Limited Phase II Environmental Site Assessment Report

Proposed Taco Bell
898 Joe Frank Harris Parkway
Cartersville, Bartow County, Georgia

Prepared for:

Taco Bell Corporation
1 Glen Bell Way
Irvine, CA 92618

Prepared by:

Professional Service Industries, Inc.
95 Chastain Road, Suite 301
Kennesaw, Georgia 30144
(770) 424-6200

March 3, 2022

PSI Project Number: 05171310-1

Project Number: 05171310-1
March 3, 2022

Professional Service Industries, Inc.
95 Chastain Road, Kennesaw, Georgia 30144
Phone: (770) 424-6200

Taco Bell Corporation
1 Glen Bell Way
Irvine, CA 92618

Attention: Lori Ginther |Construction Coordinator
P: 949.874.4810
E: Lori.Ginther@yum.com

Subject: Limited Phase II Environmental Site Assessment Report
Proposed Taco Bell
898 Joe Frank Harris Parkway
Cartersville, Bartow County, Georgia
PSI Project No.: 05171310-1

Dear Lori Ginther:

Pursuant to you request, Professional Service Industries, Inc. (PSI), an Intertek company, has performed Limited Phase II Environmental Site Assessment (ESA) activities at the above referenced property. PSI provided the services in general accordance with PSI Proposal Number 0517-364538, dated January 27, 2022. An electronic copy of this Limited Phase II ESA report is being provided for your use.

PSI thanks you for choosing us as your consultant for this project. Please contact us at (770) 424-6200 if you have any questions or if we may be of further service.

Respectfully Submitted,

PROFESSIONAL SERVICE INDUSTRIES, INC.

Eric Lowe
Environmental Department Manager

Jeffrey M. Martineau
Director / Principal Consultant

cc: Billy Mitchell, National Client Manager

TABLE OF CONTENTS

1 EXECUTIVE SUMMARY

Professional Service Industries, Inc. (PSI), an Intertek Company, has conducted Limited Phase II Environmental Site Assessment (ESA) activities at the subject property located at 898 Joe Frank Harris Parkway in Cartersville, Bartow County, Georgia. Authorization to perform the Limited Phase II ESA activities was provided by approval of PSI's January 27, 2022 proposal (PSI Proposal No. 0517-364538). A USGS Topo Map depicting the general location of the subject property is provided as Figure 1. A site map with sampling locations is provided as Figure 2.

1.1 SITE DESCRIPTION & BACKGROUND

The property is developed with a former gasoline station with associated parking. The underground storage tank (UST) system was previously removed from the property and corrective action and monitoring was performed at this facility in 2016. The corrective action, which included soil removal and natural attenuation confirmed through groundwater monitoring. The corrective action was completed in September of 2016, after which a No Further Action (NFA) status was granted by the Georgia Environmental Protection Division (EPD) in September of 2016. A ground penetrating radar (GPR) scan was conducted by PSI in the fall of 2021 confirmed the UST system had been removed as reported.

A review of the regulatory file records indicated that while the site was issued a NFA status, residual petroleum impacts remained in the on-site soil and groundwater.

The client requested PSI to prepare a proposal to perform a Limited Phase II ESA to assess the presence or absence of petroleum related vapor and groundwater impact near the building on the subject property.

1.2 ASSESSMENT ACTIVITIES

Based on the information above, and at the request of the client, Limited Phase II ESA activities were conducted by PSI to assess the presence or absence of petroleum related vapor and groundwater impact near the building currently located on the subject property. The general scope of services performed is described as follows:

- PSI coordinated an underground public utility locate prior to the performance of field activities. Private utility location services were previously conducted in the fall of 2021 and were consulted prior to beginning the fieldwork.
- PSI performed a total of two (2) groundwater borings and two (2) vapor points (collectively known as sampling points) on the subject property. Per the request of the client, and per the field assessor, the sampling points were placed on the west and south side of the buildings, nearest to the location of the former UST system. The sampling point locations are shown in Figure 2. Groundwater and vapor samples collected from these locations were collected into laboratory-provided sample containers and transported under chain of custody protocol to the laboratory.
- Groundwater samples were collected for laboratory analyses from temporary monitoring wells B-1 and B-2. Each temporary monitoring well was constructed utilizing a 0.010-inch, factory slotted Schedule 40 polyvinyl chloride (PVC) screen and solid PVC riser. The temporary monitoring wells were subsequently developed, and groundwater samples were collected for laboratory analysis for the BTEX compounds (benzene, toluene, ethylbenzene, and xylenes) via U.S. Environmental Protection Agency (EPA) Method 8260.

- Vapor sampling points V-1 and V-2 were installed by placing vapor screen implants within the boreholes, sealing the borings, testing for leaks to prevent short circuiting, and were allowed to equilibrate for at least one hour. Vapor samples were subsequently collected utilizing laboratory calibrated summa canisters for laboratory analysis for the BTEX compounds via EPA Method TO-15.
- The sampling points were subsequently abandoned in accordance with Georgia EPD protocol.

1.3 CONCLUSIONS

Soil Vapor Testing

Based on the laboratory analytical results for the two vapor samples collected at the site, benzene, ethylbenzene, toluene, and total xylenes were detected in the soil vapor sample V-2 at concentrations above their respective laboratory reporting limits (RLs); however, each were identified at concentrations below their respective EPA Vapor Intrusion Screening Levels (VISLs) for commercial exposure scenario (CES) in the soil vapor sample collected.

Soil vapor sample V-1 was reported to contain matrix interference. As such, the air sample required dilution; therefore, the resultant RLs are well above their respective EPA VISLs for the CES in the soil vapor sample collected from V-1. The RLs for toluene and total xylenes in V-1 remained below their respective EPA VISLs for the CES, even after the dilution was performed. This does not necessarily mean the benzene and ethylbenzene are a risk for vapor intrusion, only that determination cannot be confirmed or denied by the sample collected from V-1.

Please note that the sampling at this site occurred at a specific date and time. Residual petroleum impacts are likely to exist in the on-site soil and groundwater; therefore, there is a possibility that impacted groundwater could migrate closer to the building at some time in the future or result in higher vapor concentrations within the proximity of the proposed structure.

A copy of the laboratory analytical report and chain-of-custody documentation is provided in Appendix A.

Groundwater Testing

Ethylbenzene was detected in the groundwater sample collected from Temporary Monitoring Well B-2 at a concentration of 3.1 micrograms per liter (µg/L). The most stringent water quality standard for ethylbenzene is the U.S. EPA's Drinking Water Standard Maximum Contaminant Limit (MCL) of 700 µg/L. No other analytes were detected above their respective reporting limits in the groundwater samples collected during this investigation.

A summary of the groundwater analytical data is provided in Table 1. A copy of the laboratory analytical report and chain-of-custody documentation is provided in Appendix A.

1.4 RECOMMENDATIONS

Based on the information collected during this assessment, it does not appear that further assessment of the subject property is needed at this time. BTEX compounds were identified in one of the vapor samples collected within close proximity to the current on-site structure, with benzene falling slightly below the EPA VISL. Although the benzene concentration does exceed the VISL, it does indicate that the possibility of an exceedance on the site could exist. Based on the limited nature of the testing performed and resultant findings, the client may want to install an engineered, chemical resistant, vapor barrier be incorporated into the design and construction of

the proposed restaurant building. These barriers, when properly designed and installed, have proven to be effective in minimizing the risk to occupants and patrons that occupy structures built on properties where potential vapor intrusion may be of concern.

This summary does not contain all information presented in the full report. The report should be read in its entirety to obtain a more complete understanding of the information provided and to aid in any decisions made or actions taken based on this information.

2 INTRODUCTION

2.1 AUTHORIZATION

Authorization to perform the Limited Phase II ESA activities was provided by approval of PSI's January 27, 2022 proposal (PSI Proposal No. 0517-364538).

2.2 SITE DESCRIPTION

The property is developed with a former gasoline station with associated parking. The underground storage tank (UST) system was previously removed from the property and corrective action and monitoring was performed at this facility in 2016. The corrective action, which included soil removal and natural attenuation confirmed through groundwater monitoring. The corrective action was completed in September of 2016, after which a NFA status was granted by the Georgia EPD in September of 2016. A GPR scan was conducted by PSI in the fall of 2021 confirmed the UST system had been removed as reported.

A review of the regulatory file records indicated that while the site was issued a NFA status, residual petroleum impacts remained in the on-site soil and groundwater.

The client requested PSI to prepare a proposal to perform a Limited Phase II ESA to assess the presence or absence of petroleum related vapor and groundwater impact near the building on the subject property.

2.3 PURPOSE AND SCOPE OF SERVICES

Based on the information above, and at the request of the client, Limited Phase II ESA activities were conducted by PSI to assess the presence or absence of petroleum related vapor and groundwater impact near the building currently located on the subject property. The general scope of services performed is described as follows:

- PSI coordinated an underground public utility locate prior to the performance of field activities. Private utility location services were previously conducted in the fall of 2021 and were consulted prior to beginning the fieldwork.
- PSI performed a total of two (2) groundwater borings and two (2) vapor points (collectively known as sampling points) on the subject property. Per the request of the client, and per the field assessor, the sampling points were placed on the west and south side of the buildings, nearest to the location of the former UST system. The sampling point locations are shown in Figure 2. Groundwater and vapor samples collected from these locations were collected into laboratory-provided sample containers and transported under chain of custody protocol to the laboratory.
- Groundwater samples were collected for laboratory analyses from temporary monitoring wells B-1 and B-2. Each temporary monitoring well was constructed utilizing a 0.010-inch, factory slotted Schedule 40 PVC screen and solid PVC riser. The temporary monitoring wells were subsequently developed, and groundwater samples were collected for laboratory analysis for the BTEX compounds via EPA Method 8260.
- Vapor sampling points V-1 and V-2 were installed by placing vapor screen implants within the boreholes, sealing the borings, testing for leaks to prevent short circuiting, and were allowed to equilibrate for at least one hour. Vapor samples were subsequently collected utilizing laboratory calibrated summa canisters for laboratory analysis for the BTEX compounds via EPA Method TO-15.

- The sampling points were subsequently abandoned in accordance with Georgia EPD protocol.

2.4 QUALITY ASSURANCE/QUALITY CONTROL MEASURES

All field decontamination and sampling procedures were performed in general accordance with the EPA's Standard Operating Procedures (SOPs) for field activities. All downhole equipment utilized during the field activities was properly decontaminated prior to and between each soil boring. Single-use disposable gloves, well materials, vapor implants and tubing were used for each sampling point in an effort to eliminate cross-contamination between sampling locations.

Laboratory analytical procedures were performed by National Environmental Laboratory Accreditation Program (NELAP)-certified laboratory, Analytical Environmental Services, Inc. (AES), located in Atlanta, Georgia.

2.5 DEVIATIONS FROM CONTRACT

There were no significant deviations from the agreed upon scope of work.

3 SITE ASSESSMENT ACTIVITIES

Field investigation and sampling activities were conducted by PSI personnel on February 11, 2022 to assess the presence or absence of petroleum related vapor and groundwater impact near the building on the subject property. Soil cuttings generated during the performance of the sampling point installations were returned to their respective boreholes when applicable. Subsequent to sampling activities, the sampling point locations were backfilled in accordance with Georgia EPD regulations. The site was restored to its original condition (where feasible).

3.1 UTILITY CLEARANCE

PSI contacted Georgia 811 prior to the performance of field activities to locate underground utilities in the vicinity of the subject property. Additionally, a hand auger was advanced to a depth of approximately 5 feet below land surface (BLS) in the groundwater sampling locations in an effort to confirm no underground utilities were present at each sample location.

3.2 FIELD INVESTIGATION ACTIVITIES

On February 11, 2022, GeoLab Drilling and PSI personnel installed two (2) soil vapor points (collectively known as sampling points) on the subject property. In addition, direct-push drilling methodologies were used to install Temporary Monitoring Wells B-1 and B-2 to a total depth of approximately 35-feet below ground surface (bgs), approximately 5 to 10 feet below the groundwater table surface. Soil vapor points V-1 and V-2 were installed to a depth of approximately 5’ bgs to facilitate soil vapor sampling collection.

Soil samples were collected continuously at 5-foot intervals for soil characterization utilizing acetate sleeves by direct-push drilling methods. Groundwater was encountered in Groundwater Borings B-1 and B-2 at approximately 27-30 feet bgs. Per the client approved scope, no soil sampling was conducted.

Groundwater samples were collected for laboratory analyses from Temporary Monitoring Wells B-1 and B-2 by constructed utilizing a PVC 0.010-inch factory slotted Schedule 40 PVC screen and solid PVC riser. The temporary monitoring wells were subsequently developed, and groundwater samples were collected. Groundwater samples collected from B-1 and B-2 were submitted to an analytical laboratory for analysis of the BTEX compounds by EPA Method 8260.

Soil vapor sampling points V-1 and V-2 were installed by placing vapor screen implants within the boreholes and sealing the borings. The vapor points were purged utilizing a pump to remove ambient air and to encourage connection with the sub-slab soils. Helium testing was conducted to see if leaks were present. The VPs were then allowed to equilibrate for at least one hour.

The soil vapor sampling assembly was connected to a 450-milliliter capacity summa canister equipped with a regulator to the hose in the VP with Teflon® tubing. The valve on the SVP was opened, then the valve on the summa canister was opened, allowing the vacuum pressure from the summa canister to draw the soil vapors from the SVP. Soil vapor sampling was performed for a period of 17-20 minutes until the vacuum on the canister was determined to have equilibrated, upon which the valves were closed. Near-slab gas samples collected from vapor points V-1 and V-2 were analyzed for BTEX by EPA Method TO-15.

The sampling points were subsequently abandoned in accordance with the Georgia EPD protocol.

4 DATA ANALYSIS AND INTERPRETATION

Analysis and interpretation of the data generated during the field investigation and laboratory analyses are presented in the following sections. Where appropriate, the results are compared with regulatory limits for the test parameters identified in the applicable media. All laboratory analytical procedures were performed by AES. Copies of the laboratory analytical reports and chain-of-custody documentation are provided in Appendix A.

4.1 SOIL VAPOR RESULTS

Based on the laboratory analytical results for the two vapor samples collected at the site, benzene, ethylbenzene, toluene, and total xylenes were detected in the soil vapor sample V-2 at concentrations above their respective laboratory RLs; however, each were identified at concentrations below their respective EPA VISLs for CES in the soil vapor sample collected.

Soil vapor sample V-1 was reported to contain matrix interference. As such, the air sample required dilution; therefore, the resultant RLs are well above their respective EPA VISLs for the CES in the soil vapor sample collected from V-1. The RLs for toluene and total xylenes in V-1 remained below their respective EPA VISLs for the CES, even after the dilution was performed. This does not necessarily mean the benzene and ethylbenzene are a risk for vapor intrusion, only that determination cannot be confirmed or denied by the sample collected from V-1.

A copy of the laboratory analytical report and chain-of-custody documentation is provided in Appendix A.

4.2 GROUNDWATER ANALYTICAL RESULTS

Ethylbenzene was detected in the groundwater sample collected from Temporary Monitoring Well B-2 at a concentration of 3.1 µg/L. The most stringent water quality standard for ethylbenzene is the U.S. EPA's Drinking Water Standard MCL of 700 µg/L. No other analytes were detected above their respective reporting limits in the groundwater samples collected during this investigation.

A summary of the groundwater analytical data is provided in Table 1. A copy of the laboratory analytical report and chain-of-custody documentation is provided in Appendix A.

5 CONCLUSIONS AND RECOMMENDATIONS

PSI has conducted Limited Phase II ESA activities at the subject property located at 898 Joe Frank Harris Parkway in Cartersville, Bartow County, Georgia. Authorization to perform the Limited Phase II ESA activities was given by approval of PSI's January 27, 2022 proposal (PSI Proposal No. 0517-364838).

5.1 CONCLUSIONS

Soil Vapor Results

Based on the laboratory analytical results, BTEX compounds were detected in the soil vapor sample V-2 at concentrations above their respective laboratory RLs; however, at concentrations below their EPA VISLs for CES in the soil vapor sample collected.

Soil vapor sample V-1 was reported to contain matrix interference. As such, the air sample required dilution; therefore, the resultant RLs are well above their respective EPA VISLs for the CES in the soil vapor sample collected from V-1. The RLs for toluene and total xylenes in V-1 remained below their respective EPA VISLs for the CES, even after the dilution was performed. This does not necessarily mean the benzene and ethylbenzene are a risk for vapor intrusion, only that determination cannot be confirmed or denied by the sample collected from V-1.

Please note that the sampling at this site occurred at a specific date and time. Residual petroleum impacts are likely to exist in the on-site soil and groundwater; therefore, there is a possibility that impacted groundwater could migrate closer to the building at some time in the future or result in higher vapor concentrations within the proximity of the proposed structure.

Groundwater Results

Ethylbenzene was detected in the groundwater sample collected from Temporary Monitoring Well B-2 at a concentration of 3.1 µg/L. The most stringent water quality standard for ethylbenzene is the U.S. EPA's Drinking Water Standard MCL of 700 µg/L. No other analytes were detected above their respective reporting limits in the groundwater samples collected during this investigation.

5.2 RECOMMENDATIONS

Based on the information collected during this assessment, it does not appear that further assessment of the subject property is needed at this time. BTEX compounds were identified in one of the vapor samples collected within close proximity to the current on-site structure, with benzene falling slightly below the EPA VISL. Although the benzene concentration does exceed the VISL, it does indicate that the possibility of an exceedance on the site could exist. Based on the limited nature of the testing performed and resultant findings, the client may want to install an engineered, chemical resistant, vapor barrier be incorporated into the design and construction of the proposed restaurant building. These barriers, when properly designed and installed, have proven to be effective in minimizing the risk to occupants and patrons that occupy structures built on properties where potential vapor intrusion may be of concern.

6 REPRESENTATIONS

6.1 WARRANTY

The field observations, measurements, and research reported herein are considered sufficient in detail and scope to form a reasonable basis for a Phase II ESA of this property. The assessment and conclusions presented herein are based upon the subjective evaluation of limited data. They may not represent all conditions at the subject site as they reflect the information gathered from specific locations. PSI warrants that the findings and conclusions contained herein have been promulgated in accordance with generally accepted environmental investigation methodologies and only for the site described in this report.

The Limited Phase II ESA has been developed to provide the client with information regarding the degree of impact (not delineation) relating to the subject property. It is necessarily limited to the conditions observed and to the information available at the time of the work.

Due to the limited nature of the work, there is a possibility that there may exist conditions which could not be identified within the scope of the assessment or which were not apparent at the time of report preparation. It is also possible that the testing methods employed at the time of the report may later be superseded by other methods. The description, type, and composition of what are commonly referred to as "hazardous materials or conditions" can also change over time. PSI does not accept responsibility for changes in the state of the art, nor for changes in the scope of various lists of hazardous materials or conditions. PSI believes that the findings and conclusions provided in this report are reasonable. However, no other warranties are implied or expressed.

6.2 USE BY THIRD PARTIES

This report was prepared pursuant to the contract PSI has with the Taco Bell Corporation. Because of the importance of the communication between PSI and its client, reliance or any use of this report by anyone other than Taco Bell Corporation for whom it was prepared, is prohibited and therefore not foreseeable to PSI.

Reliance or use by any such third party without explicit authorization in the report does not make said the third party a third-party beneficiary to PSI's contract with Taco Bell Corporation. Any such unauthorized reliance on or use of this report, including any of its information or conclusions, will be at third party's risk. For the same reasons, no warranties or representations, expressed or implied in this report, are made to any such third party.

TABLES

TABLE 1
Groundwater Results
Proposed Taco Bell
Cartersville, GA
PSI Project No: 05171310-1

Analytes (all results in µg/L)				
Sample Number	Benzene	Toluene	Ethylbenzene	Xylenes
B-1	<1.0	<1.0	<1.0	<2.0
B-2	<1.0	<1.0	3.1	<2.0
Federal Maximum Contaminant Level (MCL)	5	1,000	700	10,000

BRL = Below reporting limit

µg/L = micrograms per liter

MCL = Maximum Contaminant Level

NS = No Standard

FIGURES

Figure 1 - Topographic Map

Proposed Taco Bell
898 Joe Frank Harris Parkway
Cartersville, Georgia 30120
Project Number: 05171310-1

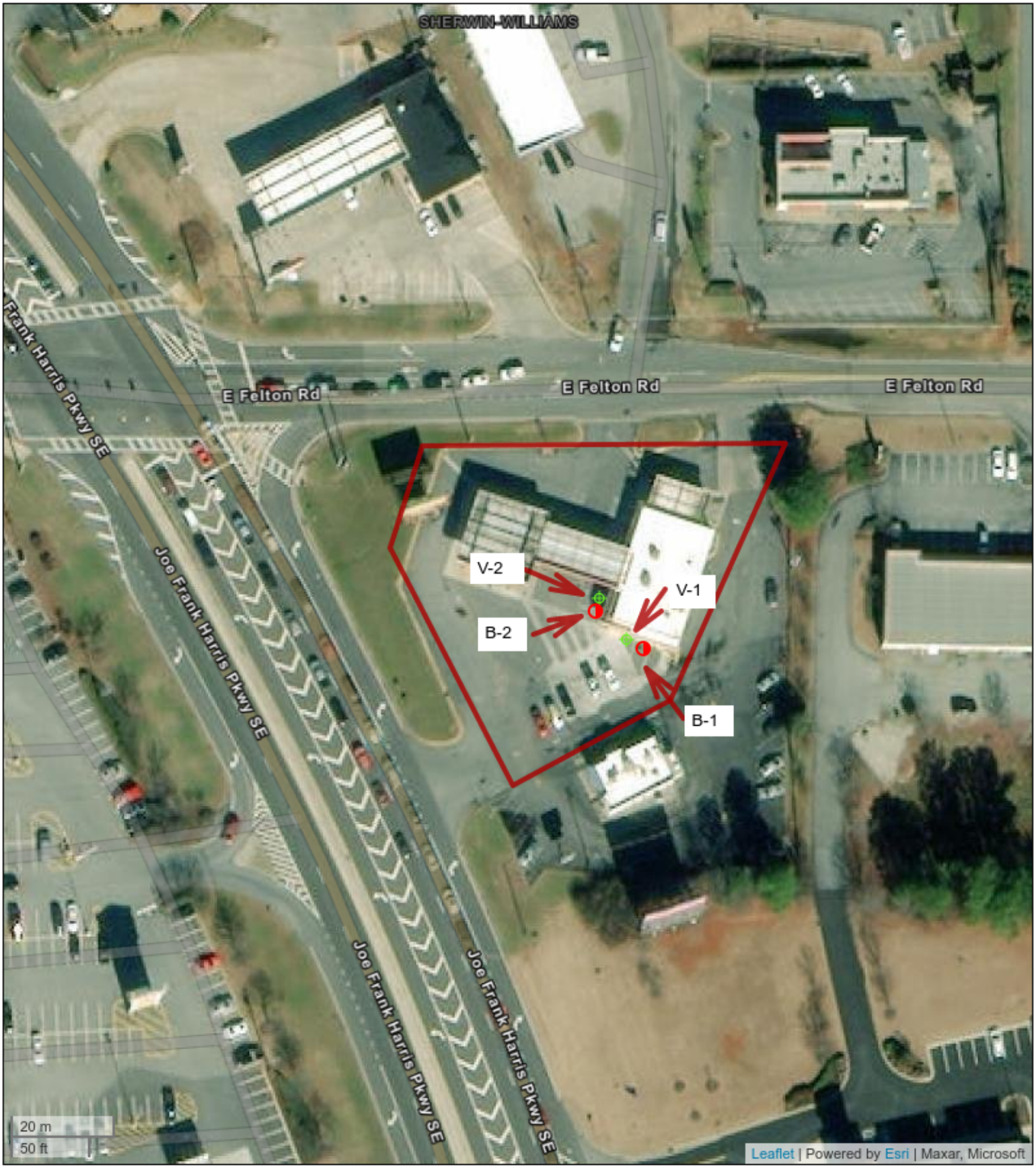

Figure 2 - Sample Location Map

Proposed Taco Bell
898 Joe Frank Harris Parkway
Cartersville, Georgia 30120
Project Number: 05171310-1

APPENDIX A – LABORATORY ANALYTICAL REPORTS AND CHAIN OF CUSTODY DOCUMENTATION

AES

ANALYTICAL ENVIRONMENTAL SERVICES, INC.

February 21, 2022

Eric Lowe
Professional Service Industries, Inc.

95 Chastain Rd.
Kennesaw GA 30144

RE: TB-898

Dear Eric Lowe: Order No: 2202G20

Analytical Environmental Services, Inc. received 2 samples on 2/11/2022 2:18:00 PM for the analyses presented in following report.

"No problems were encountered during the analyses except as noted in the Case Narrative or by qualifiers in the report or QC Summary. Additionally, all results for the associated Quality Control samples were within EPA and/or AES established limits.
AES's accreditations are as follows:
-NELAP/State of Florida Laboratory ID E87582 for analysis of Non-Potable Water, Solid & Chemical Materials, Air & Emissions Volatile Organics, and Drinking Water Microbiology & Metals, effective 07/01/21-06/30/22.
State of Georgia, Department of Natural Resources ID #800 for analysis of Drinking Water Metals, effective through 06/30/22 and Total Coliforms/ E. coli, effective 04/20/20-04/24/23.
-AIHA-LAP, LLC Laboratory ID: 100671 for Industrial Hygiene samples (Metals and PCM Asbestos), Environmental Lead (Paint, Soil, Dust Wipes, Air), and Environmental Microbiology (Fungal) Direct Examination, effective until 11/01/23.
These results relate only to the items tested as received. This report may only be reproduced in full.

If you have any questions regarding these test results, please feel free to call.

Sincerely,

Jessica Shilling

Jessica Shilling

Project Manager

3080 Presidential Drive • Atlanta, Georgia 30340 • Tel: 770.457.8177 • Fax: 770.457.8188 • Toll Free: 800.972.4889
www.aesatlanta.com

ANALYTICAL ENVIRONMENTAL SERVICES, INC
3080 Presidential Drive, Atlanta GA 30340-3704
TEL.: (770) 457-8177 / TOLL-FREE (800) 972-4889 / FAX: (770) 457-8188

VAPOR/AIR CHAIN OF CUSTODY

Work Order #: 2202G20

Page 1 of 1

Company: PSI	Address: 95 Chastain Rd Suite 301 Kennesaw, GA 30144	Bottle Order #:	Turnaround Time (Circle One): (X) Standard; 3 Day Rush; 2 Day Rush; Other
Phone: 678-672-8737	Fax:		
Sampled by: Eric Love	Signature:		

#	Sample ID	Sample Start Date	Sample Start Time (24hr)	Sample Finish Date	Sample Finish Time (24 hr)	Sample Matrix*	Canister Serial #	Flow Controller ID	Canister Pressure In Field ("Hg) Start	Canister Pressure In Field ("Hg) Stop	ANALYSIS REQUESTED: TO-15							Remarks
1	V-1	2/11/22	12:23	2/11/22	12:40	SV	1059	1100	30	3	X							☆BTEX only☆
2	V-2	2/11/22	12:26	2/11/22	12:46	SV	1044	1124	30	20	X							☆BTEX only☆
3																		
4																		
5																		
6																		
7																		
8																		
9																		
10																		

SPECIAL INSTRUCTIONS/COMMENTS:
If specialized list is required, list analytes here:
BTEX only

	RELINQUISHED BY:	DATE/TIME:	RECEIVED BY:	DATE/TIME:
1:		2/11/22 11:18	1:	2/11/22 14:18
2:			2:	
3:			3:	

SHIPMENT METHOD
OUT / / VIA:
IN / / VIA:
(CLIENT) FedEx UPS MAIL COURIER
GREYHOUND OTHER_____

PROJECT INFORMATION
PROJECT NAME: TB 898
PROJECT #: 0517
SITE ADDRESS: 898 J. Frank Harris
SEND REPORT TO: Eric Love
INVOICE TO:
(IF DIFFERENT FROM ABOVE)
PO#:
STATE PROGRAM (if any): _____ E-mail? Y / N Fax? Y / N
QUOTE #:_____ DATA PACKAGE: I II III IV

SAMPLES RECEIVED AFTER 3PM OR SATURDAY ARE CONSIDERED AS RECEIVED ON THE NEXT BUSINESS DAY; IF NO TAT IS MARKED ON COC, AES WILL PROCEED AS STANDARD TAT.
Visit our website www.aesatlanta.com to check on the status of your results, place bottle orders, etc. **Samples are disposed of 30 days after collection unless prior arrangements have been made.**

*SAMPLE MATRIX: IA = Indoor Air AA = Ambient Air SS = Subslab SV = Soil Vapor O = Other (specify)

AES, Inc., assumes no liability with respect to the collection and shipment of these samples.

Analytical Environmental Services, Inc

Date: 21-Feb-22

Client: Professional Service Industries, Inc.
Project: TB-898
Lab ID: 2202G20

Case Narrative

Volatile Organic Compound Analysis by Method TO-14a/TO-15:

Percent recovery for the internal standard compounds 1,4-Difluorobenzene, Chlorobenzene-d5 on samples 2202G20-001A, -002A were outside control limits biased high due to suspected matrix interference. All other internal standard recoveries were within control limits.

Due to sample matrix, samples 2202G20-001A, -002A required dilution during analysis resulting in elevated reporting limits.

Analytical Environmental Services, Inc **TO-15 Report** **Date:** 21-Feb-22

Client:	Professional Service Industries, Inc.	**Client Sample ID:**	V-1
Project Name:	TB-898	**Collection Date:**	2/11/2022 12:40:00 PM
Lab ID:	2202G20-001	**Matrix:**	

Analyses	Result	Reporting Limit	Qual	Units	BatchID	Dilution Factor	Date Analyzed	Analyst
VOCs in Air by TO-15/TO-14A/AES SOP OA-11051				**(TO-15)**				
Benzene	BRL	770		ug/m3	330858	120	02/17/2022 13:41	SK
Ethylbenzene	BRL	1000		ug/m3	330858	120	02/17/2022 13:41	SK
m,p-Xylene	BRL	2100		ug/m3	330858	120	02/17/2022 13:41	SK
o-Xylene	BRL	1000		ug/m3	330858	120	02/17/2022 13:41	SK
Toluene	BRL	900		ug/m3	330858	120	02/17/2022 13:41	SK
Xylenes, Total	BRL	3100		ug/m3	330858	120	02/17/2022 13:41	SK
Surr: 4-Bromofluorobenzene	68	70-130	S	%REC	330858	120	02/17/2022 13:41	SK

Qualifiers:

*	Value exceeds maximum contaminant level	E	Estimated (value above quantitation range)
BRL	Below reporting limit	S	Spike Recovery outside limits due to matrix
H	Holding times for preparation or analysis exceeded	Narr	See case narrative
N	Analyte not NELAC certified	NC	Not confirmed
B	Analyte detected in the associated method blank	<	Less than Result value
>	Greater than Result value	J	Estimated value detected below Reporting Limit

Analytical Environmental Services, Inc **TO-15 Report** **Date:** 21-Feb-22

Client:	Professional Service Industries, Inc.	**Client Sample ID:**	V-2
Project Name:	TB-898	**Collection Date:**	2/11/2022 12:46:00 PM
Lab ID:	2202G20-002	**Matrix:**	

Analyses	Result	Reporting Limit	Qual	Units	BatchID	Dilution Factor	Date Analyzed	Analyst
VOCs in Air by TO-15/TO-14A/AES SOP OA-11051				**(TO-15)**				
Benzene	48	6.4		ug/m3	330858	4	02/17/2022 12:29	SK
Ethylbenzene	26	8.7		ug/m3	330858	4	02/17/2022 12:29	SK
m,p-Xylene	130	17		ug/m3	330858	4	02/17/2022 12:29	SK
o-Xylene	68	8.7		ug/m3	330858	4	02/17/2022 12:29	SK
Toluene	120	7.5		ug/m3	330858	4	02/17/2022 12:29	SK
Xylenes, Total	200	26		ug/m3	330858	4	02/17/2022 12:29	SK
Surr: 4-Bromofluorobenzene	142	70-130	S	%REC	330858	4	02/17/2022 12:29	SK

Qualifiers:

*	Value exceeds maximum contaminant level	E	Estimated (value above quantitation range)
BRL	Below reporting limit	S	Spike Recovery outside limits due to matrix
H	Holding times for preparation or analysis exceeded	Narr	See case narrative
N	Analyte not NELAC certified	NC	Not confirmed
B	Analyte detected in the associated method blank	<	Less than Result value
>	Greater than Result value	J	Estimated value detected below Reporting Limit

Analytical Environmental Services, Inc.

Sample Receipt Checklist for Air Canisters

Client Professional Service Industries, Inc. Work Order Number 2202G120

Checklist completed by alecastro 2/14/22

Signature Date

Carrier name: FedEx____ UPS____ Courier____ Client ✓ US Mail____ Other_____

Shipping container in good condition?	Yes ✓ No___ Not Present___
Custody seals intact on shipping container?	Yes___ No___ Not Present ✓
Chain of custody present?	Yes ✓ No___
Chain of custody signed when relinquished and received?	Yes ✓ No___
Chain of custody agrees with sample labels?	Yes ✓ No___
Field data sheets present?	Yes___ No ✓
Sample containers intact?	Yes ✓ No___

If no, explain: _____

All samples received within holding time?	Yes ✓ No___
Was TAT marked on the COC?	Yes ✓ No___
Proceed with Standard TAT as per project history?	Yes___ No___ Not Applicable ✓
All canisters received per Bottle Order issued?	Yes ✓ No___

See Case Narrative for resolution of the Non-Conformance.

Analytical Environmental Services, Inc

Date: 21-Feb-22

Client: Professional Service Industries, Inc.
Project Name: TB-898
Workorder: 2202G20

ANALYTICAL QC SUMMARY REPORT

BatchID: 330858

Sample ID: **MB-330858** Client ID: Units: **ug/m3** Prep Date: **02/14/2022** Run No: **477509**
SampleType: **MBLK** TestCode: **VOCs in Air by TO-15/TO-14A/AES SOP OA-11051** BatchID: **330858** Analysis Date: **02/14/2022** Seq No: **11028693**

Analyte	Result	RPT Limit	SPK value	SPK Ref Val	%REC	Low Limit	High Limit	RPD Ref Val	%RPD	RPD Limit	Qual
Benzene	BRL	0.64									
Ethylbenzene	BRL	0.87									
m,p-Xylene	BRL	1.7									
o-Xylene	BRL	0.87									
Toluene	BRL	0.75									
Xylenes, Total	BRL	2.6									
Surr: 4-Bromofluorobenzene	3.090	0	4.000		77.2	70	130				

Sample ID: **LCS-330858** Client ID: Units: **ug/m3** Prep Date: **02/14/2022** Run No: **477509**
SampleType: **LCS** TestCode: **VOCs in Air by TO-15/TO-14A/AES SOP OA-11051** BatchID: **330858** Analysis Date: **02/14/2022** Seq No: **11028694**

Analyte	Result	RPT Limit	SPK value	SPK Ref Val	%REC	Low Limit	High Limit	RPD Ref Val	%RPD	RPD Limit	Qual
Benzene	6.773	0.64	6.389		106	70	130				
Ethylbenzene	7.645	0.87	8.687		88.0	70	130				
m,p-Xylene	17.16	1.7	17.37		98.8	70	130				
o-Xylene	9.816	0.87	8.687		113	70	130				
Toluene	7.047	0.75	7.537		93.5	70	130				
Xylenes, Total	26.97	2.6	26.06		104	70	130				
Surr: 4-Bromofluorobenzene	4.000	0	4.000		100	70	130				

Sample ID: **2202F51-003ADUP** Client ID: Units: **ug/m3** Prep Date: **02/14/2022** Run No: **477509**
SampleType: **DUP** TestCode: **VOCs in Air by TO-15/TO-14A/AES SOP OA-11051** BatchID: **330858** Analysis Date: **02/15/2022** Seq No: **11031489**

Analyte	Result	RPT Limit	SPK value	SPK Ref Val	%REC	Low Limit	High Limit	RPD Ref Val	%RPD	RPD Limit	Qual
Benzene	BRL	3.2						0	0	25	
Ethylbenzene	BRL	4.3						3.040	0	25	
m,p-Xylene	9.339	8.7						7.818	17.7	25	
o-Xylene	6.081	4.3						7.384	19.4	25	

Qualifiers:

>	Greater than Result value	<	Less than Result value	B	Analyte detected in the associated method blank
BRL	Below reporting limit	E	Estimated (value above quantitation range)	H	Holding times for preparation or analysis exceeded
J	Estimated value detected below Reporting Limit	N	Analyte not NELAC certified	R	RPD outside limits due to matrix
Rpt Lim	Reporting Limit	S	Spike Recovery outside limits due to matrix		

Analytical Environmental Services, Inc

Date: 21-Feb-22

Client: Professional Service Industries, Inc.
Project Name: TB-898
Workorder: 2202G20

ANALYTICAL QC SUMMARY REPORT

BatchID: 330858

Sample ID: **2202F51-003ADUP**	Client ID:		Units: **ug/m3**		Prep Date: **02/14/2022**		Run No: **477509**
SampleType: **DUP**	TestCode: **VOCs in Air by TO-15/TO-14A/AES SOP OA-11051**		BatchID: **330858**		Analysis Date: **02/15/2022**		Seq No: **11031489**

Analyte	Result	RPT Limit	SPK value	SPK Ref Val	%REC	Low Limit	High Limit	RPD Ref Val	%RPD	RPD Limit	Qual
Toluene	BRL	3.8						0	0	25	
Xylenes, Total	15.42	13						15.20	1.42	25	
Surr: 4-Bromofluorobenzene	19.85	0	20.00		99.2	70	130	20.85	0	0	

Qualifiers:

>	Greater than Result value	<	Less than Result value	B	Analyte detected in the associated method blank
BRL	Below reporting limit	E	Estimated (value above quantitation range)	H	Holding times for preparation or analysis exceeded
J	Estimated value detected below Reporting Limit	N	Analyte not NELAC certified	R	RPD outside limits due to matrix
Rpt Lim	Reporting Limit	S	Spike Recovery outside limits due to matrix		

End of Report

AES

ANALYTICAL ENVIRONMENTAL SERVICES, INC.

February 22, 2022

Eric Lowe
Professional Service Industries, Inc.

95 Chastain Rd.
Kennesaw GA 30144

RE: TB-898

Dear Eric Lowe: Order No: 2202G21

Analytical Environmental Services, Inc. received 3 samples on 2/11/2022 2:18:00 PM for the analyses presented in following report.

"No problems were encountered during the analyses except as noted in the Case Narrative or by qualifiers in the report or QC Summary. Additionally, all results for the associated Quality Control samples were within EPA and/or AES established limits.
AES's accreditations are as follows:
-NELAP/State of Florida Laboratory ID E87582 for analysis of Non-Potable Water, Solid & Chemical Materials, Air & Emissions Volatile Organics, and Drinking Water Microbiology & Metals, effective 07/01/21-06/30/22.
State of Georgia, Department of Natural Resources ID #800 for analysis of Drinking Water Metals, effective through 06/30/22 and Total Coliforms/ E. coli, effective 04/20/20-04/24/23.
-AIHA-LAP, LLC Laboratory ID: 100671 for Industrial Hygiene samples (Metals and PCM Asbestos), Environmental Lead (Paint, Soil, Dust Wipes, Air), and Environmental Microbiology (Fungal) Direct Examination, effective until 11/01/23.
These results relate only to the items tested as received. This report may only be reproduced in full.

If you have any questions regarding these test results, please feel free to call.

Sincerely,

Eben D. Buchanan, Jr.

Eben Buchanan

Project Manager

3080 Presidential Drive • Atlanta, Georgia 30340 • Tel: 770.457.8177 • Fax: 770.457.8188 • Toll Free: 800.972.4889
www.aesatlanta.com

AES | ANALYTICAL ENVIRONMENTAL SERVICES, INC.

Analytical Environmental Services, Inc.
3080 Presidential Drive, Atlanta, GA 30340 Phone: (770) 457-8177

CHAIN OF CUSTODY

Work Order: 2202G21
Page 1 of 1

COMPANY: PSI
ADDRESS: 95 Chastain Rd, NW Suite 301
PHONE: 678-672-8737
EMAIL: eric.lowe@inkertek.com
SAMPLED BY: Eric Lowe
SIGNATURE:

ANALYSIS REQUESTED: BTEX 8260

Visit our website www.aesatlanta.com for downloadable COCs and to log in to your AESAccess account.

#	SAMPLE ID	SAMPLED: DATE	SAMPLED: TIME	GRAB	COMPOSITE	MATRIX (see codes)	PRESERVATION (see codes)	REMARKS	Number of Containers
1	B-1	2/11/22	12:15	X			2		
2	B-2	2/11/22	12:00	X			2		
3									
4									
5									
6									
7									
8									
9									
10									
11									
12									
13									
14									

RELINQUISHED BY: DATE/TIME:
1. 2/11/22 14:18
2.
3.

RECEIVED BY: DATE/TIME:
1. 2/11/22 14:18
2.
3.

SPECIAL INSTRUCTIONS/COMMENTS:

SHIPMENT METHOD
OUT: / / VIA:
IN: / / VIA:
Client FedEx UPS US mail courier
other: _____

PROJECT INFORMATION
PROJECT NAME: TB-898
PROJECT #: 0517
SITE ADDRESS: 898 J. Frank Harris, Cartersville
SEND REPORT TO: Eric Lowe
INVOICE TO (IF DIFFERENT FROM ABOVE):
QUOTE #:_____ PO#:_____

RECEIPT
Total # of Containers

Turnaround Time (TAT) Request in Business Days
- [x] Standard
- [ ] 4-Day Rush*
- [ ] 3-Day Rush*
- [ ] 2-Day Rush*
- [ ] Next Day Rush*
- [ ] Other _____
- [ ] Same-Day Rush*(auth req.)

*Surcharges apply for Rush TAT

REGULATORY PROGRAM (if any):
DATA PACKAGE: I ○ II ○ III ○ IV ○

Submission of samples to the laboratory constitutes acceptance of AES's Terms & Conditions. Client assumes sole responsibility for damage or loss of samples before we accept them. Samples received after 3PM or on Saturday are considered as received the following business day. If no TAT is marked on COC, AES will proceed with standard TAT. Samples are disposed of 30 days after completion of report unless other arrangements are made.

Matrix Codes: A = Air GW = Groundwater SE = Sediment SO = Soil SW = Surface Water ST=Stormwater WW = Waste Water W = Water (Blanks) DW = Drinking Water (Blanks) O = Other (specify)

Preservative Codes: H+I = Hydrochloric acid + ice I = Ice only N = Nitric acid S+I = Sulfuric acid + ice S/M+I = Sodium Bisulfate/Methanol + ice NaOH = SH O = Other (specify) NA = None

3.18.21_COC

White Copy - Original; Yellow Copy - Client

Analytical Environmental Services, Inc **Date:** 22-Feb-22

Client:	Professional Service Industries, Inc.	**Client Sample ID:**	B-1
Project Name:	TB-898	**Collection Date:**	2/11/2022 12:15:00 PM
Lab ID:	2202G21-001	**Matrix:**	Aqueous

Analyses	Result	Reporting Limit	Qual	Units	BatchID	Dilution Factor	Date Analyzed	Analyst
VOLATILE ORGANICS SW8260D				**(SW5030B)**				
Benzene	BRL	1.0		ug/L	330872	1	02/15/2022 18:05	AV
Toluene	BRL	1.0		ug/L	330872	1	02/15/2022 18:05	AV
Ethylbenzene	BRL	1.0		ug/L	330872	1	02/15/2022 18:05	AV
m,p-Xylene	BRL	1.0		ug/L	330872	1	02/15/2022 18:05	AV
o-Xylene	BRL	1.0		ug/L	330872	1	02/15/2022 18:05	AV
Surr: 4-Bromofluorobenzene	96.2	74.9-127		%REC	330872	1	02/15/2022 18:05	AV

Qualifiers:

*	Value exceeds maximum contaminant level	E	Estimated (value above quantitation range)
BRL	Below reporting limit	S	Spike Recovery outside limits due to matrix
H	Holding times for preparation or analysis exceeded	Narr	See case narrative
N	Analyte not NELAC certified	F	Analyzed in the lab which is a deviation from the method
B	Analyte detected in the associated method blank	<	Less than Result value
>	Greater than Result value	J	Estimated value detected below Reporting Limit

Analytical Environmental Services, Inc **Date:** 22-Feb-22

Client:	Professional Service Industries, Inc.	**Client Sample ID:**	B-2
Project Name:	TB-898	**Collection Date:**	2/11/2022 12:00:00 PM
Lab ID:	2202G21-002	**Matrix:**	Aqueous

Analyses	Result	Reporting Limit	Qual	Units	BatchID	Dilution Factor	Date Analyzed	Analyst
VOLATILE ORGANICS SW8260D				**(SW5030B)**				
Benzene	BRL	1.0		ug/L	330872	1	02/15/2022 18:28	AV
Toluene	BRL	1.0		ug/L	330872	1	02/15/2022 18:28	AV
Ethylbenzene	3.1	1.0		ug/L	330872	1	02/15/2022 18:28	AV
m,p-Xylene	BRL	1.0		ug/L	330872	1	02/15/2022 18:28	AV
o-Xylene	BRL	1.0		ug/L	330872	1	02/15/2022 18:28	AV
Surr: 4-Bromofluorobenzene	95.3	74.9-127		%REC	330872	1	02/15/2022 18:28	AV

Qualifiers:

*	Value exceeds maximum contaminant level	E	Estimated (value above quantitation range)
BRL	Below reporting limit	S	Spike Recovery outside limits due to matrix
H	Holding times for preparation or analysis exceeded	Narr	See case narrative
N	Analyte not NELAC certified	F	Analyzed in the lab which is a deviation from the method
B	Analyte detected in the associated method blank	<	Less than Result value
>	Greater than Result value	J	Estimated value detected below Reporting Limit

Analytical Environmental Services, Inc **Date:** 22-Feb-22

Client:	Professional Service Industries, Inc.	**Client Sample ID:**	TRIP BLANK
Project Name:	TB-898	**Collection Date:**	2/11/2022
Lab ID:	2202G21-003	**Matrix:**	Aqueous

Analyses	Result	Reporting Limit	Qual	Units	BatchID	Dilution Factor	Date Analyzed	Analyst
VOLATILE ORGANICS SW8260D				**(SW5030B)**				
Benzene	BRL	1.0		ug/L	330872	1	02/14/2022 18:00	AV
Toluene	BRL	1.0		ug/L	330872	1	02/14/2022 18:00	AV
Ethylbenzene	BRL	1.0		ug/L	330872	1	02/14/2022 18:00	AV
m,p-Xylene	BRL	1.0		ug/L	330872	1	02/14/2022 18:00	AV
o-Xylene	BRL	1.0		ug/L	330872	1	02/14/2022 18:00	AV
Surr: 4-Bromofluorobenzene	93.1	74.9-127		%REC	330872	1	02/14/2022 18:00	AV

Qualifiers:

*	Value exceeds maximum contaminant level	E	Estimated (value above quantitation range)
BRL	Below reporting limit	S	Spike Recovery outside limits due to matrix
H	Holding times for preparation or analysis exceeded	Narr	See case narrative
N	Analyte not NELAC certified	F	Analyzed in the lab which is a deviation from the method
B	Analyte detected in the associated method blank	<	Less than Result value
>	Greater than Result value	J	Estimated value detected below Reporting Limit

Clear | Save as

AES Analytical Environmental Services, Inc.

SAMPLE/COOLER RECEIPT CHECKLIST

1. Client Name: **PROFESSIONAL SERVICE INDUSTRIES,INC** AES Work Order Number: **2202G21**

2. Carrier: FedEx ■ UPS ☐ USPS ☐ Client ☐ Courier ☐ Other _____

		Yes	No	N/A	Details	Comments
3.	Shipping container/cooler received in good condition?	◉	○	○	damaged ☐ leaking ☐ other ☐	
4.	Custody seals present on shipping container?	○	◉	○		
5.	Custody seals intact on shipping container?	○	○	◉		
6.	Temperature blanks present?	◉	○	○		
7.	Cooler temperature(s) within limits of 0-6°C? [See item 13 and 14 for temperature recordings.]	◉	○	○	Cooling initiated for recently collected samples / ice present ☐	
8.	Chain of Custody (COC) present?	◉	○	○		
9.	Chain of Custody signed, dated, and timed when relinquished and received?	◉	○	○		
10.	Sampler name and/or signature on COC?	◉	○	○		
11.	Were all samples received within holding time?	◉	○	○		
12.	TAT marked on the COC?	◉	○	○	If no TAT indicated, proceeded with standard TAT per Terms & Conditions. ☐	

13. Cooler 1 Temperature 1.9 °C Cooler 2 Temperature _____ °C Cooler 3 Temperature _____ °C Cooler 4 Temperature _____ °C

14. Cooler 5 Temperature _____ °C Cooler 6 Temperature _____ °C Cooler 7 Temperature _____ °C Cooler 8 Temperature _____ °C

15. Comments: _____

I certify that I have completed sections 1-15 (dated initials). CH 2/11/22

		Yes	No	N/A	Details	Comments
16.	Were sample containers intact upon receipt?	◉	○	○		
17.	Custody seals present on sample containers?	○	◉	○		
18.	Custody seals intact on sample containers?	○	○	◉		
19.	Do sample container labels match the COC?	◉	○	○	incomplete info ☐ illegible ☐ no label ☐ other ☐	
20.	Are analyses requested indicated on the COC?	◉	○	○		
21.	Were all of the samples listed on the COC received?	◉	○	○	samples received but not listed on COC ☐ samples listed on COC not received ☐	
22.	Was the sample collection date/time noted?	◉	○	○		
23.	Did we receive sufficient sample volume for indicated analyses?	◉	○	○		
24.	Were samples received in appropriate containers?	◉	○	○		
25.	Were VOA samples received without headspace (< 1/4" bubble)?	◉	○	○		
26.	Were trip blanks submitted?	◉	○	○	listed on COC ☐ not listed on COC ■	

27. Comments: _____

This section only applies to samples where pH can be checked at Sample Receipt.

I certify that I have completed sections 16-27 (dated initials). CH 2/11/22

		Yes	No	N/A	Details	Comments
28.	Have containers needing chemical preservation been checked? *	○	○	◉		
29.	Containers meet preservation guidelines?	○	○	◉		
30.	Was pH adjusted at Sample Receipt?	○	○	◉		

* Note: Certain analyses require chemical preservation but must be checked in the laboratory and not upon Sample Receipt such as Coliforms, VOCs and Oil & Grease/TPH. This also excludes metals by EPA 200.7, 200.8 and 245.1 which will be verified between 16 and 24 hours after preservation.

I certify that I have completed sections 28-30 (dated initials). CH 2/11/22

Locked

Client: Professional Service Industries, Inc.
Project Name: TB-898
Workorder: 2202G21

ANALYTICAL QC SUMMARY REPORT

BatchID: 330872

Sample ID: **MB-330872** Client ID: Units: **ug/L** Prep Date: **02/14/2022** Run No: **477505**
SampleType: **MBLK** TestCode: **VOLATILE ORGANICS SW8260D** BatchID: **330872** Analysis Date: **02/14/2022** Seq No: **11028551**

Analyte	Result	RPT Limit	SPK value	SPK Ref Val	%REC	Low Limit	High Limit	RPD Ref Val	%RPD	RPD Limit	Qual
Benzene	BRL	1.0									
Ethylbenzene	BRL	1.0									
m,p-Xylene	BRL	1.0									
o-Xylene	BRL	1.0									
Toluene	BRL	1.0									
Surr: 4-Bromofluorobenzene	49.87	0	50.00		99.7	74.9	127				

Sample ID: **LCS-330872** Client ID: Units: **ug/L** Prep Date: **02/14/2022** Run No: **477505**
SampleType: **LCS** TestCode: **VOLATILE ORGANICS SW8260D** BatchID: **330872** Analysis Date: **02/14/2022** Seq No: **11028565**

Analyte	Result	RPT Limit	SPK value	SPK Ref Val	%REC	Low Limit	High Limit	RPD Ref Val	%RPD	RPD Limit	Qual
Benzene	18.23	1.0	20.00		91.2	78.6	124				
Ethylbenzene	19.58	1.0	20.00		97.9	78.6	125				
m,p-Xylene	38.60	1.0	40.00		96.5	78	126				
o-Xylene	19.33	1.0	20.00		96.6	77.1	124				
Toluene	17.39	1.0	20.00		87.0	77.7	125				
Surr: 4-Bromofluorobenzene	48.76	0	50.00		97.5	74.9	127				

Sample ID: **2202G38-003AMS** Client ID: Units: **ug/L** Prep Date: **02/14/2022** Run No: **477505**
SampleType: **MS** TestCode: **VOLATILE ORGANICS SW8260D** BatchID: **330872** Analysis Date: **02/15/2022** Seq No: **11032574**

Analyte	Result	RPT Limit	SPK value	SPK Ref Val	%REC	Low Limit	High Limit	RPD Ref Val	%RPD	RPD Limit	Qual
Benzene	47.33	1.0	20.00	26.30	105	70.5	136				
Ethylbenzene	46.32	1.0	20.00	24.30	110	70	134				
m,p-Xylene	41.64	1.0	40.00		104	66.3	138				
o-Xylene	21.40	1.0	20.00		107	67.1	136				
Toluene	20.28	1.0	20.00		101	66.4	140				
Surr: 4-Bromofluorobenzene	45.31	0	50.00		90.6	74.9	127				

Qualifiers:

>	Greater than Result value	<	Less than Result value	B	Analyte detected in the associated method blank
BRL	Below reporting limit	E	Estimated (value above quantitation range)	H	Holding times for preparation or analysis exceeded
J	Estimated value detected below Reporting Limit	N	Analyte not NELAC certified	R	RPD outside limits due to matrix
Rpt Lim	Reporting Limit	S	Spike Recovery outside limits due to matrix		

Client: Professional Service Industries, Inc.
Project Name: TB-898
Workorder: 2202G21

ANALYTICAL QC SUMMARY REPORT

BatchID: 330872

Sample ID: **2202G38-003AMSD** Client ID: Units: **ug/L** Prep Date: **02/14/2022** Run No: **477505**
SampleType: **MSD** TestCode: **VOLATILE ORGANICS SW8260D** BatchID: **330872** Analysis Date: **02/15/2022** Seq No: **11032584**

Analyte	Result	RPT Limit	SPK value	SPK Ref Val	%REC	Low Limit	High Limit	RPD Ref Val	%RPD	RPD Limit	Qual
Benzene	44.37	1.0	20.00	26.30	90.4	70.5	136	47.33	6.46	20	
Ethylbenzene	42.97	1.0	20.00	24.30	93.4	70	134	46.32	7.50	20	
m,p-Xylene	38.65	1.0	40.00		96.6	66.3	138	41.64	7.45	20	
o-Xylene	20.46	1.0	20.00		102	67.1	136	21.40	4.49	20	
Toluene	18.94	1.0	20.00		94.7	66.4	140	20.28	6.83	20	
Surr: 4-Bromofluorobenzene	46.61	0	50.00		93.2	74.9	127	45.31	0	0	

Qualifiers:

>	Greater than Result value	<	Less than Result value	B	Analyte detected in the associated method blank
BRL	Below reporting limit	E	Estimated (value above quantitation range)	H	Holding times for preparation or analysis exceeded
J	Estimated value detected below Reporting Limit	N	Analyte not NELAC certified	R	RPD outside limits due to matrix
Rpt Lim	Reporting Limit	S	Spike Recovery outside limits due to matrix		

End of Report

APPENDIX B – EPA VISL CALCULATIONS SPREADSHEET

OSWER VAPOR INTRUSION ASSESSMENT

Sub-slab or Exterior Soil Gas Concentration to Indoor Air Concentration (SGC-IAC) Calculator Version 3.5 June 2017 RSLs

Parameter	Symbol	Value	Instructions
Exposure Scenario	Scenario	Commercial	Select residential or commercial scenario from pull down list
Target Risk for Carcinogens	TCR_SG	1.00E-06	Enter target risk for carcinogens (for comparison to the calculated VI carcinogenic risk in column F)
Target Hazard Quotient for Non-Carcinogens	THQ_SG	1	Enter target hazard quotient for non-carcinogens (for comparison to the calculated VI hazard in column G)

	CAS	Chemical Name	Site Sub-slab or Exterior Soil Gas Concentration Csg (ug/m^3)	Calculated Indoor Air Concentration Cia (ug/m^3)	VI Carcinogenic Risk CR	VI Hazard HQ	Inhalation Unit Risk IUR (ug/m^3)$^{-1}$	IUR Source*	Reference Concentration RfC (mg/m^3)	RFC Source*	Mutagenic Indicator i
x	71-43-2	Benzene	4.8E+01	1.44E+00	9.2E-07	1.1E-02	7.80E-06	I	3.00E-02	I	
x	100-41-4	Ethylbenzene	2.6E+01	7.80E-01	1.6E-07	1.8E-04	2.50E-06	CA	1.00E+00	I	
x	108-88-3	Toluene	1.2E+02	3.60E+00	No IUR	1.6E-04			5.00E+00	I	
x	1330-20-7	Xylenes	2.0E+02	6.00E+00	No IUR	1.4E-02			1.00E-01	I	

OSWER VAPOR INTRUSION ASSESSMENT

Sub-slab or Exterior Soil Gas Concentration to Indoor Air Concentration (SGC-IAC) Calculator Version 3.5 June 2017 RSLs

Parameter	Symbol	Value	Instructions
Exposure Scenario	Scenario	Commercial	Select residential or commercial scenario from pull down list
Target Risk for Carcinogens	TCR_SG	1.00E-06	Enter target risk for carcinogens (for comparison to the calculated VI carcinogenic risk in column F)
Target Hazard Quotient for Non-Carcinogens	THQ_SG	1	Enter target hazard quotient for non-carcinogens (for comparison to the calculated VI hazard in column G)

	CAS	Chemical Name	Site Sub-slab or Exterior Soil Gas Concentration Csg (ug/m^3)	Calculated Indoor Air Concentration Cia (ug/m^3)	VI Carcinogenic Risk CR	VI Hazard HQ	Inhalation Unit Risk IUR ($(ug/m^3)^{-1}$)	IUR Source*	Reference Concentration RfC (mg/m^3)	RFC Source*	Mutagenic Indicator i
x	71-43-2	Benzene	7.0E+02	2.10E+01	**1.3E-05**	1.6E-01	7.80E-06	I	3.00E-02	I	
x	100-41-4	Ethylbenzene	1.1E+03	3.30E+01	**6.7E-06**	7.5E-03	2.50E-06	CA	1.00E+00	I	
x	108-88-3	Toluene	9.0E+02	2.70E+01	No IUR	1.2E-03			5.00E+00	I	
x	1330-20-7	Xylenes	3.1E+03	9.30E+01	No IUR	2.1E-01			1.00E-01	I	

OSWER VAPOR INTRUSION ASSESSMENT
Groundwater Concentration to Indoor Air Concentration (GWC-IAC) Calculator Version 3.5, June 2017 RSLs

Parameter	Symbol	Value	Instructions
Exposure Scenario	Scenario	Commercial	Select residential or commercial scenario from pull down list
Target Risk for Carcinogens	TCR	1.00E-06	Enter target risk for carcinogens (for comparison to the calculated VI carcinogenic risk in column F)
Target Hazard Quotient for Non-Carcinogens	THQ	1	Enter target hazard quotient for non-carcinogens (for comparison to the calculated VI hazard in column G)
Average Groundwater Temperature (°C)	Tgw	25	Enter average of the stabilized groundwater temperature to correct Henry's Law Constant for groundwater target concentrations

	CAS	Chemical Name	Site Groundwater Concentration Cgw (ug/L)	Calculated Indoor Air Concentration Cia (ug/m^3)	VI Carcinogenic Risk CR	VI Hazard HQ	Inhalation Unit Risk IUR ($ug/m^3)^{-1}$	IUR Source*	Reference Concentration RfC (mg/m^3)	RFC Source*	Mutagenic Indicator i
x	71-43-2	Benzene	1.0E+00	2.27E-01	1.4E-07	1.7E-03	7.80E-06	I	3.00E-02	I	
x	100-41-4	Ethylbenzene	1.0E+00	3.22E-01	6.6E-08	7.4E-05	2.50E-06	CA	1.00E+00	I	
x	108-88-3	Toluene	1.0E+00	2.71E-01	No IUR	1.2E-05			5.00E+00	I	
x	1330-20-7	Xylenes	2.0E+00	5.42E-01	No IUR	1.2E-03			1.00E-01	I	

Notes:

(1) **Inhalation Pathway Exposure Parameters (RME):**

Exposure Scenario	Units	Residential Symbol	Residential Value	Commercial Symbol	Commercial Value	Selected (based on scenario) Symbol	Selected (based on scenario) Value
Averaging time for carcinogens	(yrs)	ATc_R_GW	70	ATc_C_GW	70	ATc_GW	70
Averaging time for non-carcinogens	(yrs)	ATnc_R_GW	26	ATnc_C_GW	25	Atnc_GW	25
Exposure duration	(yrs)	ED_R_GW	26	ED_C_GW	25	ED_GW	25
Exposure frequency	(days/yr)	EF_R_GW	350	EF_C_GW	250	EF_GW	250
Exposure time	(hr/day)	ET_R_GW	24	ET_C_GW	8	ET_GW	8

(2) **Generic Attenuation Factors:**

Source Medium of Vapors	Residential Symbol	Residential Value	Commercial Symbol	Commercial Value	Selected (based on scenario) Symbol	Selected (based on scenario) Value
Groundwater (-)	AFgw_R_GW	0.001	AFgw_C_GW	0.001	AFgw_GW	0.001
Sub-Slab and Exterior Soil Gas (-)	AFss_R_GW	0.03	AFss_C_GW	0.03	AFss_GW	0.03

(3) **Formulas**

Cia, target = MIN(Cia,c; Cia,nc)
Cia,c (ug/m3) = TCR x ATc x (365 days/yr) x (24 hrs/day) / (ED x EF x ET x IUR)
Cia,nc (ug/m3) = THQ x ATnc x (365 days/yr) x (24 hrs/day) x RfC x (1000 ug/mg) / (ED x EF x ET)

(4) **Special Case Chemicals**

Trichloroethylene	Residential Symbol	Residential Value	Commercial Symbol	Commercial Value	Selected (based on scenario) Symbol	Selected (based on scenario) Value
	mIURTCE_R_GW	1.00E-06	IURTCE_C_GW	0.00E+00	mIURTCE_GW	0.00E+00
	IURTCE_R_GW	3.10E-06	IURTCE_C_GW	4.10E-06	IURTCE_GW	4.10E-06

Mutagenic Chemicals — The exposure durations and age-dependent adjustment factors for mutagenic-mode-of-action are listed in the table below:

Note: This section applies to trichloroethylene and other mutagenic chemicals, but not to vinyl chloride.

Age Cohort	Exposure Duration	Age-dependent adjustment factor
0 - 2 years	2	10
2 - 6 years	4	3
6 - 16 years	10	3
16 - 26 years	10	1

Mutagenic-mode-of-action (MMOA) adjustment factor 25 This factor is used in the equations for mutagenic chemicals.

Vinyl Chloride — See the Navigation Guide equation for Cia,c for vinyl chloride.

Notation:
I = IRIS: EPA Integrated Risk Information System (IRIS). Available online at http://www.epa.gov/iris/subst/index.html
P = PPRTV. EPA Provisional Peer Reviewed Toxicity Values (PPRTVs). Available online at http://hhpprtv.ornl.gov/pprtv.shtml
A = Agency for Toxic Substances and Disease Registry (ATSDR) Minimum Risk Levels (MRLs). Available online at: http://www.atsdr.cdc.gov/mrls/index.html
CA = California Environmental Protection Agency/Office of Environmental Health Hazard Assessment assessments. Available online at: http://www.oehha.ca.gov/risk/ChemicalDB/index.asp
H = HEAST. EPA Superfund Health Effects Assessment Summary Tables (HEAST) database. Available online at: http://epa-heast.ornl.gov/heast.shtml
S = See RSL User Guide, Section 5

OSWER VAPOR INTRUSION ASSESSMENT
Groundwater Concentration to Indoor Air Concentration (GWC-IAC) Calculator Version 3.5, June 2017 RSLs

Parameter	Symbol	Value	Instructions
Exposure Scenario	Scenario	Commercial	Select residential or commercial scenario from pull down list
Target Risk for Carcinogens	TCR	1.00E-06	Enter target risk for carcinogens (for comparison to the calculated VI carcinogenic risk in column F)
Target Hazard Quotient for Non-Carcinogens	THQ	1	Enter target hazard quotient for non-carcinogens (for comparison to the calculated VI hazard in column G)
Average Groundwater Temperature (°C)	Tgw	25	Enter average of the stabilized groundwater temperature to correct Henry's Law Constant for groundwater target concentrations

CAS	Chemical Name	Site Groundwater Concentration	Calculated Indoor Air Concentration	VI Carcinogenic Risk	VI Hazard	Inhalation Unit Risk	IUR Source*	Reference Concentration	RFC Source*	Mutagenic Indicator
		Cgw	Cia	CR	HQ	IUR		RfC		
		(ug/L)	(ug/m^3)			$(ug/m^3)^{-1}$		(mg/m^3)		i

X = PPRTV Appendix
Mut = Chemical acts according to the mutagenic-mode-of-action, special exposure parameters apply (see footnote (4) above).
VC = Special exposure equation for vinyl chloride applies (see Navigation Guide for equation).
TCE = Special mutagenic and non-mutagenic IURs for trichloroethylene apply (see footnote (4) above).
Yellow highlighting indicates site-specific parameters that may be edited by the user
Blue highlighting indicates exposure factors that are based on Risk Assessment Guidance for Superfund (RAGS) or EPA vapor intrusion guidance, which generally should not be changed.
Pink highlighting indicates VI carcinogenic risk greater than the target risk for carcinogens (TCR) or VI Hazard greater than or equal to the target hazard quotient for non-carcinogens (THQ).

OSWER VAPOR INTRUSION ASSESSMENT
Groundwater Concentration to Indoor Air Concentration (GWC-IAC) Calculator Version 3.5, June 2017 RSLs

Parameter	Symbol	Value	Instructions
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Average Groundwater Temperature (°C)	Tgw	25	Enter average of the stabilized groundwater temperature to correct Henry's Law Constant for groundwater target concentrations

	CAS	Chemical Name	Site Groundwater Concentration Cgw (ug/L)	Calculated Indoor Air Concentration Cia (ug/m^3)	VI Carcinogenic Risk CR	VI Hazard HQ	Inhalation Unit Risk IUR ($ug/m^3)^{-1}$	IUR Source*	Reference Concentration RfC (mg/m^3)	RFC Source*	Mutagenic Indicator i
x	71-43-2	Benzene	1.0E+00	2.27E-01	1.4E-07	1.7E-03	7.80E-06	I	3.00E-02	I	
x	100-41-4	Ethylbenzene	3.1E+00	9.99E-01	2.0E-07	2.3E-04	2.50E-06	CA	1.00E+00	I	
x	108-88-3	Toluene	1.0E+00	2.71E-01	No IUR	1.2E-05			5.00E+00	I	
x	1330-20-7	Xylenes	2.0E+00	5.42E-01	No IUR	1.2E-03			1.00E-01	I	

Notes:

(1) **Inhalation Pathway Exposure Parameters (RME):**

Exposure Scenario	Units	Residential Symbol	Residential Value	Commercial Symbol	Commercial Value	Selected (based on scenario) Symbol	Selected (based on scenario) Value
Averaging time for carcinogens	(yrs)	ATc_R_GW	70	ATc_C_GW	70	ATc_GW	70
Averaging time for non-carcinogens	(yrs)	ATnc_R_GW	26	ATnc_C_GW	25	Atnc_GW	25
Exposure duration	(yrs)	ED_R_GW	26	ED_C_GW	25	ED_GW	25
Exposure frequency	(days/yr)	EF_R_GW	350	EF_C_GW	250	EF_GW	250
Exposure time	(hr/day)	ET_R_GW	24	ET_C_GW	8	ET_GW	8

(2) **Generic Attenuation Factors:**

Source Medium of Vapors	Residential Symbol	Residential Value	Commercial Symbol	Commercial Value	Selected (based on scenario) Symbol	Selected (based on scenario) Value
Groundwater (-)	AFgw_R_GW	0.001	AFgw_C_GW	0.001	AFgw_GW	0.001
Sub-Slab and Exterior Soil Gas (-)	AFss_R_GW	0.03	AFss_C_GW	0.03	AFss_GW	0.03

(3) **Formulas**

Cia, target = MIN(Cia,c; Cia,nc)
Cia,c (ug/m3) = TCR x ATc x (365 days/yr) x (24 hrs/day) / (ED x EF x ET x IUR)
Cia,nc (ug/m3) = THQ x ATnc x (365 days/yr) x (24 hrs/day) x RfC x (1000 ug/mg) / (ED x EF x ET)

(4) **Special Case Chemicals**

Trichloroethylene	Residential Symbol	Residential Value	Commercial Symbol	Commercial Value	Selected (based on scenario) Symbol	Selected (based on scenario) Value
	mIURTCE_R_GW	1.00E-06	IURTCE_C_GW	0.00E+00	mIURTCE_GW	0.00E+00
	IURTCE_R_GW	3.10E-06	IURTCE_C_GW	4.10E-06	IURTCE_GW	4.10E-06

Mutagenic Chemicals — The exposure durations and age-dependent adjustment factors for mutagenic-mode-of-action are listed in the table below:

Note: This section applies to trichloroethylene and other mutagenic chemicals, but not to vinyl chloride.

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0 - 2 years	2	10
2 - 6 years	4	3
6 - 16 years	10	3
16 - 26 years	10	1

Mutagenic-mode-of-action (MMOA) adjustment factor 25 This factor is used in the equations for mutagenic chemicals.

Vinyl Chloride — See the Navigation Guide equation for Cia,c for vinyl chloride.

Notation:
I = IRIS: EPA Integrated Risk Information System (IRIS). Available online at http://www.epa.gov/iris/subst/index.html
P = PPRTV. EPA Provisional Peer Reviewed Toxicity Values (PPRTVs). Available online at http://hhpprtv.ornl.gov/pprtv.shtml
A = Agency for Toxic Substances and Disease Registry (ATSDR) Minimum Risk Levels (MRLs). Available online at: http://www.atsdr.cdc.gov/mrls/index.html
CA = California Environmental Protection Agency/Office of Environmental Health Hazard Assessment assessments. Available online at: http://www.oehha.ca.gov/risk/ChemicalDB/index.asp
H = HEAST. EPA Superfund Health Effects Assessment Summary Tables (HEAST) database. Available online at: http://epa-heast.ornl.gov/heast.shtml
S = See RSL User Guide, Section 5

OSWER VAPOR INTRUSION ASSESSMENT
Groundwater Concentration to Indoor Air Concentration (GWC-IAC) Calculator Version 3.5, June 2017 RSLs

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Exposure Scenario	Scenario	Commercial	Select residential or commercial scenario from pull down list
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CAS	Chemical Name	Site Groundwater Concentration	Calculated Indoor Air Concentration	VI Carcinogenic Risk	VI Hazard	Inhalation Unit Risk	IUR Source*	Reference Concentration	RFC Source*	Mutagenic Indicator
		Cgw	Cia	CR	HQ	IUR		RfC		
		(ug/L)	(ug/m^3)			$(ug/m^3)^{-1}$		(mg/m^3)		i

X = PPRTV Appendix
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