Springdale Street, Memphis, Tennessee	**Project No.** 561417.00

Photo No. 5	**Date:** 1/19/2023

Description:

Soil Sample HA-AA-1.

Photo No. 6	**Date:** 1/19/2023

Description:

Soil Sample HA-AA-2.

Tioga
ENVIRONMENTAL CONSULTANTS

PHOTOGRAPHIC LOG

Client Name: UE Cypress Gardens, LLC	**Site Location:** 1215 Springdale Street, Memphis, Tennessee	**Project No.** 561417.00

Photo No.	**Date:**
7	1/19/2023

Description:

Soil Sample HA-AA-3.

APPENDIX 4

QUALIFICATIONS OF THE ENVIRONMENTAL PROFESSIONALS

RESUME

Larkin Myers, PE
President

Education: Degree(s)/Year/Specialization
B.S./1999/Civil Engineering

Continuing Education / Professional Certification:
Arkansas PE license #11632
Mississippi PE license #16367
Tennessee PE license #109304
LEED AP GBCI #10135789

Experience:
June 1999 – December 2003: White-Daters & Associates, Engineer-in-Training
December 2003 – February 2010: Pickering Firm, Inc., Civil Engineer/Associate Principal Owner
June 2011 – January 2020: Tioga Environmental Consultants, Vice President
January 2020 – Current: Tioga Environmental Consultants, President

Larkin Myers is a professional engineer registered in Arkansas, Mississippi and Tennessee. She is also a certified LEED AP and maintains Level 1 and 2 Erosion Prevention and Sediment Control certifications. She had twelve years of experience as a civil engineer working with land development projects prior to joining Tioga in 2011. Ms. Myers provides oversight for Phase I and II Environmental Site Assessments, NEPA reviews and natural resources projects.

RESUME

Luke Hall, PG
Geologist

Education: Degree(s)/Year/Specialization
M.S./2011/Earth Sciences
B.S./2001/Geology

Continuing Education / Professional Certification:
Tennessee P.G. #5698
Arkansas P.G. #1990
Mississippi P.G. #0875
2011 Certified: OSHA 40-Hour HAZWOPER
Certified Site Incident Commander and HAZWOPER supervisor

Experience:
July 2010 – June 2015: SEMS, Inc., Geologist
June 2015 – Current: Tioga Environmental Consultants, Geologist

Mr. Hall is a licensed professional geologist in Tennessee, Arkansas, and Mississippi. He has ten years of experience in environmental site assessment and remediation. He has worked multiple environmental remediation projects including large scale soil excavation, sub-slab vapor depressurization, dual-phase remediation, and surfactant injection and removal. He has designed multiple corrective action plans for remediation at environmental sites. He is involved in groundwater, vapor, and soil sampling, environmental site assessments, remediation, and mitigation.

RESUME

Karim Bouzeid, PG
Geologist

Education: Degree(s)/Year/Specialization
B.S./2016/Geology

Continuing Education / Professional Certification:
Tennessee P.G. #6254
2021 Certified: OSHA 40-Hour HAZWOPER

Experience:
October 2016 – September 2021: TDEC, Environmental Scientist II/Project Manager
November 2021 – Current: Tioga Environmental Consultants, Geologist

Mr. Bouzeid is a licensed professional geologist in Tennessee. He has 6 years of experience in the environmental field including 5 years of experience in environmental site assessment and remediation as a regulator for the state of Tennessee. He has worked multiple environmental remediation projects including underground storage tank removals, dual-phase remediation, biodegradation injections, and high-resolution site characterization events. He has designed multiple corrective action plans for remediation at environmental sites. He is involved with sub-surface assessment and remediation.