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FINAL

SUMMARY REPORT

2019 Bentley Mall East Satellite Site Investigation

FAIRBANKS, ALASKA

SHANNON & WILSON

August 2020

Shannon & Wilson No: 103729

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Submitted To: The Krausz Companies LLC
3065 Jones Boulevard, Suite 100
Las Vegas, NV 89146
Attn: David Pyle and Daniel Krausz

Subject: FINAL SUMMARY REPORT, 2019 BENTLEY MALL EAST SATELLITE SITE INVESTIGATION, FAIRBANKS, ALASKA

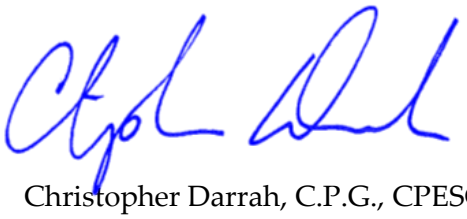
Shannon & Wilson prepared this report and participated in this project as a consultant to KE Bentley One LLC and KGC Bentley Two LLC. Our scope of services was specified in our letter proposal titled *Proposed Scope of Services, 2019 Site Investigation Near the Bentley Mall East Satellite Building*, dated September 12, 2019. These services were provided under Master Services Agreement Number KCI-2016. This report presents a summary of our services and was prepared by the undersigned.

We appreciate the opportunity to be of service to you on this project. If you have questions concerning this report, or we may be of further service, please contact us.

Sincerely,

SHANNON & WILSON, INC.

Craig Beebe
Geologist
Role: Primary Author and Project Manager



Christopher Darrah, C.P.G., CPESC
Vice President
Role: Contract Manager

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ACRONYMS

°C	Degrees Celsius
bgs	below ground surface
BMES	Bentley Mall East Satellite Building
COPC	Contaminant of potential concern
COC	chain of custody
DEC	Alaska Department of Environmental Conservation
EPA	Environmental Protection Agency
LCS	Laboratory Control Sample
LCSD	LCS Duplicate
LDRC	Laboratory Data Review Checklist
mg/kg	milligrams per kilogram
MS	Matrix Spike Sample
MSD	MS Duplicate
PCE	Tetrachloroethene
PID	Photoionization detector
QA/QC	Quality Assurance/Quality Control
RPD	Relative Percent Difference
SGS	SGS North America, Inc.
SVE	Soil vapor extraction
TCE	Trichloroethene
VIP	VIP Cleaners
VOC	Volatile Organic Compound

1 INTRODUCTION

This report documents the implementation of the approved scope of work Proposed Scope of Services, 2019 Site Investigation Near the Bentley Mall East Satellite Building (BMES) dated September 12, 2019.

Between October 4 and 10, 2019, we conducted multiple site visits to perform the site investigation activities.

Our objectives were to:

- Evaluate soil near the BMES/VIP Cleaners (VIP) property line to support our evaluation of VIP's potential impact to the overall tetrachloroethene (PCE) and trichloroethene (TCE) plumes; and
- Provide a summary report documenting our field activities and discussing the analytical results and summary of our findings.

2 BACKGROUND

The BMES site was added to the Alaska Department of Environmental Conservation (DEC) Contaminated Sites Database in April 2003 following detections of PCE and TCE in soil and groundwater. Soil vapor extraction (SVE) systems were installed in the BMES and Wells Fargo Bank buildings in September 2006 and remained active for five years. PCE and TCE concentrations in the source area decreased during this time and in August 2011 DEC approved a request to shut down the SVE systems, citing approval of a groundwater-monitoring schedule.

In February 2013, DEC met with Environmental Resource Group to discuss the fall 2012 results that showed increasing concentrations of PCE in MW-1 (Figure 1). DEC subsequently followed up with letters to the owners of VIP and BMES. To date, VIP does not appear to have initiated site investigations in response to DEC's letter. In the BMES letter dated April 22, 2013, DEC reopened BMES as an active contaminated site. Increased PCE concentrations in MW-1 are suspected to be a result of poor housekeeping practices by VIP, an active dry cleaner known to use PCE.

In 2017, Shannon & Wilson began a site investigation to evaluate the likelihood that the presumed use of PCE at the VIP site is contributing to the PCE contamination observed on and downgradient of the BMES site. Our services included drilling and sampling soil borings along the VIP/BMES property line, injecting a fluorescein tracer dye in one of these

borings (completed as a monitoring well: MW-14) to assess groundwater-flow direction in the immediate vicinity of MW-1, and performing a compound specific isotope analysis (CSIA) of PCE in four monitoring wells. Results of the soil samples collected from the property line borings were indicative of a surface spill of PCE migrating from an offsite source. The dye-injection study supported our understanding of groundwater flow direction, and the CSIA suggested that PCE detected in MW-1R is from a different source than PCE detected in MW-5, MW-10, and MW-12. We interpreted that difference to mean PCE in MW-1R is from a more recent release than that detected in the other wells, which are further downgradient of the MBES building. Based on these findings, and our observations in May 2019 of additional PCE drums along the VIP/BMES property boundary near MW-1, we recommended additional borings be drilled in this area.

2.1 Contaminants of Potential Concern & Regulatory Cleanup Levels

Contaminants of potential concern (COPCs) associated with the site are PCE, TCE, and their breakdown products. Chloroform was also added as a COPC for the site by DEC; however, the source of chloroform is unknown.

To evaluate soil sample concentrations, we compared the analytical data to 18 AAC 75.341 Table B1, Method Two – Migration to Groundwater.

Exhibit 2-1: Contaminants of Potential Concern and Regulatory Cleanup Levels

DEC Cleanup Level (unit of measure)	PCE	TCE	VOCs
Soil, 18 AAC 75.341, Tables B2 (mg/kg)	0.19	0.011	Analyte Dependent

mg/kg = milligrams per kilogram, VOCs = volatile organic compounds

2.2 Scope of Services

The scope of services authorized under our proposal dated September 12, 2019 included:

- Drilling five soil borings along the BMES property boundary near the back door of VIP (Figure 2) where we previously observed drums of PCE along their outside wall.
- Collecting field-screening readings from each boring.
- Collecting at least two analytical soil samples from each boring.
- Analyzing soil samples for volatile organic compounds (VOCs) by Environmental Protection Agency (EPA) Method 8260.
- Submitting this Summary Report documenting site activities, laboratory results, data review and validation, sample locations, and presenting our conclusions and recommendations.

3 FIELD ACTIVITIES

This section summarizes field activities performed in October 2019 by Shannon & Wilson Fairbanks staff member Adam Wyborny. Our boring logs and Sample Collection Log are included in Appendix A and Appendix B, respectively. Our observations are specific to the locations, depths, and times noted on the logs and may not be applicable to all areas of the site. Mr. Wyborny meets the definition of an DEC qualified sampler and was responsible for collecting and handling the samples for this project in accordance with 18 AAC 75 and the DEC's October 2019 *Field Sampling Guidance*.

3.1 Soil Borings

Utility locates were performed prior to subsurface activities, including a site visit from Golden Heart Utilities and Golden Valley Electric Association. Secondary electric locates were determined by Star Electric.

On October 9 and 10, 2019 Shannon & Wilson drilled five soil borings (SB19-01, SB19-02, SB19-03, SB19-04, and SB19-05). Borings were completed at night, after the Starbucks located within the BMES was closed, as this area represents the exit to the Starbucks drive through window. Ten analytical soil samples and one field duplicate were collected from the soil borings, with sample locations selected based on photoionization detector (PID) results (Appendix B and Figure 2). Results are presented in Table 1.

Exhibit 3-1: Boring locations and PCE Drums stored outside VIP Cleaners near MW-1R. (10/2019)

Soil boring were drilled by GeoTek using an 8040 DT GeoProbe by direct push method to advance boreholes to 20 feet below ground surface (bgs). Fluorescein dye was visually observed in all five borings between 11.9 feet bgs to 13.7 feet bgs. The source of the dye is likely from the November 3, 2017 injection at MW-14. Borings logs are presented in Appendix A.

Boreholes were backfilled with drill cuttings and then capped with cold patch asphalt. There were no excess cuttings for disposal.

3.2 Sample Custody, Storage, and Transport

We submitted soil samples to SGS North America, Inc. (SGS), a DEC-approved analytical laboratory with National Environmental Laboratory Accreditation Program certification. We submitted ten soil samples plus one field duplicate from the five soil borings for analysis of VOCs by EPA Method 8260. Field personnel delivered samples to the SGS sample-receiving office in Fairbanks, and from there the samples were shipped via overnight ground transport to the SGS laboratory in Anchorage.

3.3 Quality Assurance/Quality Control

Quality Assurance/Quality Control (QA/QC) procedures assist in producing data of acceptable quality and reliability. We reviewed the analytical results provided by SGS for laboratory QC samples and conducted our own QA assessment for this project. We reviewed the chain-of-custody records and laboratory sample-receipt forms to check that we followed proper custody procedures, met sample holding times, and kept samples properly chilled between 0 degrees Celsius (°C) to 6°C EPA publication SW-846 until analysis. Our QA review procedures allow us to document accuracy and precision of the analytical data and to check that analyses were sufficiently sensitive to detect analytes below regulatory standards.

We reviewed the soil data report for SGS work order 1199855. The SGS laboratory report is presented in Appendix C and includes the case narrative and sample-receipt forms. The DEC Laboratory Data Review Checklist (LDRC) is included in Appendix D.

3.4 Deviations

In our work plan we stated we would collect soil samples within each boring at locations of the highest PID readings. Based on our field representative's observations and judgement, and in an effort to obtain analytical data from samples throughout the soil profile, the second sample locations for borings SB19-01 and SB19-03 were not selected at the second highest PID reading. No other deviations were made.

4 RESULTS

A summary of the analytical results is included at the end of this report on Table 1.

4.1 Soil

Two analytical samples from various depths were collected from each of the five soil borings. The samples were submitted to SGS for VOC analysis by EPA Method 8260. PCE

was detected exceeding the DEC migration to groundwater cleanup level in each of the soil samples collected from the five borings. Figure 2 also shows a generalized profile of PCE results with respect to depth in borings SB 19-01 through SB 19-05.

No other VOC analytes were detected in the soil samples; these results are presented on Table 1. The reported LODs were less than DEC cleanup levels with the exception of those listed in Table 1. We cannot assess whether these non-detect analytes are present at concentrations less than the LOD but greater than their respective cleanup levels.

5 CONCLUSIONS AND RECOMMENDATIONS

Based on the site investigation activities described above, we offer the following conclusions and recommendations.

5.1 Conclusions

Our conclusions are based on our interpretation of the data and information collected for this project and represent our professional opinion as to conditions we observed.

- Analytical sample results for the soil samples collected from borings installed along the VIP/BMES property boundary are indicative of a surface spill of PCE migrating from an offsite source.
- Concentrations of PCE in soil were elevated at the surface and decrease with depth; additionally, TCE, a degradation product of PCE, was not detected in the soil borings, suggesting recent releases.
- VIP is known to store drums on unpaved portions their property immediately adjacent to where the soil borings were drilled, as shown in Exhibit 5-1. Our staff has also observed PCE drums stored on the concrete immediately inside the VIP back door near where the 2017 soil borings were installed. More recently, in May 2019, our field personnel observed two drums of PCE along the building outside wall near MW-1R, as shown in Exhibit 5-1. During the October 2019 field activities, our field personnel observed three drums of PCE and several buckets of unknown chemicals along the outside wall of the VIP building, as shown in Exhibits 3-1 and 5-2.

Exhibit 5-1: Drums of PCE stored outside VIP near MW-1R. (5/2019)

The PCE concentration of MW-1R was found to be 1,230 µg/L on September 9, 2019, during our annual groundwater sampling event part of a separately reported BMES project. Although we cannot speak to when the spill may have occurred, the 2019 PCE concentration at MW-1R is approximately five and a half times greater than the previous results from the 2018 sampling event. Please reference our report titled *2019 Annual Groundwater Monitoring Report, Bentley Mall East Satellite* for more additional details. Dye present in each boring indicates a transport pathway from both drum-storage areas behind VIP may be contributing to the increased concentrations in MW-1R.

Exhibit 5-2: PCE drum and unknown chemical buckets stored outside VIP near MW-1R. (10/2019)

The absence of soil, groundwater, soil-gas, and indoor-air data from the VIP property represents a data gap that limits our understanding of the extent of contamination in the suspected source area(s).

5.2 Recommendations

Our recommendations are based on the limitations of our approved scope, schedule, and budget described in our proposal and work plan, and our understanding of the project and information developed during this and previous soil and groundwater sampling at the BMES as described in this report.

- We recommend site-characterization activities be performed at the VIP property to address data gaps. Soil samples in the grassy, drum-storage area, as well as sub-slab soil and/or soil-gas samples would provide a fuller picture to the soil-boring results presented here. In our opinion, site-characterization activities at VIP should not be the responsibility of KE Bentley One LLC and KGC Bentley Two LLC. We recognize that DEC has requested this information from VIP but that, to our knowledge, no such site characterization has taken place.
- We recommend you provide this report to DEC to encourage and support their efforts to obtain site-characterization information from VIP.

6 REFERENCES

Alaska Department of Environmental Conservation Site Characterization Work Plan and Reporting Guidance for Investigation of Contaminated Sites, March 7, 2017.

Alaska Department of Environmental Conservation Field Sampling Guidance, October 2019.

Alaska Department of Environmental Conservation Minimum Quality Assurance Requirements for Sample Handling, Reports, and Laboratory Data, October 2019.

Alaska Department of Environmental Conservation, 2018, 18 AAC 75.345 Table B1–Method Two – Soil Cleanup Levels.

Table 1 - 2019 BMES Soil Boring Results

Analytical Method	Analyte	Cleanup Level	Units	Boring 1		Boring 2		Boring 3		Boring 4		Boring 5		
				3-5 ft bgs	17 ft bgs	3-5 ft bgs	5-7 ft bgs	3-5 ft bgs	13-15 ft bgs	3-5 ft bgs	17 ft bgs	3-5 ft bgs		17 ft bgs
				SB19-01-1	*SB19-01-4*	*SB19-02-1*	*SB19-02-2*	*SB19-03-1*	*SB19-03-3*	*SB19-04-1*	*SB19-04-4*	*SB19-05-1*	*SB19-05-101*	*SB19-05-4*
VOCs SW8260C	1,1,1,2-Tetrachloroethane	0.022	mg/kg	**<0.0341**	<0.0150	**<0.0283**	<0.0182	**<0.0244**	<0.0177	<0.0217	<0.0130	**<0.0256**	**<0.0253**	<0.0137
	1,1,1-Trichloroethane	32	mg/kg	<0.0427	<0.0188	<0.0353	<0.0227	<0.0306	<0.0222	<0.0272	<0.0163	<0.0321	<0.0316	<0.0171
	1,1,2,2-Tetrachloroethane	0.003	mg/kg	**<0.00341**	<0.00151	<0.00282	<0.00182	<0.00244	<0.00178	<0.00217	<0.00130	<0.00257	<0.00253	<0.00137
	1,1,2-Trichloroethane	0.0014	mg/kg	<0.00136	<0.000605	<0.00113	<0.000730	<0.000975	<0.000710	<0.000870	<0.000520	<0.00103	<0.00101	<0.000550
	1,1-Dichloroethane	0.092	mg/kg	<0.0427	<0.0188	<0.0353	<0.0227	<0.0306	<0.0222	<0.0272	<0.0163	<0.0321	<0.0316	<0.0171
	1,1-Dichloroethene	1.2	mg/kg	<0.0427	<0.0188	<0.0353	<0.0227	<0.0306	<0.0222	<0.0272	<0.0163	<0.0321	<0.0316	<0.0171
	1,1-Dichloropropene	—	mg/kg	<0.0427	<0.0188	<0.0353	<0.0227	<0.0306	<0.0222	<0.0272	<0.0163	<0.0321	<0.0316	<0.0171
	1,2,3-Trichlorobenzene	0.15	mg/kg	<0.0855	<0.0377	<0.0705	<0.0454	<0.0610	<0.0444	<0.0545	<0.0326	<0.0640	<0.0630	<0.0343
	1,2,3-Trichloropropane	0.000031	mg/kg	**<0.00170**	**<0.000755**	**<0.00141**	**<0.000910**	**<0.00122**	**<0.000885**	**<0.00109**	**<0.000650**	**<0.00128**	**<0.00127**	**<0.000685**
	1,2,4-Trichlorobenzene	0.082	mg/kg	<0.0427	<0.0188	<0.0353	<0.0227	<0.0306	<0.0222	<0.0272	<0.0163	<0.0321	<0.0316	<0.0171
	1,2,4-Trimethylbenzene	0.61	mg/kg	<0.0855	<0.0377	<0.0705	<0.0454	<0.0610	<0.0444	<0.0545	<0.0326	<0.0640	<0.0630	<0.0343
	1,2-Dibromo-3-chloropropane	—	mg/kg	<0.171	<0.0755	<0.141	<0.0910	<0.122	<0.0885	<0.109	<0.0650	<0.128	<0.127	<0.0685
	1,2-Dibromoethane	0.00024	mg/kg	**<0.00170**	**<0.000755**	**<0.00141**	**<0.000910**	**<0.00122**	**<0.000885**	**<0.00109**	**<0.000650**	**<0.00128**	**<0.00127**	**<0.000685**
	1,2-Dichlorobenzene	2.4	mg/kg	<0.0427	<0.0188	<0.0353	<0.0227	<0.0306	<0.0222	<0.0272	<0.0163	<0.0321	<0.0316	<0.0171
	1,2-Dichloroethane	0.0055	mg/kg	<0.00341	<0.00151	<0.00282	<0.00182	<0.00244	<0.00178	<0.00217	<0.00130	<0.00257	<0.00253	<0.00137
	1,2-Dichloropropane	0.03	mg/kg	<0.0170	<0.00755	<0.0141	<0.00910	<0.0122	<0.00885	<0.0109	<0.00650	<0.0128	<0.0127	<0.00685
	1,3,5-Trimethylbenzene	0.66	mg/kg	<0.0427	<0.0188	<0.0353	<0.0227	<0.0306	<0.0222	<0.0272	<0.0163	<0.0321	<0.0316	<0.0171
	1,3-Dichlorobenzene	2.3	mg/kg	<0.0427	<0.0188	<0.0353	<0.0227	<0.0306	<0.0222	<0.0272	<0.0163	<0.0321	<0.0316	<0.0171
	1,3-Dichloropropane	—	mg/kg	<0.0170	<0.00755	<0.0141	<0.00910	<0.0122	<0.00885	<0.0109	<0.00650	<0.0128	<0.0127	<0.00685
	1,4-Dichlorobenzene	0.037	mg/kg	**<0.0427**	<0.0188	<0.0353	<0.0227	<0.0306	<0.0222	<0.0272	<0.0163	<0.0321	<0.0316	<0.0171
	2,2-Dichloropropane	—	mg/kg	<0.0427	<0.0188	<0.0353	<0.0227	<0.0306	<0.0222	<0.0272	<0.0163	<0.0321	<0.0316	<0.0171
	2-Butanone (MEK)	15	mg/kg	<0.426	<0.189	<0.353	<0.228	<0.305	<0.222	<0.272	<0.163	<0.321	<0.316	<0.172
	2-Chlorotoluene	—	mg/kg	<0.0427	<0.0188	<0.0353	<0.0227	<0.0306	<0.0222	<0.0272	<0.0163	<0.0321	<0.0316	<0.0171
	2-Hexanone	0.11	mg/kg	**<0.171**	<0.0755	**<0.141**	<0.0910	**<0.122**	<0.0885	<0.109	<0.0650	**<0.128**	**<0.127**	<0.0685
	4-Chlorotoluene	—	mg/kg	<0.0427	<0.0188	<0.0353	<0.0227	<0.0306	<0.0222	<0.0272	<0.0163	<0.0321	<0.0316	<0.0171
	4-Methyl-2-pentanone (MIBK)	18	mg/kg	<0.426	<0.189	<0.353	<0.228	<0.305	<0.222	<0.272	<0.163	<0.321	<0.316	<0.172
	Acetone	38	mg/kg	<0.426	<0.189	<0.353	<0.228	<0.305	<0.222	<0.272	<0.163	<0.321	<0.316	<0.172
	Benzene	0.022	mg/kg	<0.0213	<0.00940	<0.0176	<0.0114	<0.0153	<0.0111	<0.0136	<0.00815	<0.0160	<0.0158	<0.00855
	Bromobenzene	0.36	mg/kg	<0.0427	<0.0188	<0.0353	<0.0227	<0.0306	<0.0222	<0.0272	<0.0163	<0.0321	<0.0316	<0.0171
	Bromochloromethane	—	mg/kg	<0.0427	<0.0188	<0.0353	<0.0227	<0.0306	<0.0222	<0.0272	<0.0163	<0.0321	<0.0316	<0.0171
	Bromodichloromethane	0.0043	mg/kg	<0.00341	<0.00151	<0.00282	<0.00182	<0.00244	<0.00178	<0.00217	<0.00130	<0.00257	<0.00253	<0.00137
	Bromoform	0.1	mg/kg	<0.0427	<0.0188	<0.0353	<0.0227	<0.0306	<0.0222	<0.0272	<0.0163	<0.0321	<0.0316	<0.0171
	Bromomethane	0.024	mg/kg	**<0.0341**	<0.0150	**<0.0283**	<0.0182	**<0.0244**	<0.0177	<0.0217	<0.0130	**<0.0256**	**<0.0253**	<0.0137
	Carbon disulfide	2.9	mg/kg	<0.171	<0.0755	<0.141	<0.0910	<0.122	<0.0885	<0.109	<0.0650	<0.128	<0.127	<0.0685
	Carbon tetrachloride	0.021	mg/kg	**<0.0213**	<0.00940	<0.0176	<0.0114	<0.0153	<0.0111	<0.0136	<0.00815	<0.0160	<0.0158	<0.00855
	Chlorobenzene	0.46	mg/kg	<0.0427	<0.0188	<0.0353	<0.0227	<0.0306	<0.0222	<0.0272	<0.0163	<0.0321	<0.0316	<0.0171
	Chloroethane	72	mg/kg	<0.341	<0.150	<0.282	<0.182	<0.244	<0.177	<0.218	<0.130	<0.257	<0.253	<0.137

Table 1 - 2019 BMES Soil Boring Results

Analytical Method	Analyte	Cleanup Level	Units	Boring 1		Boring 2		Boring 3		Boring 4		Boring 5		
				3-5 ft bgs	17 ft bgs	3-5 ft bgs	5-7 ft bgs	3-5 ft bgs	13-15 ft bgs	3-5 ft bgs	17 ft bgs	3-5 ft bgs		17 ft bgs
				SB19-01-1	*SB19-01-4*	*SB19-02-1*	*SB19-02-2*	*SB19-03-1*	*SB19-03-3*	*SB19-04-1*	*SB19-04-4*	*SB19-05-1*	*SB19-05-101*	*SB19-05-4*
VOCs SW8260C Continued	Chloroform	0.0071	mg/kg	<0.00341	<0.00151	<0.00282	<0.00182	<0.00244	<0.00178	<0.00217	<0.00130	<0.00257	<0.00253	<0.00137
	Chloromethane	0.61	mg/kg	<0.0427	<0.0188	<0.0353	<0.0227	<0.0306	<0.0222	<0.0272	<0.0163	<0.0321	<0.0316	<0.0171
	cis-1,2-Dichloroethene	0.12	mg/kg	<0.0427	<0.0188	<0.0353	<0.0227	<0.0306	<0.0222	<0.0272	<0.0163	<0.0321	<0.0316	<0.0171
	cis-1,3-Dichloropropene	0.018	mg/kg	**<0.0213**	<0.00940	<0.0176	<0.0114	<0.0153	<0.0111	<0.0136	<0.00815	<0.0160	<0.0158	<0.00855
	Dibromochloromethane	0.0027	mg/kg	**<0.00341**	<0.00151	**<0.00282**	<0.00182	<0.00244	<0.00178	<0.00217	<0.00130	<0.00257	<0.00253	<0.00137
	Dibromomethane	0.025	mg/kg	**<0.0427**	<0.0188	**<0.0353**	<0.0227	**<0.0306**	<0.0222	**<0.0272**	**<0.0163**	**<0.0321**	**<0.0316**	**<0.0171**
	Dichlorodifluoromethane	3.9	mg/kg	<0.0855	<0.0377	**<0.0705**	<0.0454	<0.0610	<0.0444	<0.0545	<0.0326	<0.0640	<0.0630	<0.0343
	Ethylbenzene	0.13	mg/kg	<0.0427	<0.0188	**<0.0353**	<0.0227	<0.0306	<0.0222	<0.0272	<0.0163	<0.0321	<0.0316	<0.0171
	Hexachlorobutadiene	0.02	mg/kg	**<0.0341**	<0.0150	**<0.0283**	<0.0182	**<0.0244**	<0.0177	**<0.0217**	**<0.0130**	**<0.0256**	**<0.0253**	**<0.0137**
	Isopropylbenzene	5.6	mg/kg	<0.0427	<0.0188	<0.0353	<0.0227	<0.0306	<0.0222	<0.0272	<0.0163	<0.0321	<0.0316	<0.0171
	Methylene chloride	0.33	mg/kg	<0.171	<0.0755	<0.141	<0.0910	<0.122	<0.0885	<0.109	<0.0650	<0.128	<0.127	<0.0685
	Methyl-t-butyl ether	0.4	mg/kg	<0.171	<0.0755	<0.141	<0.0910	<0.122	<0.0885	<0.109	<0.0650	<0.128	<0.127	<0.0685
	Naphthalene	0.038	mg/kg	**<0.0427**	<0.0188	<0.0353	<0.0227	<0.0306	<0.0222	<0.0272	<0.0163	<0.0321	<0.0316	<0.0171
	n-Butylbenzene	23	mg/kg	<0.0427	<0.0188	<0.0353	<0.0227	<0.0306	<0.0222	<0.0272	<0.0163	<0.0321	<0.0316	<0.0171
	n-Propylbenzene	9.1	mg/kg	<0.0427	<0.0188	<0.0353	<0.0227	<0.0306	<0.0222	<0.0272	<0.0163	<0.0321	<0.0316	<0.0171
	o-Xylene	1.5	mg/kg	<0.0427	<0.0188	<0.0353	<0.0227	<0.0306	<0.0222	<0.0272	<0.0163	<0.0321	<0.0316	<0.0171
	P & M -Xylene	1.5	mg/kg	<0.0855	<0.0377	<0.0705	<0.0454	<0.0610	<0.0444	<0.0545	<0.0326	<0.0640	<0.0630	<0.0343
	p-Isopropyltoluene	—	mg/kg	<0.171	<0.0755	<0.141	<0.0910	<0.122	<0.0885	<0.109	<0.0650	<0.128	<0.127	<0.0685
	sec-Butylbenzene	42	mg/kg	<0.0427	<0.0188	<0.0353	<0.0227	<0.0306	<0.0222	<0.0272	<0.0163	<0.0321	<0.0316	<0.0171
	Styrene	10	mg/kg	<0.0427	<0.0188	<0.0353	<0.0227	<0.0306	<0.0222	<0.0272	<0.0163	<0.0321	<0.0316	<0.0171
	tert-Butylbenzene	11	mg/kg	<0.0427	<0.0188	<0.0353	<0.0227	<0.0306	<0.0222	<0.0272	<0.0163	<0.0321	<0.0316	<0.0171
	Tetrachloroethene	0.19	mg/kg	2.21	0.604	1.12	1.26	0.661	0.654	0.966	0.272	2.41	1.64	0.372
	Toluene	6.7	mg/kg	<0.0427	<0.0188	<0.0353	<0.0227	<0.0306	<0.0222	<0.0272	<0.0163	<0.0321	<0.0316	<0.0171
	Total Xylenes	1.5	mg/kg	<0.128	<0.0565	<0.106	<0.0680	<0.0915	<0.0665	<0.0815	<0.0488	<0.0960	<0.0950	<0.0515
	trans-1,2-Dichloroethene	1.3	mg/kg	<0.0427	<0.0188	<0.0353	<0.0227	<0.0306	<0.0222	<0.0272	<0.0163	<0.0321	<0.0316	<0.0171
	trans-1,3-Dichloropropene	0.018	mg/kg	**<0.0213**	<0.00940	<0.0176	<0.0114	<0.0153	<0.0111	<0.0136	<0.00815	<0.0160	<0.0158	<0.00855
	Trichloroethene	0.011	mg/kg	<0.00855	<0.00377	<0.00705	<0.00455	<0.00610	<0.00443	<0.00545	<0.00326	<0.00640	<0.00630	<0.00343
	Trichlorofluoromethane	41	mg/kg	<0.0855	<0.0377	<0.0705	<0.0454	<0.0610	<0.0444	<0.0545	<0.0326	<0.0640	<0.0630	<0.0343
	Trichlorotrifluoroethane	310	mg/kg	<0.171	<0.0755	<0.141	<0.0910	<0.122	<0.0885	<0.109	<0.0650	<0.128	<0.127	<0.0685
	Vinyl acetate	1.1	mg/kg	<0.171	<0.0755	<0.141	<0.0910	<0.122	<0.0885	<0.109	<0.0650	<0.128	<0.127	<0.0685
	Vinyl chloride	0.0008	mg/kg	**<0.00136**	<0.000605	**<0.00113**	<0.000730	**<0.000975**	<0.000710	**<0.000870**	<0.000520	**<0.00103**	**<0.00101**	<0.000550

NOTES:
SGS North America Inc. Laboratory report 1199855
Sample *SB19-05-101* is a duplicate of *SB19-05-1.*
DEC Soil-Cleanup Levels from 18 AAC 75.341 Table B1 Method Two - Soil Cleanup Levels Table *Migration to Groundwater*

Bold Detected concentration exceeds regulatory limit.
<Bold Reporting limit (LOD) exceeds regulatory limit.
— DEC cleanup level not established.
< Analyte not detected; listed as less than the limit of detection (LOD).
DEC = Alaska Department of Environmental Conservation; BMES = Bentley Mall East Satellite; ft bgs = feet below ground surface; VOCs = volatile organic compounds

Map adapted from aerial imagery provided by Pictometry International Corporation, 2017.

LEGEND

- Project Location

Monitoring Well

- Active
- Decommisioned
- Parcel Boundary

N

0 50 100

Feet

2019 Bentley Mall East Satellite
Site Investigation
Fairbanks, Alaska

VICINITY MAP

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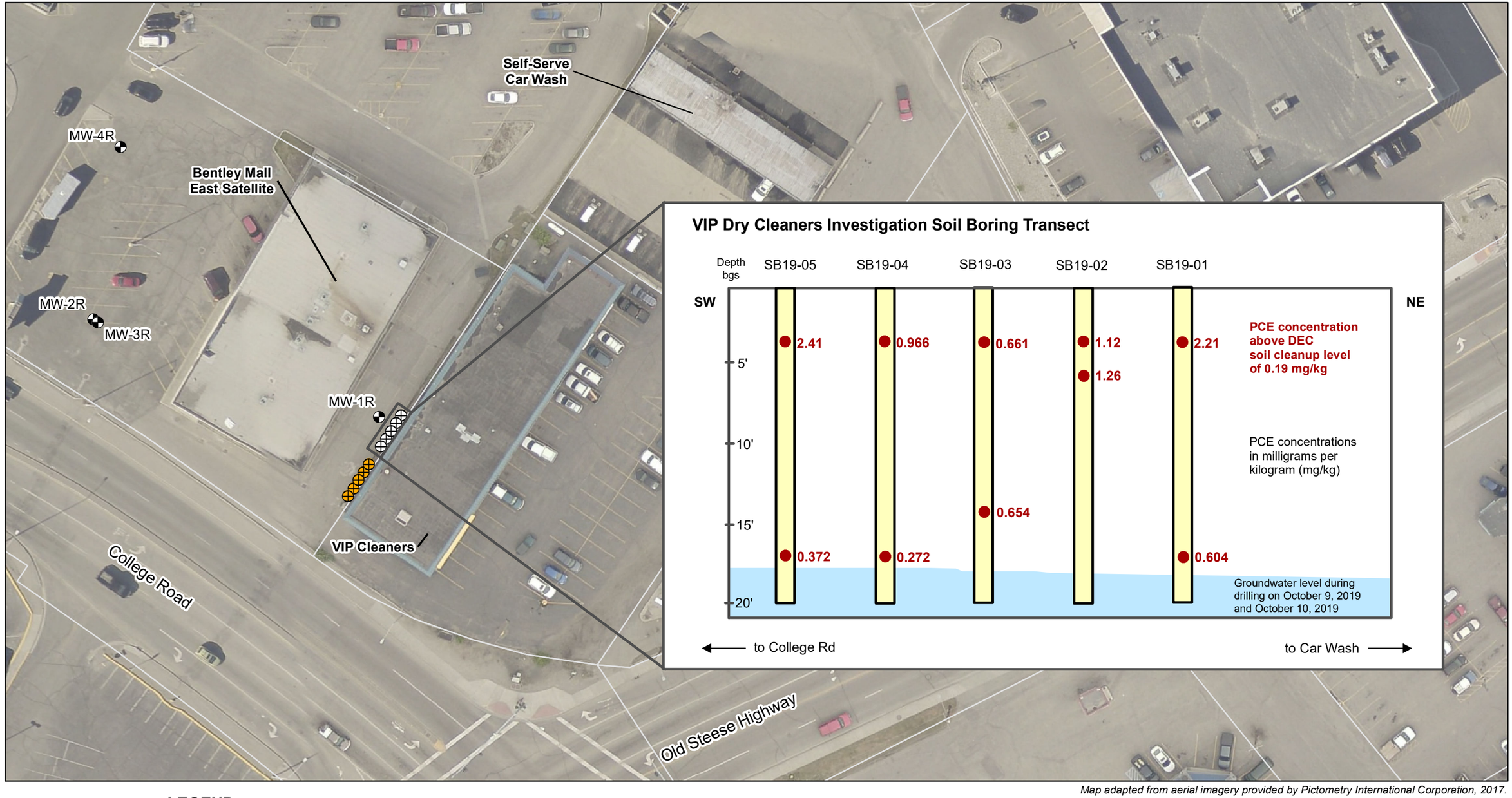
Figure 1



Map adapted from aerial imagery provided by Pictometry International Corporation, 2017.

LEGEND

- 2019 Soil Borings
- 2017 Soil Borings
- Monitoring Well
- Parcel Boundary

0 100 200

Feet

N

2019 Bentley Mall East Satellite
Site Investigation
Fairbanks, Alaska

ANALYTICAL RESULTS

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Figure 2

APPENDIX A: BORING LOGS

Appendix A

Boring Logs

CONTENTS

Shannon & Wilson, Inc. (S&W), uses a soil identification system modified from the Unified Soil Classification System (USCS). Elements of the USCS and other definitions are provided on this and the following pages. Soil descriptions are based on visual-manual procedures (ASTM D2488) and laboratory testing procedures (ASTM D2487), if performed.

S&W INORGANIC SOIL CONSTITUENT DEFINITIONS

CONSTITUENT[2]	FINE-GRAINED SOILS (50% or more fines)[1]	COARSE-GRAINED SOILS (less than 50% fines)[1]
Major	***Silt, Lean Clay, Elastic Silt,*** or ***Fat Clay***[3]	***Sand*** or ***Gravel***[4]
Modifying (Secondary) Precedes major constituent	30% or more coarse-grained: ***Sandy*** or ***Gravelly***[4]	More than 12% fine-grained: ***Silty*** or ***Clayey***[3]
Minor Follows major constituent	15% to 30% coarse-grained: ***with Sand*** or ***with Gravel***[4]	5% to 12% fine-grained: ***with Silt*** or ***with Clay***[3]
	30% or more total coarse-grained *and* lesser coarse-grained constituent is 15% or more: ***with Sand*** or ***with Gravel***[5]	15% or more of a second coarse-grained constituent: ***with Sand*** or ***with Gravel***[5]

[1]All percentages are by weight of total specimen passing a 3-inch sieve.
[2]The order of terms is: *Modifying Major with Minor*.
[3]Determined based on behavior.
[4]Determined based on which constituent comprises a larger percentage.
[5]Whichever is the lesser constituent.

MOISTURE CONTENT TERMS

Dry	Absence of moisture, dusty, dry to the touch
Moist	Damp but no visible water
Wet	Visible free water, from below water table

STANDARD PENETRATION TEST (SPT) SPECIFICATIONS

Hammer:	140 pounds with a 30-inch free fall. Rope on 6- to 10-inch-diam. cathead 2-1/4 rope turns, > 100 rpm NOTE: If automatic hammers are used, blow counts shown on boring logs should be adjusted to account for efficiency of hammer.
Sampler:	10 to 30 inches long Shoe I.D. = 1.375 inches Barrel I.D. = 1.5 inches Barrel O.D. = 2 inches
N-Value:	Sum blow counts for second and third 6-inch increments. Refusal: 50 blows for 6 inches or less; 10 blows for 0 inches.

NOTE: Penetration resistances (N-values) shown on boring logs are as recorded in the field and have not been corrected for hammer efficiency, overburden, or other factors.

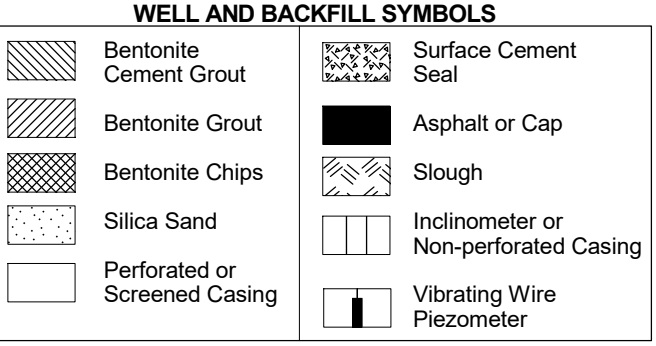
PARTICLE SIZE DEFINITIONS

DESCRIPTION	SIEVE NUMBER AND/OR APPROXIMATE SIZE
FINES	< #200 (0.075 mm = 0.003 in.)
SAND	
Fine	#200 to #40 (0.075 to 0.4 mm; 0.003 to 0.02 in.)
Medium	#40 to #10 (0.4 to 2 mm; 0.02 to 0.08 in.)
Coarse	#10 to #4 (2 to 4.75 mm; 0.08 to 0.187 in.)
GRAVEL	
Fine	#4 to 3/4 in. (4.75 to 19 mm; 0.187 to 0.75 in.)
Coarse	3/4 to 3 in. (19 to 76 mm)
COBBLES	3 to 12 in. (76 to 305 mm)
BOULDERS	> 12 in. (305 mm)

RELATIVE DENSITY / CONSISTENCY

COHESIONLESS SOILS		COHESIVE SOILS	
N, SPT, BLOWS/FT.	RELATIVE DENSITY	N, SPT, BLOWS/FT.	RELATIVE CONSISTENCY
< 4	Very loose	< 2	Very soft
4 - 10	Loose	2 - 4	Soft
10 - 30	Medium dense	4 - 8	Medium stiff
30 - 50	Dense	8 - 15	Stiff
> 50	Very dense	15 - 30	Very stiff
		> 30	Hard

WELL AND BACKFILL SYMBOLS



PERCENTAGES TERMS [1, 2]

Trace	< 5%
Few	5 to 10%
Little	15 to 25%
Some	30 to 45%
Mostly	50 to 100%

[1]Gravel, sand, and fines estimated by mass. Other constituents, such as organics, cobbles, and boulders, estimated by volume.

[2]Reprinted, with permission, from ASTM D2488 - 09a Standard Practice for Description and Identification of Soils (Visual-Manual Procedure), copyright ASTM International, 100 Barr Harbor Drive, West Conshohocken, PA 19428. A copy of the complete standard may be obtained from ASTM International, www.astm.org.

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SOIL DESCRIPTION AND LOG KEY

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FIG. A-1
Sheet 1 of 3

2013 BORING CLASS1 103729.GPJ SHAN WIL.GDT 1/22/20

UNIFIED SOIL CLASSIFICATION SYSTEM (USCS)
(Modified From USACE Tech Memo 3-357, ASTM D2487, and ASTM D2488)

MAJOR DIVISIONS			GROUP/GRAPHIC SYMBOL		TYPICAL IDENTIFICATIONS
COARSE-GRAINED SOILS *(more than 50% retained on No. 200 sieve)*	Gravels *(more than 50% of coarse fraction retained on No. 4 sieve)*	Gravel *(less than 5% fines)*	GW		Well-Graded Gravel; Well-Graded Gravel with Sand
			GP		Poorly Graded Gravel; Poorly Graded Gravel with Sand
		Silty or Clayey Gravel *(more than 12% fines)*	GM		Silty Gravel; Silty Gravel with Sand
			GC		Clayey Gravel; Clayey Gravel with Sand
	Sands *(50% or more of coarse fraction passes the No. 4 sieve)*	Sand *(less than 5% fines)*	SW		Well-Graded Sand; Well-Graded Sand with Gravel
			SP		Poorly Graded Sand; Poorly Graded Sand with Gravel
		Silty or Clayey Sand *(more than 12% fines)*	SM		Silty Sand; Silty Sand with Gravel
			SC		Clayey Sand; Clayey Sand with Gravel
FINE-GRAINED SOILS *(50% or more passes the No. 200 sieve)*	Silts and Clays *(liquid limit less than 50)*	Inorganic	ML		Silt; Silt with Sand or Gravel; Sandy or Gravelly Silt
			CL		Lean Clay; Lean Clay with Sand or Gravel; Sandy or Gravelly Lean Clay
		Organic	OL		Organic Silt or Clay; Organic Silt or Clay with Sand or Gravel; Sandy or Gravelly Organic Silt or Clay
	Silts and Clays *(liquid limit 50 or more)*	Inorganic	MH		Elastic Silt; Elastic Silt with Sand or Gravel; Sandy or Gravelly Elastic Silt
			CH		Fat Clay; Fat Clay with Sand or Gravel; Sandy or Gravelly Fat Clay
		Organic	OH		Organic Silt or Clay; Organic Silt or Clay with Sand or Gravel; Sandy or Gravelly Organic Silt or Clay
HIGHLY-ORGANIC SOILS	Primarily organic matter, dark in color, and organic odor		PT		Peat or other highly organic soils (see ASTM D4427)

NOTE: No. 4 size = 4.75 mm = 0.187 in.; No. 200 size = 0.075 mm = 0.003 in.

NOTES

1. Dual symbols *(symbols separated by a hyphen, i.e., SP-SM, Sand with Silt)* are used for soils with between 5% and 12% fines or when the liquid limit and plasticity index values plot in the CL-ML area of the plasticity chart. Graphics shown on the logs for these soil types are a combination of the two graphic symbols (e.g., SP and SM).
2. Borderline symbols *(symbols separated by a slash, i.e., CL/ML, Lean Clay to Silt; SP-SM/SM, Sand with Silt to Silty Sand)* indicate that the soil properties are close to the defining boundary between two groups.

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SOIL DESCRIPTION AND LOG KEY

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FIG. A-1
Sheet 2 of 3

GRADATION TERMS

Poorly Graded	Narrow range of grain sizes present or, within the range of grain sizes present, one or more sizes are missing (Gap Graded). Meets criteria in ASTM D2487, if tested.
Well-Graded	Full range and even distribution of grain sizes present. Meets criteria in ASTM D2487, if tested.

CEMENTATION TERMS[1]

Weak	Crumbles or breaks with handling or slight finger pressure.
Moderate	Crumbles or breaks with considerable finger pressure.
Strong	Will not crumble or break with finger pressure.

PLASTICITY[2]

DESCRIPTION	VISUAL-MANUAL CRITERIA	APPROX. PLASITICITY INDEX RANGE
Nonplastic	A 1/8-in. thread cannot be rolled at any water content.	< 4
Low	A thread can barely be rolled and a lump cannot be formed when drier than the plastic limit.	4 to 10
Medium	A thread is easy to roll and not much time is required to reach the plastic limit. The thread cannot be rerolled after reaching the plastic limit. A lump crumbles when drier than the plastic limit.	10 to 20
High	It takes considerable time rolling and kneading to reach the plastic limit. A thread can be rerolled several times after reaching the plastic limit. A lump can be formed without crumbling when drier than the plastic limit.	> 20

ADDITIONAL TERMS

Mottled	Irregular patches of different colors.
Bioturbated	Soil disturbance or mixing by plants or animals.
Diamict	Nonsorted sediment; sand and gravel in silt and/or clay matrix.
Cuttings	Material brought to surface by drilling.
Slough	Material that caved from sides of borehole.
Sheared	Disturbed texture, mix of strengths.

PARTICLE ANGULARITY AND SHAPE TERMS[1]

Angular	Sharp edges and unpolished planar surfaces.
Subangular	Similar to angular, but with rounded edges.
Subrounded	Nearly planar sides with well-rounded edges.
Rounded	Smoothly curved sides with no edges.
Flat	Width/thickness ratio > 3.
Elongated	Length/width ratio > 3.

ACRONYMS AND ABBREVIATIONS

ATD	At Time of Drilling
Diam.	Diameter
Elev.	Elevation
ft.	Feet
FeO	Iron Oxide
gal.	Gallons
Horiz.	Horizontal
HSA	Hollow Stem Auger
I.D.	Inside Diameter
in.	Inches
lbs.	Pounds
MgO	Magnesium Oxide
mm	Millimeter
MnO	Manganese Oxide
NA	Not Applicable or Not Available
NP	Nonplastic
O.D.	Outside Diameter
OW	Observation Well
pcf	Pounds per Cubic Foot
PID	Photo-Ionization Detector
PMT	Pressuremeter Test
ppm	Parts per Million
psi	Pounds per Square Inch
PVC	Polyvinyl Chloride
rpm	Rotations per Minute
SPT	Standard Penetration Test
USCS	Unified Soil Classification System
q_u	Unconfined Compressive Strength
VWP	Vibrating Wire Piezometer
Vert.	Vertical
WOH	Weight of Hammer
WOR	Weight of Rods
Wt.	Weight

STRUCTURE TERMS[1]

Interbedded	Alternating layers of varying material or color with layers at least 1/4-inch thick; singular: bed.
Laminated	Alternating layers of varying material or color with layers less than 1/4-inch thick; singular: lamination.
Fissured	Breaks along definite planes or fractures with little resistance.
Slickensided	Fracture planes appear polished or glossy; sometimes striated.
Blocky	Cohesive soil that can be broken down into small angular lumps that resist further breakdown.
Lensed	Inclusion of small pockets of different soils, such as small lenses of sand scattered through a mass of clay.
Homogeneous	Same color and appearance throughout.

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SOIL DESCRIPTION AND LOG KEY

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FIG. A-1
Sheet 3 of 3

LOG OF GEOPROBE

Date Started: *10/9/19*	**Location:** *Bentley East Mall Satellite*	**Ground Elevation:** *Approx. 435.0 feet*
Date Completed: *10/9/19*		**Typical Run Length:** *5 feet*
Total Depth (ft): *20.0*	**Drilling Company:** *GeoTek Alaska*	**Hole Diameter:** *2.5 inches*

Depth (ft)	Probe Run	Soil Description	Depth, ft.	Symbol	PID, ppm	Ground Water	Sample Number and Description.	Depth (ft)
		Gray-brown, *Poorly Graded Gravel with Sand (GP)*; moist; trace silt. Fill.						
		Brown, *Poorly Graded Sand with Silt (SP-SM)*; moist.	2.7		32.6		SB19-01-1	
5					13.4			5
		Gray, *Poorly Graded Sand (SP)*; moist; trace gravel.	7.0					
10		Gray, *Poorly Graded Sand with Gravel (SP)*; moist.	10.0		5.5			10
		Gray, *Poorly Graded Gravel with Sand (GP)*; moist; red fluorescein dye staining present from 12 to 13.2 feet bgs.	12.0					
15		Gray-brown, *Poorly Graded Sand with Gravel (GP)*; moist to 17.5 feet bgs, then wet.	15.0		11		SB19-01-4	15
						▽ During Drilling		
20		BOTTOM OF BORING COMPLETED ON 10/9/2019	20.0					20

Soil Description: *Refer to the report text for a proper understanding of the subsurface materials and probing methods. The stratification lines indicated below represent the approximate boundaries between soil types. Actual boundaries may be different if soil shifted inside sample tubes during extraction.*

NOTES

1. In some cases where recovery was low in the upper part of the run, the soil sample may have slid down in the tube prior to removal from the ground.
2. Groundwater level, if indicated above, was estimated during probing and should be considered approximate.
3. Refer to KEY for definitions and explanation of symbols.

LEGEND

▽ Estimated Water Level

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Fairbanks, Alaska

LOG OF GEOPROBE SB19-01

February 2020 103729

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FIG. A-2

REV 3

GEOPROBE - AK 103729.GPJ 21-16604.GPJ 1/24/20 Log: APW Rev: DYM Typ: CAB

LOG OF GEOPROBE

Date Started: *10/9/19*	**Location:** *Bentley East Mall Satellite*	**Ground Elevation:** *Approx. 435.0 feet*
Date Completed: *10/9/19*		**Typical Run Length:** *5 feet*
Total Depth (ft): *20.0*	**Drilling Company:** *GeoTek Alaska*	**Hole Diameter:** *2.5 inches*

Depth (ft)	Probe Run	Soil Description	Depth, ft.	Symbol	PID, ppm	Ground Water	Sample Number and Description.	Depth (ft)
		Gray-brown, *Poorly Graded Gravel with Sand (GP)*; moist; trace silt. Fill.						
		Brown, *Poorly Graded Sand with Silt (SP-SM)*; moist.	2.6		13.4		SB19-02-1	
5					12.2		SB19-02-2	5
		Gray, *Poorly Graded Sand (SP)*; moist; trace gravel.	7.3					
		Gray, *Poorly Graded Sand with Gravel (SP)*; moist.	8.8					
10								10
		Gray, *Poorly Graded Gravel with Sand (GP)*; moist; red fluorescein dye staining present from 11.9 to 13 feet bgs.	11.9		5.5			
15		Gray-brown, *Poorly Graded Sand with Gravel (GP)*; moist to 17.5 feet bgs, then wet.	15.0		10.6	During Drilling ▽		15
20		BOTTOM OF BORING COMPLETED ON 10/9/2019	20.0					20

Soil Description: *Refer to the report text for a proper understanding of the subsurface materials and probing methods. The stratification lines indicated below represent the approximate boundaries between soil types. Actual boundaries may be different if soil shifted inside sample tubes during extraction.*

NOTES

1. In some cases where recovery was low in the upper part of the run, the soil sample may have slid down in the tube prior to removal from the ground.
2. Groundwater level, if indicated above, was estimated during probing and should be considered approximate.
3. Refer to KEY for definitions and explanation of symbols.

LEGEND

▽ Estimated Water Level

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LOG OF GEOPROBE SB19-02

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FIG. A-3

REV 3

GEOPROBE - AK 103729.GPJ 21-16604.GPJ 1/24/20 Log: APW Rev: DYM Typ: CAB

LOG OF GEOPROBE

Date Started: *10/9/19*	**Location:** *Bentley East Mall Satellite*	**Ground Elevation:** *Approx. 435.0 feet*
Date Completed: *10/9/19*		**Typical Run Length:** *5 feet*
Total Depth (ft): *20.0*	**Drilling Company:** *GeoTek Alaska*	**Hole Diameter:** *2.5 inches*

Depth (ft)	Probe Run	Soil Description	Depth, ft.	Symbol	PID, ppm	Ground Water	Sample Number and Description.	Depth (ft)
		Gray-brown, *Poorly Graded Gravel with Sand (GP)*; moist; trace silt. Fill.						
		Brown, *Poorly Graded Sand with Silt (SP-SM)*; moist.	2.8		15			
5							SB19-03-1	5
		Gray, *Poorly Graded Sand (SP)*; moist; trace gravel.	7.4					
		Gray, *Poorly Graded Sand with Gravel (SP)*; moist.	9.0		7.9			
10								10
		Gray, *Poorly Graded Gravel with Sand (GP)*; moist; red fluorescein dye staining present from 11.9 to 13 feet bgs.	12.0		5.2			
15		Gray-brown, *Poorly Graded Sand with Gravel (GP)*; moist to 17.3 feet bgs, then wet.	15.0		7.5	▽ During Drilling	SB19-03-3	15
20		BOTTOM OF BORING COMPLETED ON 10/9/2019	20.0					20

Soil Description

Refer to the report text for a proper understanding of the subsurface materials and probing methods. The stratification lines indicated below represent the approximate boundaries between soil types. Actual boundaries may be different if soil shifted inside sample tubes during extraction.

NOTES

1. In some cases where recovery was low in the upper part of the run, the soil sample may have slid down in the tube prior to removal from the ground.
2. Groundwater level, if indicated above, was estimated during probing and should be considered approximate.
3. Refer to KEY for definitions and explanation of symbols.

LEGEND

▽ Estimated Water Level

BMES 2019 Drilling
Fairbanks, Alaska

LOG OF GEOPROBE SB19-03

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FIG. A-4

REV 3

GEOPROBE - AK 103729.GPJ 21-16604.GPJ 1/24/20 Log: APW Rev: DYM Typ: CAB

LOG OF GEOPROBE

Date Started: *10/10/19*	**Location:** *Bentley East Mall Satellite*	**Ground Elevation:** *Approx. 435.0 feet*
Date Completed: *10/10/19*		**Typical Run Length:** *5 feet*
Total Depth (ft): *20.0*	**Drilling Company:** *GeoTek Alaska*	**Hole Diameter:** *2.5 inches*

Depth (ft)	Probe Run	Soil Description	Depth, ft.	Symbol	PID, ppm	Ground Water	Sample Number and Description.	Depth (ft)
		Gray-brown, *Poorly Graded Gravel with Sand (GP)*; moist; trace silt. Fill.						
		Brown, *Poorly Graded Sand with Silt (SP-SM)*; moist.	3.0		15.6			
5							SB19-04-1	5
		Gray, *Poorly Graded Sand (SP)*; moist; trace gravel.	6.3		6.8			
		Gray, *Poorly Graded Sand with Gravel (SP)*; moist.	8.9					
10								10
		Gray, *Poorly Graded Gravel with Sand (GP)*; moist; red fluorescein dye staining present from 11.9 to 13 feet bgs.	12.6		4.4			
15		Gray-brown, *Poorly Graded Sand with Gravel (GP)*; moist to 17 feet bgs, then wet.	15.0		10.8	▽ During Drilling	SB19-04-4	15
20		BOTTOM OF BORING COMPLETED ON 10/10/2019	20.0					20

Typ: CAB
Rev: DYM
Log: APW

NOTES

1. In some cases where recovery was low in the upper part of the run, the soil sample may have slid down in the tube prior to removal from the ground.
2. Groundwater level, if indicated above, was estimated during probing and should be considered approximate.
3. Refer to KEY for definitions and explanation of symbols.

LEGEND

▽ Estimated Water Level

BMES 2019 Drilling
Fairbanks, Alaska

LOG OF GEOPROBE SB19-04

February 2020 103729

SHANNON & WILSON, INC.
Geotechnical and Environmental Consultants

FIG. A-5

GEOPROBE - AK 103729.GPJ 21-16604.GPJ 1/24/20

REV 3

LOG OF GEOPROBE

Date Started: *10/10/19*	**Location:** *Bentley East Mall Satellite*	**Ground Elevation:** *Approx. 435.0 feet*
Date Completed: *10/10/19*		**Typical Run Length:** *5 feet*
Total Depth (ft): *20.0*	**Drilling Company:** *GeoTek Alaska*	**Hole Diameter:** *2.5 inches*

Depth (ft)	Probe Run	Soil Description	Depth, ft.	Symbol	PID, ppm	Ground Water	Sample Number and Description.	Depth (ft)
		Gray-brown, *Poorly Graded Gravel with Sand (GP)*; moist; trace silt. Fill.						
		Brown, *Poorly Graded Sand with Silt (SP-SM)*; moist.	3.5		28.9		SB19-05-1	
5					11.4			5
		Gray, *Poorly Graded Sand (SP)*; moist; trace gravel.	6.8					
		Gray, *Poorly Graded Sand with Gravel (SP)*; moist.	8.8					
10		Gray to gray-brown, *Poorly Graded Gravel with Sand (GP)*; moist to 17 feet bgs, then wet; red fluorescein dye staining present from 13 to 13.7 feet bgs.	10.0		9.1			10
15					11.4	▽ During Drilling	SB19-05-4	15
20		BOTTOM OF BORING COMPLETED ON 10/10/2019	20.0					20

Soil Description

Refer to the report text for a proper understanding of the subsurface materials and probing methods. The stratification lines indicated below represent the approximate boundaries between soil types. Actual boundaries may be different if soil shifted inside sample tubes during extraction.

NOTES

1. In some cases where recovery was low in the upper part of the run, the soil sample may have slid down in the tube prior to removal from the ground.
2. Groundwater level, if indicated above, was estimated during probing and should be considered approximate.
3. Refer to KEY for definitions and explanation of symbols.

LEGEND

▽ Estimated Water Level

BMES 2019 Drilling
Fairbanks, Alaska

LOG OF GEOPROBE SB19-05

February 2020 103729

SHANNON & WILSON, INC.
Geotechnical and Environmental Consultants

FIG. A-6

REV 3

GEOPROBE - AK 103729.GPJ 21-16604.GPJ 1/24/20 Log: APW Rev: DYM Typ: CAB

APPENDIX B: FIELD LOGS

Appendix B

Field Logs

CONTENTS

SHANNON & WILSON, INC.
GEOTECHNICAL AND ENVIRONMENTAL CONSULTANTS

DAILY SAFETY MEETING LOG

JOB NAME: Bentley Mall East Satellite | JOB NO: 103729 | BORING NO:

LOCATION: Bentley Mall Fairbanks, AK DATE: 10 / 9 / 19 TIME: 21 : 30

SUBCONTRACTOR: GeoTek Alaska S&W REP: APW S&W PM: KRF

WORK DESCRIPTION: Soil Borings

CHECK APPLICABLE HAZARDS: Heavy Equipment ☒, Vehicles ☒, Overhead ☒, Tools ☒, Temperature ☒, Lifting ☒ (Use Mechanical Means Instead), Site Housekeeping ☒ (Clear Walkways to Prevent Slips, Trips, Falls), Awkward Work Area ☐, Public ☒, Security ☐, Plants ☐, Animals ☐, Noise ☒, Vibration ☒, Dust ☐, Radiation ☐, UV exposure ☐, Repetitive Motion ☒, Suspected Contamination ☒, Chemical Exposure ☐, Flammable/Explosive ☐

OTHER HAZARDS:

EQUIPMENT ON SITE: GeoProbe 6620 DT

DOCUMENTATION:	Present	PPE:	Present
SSHSP On Site?	☐	Boots - Safety Toe / Other	☒
Hospital Map On Site?	☐	Safety Glasses	☒
Fall Protection Plan On Site?	☐	Vest - Class II / Class III	☒
Respiratory Protection Plan On Site?	☐	Hard Hat	☒
Confined Space Entry Plan On Site?	☐	Ear - Plugs / Muffs / Both	☒
Traffic Control Plan?	☐	Gloves - Type:	☒
Other Plan?	☐	Face Shield	☐
Current Fit Test?	☐	Respirator	☐

Cards/Certs Required? *List Below*

Other PPE? *List Below*

Hazards & Controls Discussed? ☒ Need to Update SSHSP? ☐

My signature below confirms that the above hazards, controls and plans have been discussed and that I understand them.

PRINT NAME	SIGNATURE	COMPANY	HAS ALL CARDS	PPE On?
Adam Wyborny	Adam Wyborny	S&W	☐	☒
Steve Simas		GTA	☐	☒
James Beckner		GTA	☐	☒
			☐	☐
			☐	☐
			☐	☐
			☐	☐

CAB

SOIL SAMPLE COLLECTION LOG

Project Number: 103729 Page 1 of 1

Project Name: Bentley Mall East Satellite Building

Sampler: APW

Date	Sample Time	Sample ID	Location	Depth (ft)	Sample Type	PID Reading	Analyses
10/9/19	22:10	SB19-01-1	SB19-01 see figure	3-5	ES	32.6 •	VOCs SW8260C
	22:35	SB19-01-2		5-7		13.4	
	22:55	SB19-01-3		10-12		5.8	
	23:10	SB19-01-4		17		11.0 •	
	23:30	SB19-02-1	SB19-02 see figure	3-5		13.4	
	23:50	SB19-02-2		5-7		12.2	
	24:05	SB19-02-3		13-15		5.5	
	24:20	SB19-02-4		17		10.6 X	
	24:35	SB19-03-1	SB19-03 see figure	3-5		15.0 •	
	24:55	SB19-03-2		8-10		7.9	
10/10/19	01:10	SB19-03-3		13-15		5.2 •	
	01:25	SB19-03-4		17		7.5	
	01:40	SB19-04-1	SB19-04 see figure	3-5		15.6 •	
	02:00	SB19-04-2		5-7		6.8	
	02:15	SB19-04-3		13-15		4.4	
	02:30	SB19-04-4		17		10.8 •	
	02:50	SB19-05-1/101	SB19-05 see figure	3-5	ES/FD	28.9 •	
	03:10	SB19-05-2		5-7	ES	11.4	
	03:30	SB19-05-3		13-15		9.1	
	03:45	SB19-05-4		17		11.4 •	

Sample Type FS = Field screening measurement only ES = Environmental sample FD = Field duplicate TB = Trip blank

APPENDIX C: LABORATORY REPORTS

Appendix C

Laboratory Report

CONTENTS

Laboratory Report of Analysis

To: Shannon & Wilson-Fairbanks
2355 Hill Rd.
Fairbanks, AK 99701
(907)479-0600

Report Number: **1199855**

Client Project: **103729 Bentley Mall E. Sat.**

Dear Kristen Freiburger,

Enclosed are the results of the analytical services performed under the referenced project for the received samples and associated QC as applicable. The samples are certified to meet the requirements of the National Environmental Laboratory Accreditation Conference Standards. Copies of this report and supporting data will be retained in our files for a period of ten years in the event they are required for future reference. All results are intended to be used in their entirety and SGS is not responsible for use of less than the complete report. Any samples submitted to our laboratory will be retained for a maximum of fourteen (14) days from the date of this report unless other archiving requirements were included in the quote.

If there are any questions about the report or services performed during this project, please call Jennifer at (907) 562-2343. We will be happy to answer any questions or concerns which you may have.

Thank you for using SGS North America Inc. for your analytical services. We look forward to working with you again on any additional analytical needs.

Sincerely,
SGS North America Inc.

Jennifer Dawkins Date
Project Manager
Jennifer.Dawkins@sgs.com

SGS North America Inc. 200 West Potter Drive, Anchorage, AK 99518
t 907.562.2343 f 907.561.5301 www.us.sgs.com

Case Narrative

SGS Client: Shannon & Wilson-Fairbanks

SGS Project: 1199855

Project Name/Site: 103729 Bentley Mall E. Sat.

Refer to sample receipt form for information on sample condition.

1199855002MS **1539669 MS**
8260C - MS recovery for trans-1,2,-dichloroethene does not meet QC criteria. This analyte was not detected above the LOQ in the associated parent sample.

* QC comments may be associated with the field samples found in this report. When applicable, comments will be applied to the associated field samples.

Laboratory Qualifiers

Enclosed are the analytical results associated with the above work order. The results apply to the samples as received. All results are intended to be used in their entirety and SGS is not responsible for use of less than the complete report. This document is issued by the Company under its General Conditions of Service accessible at <http://www.sgs.com/en/Terms-and-Conditions.aspx>. Attention is drawn to the limitation of liability, indenmification and jurisdiction issues defined therein.

Any holder of this document is advised that information contained hereon reflects the Company's findings at the time of its intervention only and within the limits of Client's instructions, if any. The Company's sole responsibility is to its Client and this document does not exonerate parties to a transaction from exercising all their rights and obligations under the transaction documents. Any unauthorized alteration, forgery or falsification of the context or appearance of this document is unlawful and offenders may be prosecuted to the fullest extent of the law.

SGS maintains a formal Quality Assurance/Quality Control (QA/QC) program. A copy of our Quality Assurance Plan (QAP), which outlines this program, is available at your request. The laboratory certification numbers are AK00971 (DW Chemistry & Microbiology) & 17-021 (CS) for ADEC and 2944.01 for DOD ELAP/ISO17025 (RCRA methods: 1020B, 1311, 3010A, 3050B, 3520C, 3550C, 5030B, 5035A, 6020A, 7470A, 7471B, 8015C, 8021B, 8082A, 8260C, 8270D, 8270D-SIM, 9040C, 9045D, 9056A, 9060A, AK101 and AK102/103). SGS is only certified for the analytes listed on our Drinking Water Certification (DW methods: 200.8, 2130B, 2320B, 2510B, 300.0, 4500-CN-C,E, 4500-H-B, 4500-NO3-F, 4500-P-E and 524.2) and only those analytes will be reported to the State of Alaska for compliance. Except as specifically noted, all statements and data in this report are in conformance to the provisions set forth by the SGS QAP and, when applicable, other regulatory authorities.

The following descriptors or qualifiers may be found in your report:

*	The analyte has exceeded allowable regulatory or control limits.
!	Surrogate out of control limits.
B	Indicates the analyte is found in a blank associated with the sample.
CCV/CVA/CVB	Continuing Calibration Verification
CCCV/CVC/CVCA/CVCB	Closing Continuing Calibration Verification
CL	Control Limit
DF	Analytical Dilution Factor
DL	Detection Limit (i.e., maximum method detection limit)
E	The analyte result is above the calibrated range.
GT	Greater Than
IB	Instrument Blank
ICV	Initial Calibration Verification
J	The quantitation is an estimation.
LCS(D)	Laboratory Control Spike (Duplicate)
LLQC/LLIQC	Low Level Quantitation Check
LOD	Limit of Detection (i.e., 1/2 of the LOQ)
LOQ	Limit of Quantitation (i.e., reporting or practical quantitation limit)
LT	Less Than
MB	Method Blank
MS(D)	Matrix Spike (Duplicate)
ND	Indicates the analyte is not detected.
RPD	Relative Percent Difference
U	Indicates the analyte was analyzed for but not detected.

Note: Sample summaries which include a result for "Total Solids" have already been adjusted for moisture content. All DRO/RRO analyses are integrated per SOP.

SGS North America Inc. 200 West Potter Drive, Anchorage, AK 99518
t 907.562.2343 f 907.561.5301 www.us.sgs.com

Sample Summary

Client Sample ID	Lab Sample ID	Collected	Received	Matrix
SB19-01-1	1199855001	10/09/2019	10/11/2019	Soil/Solid (dry weight)
SB19-01-4	1199855002	10/09/2019	10/11/2019	Soil/Solid (dry weight)
SB19-02-1	1199855003	10/09/2019	10/11/2019	Soil/Solid (dry weight)
SB19-03-1	1199855004	10/10/2019	10/11/2019	Soil/Solid (dry weight)
SB19-03-3	1199855005	10/10/2019	10/11/2019	Soil/Solid (dry weight)
SB19-04-1	1199855006	10/10/2019	10/11/2019	Soil/Solid (dry weight)
SB19-04-4	1199855007	10/10/2019	10/11/2019	Soil/Solid (dry weight)
SB19-05-1	1199855008	10/10/2019	10/11/2019	Soil/Solid (dry weight)
SB19-05-101	1199855009	10/10/2019	10/11/2019	Soil/Solid (dry weight)
SB19-05-4	1199855010	10/10/2019	10/11/2019	Soil/Solid (dry weight)
Trip Blank	1199855011	10/09/2019	10/11/2019	Soil/Solid (dry weight)
SB19-02-2	1199855012	10/09/2019	10/11/2019	Soil/Solid (dry weight)

Method	Method Description
SM21 2540G	Percent Solids SM2540G
SW8260C	VOC 8260 (S) Field Extracted

SGS North America Inc.
200 West Potter Drive, Anchorage, AK 99518
t 907.562.2343 f 907.561.5301 www.us.sgs.com

Detectable Results Summary

	Parameter	Result	Units
Client Sample ID: **SB19-01-1** Lab Sample ID: 1199855001 **Volatile GC/MS**	Tetrachloroethene	2.21	mg/Kg
Client Sample ID: **SB19-01-4** Lab Sample ID: 1199855002 **Volatile GC/MS**	Tetrachloroethene	0.604	mg/Kg
Client Sample ID: **SB19-02-1** Lab Sample ID: 1199855003 **Volatile GC/MS**	Tetrachloroethene	1.12	mg/Kg
Client Sample ID: **SB19-03-1** Lab Sample ID: 1199855004 **Volatile GC/MS**	Tetrachloroethene	0.661	mg/Kg
Client Sample ID: **SB19-03-3** Lab Sample ID: 1199855005 **Volatile GC/MS**	Tetrachloroethene	0.654	mg/Kg
Client Sample ID: **SB19-04-1** Lab Sample ID: 1199855006 **Volatile GC/MS**	Tetrachloroethene	0.966	mg/Kg
Client Sample ID: **SB19-04-4** Lab Sample ID: 1199855007 **Volatile GC/MS**	Tetrachloroethene	0.272	mg/Kg
Client Sample ID: **SB19-05-1** Lab Sample ID: 1199855008 **Volatile GC/MS**	Tetrachloroethene	2.41	mg/Kg
Client Sample ID: **SB19-05-101** Lab Sample ID: 1199855009 **Volatile GC/MS**	Tetrachloroethene	1.64	mg/Kg
Client Sample ID: **SB19-05-4** Lab Sample ID: 1199855010 **Volatile GC/MS**	Tetrachloroethene	0.372	mg/Kg
Client Sample ID: **SB19-02-2** Lab Sample ID: 1199855012 **Volatile GC/MS**	Tetrachloroethene	1.26	mg/Kg

Results of **SB19-01-1**

Client Sample ID: **SB19-01-1**
Client Project ID: **103729 Bentley Mall E. Sat.**
Lab Sample ID: 1199855001
Lab Project ID: 1199855

Collection Date: 10/09/19 22:10
Received Date: 10/11/19 10:59
Matrix: Soil/Solid (dry weight)
Solids (%):83.2
Location:

Results by **Volatile GC/MS**

Parameter	Result	Qual	LOQ/CL	DL	Units	DF	Allowable Limits	Date Analyzed
1,1,1,2-Tetrachloroethane	0.0341	U	0.0682	0.0212	mg/Kg	1		10/18/19 00:15
1,1,1-Trichloroethane	0.0427	U	0.0853	0.0266	mg/Kg	1		10/18/19 00:15
1,1,2,2-Tetrachloroethane	0.00341	U	0.00682	0.00212	mg/Kg	1		10/18/19 00:15
1,1,2-Trichloroethane	0.00136	U	0.00273	0.000853	mg/Kg	1		10/18/19 00:15
1,1-Dichloroethane	0.0427	U	0.0853	0.0266	mg/Kg	1		10/18/19 00:15
1,1-Dichloroethene	0.0427	U	0.0853	0.0266	mg/Kg	1		10/18/19 00:15
1,1-Dichloropropene	0.0427	U	0.0853	0.0266	mg/Kg	1		10/18/19 00:15
1,2,3-Trichlorobenzene	0.0855	U	0.171	0.0512	mg/Kg	1		10/18/19 00:15
1,2,3-Trichloropropane	0.00170	U	0.00341	0.00106	mg/Kg	1		10/18/19 00:15
1,2,4-Trichlorobenzene	0.0427	U	0.0853	0.0266	mg/Kg	1		10/18/19 00:15
1,2,4-Trimethylbenzene	0.0855	U	0.171	0.0512	mg/Kg	1		10/18/19 00:15
1,2-Dibromo-3-chloropropane	0.171	U	0.341	0.106	mg/Kg	1		10/18/19 00:15
1,2-Dibromoethane	0.00170	U	0.00341	0.00106	mg/Kg	1		10/18/19 00:15
1,2-Dichlorobenzene	0.0427	U	0.0853	0.0266	mg/Kg	1		10/18/19 00:15
1,2-Dichloroethane	0.00341	U	0.00682	0.00212	mg/Kg	1		10/18/19 00:15
1,2-Dichloropropane	0.0170	U	0.0341	0.0106	mg/Kg	1		10/18/19 00:15
1,3,5-Trimethylbenzene	0.0427	U	0.0853	0.0266	mg/Kg	1		10/18/19 00:15
1,3-Dichlorobenzene	0.0427	U	0.0853	0.0266	mg/Kg	1		10/18/19 00:15
1,3-Dichloropropane	0.0170	U	0.0341	0.0106	mg/Kg	1		10/18/19 00:15
1,4-Dichlorobenzene	0.0427	U	0.0853	0.0266	mg/Kg	1		10/18/19 00:15
2,2-Dichloropropane	0.0427	U	0.0853	0.0266	mg/Kg	1		10/18/19 00:15
2-Butanone (MEK)	0.426	U	0.853	0.266	mg/Kg	1		10/18/19 00:15
2-Chlorotoluene	0.0427	U	0.0853	0.0266	mg/Kg	1		10/18/19 00:15
2-Hexanone	0.171	U	0.341	0.106	mg/Kg	1		10/18/19 00:15
4-Chlorotoluene	0.0427	U	0.0853	0.0266	mg/Kg	1		10/18/19 00:15
4-Isopropyltoluene	0.171	U	0.341	0.0853	mg/Kg	1		10/18/19 00:15
4-Methyl-2-pentanone (MIBK)	0.426	U	0.853	0.266	mg/Kg	1		10/18/19 00:15
Acetone	0.426	U	0.853	0.266	mg/Kg	1		10/18/19 00:15
Benzene	0.0213	U	0.0426	0.0133	mg/Kg	1		10/18/19 00:15
Bromobenzene	0.0427	U	0.0853	0.0266	mg/Kg	1		10/18/19 00:15
Bromochloromethane	0.0427	U	0.0853	0.0266	mg/Kg	1		10/18/19 00:15
Bromodichloromethane	0.00341	U	0.00682	0.00212	mg/Kg	1		10/18/19 00:15
Bromoform	0.0427	U	0.0853	0.0266	mg/Kg	1		10/18/19 00:15
Bromomethane	0.0341	U	0.0682	0.0212	mg/Kg	1		10/18/19 00:15
Carbon disulfide	0.171	U	0.341	0.106	mg/Kg	1		10/18/19 00:15
Carbon tetrachloride	0.0213	U	0.0426	0.0133	mg/Kg	1		10/18/19 00:15
Chlorobenzene	0.0427	U	0.0853	0.0266	mg/Kg	1		10/18/19 00:15

Results of **SB19-01-1**

Client Sample ID: **SB19-01-1**
Client Project ID: **103729 Bentley Mall E. Sat.**
Lab Sample ID: 1199855001
Lab Project ID: 1199855

Collection Date: 10/09/19 22:10
Received Date: 10/11/19 10:59
Matrix: Soil/Solid (dry weight)
Solids (%):83.2
Location:

Results by **Volatile GC/MS**

Parameter	Result	Qual	LOQ/CL	DL	Units	DF	Allowable Limits	Date Analyzed
Chloroethane	0.341	U	0.682	0.212	mg/Kg	1		10/18/19 00:15
Chloroform	0.00341	U	0.00682	0.00212	mg/Kg	1		10/18/19 00:15
Chloromethane	0.0427	U	0.0853	0.0266	mg/Kg	1		10/18/19 00:15
cis-1,2-Dichloroethene	0.0427	U	0.0853	0.0266	mg/Kg	1		10/18/19 00:15
cis-1,3-Dichloropropene	0.0213	U	0.0426	0.0133	mg/Kg	1		10/18/19 00:15
Dibromochloromethane	0.00341	U	0.00682	0.00212	mg/Kg	1		10/18/19 00:15
Dibromomethane	0.0427	U	0.0853	0.0266	mg/Kg	1		10/18/19 00:15
Dichlorodifluoromethane	0.0855	U	0.171	0.0512	mg/Kg	1		10/18/19 00:15
Ethylbenzene	0.0427	U	0.0853	0.0266	mg/Kg	1		10/18/19 00:15
Freon-113	0.171	U	0.341	0.106	mg/Kg	1		10/18/19 00:15
Hexachlorobutadiene	0.0341	U	0.0682	0.0212	mg/Kg	1		10/18/19 00:15
Isopropylbenzene (Cumene)	0.0427	U	0.0853	0.0266	mg/Kg	1		10/18/19 00:15
Methylene chloride	0.171	U	0.341	0.106	mg/Kg	1		10/18/19 00:15
Methyl-t-butyl ether	0.171	U	0.341	0.106	mg/Kg	1		10/18/19 00:15
Naphthalene	0.0427	U	0.0853	0.0266	mg/Kg	1		10/18/19 00:15
n-Butylbenzene	0.0427	U	0.0853	0.0266	mg/Kg	1		10/18/19 00:15
n-Propylbenzene	0.0427	U	0.0853	0.0266	mg/Kg	1		10/18/19 00:15
o-Xylene	0.0427	U	0.0853	0.0266	mg/Kg	1		10/18/19 00:15
P & M -Xylene	0.0855	U	0.171	0.0512	mg/Kg	1		10/18/19 00:15
sec-Butylbenzene	0.0427	U	0.0853	0.0266	mg/Kg	1		10/18/19 00:15
Styrene	0.0427	U	0.0853	0.0266	mg/Kg	1		10/18/19 00:15
tert-Butylbenzene	0.0427	U	0.0853	0.0266	mg/Kg	1		10/18/19 00:15
Tetrachloroethene	2.21		0.0426	0.0133	mg/Kg	1		10/18/19 00:15
Toluene	0.0427	U	0.0853	0.0266	mg/Kg	1		10/18/19 00:15
trans-1,2-Dichloroethene	0.0427	U	0.0853	0.0266	mg/Kg	1		10/18/19 00:15
trans-1,3-Dichloropropene	0.0213	U	0.0426	0.0133	mg/Kg	1		10/18/19 00:15
Trichloroethene	0.00855	U	0.0171	0.00512	mg/Kg	1		10/18/19 00:15
Trichlorofluoromethane	0.0855	U	0.171	0.0512	mg/Kg	1		10/18/19 00:15
Vinyl acetate	0.171	U	0.341	0.106	mg/Kg	1		10/18/19 00:15
Vinyl chloride	0.00136	U	0.00273	0.000853	mg/Kg	1		10/18/19 00:15
Xylenes (total)	0.128	U	0.256	0.0778	mg/Kg	1		10/18/19 00:15
Surrogates								
1,2-Dichloroethane-D4 (surr)	101		71-136		%	1		10/18/19 00:15
4-Bromofluorobenzene (surr)	101		55-151		%	1		10/18/19 00:15
Toluene-d8 (surr)	99.1		85-116		%	1		10/18/19 00:15

Print Date: 10/29/2019 2:23:42PM

J flagging is activated

Results of **SB19-01-1**

Client Sample ID: **SB19-01-1**
Client Project ID: **103729 Bentley Mall E. Sat.**
Lab Sample ID: 1199855001
Lab Project ID: 1199855

Collection Date: 10/09/19 22:10
Received Date: 10/11/19 10:59
Matrix: Soil/Solid (dry weight)
Solids (%):83.2
Location:

Results by **Volatile GC/MS**

Batch Information

Analytical Batch: VMS19590
Analytical Method: SW8260C
Analyst: KAJ
Analytical Date/Time: 10/18/19 00:15
Container ID: 1199855001-B

Prep Batch: VXX35128
Prep Method: SW5035A
Prep Date/Time: 10/09/19 22:10
Prep Initial Wt./Vol.: 19.975 g
Prep Extract Vol: 28.3528 mL

Results of **SB19-01-4**

Client Sample ID: **SB19-01-4**
Client Project ID: **103729 Bentley Mall E. Sat.**
Lab Sample ID: 1199855002
Lab Project ID: 1199855

Collection Date: 10/09/19 23:10
Received Date: 10/11/19 10:59
Matrix: Soil/Solid (dry weight)
Solids (%):89.2
Location:

Results by **Volatile GC/MS**

Parameter	Result	Qual	LOQ/CL	DL	Units	DF	Allowable Limits	Date Analyzed
1,1,1,2-Tetrachloroethane	0.0150	U	0.0301	0.00934	mg/Kg	1		10/17/19 22:43
1,1,1-Trichloroethane	0.0188	U	0.0377	0.0118	mg/Kg	1		10/17/19 22:43
1,1,2,2-Tetrachloroethane	0.00151	U	0.00301	0.000934	mg/Kg	1		10/17/19 22:43
1,1,2-Trichloroethane	0.000605	U	0.00121	0.000377	mg/Kg	1		10/17/19 22:43
1,1-Dichloroethane	0.0188	U	0.0377	0.0118	mg/Kg	1		10/17/19 22:43
1,1-Dichloroethene	0.0188	U	0.0377	0.0118	mg/Kg	1		10/17/19 22:43
1,1-Dichloropropene	0.0188	U	0.0377	0.0118	mg/Kg	1		10/17/19 22:43
1,2,3-Trichlorobenzene	0.0377	U	0.0753	0.0226	mg/Kg	1		10/17/19 22:43
1,2,3-Trichloropropane	0.000755	U	0.00151	0.000467	mg/Kg	1		10/17/19 22:43
1,2,4-Trichlorobenzene	0.0188	U	0.0377	0.0118	mg/Kg	1		10/17/19 22:43
1,2,4-Trimethylbenzene	0.0377	U	0.0753	0.0226	mg/Kg	1		10/17/19 22:43
1,2-Dibromo-3-chloropropane	0.0755	U	0.151	0.0467	mg/Kg	1		10/17/19 22:43
1,2-Dibromoethane	0.000755	U	0.00151	0.000467	mg/Kg	1		10/17/19 22:43
1,2-Dichlorobenzene	0.0188	U	0.0377	0.0118	mg/Kg	1		10/17/19 22:43
1,2-Dichloroethane	0.00151	U	0.00301	0.000934	mg/Kg	1		10/17/19 22:43
1,2-Dichloropropane	0.00755	U	0.0151	0.00467	mg/Kg	1		10/17/19 22:43
1,3,5-Trimethylbenzene	0.0188	U	0.0377	0.0118	mg/Kg	1		10/17/19 22:43
1,3-Dichlorobenzene	0.0188	U	0.0377	0.0118	mg/Kg	1		10/17/19 22:43
1,3-Dichloropropane	0.00755	U	0.0151	0.00467	mg/Kg	1		10/17/19 22:43
1,4-Dichlorobenzene	0.0188	U	0.0377	0.0118	mg/Kg	1		10/17/19 22:43
2,2-Dichloropropane	0.0188	U	0.0377	0.0118	mg/Kg	1		10/17/19 22:43
2-Butanone (MEK)	0.189	U	0.377	0.118	mg/Kg	1		10/17/19 22:43
2-Chlorotoluene	0.0188	U	0.0377	0.0118	mg/Kg	1		10/17/19 22:43
2-Hexanone	0.0755	U	0.151	0.0467	mg/Kg	1		10/17/19 22:43
4-Chlorotoluene	0.0188	U	0.0377	0.0118	mg/Kg	1		10/17/19 22:43
4-Isopropyltoluene	0.0755	U	0.151	0.0377	mg/Kg	1		10/17/19 22:43
4-Methyl-2-pentanone (MIBK)	0.189	U	0.377	0.118	mg/Kg	1		10/17/19 22:43
Acetone	0.189	U	0.377	0.118	mg/Kg	1		10/17/19 22:43
Benzene	0.00940	U	0.0188	0.00588	mg/Kg	1		10/17/19 22:43
Bromobenzene	0.0188	U	0.0377	0.0118	mg/Kg	1		10/17/19 22:43
Bromochloromethane	0.0188	U	0.0377	0.0118	mg/Kg	1		10/17/19 22:43
Bromodichloromethane	0.00151	U	0.00301	0.000934	mg/Kg	1		10/17/19 22:43
Bromoform	0.0188	U	0.0377	0.0118	mg/Kg	1		10/17/19 22:43
Bromomethane	0.0150	U	0.0301	0.00934	mg/Kg	1		10/17/19 22:43
Carbon disulfide	0.0755	U	0.151	0.0467	mg/Kg	1		10/17/19 22:43
Carbon tetrachloride	0.00940	U	0.0188	0.00588	mg/Kg	1		10/17/19 22:43
Chlorobenzene	0.0188	U	0.0377	0.0118	mg/Kg	1		10/17/19 22:43

Results of **SB19-01-4**

Client Sample ID: **SB19-01-4**
Client Project ID: **103729 Bentley Mall E. Sat.**
Lab Sample ID: 1199855002
Lab Project ID: 1199855

Collection Date: 10/09/19 23:10
Received Date: 10/11/19 10:59
Matrix: Soil/Solid (dry weight)
Solids (%):89.2
Location:

Results by **Volatile GC/MS**

Parameter	Result	Qual	LOQ/CL	DL	Units	DF	Allowable Limits	Date Analyzed
Chloroethane	0.150	U	0.301	0.0934	mg/Kg	1		10/17/19 22:43
Chloroform	0.00151	U	0.00301	0.000934	mg/Kg	1		10/17/19 22:43
Chloromethane	0.0188	U	0.0377	0.0118	mg/Kg	1		10/17/19 22:43
cis-1,2-Dichloroethene	0.0188	U	0.0377	0.0118	mg/Kg	1		10/17/19 22:43
cis-1,3-Dichloropropene	0.00940	U	0.0188	0.00588	mg/Kg	1		10/17/19 22:43
Dibromochloromethane	0.00151	U	0.00301	0.000934	mg/Kg	1		10/17/19 22:43
Dibromomethane	0.0188	U	0.0377	0.0118	mg/Kg	1		10/17/19 22:43
Dichlorodifluoromethane	0.0377	U	0.0753	0.0226	mg/Kg	1		10/17/19 22:43
Ethylbenzene	0.0188	U	0.0377	0.0118	mg/Kg	1		10/17/19 22:43
Freon-113	0.0755	U	0.151	0.0467	mg/Kg	1		10/17/19 22:43
Hexachlorobutadiene	0.0150	U	0.0301	0.00934	mg/Kg	1		10/17/19 22:43
Isopropylbenzene (Cumene)	0.0188	U	0.0377	0.0118	mg/Kg	1		10/17/19 22:43
Methylene chloride	0.0755	U	0.151	0.0467	mg/Kg	1		10/17/19 22:43
Methyl-t-butyl ether	0.0755	U	0.151	0.0467	mg/Kg	1		10/17/19 22:43
Naphthalene	0.0188	U	0.0377	0.0118	mg/Kg	1		10/17/19 22:43
n-Butylbenzene	0.0188	U	0.0377	0.0118	mg/Kg	1		10/17/19 22:43
n-Propylbenzene	0.0188	U	0.0377	0.0118	mg/Kg	1		10/17/19 22:43
o-Xylene	0.0188	U	0.0377	0.0118	mg/Kg	1		10/17/19 22:43
P & M -Xylene	0.0377	U	0.0753	0.0226	mg/Kg	1		10/17/19 22:43
sec-Butylbenzene	0.0188	U	0.0377	0.0118	mg/Kg	1		10/17/19 22:43
Styrene	0.0188	U	0.0377	0.0118	mg/Kg	1		10/17/19 22:43
tert-Butylbenzene	0.0188	U	0.0377	0.0118	mg/Kg	1		10/17/19 22:43
Tetrachloroethene	0.604		0.0188	0.00588	mg/Kg	1		10/17/19 22:43
Toluene	0.0188	U	0.0377	0.0118	mg/Kg	1		10/17/19 22:43
trans-1,2-Dichloroethene	0.0188	U	0.0377	0.0118	mg/Kg	1		10/17/19 22:43
trans-1,3-Dichloropropene	0.00940	U	0.0188	0.00588	mg/Kg	1		10/17/19 22:43
Trichloroethene	0.00377	U	0.00753	0.00226	mg/Kg	1		10/17/19 22:43
Trichlorofluoromethane	0.0377	U	0.0753	0.0226	mg/Kg	1		10/17/19 22:43
Vinyl acetate	0.0755	U	0.151	0.0467	mg/Kg	1		10/17/19 22:43
Vinyl chloride	0.000605	U	0.00121	0.000377	mg/Kg	1		10/17/19 22:43
Xylenes (total)	0.0565	U	0.113	0.0343	mg/Kg	1		10/17/19 22:43
Surrogates								
1,2-Dichloroethane-D4 (surr)	99.6		71-136		%	1		10/17/19 22:43
4-Bromofluorobenzene (surr)	106		55-151		%	1		10/17/19 22:43
Toluene-d8 (surr)	100		85-116		%	1		10/17/19 22:43

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J flagging is activated

Results of **SB19-01-4**

Client Sample ID: **SB19-01-4**
Client Project ID: **103729 Bentley Mall E. Sat.**
Lab Sample ID: 1199855002
Lab Project ID: 1199855

Collection Date: 10/09/19 23:10
Received Date: 10/11/19 10:59
Matrix: Soil/Solid (dry weight)
Solids (%):89.2
Location:

Results by **Volatile GC/MS**

Batch Information

Analytical Batch: VMS19590
Analytical Method: SW8260C
Analyst: KAJ
Analytical Date/Time: 10/17/19 22:43
Container ID: 1199855002-B

Prep Batch: VXX35128
Prep Method: SW5035A
Prep Date/Time: 10/09/19 23:10
Prep Initial Wt./Vol.: 44.351 g
Prep Extract Vol: 29.7958 mL

Results of **SB19-02-1**

Client Sample ID: **SB19-02-1**
Client Project ID: **103729 Bentley Mall E. Sat.**
Lab Sample ID: 1199855003
Lab Project ID: 1199855

Collection Date: 10/09/19 23:30
Received Date: 10/11/19 10:59
Matrix: Soil/Solid (dry weight)
Solids (%):81.2
Location:

Results by **Volatile GC/MS**

Parameter	Result	Qual	LOQ/CL	DL	Units	DF	Allowable Limits	Date Analyzed
1,1,1,2-Tetrachloroethane	0.0283	U	0.0565	0.0175	mg/Kg	1		10/18/19 00:31
1,1,1-Trichloroethane	0.0353	U	0.0706	0.0220	mg/Kg	1		10/18/19 00:31
1,1,2,2-Tetrachloroethane	0.00282	U	0.00565	0.00175	mg/Kg	1		10/18/19 00:31
1,1,2-Trichloroethane	0.00113	U	0.00226	0.000706	mg/Kg	1		10/18/19 00:31
1,1-Dichloroethane	0.0353	U	0.0706	0.0220	mg/Kg	1		10/18/19 00:31
1,1-Dichloroethene	0.0353	U	0.0706	0.0220	mg/Kg	1		10/18/19 00:31
1,1-Dichloropropene	0.0353	U	0.0706	0.0220	mg/Kg	1		10/18/19 00:31
1,2,3-Trichlorobenzene	0.0705	U	0.141	0.0424	mg/Kg	1		10/18/19 00:31
1,2,3-Trichloropropane	0.00141	U	0.00282	0.000876	mg/Kg	1		10/18/19 00:31
1,2,4-Trichlorobenzene	0.0353	U	0.0706	0.0220	mg/Kg	1		10/18/19 00:31
1,2,4-Trimethylbenzene	0.0705	U	0.141	0.0424	mg/Kg	1		10/18/19 00:31
1,2-Dibromo-3-chloropropane	0.141	U	0.282	0.0876	mg/Kg	1		10/18/19 00:31
1,2-Dibromoethane	0.00141	U	0.00282	0.000876	mg/Kg	1		10/18/19 00:31
1,2-Dichlorobenzene	0.0353	U	0.0706	0.0220	mg/Kg	1		10/18/19 00:31
1,2-Dichloroethane	0.00282	U	0.00565	0.00175	mg/Kg	1		10/18/19 00:31
1,2-Dichloropropane	0.0141	U	0.0282	0.00876	mg/Kg	1		10/18/19 00:31
1,3,5-Trimethylbenzene	0.0353	U	0.0706	0.0220	mg/Kg	1		10/18/19 00:31
1,3-Dichlorobenzene	0.0353	U	0.0706	0.0220	mg/Kg	1		10/18/19 00:31
1,3-Dichloropropane	0.0141	U	0.0282	0.00876	mg/Kg	1		10/18/19 00:31
1,4-Dichlorobenzene	0.0353	U	0.0706	0.0220	mg/Kg	1		10/18/19 00:31
2,2-Dichloropropane	0.0353	U	0.0706	0.0220	mg/Kg	1		10/18/19 00:31
2-Butanone (MEK)	0.353	U	0.706	0.220	mg/Kg	1		10/18/19 00:31
2-Chlorotoluene	0.0353	U	0.0706	0.0220	mg/Kg	1		10/18/19 00:31
2-Hexanone	0.141	U	0.282	0.0876	mg/Kg	1		10/18/19 00:31
4-Chlorotoluene	0.0353	U	0.0706	0.0220	mg/Kg	1		10/18/19 00:31
4-Isopropyltoluene	0.141	U	0.282	0.0706	mg/Kg	1		10/18/19 00:31
4-Methyl-2-pentanone (MIBK)	0.353	U	0.706	0.220	mg/Kg	1		10/18/19 00:31
Acetone	0.353	U	0.706	0.220	mg/Kg	1		10/18/19 00:31
Benzene	0.0176	U	0.0353	0.0110	mg/Kg	1		10/18/19 00:31
Bromobenzene	0.0353	U	0.0706	0.0220	mg/Kg	1		10/18/19 00:31
Bromochloromethane	0.0353	U	0.0706	0.0220	mg/Kg	1		10/18/19 00:31
Bromodichloromethane	0.00282	U	0.00565	0.00175	mg/Kg	1		10/18/19 00:31
Bromoform	0.0353	U	0.0706	0.0220	mg/Kg	1		10/18/19 00:31
Bromomethane	0.0283	U	0.0565	0.0175	mg/Kg	1		10/18/19 00:31
Carbon disulfide	0.141	U	0.282	0.0876	mg/Kg	1		10/18/19 00:31
Carbon tetrachloride	0.0176	U	0.0353	0.0110	mg/Kg	1		10/18/19 00:31
Chlorobenzene	0.0353	U	0.0706	0.0220	mg/Kg	1		10/18/19 00:31

Results of **SB19-02-1**

Client Sample ID: **SB19-02-1**
Client Project ID: **103729 Bentley Mall E. Sat.**
Lab Sample ID: 1199855003
Lab Project ID: 1199855

Collection Date: 10/09/19 23:30
Received Date: 10/11/19 10:59
Matrix: Soil/Solid (dry weight)
Solids (%):81.2
Location:

Results by **Volatile GC/MS**

Parameter	Result	Qual	LOQ/CL	DL	Units	DF	Allowable Limits	Date Analyzed
Chloroethane	0.282	U	0.565	0.175	mg/Kg	1		10/18/19 00:31
Chloroform	0.00282	U	0.00565	0.00175	mg/Kg	1		10/18/19 00:31
Chloromethane	0.0353	U	0.0706	0.0220	mg/Kg	1		10/18/19 00:31
cis-1,2-Dichloroethene	0.0353	U	0.0706	0.0220	mg/Kg	1		10/18/19 00:31
cis-1,3-Dichloropropene	0.0176	U	0.0353	0.0110	mg/Kg	1		10/18/19 00:31
Dibromochloromethane	0.00282	U	0.00565	0.00175	mg/Kg	1		10/18/19 00:31
Dibromomethane	0.0353	U	0.0706	0.0220	mg/Kg	1		10/18/19 00:31
Dichlorodifluoromethane	0.0705	U	0.141	0.0424	mg/Kg	1		10/18/19 00:31
Ethylbenzene	0.0353	U	0.0706	0.0220	mg/Kg	1		10/18/19 00:31
Freon-113	0.141	U	0.282	0.0876	mg/Kg	1		10/18/19 00:31
Hexachlorobutadiene	0.0283	U	0.0565	0.0175	mg/Kg	1		10/18/19 00:31
Isopropylbenzene (Cumene)	0.0353	U	0.0706	0.0220	mg/Kg	1		10/18/19 00:31
Methylene chloride	0.141	U	0.282	0.0876	mg/Kg	1		10/18/19 00:31
Methyl-t-butyl ether	0.141	U	0.282	0.0876	mg/Kg	1		10/18/19 00:31
Naphthalene	0.0353	U	0.0706	0.0220	mg/Kg	1		10/18/19 00:31
n-Butylbenzene	0.0353	U	0.0706	0.0220	mg/Kg	1		10/18/19 00:31
n-Propylbenzene	0.0353	U	0.0706	0.0220	mg/Kg	1		10/18/19 00:31
o-Xylene	0.0353	U	0.0706	0.0220	mg/Kg	1		10/18/19 00:31
P & M -Xylene	0.0705	U	0.141	0.0424	mg/Kg	1		10/18/19 00:31
sec-Butylbenzene	0.0353	U	0.0706	0.0220	mg/Kg	1		10/18/19 00:31
Styrene	0.0353	U	0.0706	0.0220	mg/Kg	1		10/18/19 00:31
tert-Butylbenzene	0.0353	U	0.0706	0.0220	mg/Kg	1		10/18/19 00:31
Tetrachloroethene	1.12		0.0353	0.0110	mg/Kg	1		10/18/19 00:31
Toluene	0.0353	U	0.0706	0.0220	mg/Kg	1		10/18/19 00:31
trans-1,2-Dichloroethene	0.0353	U	0.0706	0.0220	mg/Kg	1		10/18/19 00:31
trans-1,3-Dichloropropene	0.0176	U	0.0353	0.0110	mg/Kg	1		10/18/19 00:31
Trichloroethene	0.00705	U	0.0141	0.00424	mg/Kg	1		10/18/19 00:31
Trichlorofluoromethane	0.0705	U	0.141	0.0424	mg/Kg	1		10/18/19 00:31
Vinyl acetate	0.141	U	0.282	0.0876	mg/Kg	1		10/18/19 00:31
Vinyl chloride	0.00113	U	0.00226	0.000706	mg/Kg	1		10/18/19 00:31
Xylenes (total)	0.106	U	0.212	0.0644	mg/Kg	1		10/18/19 00:31
Surrogates								
1,2-Dichloroethane-D4 (surr)	102		71-136		%	1		10/18/19 00:31
4-Bromofluorobenzene (surr)	104		55-151		%	1		10/18/19 00:31
Toluene-d8 (surr)	98.5		85-116		%	1		10/18/19 00:31

Print Date: 10/29/2019 2:23:42PM

J flagging is activated

Results of **SB19-02-1**

Client Sample ID: **SB19-02-1**
Client Project ID: **103729 Bentley Mall E. Sat.**
Lab Sample ID: 1199855003
Lab Project ID: 1199855

Collection Date: 10/09/19 23:30
Received Date: 10/11/19 10:59
Matrix: Soil/Solid (dry weight)
Solids (%):81.2
Location:

Results by **Volatile GC/MS**

Batch Information

Analytical Batch: VMS19590
Analytical Method: SW8260C
Analyst: KAJ
Analytical Date/Time: 10/18/19 00:31
Container ID: 1199855003-B

Prep Batch: VXX35128
Prep Method: SW5035A
Prep Date/Time: 10/09/19 23:30
Prep Initial Wt./Vol.: 26.063 g
Prep Extract Vol: 29.894 mL

Results of **SB19-03-1**

Client Sample ID: **SB19-03-1**
Client Project ID: **103729 Bentley Mall E. Sat.**
Lab Sample ID: 1199855004
Lab Project ID: 1199855

Collection Date: 10/10/19 00:35
Received Date: 10/11/19 10:59
Matrix: Soil/Solid (dry weight)
Solids (%):81.4
Location:

Results by **Volatile GC/MS**

Parameter	Result	Qual	LOQ/CL	DL	Units	DF	Allowable Limits	Date Analyzed
1,1,1,2-Tetrachloroethane	0.0244	U	0.0488	0.0151	mg/Kg	1		10/18/19 00:46
1,1,1-Trichloroethane	0.0306	U	0.0611	0.0191	mg/Kg	1		10/18/19 00:46
1,1,2,2-Tetrachloroethane	0.00244	U	0.00488	0.00151	mg/Kg	1		10/18/19 00:46
1,1,2-Trichloroethane	0.000975	U	0.00195	0.000611	mg/Kg	1		10/18/19 00:46
1,1-Dichloroethane	0.0306	U	0.0611	0.0191	mg/Kg	1		10/18/19 00:46
1,1-Dichloroethene	0.0306	U	0.0611	0.0191	mg/Kg	1		10/18/19 00:46
1,1-Dichloropropene	0.0306	U	0.0611	0.0191	mg/Kg	1		10/18/19 00:46
1,2,3-Trichlorobenzene	0.0610	U	0.122	0.0366	mg/Kg	1		10/18/19 00:46
1,2,3-Trichloropropane	0.00122	U	0.00244	0.000757	mg/Kg	1		10/18/19 00:46
1,2,4-Trichlorobenzene	0.0306	U	0.0611	0.0191	mg/Kg	1		10/18/19 00:46
1,2,4-Trimethylbenzene	0.0610	U	0.122	0.0366	mg/Kg	1		10/18/19 00:46
1,2-Dibromo-3-chloropropane	0.122	U	0.244	0.0757	mg/Kg	1		10/18/19 00:46
1,2-Dibromoethane	0.00122	U	0.00244	0.000757	mg/Kg	1		10/18/19 00:46
1,2-Dichlorobenzene	0.0306	U	0.0611	0.0191	mg/Kg	1		10/18/19 00:46
1,2-Dichloroethane	0.00244	U	0.00488	0.00151	mg/Kg	1		10/18/19 00:46
1,2-Dichloropropane	0.0122	U	0.0244	0.00757	mg/Kg	1		10/18/19 00:46
1,3,5-Trimethylbenzene	0.0306	U	0.0611	0.0191	mg/Kg	1		10/18/19 00:46
1,3-Dichlorobenzene	0.0306	U	0.0611	0.0191	mg/Kg	1		10/18/19 00:46
1,3-Dichloropropane	0.0122	U	0.0244	0.00757	mg/Kg	1		10/18/19 00:46
1,4-Dichlorobenzene	0.0306	U	0.0611	0.0191	mg/Kg	1		10/18/19 00:46
2,2-Dichloropropane	0.0306	U	0.0611	0.0191	mg/Kg	1		10/18/19 00:46
2-Butanone (MEK)	0.305	U	0.611	0.191	mg/Kg	1		10/18/19 00:46
2-Chlorotoluene	0.0306	U	0.0611	0.0191	mg/Kg	1		10/18/19 00:46
2-Hexanone	0.122	U	0.244	0.0757	mg/Kg	1		10/18/19 00:46
4-Chlorotoluene	0.0306	U	0.0611	0.0191	mg/Kg	1		10/18/19 00:46
4-Isopropyltoluene	0.122	U	0.244	0.0611	mg/Kg	1		10/18/19 00:46
4-Methyl-2-pentanone (MIBK)	0.305	U	0.611	0.191	mg/Kg	1		10/18/19 00:46
Acetone	0.305	U	0.611	0.191	mg/Kg	1		10/18/19 00:46
Benzene	0.0153	U	0.0305	0.00953	mg/Kg	1		10/18/19 00:46
Bromobenzene	0.0306	U	0.0611	0.0191	mg/Kg	1		10/18/19 00:46
Bromochloromethane	0.0306	U	0.0611	0.0191	mg/Kg	1		10/18/19 00:46
Bromodichloromethane	0.00244	U	0.00488	0.00151	mg/Kg	1		10/18/19 00:46
Bromoform	0.0306	U	0.0611	0.0191	mg/Kg	1		10/18/19 00:46
Bromomethane	0.0244	U	0.0488	0.0151	mg/Kg	1		10/18/19 00:46
Carbon disulfide	0.122	U	0.244	0.0757	mg/Kg	1		10/18/19 00:46
Carbon tetrachloride	0.0153	U	0.0305	0.00953	mg/Kg	1		10/18/19 00:46
Chlorobenzene	0.0306	U	0.0611	0.0191	mg/Kg	1		10/18/19 00:46

Results of **SB19-03-1**

Client Sample ID: **SB19-03-1**
Client Project ID: **103729 Bentley Mall E. Sat.**
Lab Sample ID: 1199855004
Lab Project ID: 1199855

Collection Date: 10/10/19 00:35
Received Date: 10/11/19 10:59
Matrix: Soil/Solid (dry weight)
Solids (%):81.4
Location:

Results by **Volatile GC/MS**

Parameter	Result	Qual	LOQ/CL	DL	Units	DF	Allowable Limits	Date Analyzed
Chloroethane	0.244	U	0.488	0.151	mg/Kg	1		10/18/19 00:46
Chloroform	0.00244	U	0.00488	0.00151	mg/Kg	1		10/18/19 00:46
Chloromethane	0.0306	U	0.0611	0.0191	mg/Kg	1		10/18/19 00:46
cis-1,2-Dichloroethene	0.0306	U	0.0611	0.0191	mg/Kg	1		10/18/19 00:46
cis-1,3-Dichloropropene	0.0153	U	0.0305	0.00953	mg/Kg	1		10/18/19 00:46
Dibromochloromethane	0.00244	U	0.00488	0.00151	mg/Kg	1		10/18/19 00:46
Dibromomethane	0.0306	U	0.0611	0.0191	mg/Kg	1		10/18/19 00:46
Dichlorodifluoromethane	0.0610	U	0.122	0.0366	mg/Kg	1		10/18/19 00:46
Ethylbenzene	0.0306	U	0.0611	0.0191	mg/Kg	1		10/18/19 00:46
Freon-113	0.122	U	0.244	0.0757	mg/Kg	1		10/18/19 00:46
Hexachlorobutadiene	0.0244	U	0.0488	0.0151	mg/Kg	1		10/18/19 00:46
Isopropylbenzene (Cumene)	0.0306	U	0.0611	0.0191	mg/Kg	1		10/18/19 00:46
Methylene chloride	0.122	U	0.244	0.0757	mg/Kg	1		10/18/19 00:46
Methyl-t-butyl ether	0.122	U	0.244	0.0757	mg/Kg	1		10/18/19 00:46
Naphthalene	0.0306	U	0.0611	0.0191	mg/Kg	1		10/18/19 00:46
n-Butylbenzene	0.0306	U	0.0611	0.0191	mg/Kg	1		10/18/19 00:46
n-Propylbenzene	0.0306	U	0.0611	0.0191	mg/Kg	1		10/18/19 00:46
o-Xylene	0.0306	U	0.0611	0.0191	mg/Kg	1		10/18/19 00:46
P & M -Xylene	0.0610	U	0.122	0.0366	mg/Kg	1		10/18/19 00:46
sec-Butylbenzene	0.0306	U	0.0611	0.0191	mg/Kg	1		10/18/19 00:46
Styrene	0.0306	U	0.0611	0.0191	mg/Kg	1		10/18/19 00:46
tert-Butylbenzene	0.0306	U	0.0611	0.0191	mg/Kg	1		10/18/19 00:46
Tetrachloroethene	0.661		0.0305	0.00953	mg/Kg	1		10/18/19 00:46
Toluene	0.0306	U	0.0611	0.0191	mg/Kg	1		10/18/19 00:46
trans-1,2-Dichloroethene	0.0306	U	0.0611	0.0191	mg/Kg	1		10/18/19 00:46
trans-1,3-Dichloropropene	0.0153	U	0.0305	0.00953	mg/Kg	1		10/18/19 00:46
Trichloroethene	0.00610	U	0.0122	0.00366	mg/Kg	1		10/18/19 00:46
Trichlorofluoromethane	0.0610	U	0.122	0.0366	mg/Kg	1		10/18/19 00:46
Vinyl acetate	0.122	U	0.244	0.0757	mg/Kg	1		10/18/19 00:46
Vinyl chloride	0.000975	U	0.00195	0.000611	mg/Kg	1		10/18/19 00:46
Xylenes (total)	0.0915	U	0.183	0.0557	mg/Kg	1		10/18/19 00:46
Surrogates								
1,2-Dichloroethane-D4 (surr)	105		71-136		%	1		10/18/19 00:46
4-Bromofluorobenzene (surr)	102		55-151		%	1		10/18/19 00:46
Toluene-d8 (surr)	97.7		85-116		%	1		10/18/19 00:46

Print Date: 10/29/2019 2:23:42PM

J flagging is activated

Results of **SB19-03-1**

Client Sample ID: **SB19-03-1**
Client Project ID: **103729 Bentley Mall E. Sat.**
Lab Sample ID: 1199855004
Lab Project ID: 1199855

Collection Date: 10/10/19 00:35
Received Date: 10/11/19 10:59
Matrix: Soil/Solid (dry weight)
Solids (%):81.4
Location:

Results by **Volatile GC/MS**

Batch Information

Analytical Batch: VMS19590
Analytical Method: SW8260C
Analyst: KAJ
Analytical Date/Time: 10/18/19 00:46
Container ID: 1199855004-B

Prep Batch: VXX35128
Prep Method: SW5035A
Prep Date/Time: 10/10/19 00:35
Prep Initial Wt./Vol.: 30.905 g
Prep Extract Vol: 30.7366 mL

Results of **SB19-03-3**

Client Sample ID: **SB19-03-3**
Client Project ID: **103729 Bentley Mall E. Sat.**
Lab Sample ID: 1199855005
Lab Project ID: 1199855

Collection Date: 10/10/19 01:10
Received Date: 10/11/19 10:59
Matrix: Soil/Solid (dry weight)
Solids (%):96.4
Location:

Results by **Volatile GC/MS**

Parameter	Result	Qual	LOQ/CL	DL	Units	DF	Allowable Limits	Date Analyzed
1,1,1,2-Tetrachloroethane	0.0177	U	0.0355	0.0110	mg/Kg	1		10/18/19 01:02
1,1,1-Trichloroethane	0.0222	U	0.0444	0.0138	mg/Kg	1		10/18/19 01:02
1,1,2,2-Tetrachloroethane	0.00178	U	0.00355	0.00110	mg/Kg	1		10/18/19 01:02
1,1,2-Trichloroethane	0.000710	U	0.00142	0.000444	mg/Kg	1		10/18/19 01:02
1,1-Dichloroethane	0.0222	U	0.0444	0.0138	mg/Kg	1		10/18/19 01:02
1,1-Dichloroethene	0.0222	U	0.0444	0.0138	mg/Kg	1		10/18/19 01:02
1,1-Dichloropropene	0.0222	U	0.0444	0.0138	mg/Kg	1		10/18/19 01:02
1,2,3-Trichlorobenzene	0.0444	U	0.0887	0.0266	mg/Kg	1		10/18/19 01:02
1,2,3-Trichloropropane	0.000885	U	0.00177	0.000550	mg/Kg	1		10/18/19 01:02
1,2,4-Trichlorobenzene	0.0222	U	0.0444	0.0138	mg/Kg	1		10/18/19 01:02
1,2,4-Trimethylbenzene	0.0444	U	0.0887	0.0266	mg/Kg	1		10/18/19 01:02
1,2-Dibromo-3-chloropropane	0.0885	U	0.177	0.0550	mg/Kg	1		10/18/19 01:02
1,2-Dibromoethane	0.000885	U	0.00177	0.000550	mg/Kg	1		10/18/19 01:02
1,2-Dichlorobenzene	0.0222	U	0.0444	0.0138	mg/Kg	1		10/18/19 01:02
1,2-Dichloroethane	0.00178	U	0.00355	0.00110	mg/Kg	1		10/18/19 01:02
1,2-Dichloropropane	0.00885	U	0.0177	0.00550	mg/Kg	1		10/18/19 01:02
1,3,5-Trimethylbenzene	0.0222	U	0.0444	0.0138	mg/Kg	1		10/18/19 01:02
1,3-Dichlorobenzene	0.0222	U	0.0444	0.0138	mg/Kg	1		10/18/19 01:02
1,3-Dichloropropane	0.00885	U	0.0177	0.00550	mg/Kg	1		10/18/19 01:02
1,4-Dichlorobenzene	0.0222	U	0.0444	0.0138	mg/Kg	1		10/18/19 01:02
2,2-Dichloropropane	0.0222	U	0.0444	0.0138	mg/Kg	1		10/18/19 01:02
2-Butanone (MEK)	0.222	U	0.444	0.138	mg/Kg	1		10/18/19 01:02
2-Chlorotoluene	0.0222	U	0.0444	0.0138	mg/Kg	1		10/18/19 01:02
2-Hexanone	0.0885	U	0.177	0.0550	mg/Kg	1		10/18/19 01:02
4-Chlorotoluene	0.0222	U	0.0444	0.0138	mg/Kg	1		10/18/19 01:02
4-Isopropyltoluene	0.0885	U	0.177	0.0444	mg/Kg	1		10/18/19 01:02
4-Methyl-2-pentanone (MIBK)	0.222	U	0.444	0.138	mg/Kg	1		10/18/19 01:02
Acetone	0.222	U	0.444	0.138	mg/Kg	1		10/18/19 01:02
Benzene	0.0111	U	0.0222	0.00692	mg/Kg	1		10/18/19 01:02
Bromobenzene	0.0222	U	0.0444	0.0138	mg/Kg	1		10/18/19 01:02
Bromochloromethane	0.0222	U	0.0444	0.0138	mg/Kg	1		10/18/19 01:02
Bromodichloromethane	0.00178	U	0.00355	0.00110	mg/Kg	1		10/18/19 01:02
Bromoform	0.0222	U	0.0444	0.0138	mg/Kg	1		10/18/19 01:02
Bromomethane	0.0177	U	0.0355	0.0110	mg/Kg	1		10/18/19 01:02
Carbon disulfide	0.0885	U	0.177	0.0550	mg/Kg	1		10/18/19 01:02
Carbon tetrachloride	0.0111	U	0.0222	0.00692	mg/Kg	1		10/18/19 01:02
Chlorobenzene	0.0222	U	0.0444	0.0138	mg/Kg	1		10/18/19 01:02

Results of **SB19-03-3**

Client Sample ID: **SB19-03-3**
Client Project ID: **103729 Bentley Mall E. Sat.**
Lab Sample ID: 1199855005
Lab Project ID: 1199855

Collection Date: 10/10/19 01:10
Received Date: 10/11/19 10:59
Matrix: Soil/Solid (dry weight)
Solids (%):96.4
Location:

Results by **Volatile GC/MS**

Parameter	Result	Qual	LOQ/CL	DL	Units	DF	Allowable Limits	Date Analyzed
Chloroethane	0.177	U	0.355	0.110	mg/Kg	1		10/18/19 01:02
Chloroform	0.00178	U	0.00355	0.00110	mg/Kg	1		10/18/19 01:02
Chloromethane	0.0222	U	0.0444	0.0138	mg/Kg	1		10/18/19 01:02
cis-1,2-Dichloroethene	0.0222	U	0.0444	0.0138	mg/Kg	1		10/18/19 01:02
cis-1,3-Dichloropropene	0.0111	U	0.0222	0.00692	mg/Kg	1		10/18/19 01:02
Dibromochloromethane	0.00178	U	0.00355	0.00110	mg/Kg	1		10/18/19 01:02
Dibromomethane	0.0222	U	0.0444	0.0138	mg/Kg	1		10/18/19 01:02
Dichlorodifluoromethane	0.0444	U	0.0887	0.0266	mg/Kg	1		10/18/19 01:02
Ethylbenzene	0.0222	U	0.0444	0.0138	mg/Kg	1		10/18/19 01:02
Freon-113	0.0885	U	0.177	0.0550	mg/Kg	1		10/18/19 01:02
Hexachlorobutadiene	0.0177	U	0.0355	0.0110	mg/Kg	1		10/18/19 01:02
Isopropylbenzene (Cumene)	0.0222	U	0.0444	0.0138	mg/Kg	1		10/18/19 01:02
Methylene chloride	0.0885	U	0.177	0.0550	mg/Kg	1		10/18/19 01:02
Methyl-t-butyl ether	0.0885	U	0.177	0.0550	mg/Kg	1		10/18/19 01:02
Naphthalene	0.0222	U	0.0444	0.0138	mg/Kg	1		10/18/19 01:02
n-Butylbenzene	0.0222	U	0.0444	0.0138	mg/Kg	1		10/18/19 01:02
n-Propylbenzene	0.0222	U	0.0444	0.0138	mg/Kg	1		10/18/19 01:02
o-Xylene	0.0222	U	0.0444	0.0138	mg/Kg	1		10/18/19 01:02
P & M -Xylene	0.0444	U	0.0887	0.0266	mg/Kg	1		10/18/19 01:02
sec-Butylbenzene	0.0222	U	0.0444	0.0138	mg/Kg	1		10/18/19 01:02
Styrene	0.0222	U	0.0444	0.0138	mg/Kg	1		10/18/19 01:02
tert-Butylbenzene	0.0222	U	0.0444	0.0138	mg/Kg	1		10/18/19 01:02
Tetrachloroethene	0.654		0.0222	0.00692	mg/Kg	1		10/18/19 01:02
Toluene	0.0222	U	0.0444	0.0138	mg/Kg	1		10/18/19 01:02
trans-1,2-Dichloroethene	0.0222	U	0.0444	0.0138	mg/Kg	1		10/18/19 01:02
trans-1,3-Dichloropropene	0.0111	U	0.0222	0.00692	mg/Kg	1		10/18/19 01:02
Trichloroethene	0.00443	U	0.00887	0.00266	mg/Kg	1		10/18/19 01:02
Trichlorofluoromethane	0.0444	U	0.0887	0.0266	mg/Kg	1		10/18/19 01:02
Vinyl acetate	0.0885	U	0.177	0.0550	mg/Kg	1		10/18/19 01:02
Vinyl chloride	0.000710	U	0.00142	0.000444	mg/Kg	1		10/18/19 01:02
Xylenes (total)	0.0665	U	0.133	0.0405	mg/Kg	1		10/18/19 01:02
Surrogates								
1,2-Dichloroethane-D4 (surr)	104		71-136		%	1		10/18/19 01:02
4-Bromofluorobenzene (surr)	97.9		55-151		%	1		10/18/19 01:02
Toluene-d8 (surr)	98.2		85-116		%	1		10/18/19 01:02

Print Date: 10/29/2019 2:23:42PM

J flagging is activated

Results of **SB19-03-3**

Client Sample ID: **SB19-03-3**
Client Project ID: **103729 Bentley Mall E. Sat.**
Lab Sample ID: 1199855005
Lab Project ID: 1199855

Collection Date: 10/10/19 01:10
Received Date: 10/11/19 10:59
Matrix: Soil/Solid (dry weight)
Solids (%):96.4
Location:

Results by **Volatile GC/MS**

Batch Information

Analytical Batch: VMS19590
Analytical Method: SW8260C
Analyst: KAJ
Analytical Date/Time: 10/18/19 01:02
Container ID: 1199855005-B

Prep Batch: VXX35128
Prep Method: SW5035A
Prep Date/Time: 10/10/19 01:10
Prep Initial Wt./Vol.: 30.534 g
Prep Extract Vol: 26.1094 mL

Results of **SB19-04-1**

Client Sample ID: **SB19-04-1**
Client Project ID: **103729 Bentley Mall E. Sat.**
Lab Sample ID: 1199855006
Lab Project ID: 1199855

Collection Date: 10/10/19 01:40
Received Date: 10/11/19 10:59
Matrix: Soil/Solid (dry weight)
Solids (%):85.6
Location:

Results by **Volatile GC/MS**

Parameter	Result	Qual	LOQ/CL	DL	Units	DF	Allowable Limits	Date Analyzed
1,1,1,2-Tetrachloroethane	0.0217	U	0.0435	0.0135	mg/Kg	1		10/18/19 01:17
1,1,1-Trichloroethane	0.0272	U	0.0544	0.0170	mg/Kg	1		10/18/19 01:17
1,1,2,2-Tetrachloroethane	0.00217	U	0.00435	0.00135	mg/Kg	1		10/18/19 01:17
1,1,2-Trichloroethane	0.000870	U	0.00174	0.000544	mg/Kg	1		10/18/19 01:17
1,1-Dichloroethane	0.0272	U	0.0544	0.0170	mg/Kg	1		10/18/19 01:17
1,1-Dichloroethene	0.0272	U	0.0544	0.0170	mg/Kg	1		10/18/19 01:17
1,1-Dichloropropene	0.0272	U	0.0544	0.0170	mg/Kg	1		10/18/19 01:17
1,2,3-Trichlorobenzene	0.0545	U	0.109	0.0326	mg/Kg	1		10/18/19 01:17
1,2,3-Trichloropropane	0.00109	U	0.00217	0.000674	mg/Kg	1		10/18/19 01:17
1,2,4-Trichlorobenzene	0.0272	U	0.0544	0.0170	mg/Kg	1		10/18/19 01:17
1,2,4-Trimethylbenzene	0.0545	U	0.109	0.0326	mg/Kg	1		10/18/19 01:17
1,2-Dibromo-3-chloropropane	0.109	U	0.217	0.0674	mg/Kg	1		10/18/19 01:17
1,2-Dibromoethane	0.00109	U	0.00217	0.000674	mg/Kg	1		10/18/19 01:17
1,2-Dichlorobenzene	0.0272	U	0.0544	0.0170	mg/Kg	1		10/18/19 01:17
1,2-Dichloroethane	0.00217	U	0.00435	0.00135	mg/Kg	1		10/18/19 01:17
1,2-Dichloropropane	0.0109	U	0.0217	0.00674	mg/Kg	1		10/18/19 01:17
1,3,5-Trimethylbenzene	0.0272	U	0.0544	0.0170	mg/Kg	1		10/18/19 01:17
1,3-Dichlorobenzene	0.0272	U	0.0544	0.0170	mg/Kg	1		10/18/19 01:17
1,3-Dichloropropane	0.0109	U	0.0217	0.00674	mg/Kg	1		10/18/19 01:17
1,4-Dichlorobenzene	0.0272	U	0.0544	0.0170	mg/Kg	1		10/18/19 01:17
2,2-Dichloropropane	0.0272	U	0.0544	0.0170	mg/Kg	1		10/18/19 01:17
2-Butanone (MEK)	0.272	U	0.544	0.170	mg/Kg	1		10/18/19 01:17
2-Chlorotoluene	0.0272	U	0.0544	0.0170	mg/Kg	1		10/18/19 01:17
2-Hexanone	0.109	U	0.217	0.0674	mg/Kg	1		10/18/19 01:17
4-Chlorotoluene	0.0272	U	0.0544	0.0170	mg/Kg	1		10/18/19 01:17
4-Isopropyltoluene	0.109	U	0.217	0.0544	mg/Kg	1		10/18/19 01:17
4-Methyl-2-pentanone (MIBK)	0.272	U	0.544	0.170	mg/Kg	1		10/18/19 01:17
Acetone	0.272	U	0.544	0.170	mg/Kg	1		10/18/19 01:17
Benzene	0.0136	U	0.0272	0.00848	mg/Kg	1		10/18/19 01:17
Bromobenzene	0.0272	U	0.0544	0.0170	mg/Kg	1		10/18/19 01:17
Bromochloromethane	0.0272	U	0.0544	0.0170	mg/Kg	1		10/18/19 01:17
Bromodichloromethane	0.00217	U	0.00435	0.00135	mg/Kg	1		10/18/19 01:17
Bromoform	0.0272	U	0.0544	0.0170	mg/Kg	1		10/18/19 01:17
Bromomethane	0.0217	U	0.0435	0.0135	mg/Kg	1		10/18/19 01:17
Carbon disulfide	0.109	U	0.217	0.0674	mg/Kg	1		10/18/19 01:17
Carbon tetrachloride	0.0136	U	0.0272	0.00848	mg/Kg	1		10/18/19 01:17
Chlorobenzene	0.0272	U	0.0544	0.0170	mg/Kg	1		10/18/19 01:17

Results of **SB19-04-1**

Client Sample ID: **SB19-04-1**
Client Project ID: **103729 Bentley Mall E. Sat.**
Lab Sample ID: 1199855006
Lab Project ID: 1199855

Collection Date: 10/10/19 01:40
Received Date: 10/11/19 10:59
Matrix: Soil/Solid (dry weight)
Solids (%):85.6
Location:

Results by **Volatile GC/MS**

Parameter	Result	Qual	LOQ/CL	DL	Units	DF	Allowable Limits	Date Analyzed
Chloroethane	0.218	U	0.435	0.135	mg/Kg	1		10/18/19 01:17
Chloroform	0.00217	U	0.00435	0.00135	mg/Kg	1		10/18/19 01:17
Chloromethane	0.0272	U	0.0544	0.0170	mg/Kg	1		10/18/19 01:17
cis-1,2-Dichloroethene	0.0272	U	0.0544	0.0170	mg/Kg	1		10/18/19 01:17
cis-1,3-Dichloropropene	0.0136	U	0.0272	0.00848	mg/Kg	1		10/18/19 01:17
Dibromochloromethane	0.00217	U	0.00435	0.00135	mg/Kg	1		10/18/19 01:17
Dibromomethane	0.0272	U	0.0544	0.0170	mg/Kg	1		10/18/19 01:17
Dichlorodifluoromethane	0.0545	U	0.109	0.0326	mg/Kg	1		10/18/19 01:17
Ethylbenzene	0.0272	U	0.0544	0.0170	mg/Kg	1		10/18/19 01:17
Freon-113	0.109	U	0.217	0.0674	mg/Kg	1		10/18/19 01:17
Hexachlorobutadiene	0.0217	U	0.0435	0.0135	mg/Kg	1		10/18/19 01:17
Isopropylbenzene (Cumene)	0.0272	U	0.0544	0.0170	mg/Kg	1		10/18/19 01:17
Methylene chloride	0.109	U	0.217	0.0674	mg/Kg	1		10/18/19 01:17
Methyl-t-butyl ether	0.109	U	0.217	0.0674	mg/Kg	1		10/18/19 01:17
Naphthalene	0.0272	U	0.0544	0.0170	mg/Kg	1		10/18/19 01:17
n-Butylbenzene	0.0272	U	0.0544	0.0170	mg/Kg	1		10/18/19 01:17
n-Propylbenzene	0.0272	U	0.0544	0.0170	mg/Kg	1		10/18/19 01:17
o-Xylene	0.0272	U	0.0544	0.0170	mg/Kg	1		10/18/19 01:17
P & M -Xylene	0.0545	U	0.109	0.0326	mg/Kg	1		10/18/19 01:17
sec-Butylbenzene	0.0272	U	0.0544	0.0170	mg/Kg	1		10/18/19 01:17
Styrene	0.0272	U	0.0544	0.0170	mg/Kg	1		10/18/19 01:17
tert-Butylbenzene	0.0272	U	0.0544	0.0170	mg/Kg	1		10/18/19 01:17
Tetrachloroethene	0.966		0.0272	0.00848	mg/Kg	1		10/18/19 01:17
Toluene	0.0272	U	0.0544	0.0170	mg/Kg	1		10/18/19 01:17
trans-1,2-Dichloroethene	0.0272	U	0.0544	0.0170	mg/Kg	1		10/18/19 01:17
trans-1,3-Dichloropropene	0.0136	U	0.0272	0.00848	mg/Kg	1		10/18/19 01:17
Trichloroethene	0.00545	U	0.0109	0.00326	mg/Kg	1		10/18/19 01:17
Trichlorofluoromethane	0.0545	U	0.109	0.0326	mg/Kg	1		10/18/19 01:17
Vinyl acetate	0.109	U	0.217	0.0674	mg/Kg	1		10/18/19 01:17
Vinyl chloride	0.000870	U	0.00174	0.000544	mg/Kg	1		10/18/19 01:17
Xylenes (total)	0.0815	U	0.163	0.0496	mg/Kg	1		10/18/19 01:17
Surrogates								
1,2-Dichloroethane-D4 (surr)	104		71-136		%	1		10/18/19 01:17
4-Bromofluorobenzene (surr)	98.4		55-151		%	1		10/18/19 01:17
Toluene-d8 (surr)	97.4		85-116		%	1		10/18/19 01:17

Print Date: 10/29/2019 2:23:42PM

J flagging is activated

Results of **SB19-04-1**

Client Sample ID: **SB19-04-1**
Client Project ID: **103729 Bentley Mall E. Sat.**
Lab Sample ID: 1199855006
Lab Project ID: 1199855

Collection Date: 10/10/19 01:40
Received Date: 10/11/19 10:59
Matrix: Soil/Solid (dry weight)
Solids (%):85.6
Location:

Results by **Volatile GC/MS**

Batch Information

Analytical Batch: VMS19590
Analytical Method: SW8260C
Analyst: KAJ
Analytical Date/Time: 10/18/19 01:17
Container ID: 1199855006-B

Prep Batch: VXX35128
Prep Method: SW5035A
Prep Date/Time: 10/10/19 01:40
Prep Initial Wt./Vol.: 31.789 g
Prep Extract Vol: 29.5807 mL

Results of **SB19-04-4**

Client Sample ID: **SB19-04-4**
Client Project ID: **103729 Bentley Mall E. Sat.**
Lab Sample ID: 1199855007
Lab Project ID: 1199855

Collection Date: 10/10/19 02:30
Received Date: 10/11/19 10:59
Matrix: Soil/Solid (dry weight)
Solids (%):91.5
Location:

Results by **Volatile GC/MS**

Parameter	Result	Qual	LOQ/CL	DL	Units	DF	Allowable Limits	Date Analyzed
1,1,1,2-Tetrachloroethane	0.0130	U	0.0260	0.00807	mg/Kg	1		10/18/19 01:33
1,1,1-Trichloroethane	0.0163	U	0.0325	0.0102	mg/Kg	1		10/18/19 01:33
1,1,2,2-Tetrachloroethane	0.00130	U	0.00260	0.000807	mg/Kg	1		10/18/19 01:33
1,1,2-Trichloroethane	0.000520	U	0.00104	0.000325	mg/Kg	1		10/18/19 01:33
1,1-Dichloroethane	0.0163	U	0.0325	0.0102	mg/Kg	1		10/18/19 01:33
1,1-Dichloroethene	0.0163	U	0.0325	0.0102	mg/Kg	1		10/18/19 01:33
1,1-Dichloropropene	0.0163	U	0.0325	0.0102	mg/Kg	1		10/18/19 01:33
1,2,3-Trichlorobenzene	0.0326	U	0.0651	0.0195	mg/Kg	1		10/18/19 01:33
1,2,3-Trichloropropane	0.000650	U	0.00130	0.000404	mg/Kg	1		10/18/19 01:33
1,2,4-Trichlorobenzene	0.0163	U	0.0325	0.0102	mg/Kg	1		10/18/19 01:33
1,2,4-Trimethylbenzene	0.0326	U	0.0651	0.0195	mg/Kg	1		10/18/19 01:33
1,2-Dibromo-3-chloropropane	0.0650	U	0.130	0.0404	mg/Kg	1		10/18/19 01:33
1,2-Dibromoethane	0.000650	U	0.00130	0.000404	mg/Kg	1		10/18/19 01:33
1,2-Dichlorobenzene	0.0163	U	0.0325	0.0102	mg/Kg	1		10/18/19 01:33
1,2-Dichloroethane	0.00130	U	0.00260	0.000807	mg/Kg	1		10/18/19 01:33
1,2-Dichloropropane	0.00650	U	0.0130	0.00404	mg/Kg	1		10/18/19 01:33
1,3,5-Trimethylbenzene	0.0163	U	0.0325	0.0102	mg/Kg	1		10/18/19 01:33
1,3-Dichlorobenzene	0.0163	U	0.0325	0.0102	mg/Kg	1		10/18/19 01:33
1,3-Dichloropropane	0.00650	U	0.0130	0.00404	mg/Kg	1		10/18/19 01:33
1,4-Dichlorobenzene	0.0163	U	0.0325	0.0102	mg/Kg	1		10/18/19 01:33
2,2-Dichloropropane	0.0163	U	0.0325	0.0102	mg/Kg	1		10/18/19 01:33
2-Butanone (MEK)	0.163	U	0.325	0.102	mg/Kg	1		10/18/19 01:33
2-Chlorotoluene	0.0163	U	0.0325	0.0102	mg/Kg	1		10/18/19 01:33
2-Hexanone	0.0650	U	0.130	0.0404	mg/Kg	1		10/18/19 01:33
4-Chlorotoluene	0.0163	U	0.0325	0.0102	mg/Kg	1		10/18/19 01:33
4-Isopropyltoluene	0.0650	U	0.130	0.0325	mg/Kg	1		10/18/19 01:33
4-Methyl-2-pentanone (MIBK)	0.163	U	0.325	0.102	mg/Kg	1		10/18/19 01:33
Acetone	0.163	U	0.325	0.102	mg/Kg	1		10/18/19 01:33
Benzene	0.00815	U	0.0163	0.00508	mg/Kg	1		10/18/19 01:33
Bromobenzene	0.0163	U	0.0325	0.0102	mg/Kg	1		10/18/19 01:33
Bromochloromethane	0.0163	U	0.0325	0.0102	mg/Kg	1		10/18/19 01:33
Bromodichloromethane	0.00130	U	0.00260	0.000807	mg/Kg	1		10/18/19 01:33
Bromoform	0.0163	U	0.0325	0.0102	mg/Kg	1		10/18/19 01:33
Bromomethane	0.0130	U	0.0260	0.00807	mg/Kg	1		10/18/19 01:33
Carbon disulfide	0.0650	U	0.130	0.0404	mg/Kg	1		10/18/19 01:33
Carbon tetrachloride	0.00815	U	0.0163	0.00508	mg/Kg	1		10/18/19 01:33
Chlorobenzene	0.0163	U	0.0325	0.0102	mg/Kg	1		10/18/19 01:33

Results of **SB19-04-4**

Client Sample ID: **SB19-04-4**
Client Project ID: **103729 Bentley Mall E. Sat.**
Lab Sample ID: 1199855007
Lab Project ID: 1199855

Collection Date: 10/10/19 02:30
Received Date: 10/11/19 10:59
Matrix: Soil/Solid (dry weight)
Solids (%):91.5
Location:

Results by **Volatile GC/MS**

Parameter	Result	Qual	LOQ/CL	DL	Units	DF	Allowable Limits	Date Analyzed
Chloroethane	0.130	U	0.260	0.0807	mg/Kg	1		10/18/19 01:33
Chloroform	0.00130	U	0.00260	0.000807	mg/Kg	1		10/18/19 01:33
Chloromethane	0.0163	U	0.0325	0.0102	mg/Kg	1		10/18/19 01:33
cis-1,2-Dichloroethene	0.0163	U	0.0325	0.0102	mg/Kg	1		10/18/19 01:33
cis-1,3-Dichloropropene	0.00815	U	0.0163	0.00508	mg/Kg	1		10/18/19 01:33
Dibromochloromethane	0.00130	U	0.00260	0.000807	mg/Kg	1		10/18/19 01:33
Dibromomethane	0.0163	U	0.0325	0.0102	mg/Kg	1		10/18/19 01:33
Dichlorodifluoromethane	0.0326	U	0.0651	0.0195	mg/Kg	1		10/18/19 01:33
Ethylbenzene	0.0163	U	0.0325	0.0102	mg/Kg	1		10/18/19 01:33
Freon-113	0.0650	U	0.130	0.0404	mg/Kg	1		10/18/19 01:33
Hexachlorobutadiene	0.0130	U	0.0260	0.00807	mg/Kg	1		10/18/19 01:33
Isopropylbenzene (Cumene)	0.0163	U	0.0325	0.0102	mg/Kg	1		10/18/19 01:33
Methylene chloride	0.0650	U	0.130	0.0404	mg/Kg	1		10/18/19 01:33
Methyl-t-butyl ether	0.0650	U	0.130	0.0404	mg/Kg	1		10/18/19 01:33
Naphthalene	0.0163	U	0.0325	0.0102	mg/Kg	1		10/18/19 01:33
n-Butylbenzene	0.0163	U	0.0325	0.0102	mg/Kg	1		10/18/19 01:33
n-Propylbenzene	0.0163	U	0.0325	0.0102	mg/Kg	1		10/18/19 01:33
o-Xylene	0.0163	U	0.0325	0.0102	mg/Kg	1		10/18/19 01:33
P & M -Xylene	0.0326	U	0.0651	0.0195	mg/Kg	1		10/18/19 01:33
sec-Butylbenzene	0.0163	U	0.0325	0.0102	mg/Kg	1		10/18/19 01:33
Styrene	0.0163	U	0.0325	0.0102	mg/Kg	1		10/18/19 01:33
tert-Butylbenzene	0.0163	U	0.0325	0.0102	mg/Kg	1		10/18/19 01:33
Tetrachloroethene	0.272		0.0163	0.00508	mg/Kg	1		10/18/19 01:33
Toluene	0.0163	U	0.0325	0.0102	mg/Kg	1		10/18/19 01:33
trans-1,2-Dichloroethene	0.0163	U	0.0325	0.0102	mg/Kg	1		10/18/19 01:33
trans-1,3-Dichloropropene	0.00815	U	0.0163	0.00508	mg/Kg	1		10/18/19 01:33
Trichloroethene	0.00326	U	0.00651	0.00195	mg/Kg	1		10/18/19 01:33
Trichlorofluoromethane	0.0326	U	0.0651	0.0195	mg/Kg	1		10/18/19 01:33
Vinyl acetate	0.0650	U	0.130	0.0404	mg/Kg	1		10/18/19 01:33
Vinyl chloride	0.000520	U	0.00104	0.000325	mg/Kg	1		10/18/19 01:33
Xylenes (total)	0.0488	U	0.0976	0.0297	mg/Kg	1		10/18/19 01:33
Surrogates								
1,2-Dichloroethane-D4 (surr)	105		71-136		%	1		10/18/19 01:33
4-Bromofluorobenzene (surr)	102		55-151		%	1		10/18/19 01:33
Toluene-d8 (surr)	98.7		85-116		%	1		10/18/19 01:33

Print Date: 10/29/2019 2:23:42PM

J flagging is activated

Results of **SB19-04-4**

Client Sample ID: **SB19-04-4**
Client Project ID: **103729 Bentley Mall E. Sat.**
Lab Sample ID: 1199855007
Lab Project ID: 1199855

Collection Date: 10/10/19 02:30
Received Date: 10/11/19 10:59
Matrix: Soil/Solid (dry weight)
Solids (%):91.5
Location:

Results by **Volatile GC/MS**

Batch Information

Analytical Batch: VMS19590
Analytical Method: SW8260C
Analyst: KAJ
Analytical Date/Time: 10/18/19 01:33
Container ID: 1199855007-B

Prep Batch: VXX35128
Prep Method: SW5035A
Prep Date/Time: 10/10/19 02:30
Prep Initial Wt./Vol.: 48.967 g
Prep Extract Vol: 29.1626 mL

Results of **SB19-05-1**

Client Sample ID: **SB19-05-1**
Client Project ID: **103729 Bentley Mall E. Sat.**
Lab Sample ID: 1199855008
Lab Project ID: 1199855

Collection Date: 10/10/19 02:50
Received Date: 10/11/19 10:59
Matrix: Soil/Solid (dry weight)
Solids (%):78.1
Location:

Results by **Volatile GC/MS**

Parameter	Result	Qual	LOQ/CL	DL	Units	DF	Allowable Limits	Date Analyzed
1,1,1,2-Tetrachloroethane	0.0256	U	0.0513	0.0159	mg/Kg	1		10/18/19 01:48
1,1,1-Trichloroethane	0.0321	U	0.0641	0.0200	mg/Kg	1		10/18/19 01:48
1,1,2,2-Tetrachloroethane	0.00257	U	0.00513	0.00159	mg/Kg	1		10/18/19 01:48
1,1,2-Trichloroethane	0.00103	U	0.00205	0.000641	mg/Kg	1		10/18/19 01:48
1,1-Dichloroethane	0.0321	U	0.0641	0.0200	mg/Kg	1		10/18/19 01:48
1,1-Dichloroethene	0.0321	U	0.0641	0.0200	mg/Kg	1		10/18/19 01:48
1,1-Dichloropropene	0.0321	U	0.0641	0.0200	mg/Kg	1		10/18/19 01:48
1,2,3-Trichlorobenzene	0.0640	U	0.128	0.0385	mg/Kg	1		10/18/19 01:48
1,2,3-Trichloropropane	0.00128	U	0.00256	0.000795	mg/Kg	1		10/18/19 01:48
1,2,4-Trichlorobenzene	0.0321	U	0.0641	0.0200	mg/Kg	1		10/18/19 01:48
1,2,4-Trimethylbenzene	0.0640	U	0.128	0.0385	mg/Kg	1		10/18/19 01:48
1,2-Dibromo-3-chloropropane	0.128	U	0.256	0.0795	mg/Kg	1		10/18/19 01:48
1,2-Dibromoethane	0.00128	U	0.00256	0.000795	mg/Kg	1		10/18/19 01:48
1,2-Dichlorobenzene	0.0321	U	0.0641	0.0200	mg/Kg	1		10/18/19 01:48
1,2-Dichloroethane	0.00257	U	0.00513	0.00159	mg/Kg	1		10/18/19 01:48
1,2-Dichloropropane	0.0128	U	0.0256	0.00795	mg/Kg	1		10/18/19 01:48
1,3,5-Trimethylbenzene	0.0321	U	0.0641	0.0200	mg/Kg	1		10/18/19 01:48
1,3-Dichlorobenzene	0.0321	U	0.0641	0.0200	mg/Kg	1		10/18/19 01:48
1,3-Dichloropropane	0.0128	U	0.0256	0.00795	mg/Kg	1		10/18/19 01:48
1,4-Dichlorobenzene	0.0321	U	0.0641	0.0200	mg/Kg	1		10/18/19 01:48
2,2-Dichloropropane	0.0321	U	0.0641	0.0200	mg/Kg	1		10/18/19 01:48
2-Butanone (MEK)	0.321	U	0.641	0.200	mg/Kg	1		10/18/19 01:48
2-Chlorotoluene	0.0321	U	0.0641	0.0200	mg/Kg	1		10/18/19 01:48
2-Hexanone	0.128	U	0.256	0.0795	mg/Kg	1		10/18/19 01:48
4-Chlorotoluene	0.0321	U	0.0641	0.0200	mg/Kg	1		10/18/19 01:48
4-Isopropyltoluene	0.128	U	0.256	0.0641	mg/Kg	1		10/18/19 01:48
4-Methyl-2-pentanone (MIBK)	0.321	U	0.641	0.200	mg/Kg	1		10/18/19 01:48
Acetone	0.321	U	0.641	0.200	mg/Kg	1		10/18/19 01:48
Benzene	0.0160	U	0.0321	0.0100	mg/Kg	1		10/18/19 01:48
Bromobenzene	0.0321	U	0.0641	0.0200	mg/Kg	1		10/18/19 01:48
Bromochloromethane	0.0321	U	0.0641	0.0200	mg/Kg	1		10/18/19 01:48
Bromodichloromethane	0.00257	U	0.00513	0.00159	mg/Kg	1		10/18/19 01:48
Bromoform	0.0321	U	0.0641	0.0200	mg/Kg	1		10/18/19 01:48
Bromomethane	0.0256	U	0.0513	0.0159	mg/Kg	1		10/18/19 01:48
Carbon disulfide	0.128	U	0.256	0.0795	mg/Kg	1		10/18/19 01:48
Carbon tetrachloride	0.0160	U	0.0321	0.0100	mg/Kg	1		10/18/19 01:48
Chlorobenzene	0.0321	U	0.0641	0.0200	mg/Kg	1		10/18/19 01:48

Results of **SB19-05-1**

Client Sample ID: **SB19-05-1**
Client Project ID: **103729 Bentley Mall E. Sat.**
Lab Sample ID: 1199855008
Lab Project ID: 1199855

Collection Date: 10/10/19 02:50
Received Date: 10/11/19 10:59
Matrix: Soil/Solid (dry weight)
Solids (%):78.1
Location:

Results by **Volatile GC/MS**

Parameter	Result	Qual	LOQ/CL	DL	Units	DF	Allowable Limits	Date Analyzed
Chloroethane	0.257	U	0.513	0.159	mg/Kg	1		10/18/19 01:48
Chloroform	0.00257	U	0.00513	0.00159	mg/Kg	1		10/18/19 01:48
Chloromethane	0.0321	U	0.0641	0.0200	mg/Kg	1		10/18/19 01:48
cis-1,2-Dichloroethene	0.0321	U	0.0641	0.0200	mg/Kg	1		10/18/19 01:48
cis-1,3-Dichloropropene	0.0160	U	0.0321	0.0100	mg/Kg	1		10/18/19 01:48
Dibromochloromethane	0.00257	U	0.00513	0.00159	mg/Kg	1		10/18/19 01:48
Dibromomethane	0.0321	U	0.0641	0.0200	mg/Kg	1		10/18/19 01:48
Dichlorodifluoromethane	0.0640	U	0.128	0.0385	mg/Kg	1		10/18/19 01:48
Ethylbenzene	0.0321	U	0.0641	0.0200	mg/Kg	1		10/18/19 01:48
Freon-113	0.128	U	0.256	0.0795	mg/Kg	1		10/18/19 01:48
Hexachlorobutadiene	0.0256	U	0.0513	0.0159	mg/Kg	1		10/18/19 01:48
Isopropylbenzene (Cumene)	0.0321	U	0.0641	0.0200	mg/Kg	1		10/18/19 01:48
Methylene chloride	0.128	U	0.256	0.0795	mg/Kg	1		10/18/19 01:48
Methyl-t-butyl ether	0.128	U	0.256	0.0795	mg/Kg	1		10/18/19 01:48
Naphthalene	0.0321	U	0.0641	0.0200	mg/Kg	1		10/18/19 01:48
n-Butylbenzene	0.0321	U	0.0641	0.0200	mg/Kg	1		10/18/19 01:48
n-Propylbenzene	0.0321	U	0.0641	0.0200	mg/Kg	1		10/18/19 01:48
o-Xylene	0.0321	U	0.0641	0.0200	mg/Kg	1		10/18/19 01:48
P & M -Xylene	0.0640	U	0.128	0.0385	mg/Kg	1		10/18/19 01:48
sec-Butylbenzene	0.0321	U	0.0641	0.0200	mg/Kg	1		10/18/19 01:48
Styrene	0.0321	U	0.0641	0.0200	mg/Kg	1		10/18/19 01:48
tert-Butylbenzene	0.0321	U	0.0641	0.0200	mg/Kg	1		10/18/19 01:48
Tetrachloroethene	2.41		0.0321	0.0100	mg/Kg	1		10/18/19 01:48
Toluene	0.0321	U	0.0641	0.0200	mg/Kg	1		10/18/19 01:48
trans-1,2-Dichloroethene	0.0321	U	0.0641	0.0200	mg/Kg	1		10/18/19 01:48
trans-1,3-Dichloropropene	0.0160	U	0.0321	0.0100	mg/Kg	1		10/18/19 01:48
Trichloroethene	0.00640	U	0.0128	0.00385	mg/Kg	1		10/18/19 01:48
Trichlorofluoromethane	0.0640	U	0.128	0.0385	mg/Kg	1		10/18/19 01:48
Vinyl acetate	0.128	U	0.256	0.0795	mg/Kg	1		10/18/19 01:48
Vinyl chloride	0.00103	U	0.00205	0.000641	mg/Kg	1		10/18/19 01:48
Xylenes (total)	0.0960	U	0.192	0.0585	mg/Kg	1		10/18/19 01:48
Surrogates								
1,2-Dichloroethane-D4 (surr)	103		71-136		%	1		10/18/19 01:48
4-Bromofluorobenzene (surr)	109		55-151		%	1		10/18/19 01:48
Toluene-d8 (surr)	98		85-116		%	1		10/18/19 01:48

Print Date: 10/29/2019 2:23:42PM

J flagging is activated

Results of **SB19-05-1**

Client Sample ID: **SB19-05-1**
Client Project ID: **103729 Bentley Mall E. Sat.**
Lab Sample ID: 1199855008
Lab Project ID: 1199855

Collection Date: 10/10/19 02:50
Received Date: 10/11/19 10:59
Matrix: Soil/Solid (dry weight)
Solids (%):78.1
Location:

Results by **Volatile GC/MS**

Batch Information

Analytical Batch: VMS19590
Analytical Method: SW8260C
Analyst: KAJ
Analytical Date/Time: 10/18/19 01:48
Container ID: 1199855008-B

Prep Batch: VXX35128
Prep Method: SW5035A
Prep Date/Time: 10/10/19 02:50
Prep Initial Wt./Vol.: 31.95 g
Prep Extract Vol: 31.9991 mL

Results of **SB19-05-101**

Client Sample ID: **SB19-05-101**
Client Project ID: **103729 Bentley Mall E. Sat.**
Lab Sample ID: 1199855009
Lab Project ID: 1199855

Collection Date: 10/10/19 02:40
Received Date: 10/11/19 10:59
Matrix: Soil/Solid (dry weight)
Solids (%):82.9
Location:

Results by **Volatile GC/MS**

Parameter	Result	Qual	LOQ/CL	DL	Units	DF	Allowable Limits	Date Analyzed
1,1,1,2-Tetrachloroethane	0.0253	U	0.0506	0.0157	mg/Kg	1		10/20/19 20:34
1,1,1-Trichloroethane	0.0316	U	0.0632	0.0197	mg/Kg	1		10/20/19 20:34
1,1,2,2-Tetrachloroethane	0.00253	U	0.00506	0.00157	mg/Kg	1		10/20/19 20:34
1,1,2-Trichloroethane	0.00101	U	0.00202	0.000632	mg/Kg	1		10/20/19 20:34
1,1-Dichloroethane	0.0316	U	0.0632	0.0197	mg/Kg	1		10/20/19 20:34
1,1-Dichloroethene	0.0316	U	0.0632	0.0197	mg/Kg	1		10/20/19 20:34
1,1-Dichloropropene	0.0316	U	0.0632	0.0197	mg/Kg	1		10/20/19 20:34
1,2,3-Trichlorobenzene	0.0630	U	0.126	0.0379	mg/Kg	1		10/20/19 20:34
1,2,3-Trichloropropane	0.00127	U	0.00253	0.000784	mg/Kg	1		10/20/19 20:34
1,2,4-Trichlorobenzene	0.0316	U	0.0632	0.0197	mg/Kg	1		10/20/19 20:34
1,2,4-Trimethylbenzene	0.0630	U	0.126	0.0379	mg/Kg	1		10/20/19 20:34
1,2-Dibromo-3-chloropropane	0.127	U	0.253	0.0784	mg/Kg	1		10/20/19 20:34
1,2-Dibromoethane	0.00127	U	0.00253	0.000784	mg/Kg	1		10/20/19 20:34
1,2-Dichlorobenzene	0.0316	U	0.0632	0.0197	mg/Kg	1		10/20/19 20:34
1,2-Dichloroethane	0.00253	U	0.00506	0.00157	mg/Kg	1		10/20/19 20:34
1,2-Dichloropropane	0.0127	U	0.0253	0.00784	mg/Kg	1		10/20/19 20:34
1,3,5-Trimethylbenzene	0.0316	U	0.0632	0.0197	mg/Kg	1		10/20/19 20:34
1,3-Dichlorobenzene	0.0316	U	0.0632	0.0197	mg/Kg	1		10/20/19 20:34
1,3-Dichloropropane	0.0127	U	0.0253	0.00784	mg/Kg	1		10/20/19 20:34
1,4-Dichlorobenzene	0.0316	U	0.0632	0.0197	mg/Kg	1		10/20/19 20:34
2,2-Dichloropropane	0.0316	U	0.0632	0.0197	mg/Kg	1		10/20/19 20:34
2-Butanone (MEK)	0.316	U	0.632	0.197	mg/Kg	1		10/20/19 20:34
2-Chlorotoluene	0.0316	U	0.0632	0.0197	mg/Kg	1		10/20/19 20:34
2-Hexanone	0.127	U	0.253	0.0784	mg/Kg	1		10/20/19 20:34
4-Chlorotoluene	0.0316	U	0.0632	0.0197	mg/Kg	1		10/20/19 20:34
4-Isopropyltoluene	0.127	U	0.253	0.0632	mg/Kg	1		10/20/19 20:34
4-Methyl-2-pentanone (MIBK)	0.316	U	0.632	0.197	mg/Kg	1		10/20/19 20:34
Acetone	0.316	U	0.632	0.197	mg/Kg	1		10/20/19 20:34
Benzene	0.0158	U	0.0316	0.00986	mg/Kg	1		10/20/19 20:34
Bromobenzene	0.0316	U	0.0632	0.0197	mg/Kg	1		10/20/19 20:34
Bromochloromethane	0.0316	U	0.0632	0.0197	mg/Kg	1		10/20/19 20:34
Bromodichloromethane	0.00253	U	0.00506	0.00157	mg/Kg	1		10/20/19 20:34
Bromoform	0.0316	U	0.0632	0.0197	mg/Kg	1		10/20/19 20:34
Bromomethane	0.0253	U	0.0506	0.0157	mg/Kg	1		10/20/19 20:34
Carbon disulfide	0.127	U	0.253	0.0784	mg/Kg	1		10/20/19 20:34
Carbon tetrachloride	0.0158	U	0.0316	0.00986	mg/Kg	1		10/20/19 20:34
Chlorobenzene	0.0316	U	0.0632	0.0197	mg/Kg	1		10/20/19 20:34

Results of **SB19-05-101**

Client Sample ID: **SB19-05-101**
Client Project ID: **103729 Bentley Mall E. Sat.**
Lab Sample ID: 1199855009
Lab Project ID: 1199855

Collection Date: 10/10/19 02:40
Received Date: 10/11/19 10:59
Matrix: Soil/Solid (dry weight)
Solids (%):82.9
Location:

Results by **Volatile GC/MS**

Parameter	Result	Qual	LOQ/CL	DL	Units	DF	Allowable Limits	Date Analyzed
Chloroethane	0.253	U	0.506	0.157	mg/Kg	1		10/20/19 20:34
Chloroform	0.00253	U	0.00506	0.00157	mg/Kg	1		10/20/19 20:34
Chloromethane	0.0316	U	0.0632	0.0197	mg/Kg	1		10/20/19 20:34
cis-1,2-Dichloroethene	0.0316	U	0.0632	0.0197	mg/Kg	1		10/20/19 20:34
cis-1,3-Dichloropropene	0.0158	U	0.0316	0.00986	mg/Kg	1		10/20/19 20:34
Dibromochloromethane	0.00253	U	0.00506	0.00157	mg/Kg	1		10/20/19 20:34
Dibromomethane	0.0316	U	0.0632	0.0197	mg/Kg	1		10/20/19 20:34
Dichlorodifluoromethane	0.0630	U	0.126	0.0379	mg/Kg	1		10/20/19 20:34
Ethylbenzene	0.0316	U	0.0632	0.0197	mg/Kg	1		10/20/19 20:34
Freon-113	0.127	U	0.253	0.0784	mg/Kg	1		10/20/19 20:34
Hexachlorobutadiene	0.0253	U	0.0506	0.0157	mg/Kg	1		10/20/19 20:34
Isopropylbenzene (Cumene)	0.0316	U	0.0632	0.0197	mg/Kg	1		10/20/19 20:34
Methylene chloride	0.127	U	0.253	0.0784	mg/Kg	1		10/20/19 20:34
Methyl-t-butyl ether	0.127	U	0.253	0.0784	mg/Kg	1		10/20/19 20:34
Naphthalene	0.0316	U	0.0632	0.0197	mg/Kg	1		10/20/19 20:34
n-Butylbenzene	0.0316	U	0.0632	0.0197	mg/Kg	1		10/20/19 20:34
n-Propylbenzene	0.0316	U	0.0632	0.0197	mg/Kg	1		10/20/19 20:34
o-Xylene	0.0316	U	0.0632	0.0197	mg/Kg	1		10/20/19 20:34
P & M -Xylene	0.0630	U	0.126	0.0379	mg/Kg	1		10/20/19 20:34
sec-Butylbenzene	0.0316	U	0.0632	0.0197	mg/Kg	1		10/20/19 20:34
Styrene	0.0316	U	0.0632	0.0197	mg/Kg	1		10/20/19 20:34
tert-Butylbenzene	0.0316	U	0.0632	0.0197	mg/Kg	1		10/20/19 20:34
Tetrachloroethene	1.64		0.0316	0.00986	mg/Kg	1		10/20/19 20:34
Toluene	0.0316	U	0.0632	0.0197	mg/Kg	1		10/20/19 20:34
trans-1,2-Dichloroethene	0.0316	U	0.0632	0.0197	mg/Kg	1		10/20/19 20:34
trans-1,3-Dichloropropene	0.0158	U	0.0316	0.00986	mg/Kg	1		10/20/19 20:34
Trichloroethene	0.00630	U	0.0126	0.00379	mg/Kg	1		10/20/19 20:34
Trichlorofluoromethane	0.0630	U	0.126	0.0379	mg/Kg	1		10/20/19 20:34
Vinyl acetate	0.127	U	0.253	0.0784	mg/Kg	1		10/20/19 20:34
Vinyl chloride	0.00101	U	0.00202	0.000632	mg/Kg	1		10/20/19 20:34
Xylenes (total)	0.0950	U	0.190	0.0576	mg/Kg	1		10/20/19 20:34
Surrogates								
1,2-Dichloroethane-D4 (surr)	111		71-136		%	1		10/20/19 20:34
4-Bromofluorobenzene (surr)	106		55-151		%	1		10/20/19 20:34
Toluene-d8 (surr)	97.8		85-116		%	1		10/20/19 20:34

Print Date: 10/29/2019 2:23:42PM

J flagging is activated

Results of **SB19-05-101**

Client Sample ID: **SB19-05-101**
Client Project ID: **103729 Bentley Mall E. Sat.**
Lab Sample ID: 1199855009
Lab Project ID: 1199855

Collection Date: 10/10/19 02:40
Received Date: 10/11/19 10:59
Matrix: Soil/Solid (dry weight)
Solids (%):82.9
Location:

Results by **Volatile GC/MS**

Batch Information

Analytical Batch: VMS19594
Analytical Method: SW8260C
Analyst: KAJ
Analytical Date/Time: 10/20/19 20:34
Container ID: 1199855009-B

Prep Batch: VXX35132
Prep Method: SW5035A
Prep Date/Time: 10/10/19 02:40
Prep Initial Wt./Vol.: 28.511 g
Prep Extract Vol: 29.8752 mL

Results of **SB19-05-4**

Client Sample ID: **SB19-05-4**
Client Project ID: **103729 Bentley Mall E. Sat.**
Lab Sample ID: 1199855010
Lab Project ID: 1199855

Collection Date: 10/10/19 03:45
Received Date: 10/11/19 10:59
Matrix: Soil/Solid (dry weight)
Solids (%):90.7
Location:

Results by **Volatile GC/MS**

Parameter	Result	Qual	LOQ/CL	DL	Units	DF	Allowable Limits	Date Analyzed
1,1,1,2-Tetrachloroethane	0.0137	U	0.0274	0.00850	mg/Kg	1		10/20/19 20:49
1,1,1-Trichloroethane	0.0171	U	0.0343	0.0107	mg/Kg	1		10/20/19 20:49
1,1,2,2-Tetrachloroethane	0.00137	U	0.00274	0.000850	mg/Kg	1		10/20/19 20:49
1,1,2-Trichloroethane	0.000550	U	0.00110	0.000343	mg/Kg	1		10/20/19 20:49
1,1-Dichloroethane	0.0171	U	0.0343	0.0107	mg/Kg	1		10/20/19 20:49
1,1-Dichloroethene	0.0171	U	0.0343	0.0107	mg/Kg	1		10/20/19 20:49
1,1-Dichloropropene	0.0171	U	0.0343	0.0107	mg/Kg	1		10/20/19 20:49
1,2,3-Trichlorobenzene	0.0343	U	0.0686	0.0206	mg/Kg	1		10/20/19 20:49
1,2,3-Trichloropropane	0.000685	U	0.00137	0.000425	mg/Kg	1		10/20/19 20:49
1,2,4-Trichlorobenzene	0.0171	U	0.0343	0.0107	mg/Kg	1		10/20/19 20:49
1,2,4-Trimethylbenzene	0.0343	U	0.0686	0.0206	mg/Kg	1		10/20/19 20:49
1,2-Dibromo-3-chloropropane	0.0685	U	0.137	0.0425	mg/Kg	1		10/20/19 20:49
1,2-Dibromoethane	0.000685	U	0.00137	0.000425	mg/Kg	1		10/20/19 20:49
1,2-Dichlorobenzene	0.0171	U	0.0343	0.0107	mg/Kg	1		10/20/19 20:49
1,2-Dichloroethane	0.00137	U	0.00274	0.000850	mg/Kg	1		10/20/19 20:49
1,2-Dichloropropane	0.00685	U	0.0137	0.00425	mg/Kg	1		10/20/19 20:49
1,3,5-Trimethylbenzene	0.0171	U	0.0343	0.0107	mg/Kg	1		10/20/19 20:49
1,3-Dichlorobenzene	0.0171	U	0.0343	0.0107	mg/Kg	1		10/20/19 20:49
1,3-Dichloropropane	0.00685	U	0.0137	0.00425	mg/Kg	1		10/20/19 20:49
1,4-Dichlorobenzene	0.0171	U	0.0343	0.0107	mg/Kg	1		10/20/19 20:49
2,2-Dichloropropane	0.0171	U	0.0343	0.0107	mg/Kg	1		10/20/19 20:49
2-Butanone (MEK)	0.172	U	0.343	0.107	mg/Kg	1		10/20/19 20:49
2-Chlorotoluene	0.0171	U	0.0343	0.0107	mg/Kg	1		10/20/19 20:49
2-Hexanone	0.0685	U	0.137	0.0425	mg/Kg	1		10/20/19 20:49
4-Chlorotoluene	0.0171	U	0.0343	0.0107	mg/Kg	1		10/20/19 20:49
4-Isopropyltoluene	0.0685	U	0.137	0.0343	mg/Kg	1		10/20/19 20:49
4-Methyl-2-pentanone (MIBK)	0.172	U	0.343	0.107	mg/Kg	1		10/20/19 20:49
Acetone	0.172	U	0.343	0.107	mg/Kg	1		10/20/19 20:49
Benzene	0.00855	U	0.0171	0.00535	mg/Kg	1		10/20/19 20:49
Bromobenzene	0.0171	U	0.0343	0.0107	mg/Kg	1		10/20/19 20:49
Bromochloromethane	0.0171	U	0.0343	0.0107	mg/Kg	1		10/20/19 20:49
Bromodichloromethane	0.00137	U	0.00274	0.000850	mg/Kg	1		10/20/19 20:49
Bromoform	0.0171	U	0.0343	0.0107	mg/Kg	1		10/20/19 20:49
Bromomethane	0.0137	U	0.0274	0.00850	mg/Kg	1		10/20/19 20:49
Carbon disulfide	0.0685	U	0.137	0.0425	mg/Kg	1		10/20/19 20:49
Carbon tetrachloride	0.00855	U	0.0171	0.00535	mg/Kg	1		10/20/19 20:49
Chlorobenzene	0.0171	U	0.0343	0.0107	mg/Kg	1		10/20/19 20:49

Results of **SB19-05-4**

Client Sample ID: **SB19-05-4**
Client Project ID: **103729 Bentley Mall E. Sat.**
Lab Sample ID: 1199855010
Lab Project ID: 1199855

Collection Date: 10/10/19 03:45
Received Date: 10/11/19 10:59
Matrix: Soil/Solid (dry weight)
Solids (%):90.7
Location:

Results by **Volatile GC/MS**

Parameter	Result	Qual	LOQ/CL	DL	Units	DF	Allowable Limits	Date Analyzed
Chloroethane	0.137	U	0.274	0.0850	mg/Kg	1		10/20/19 20:49
Chloroform	0.00137	U	0.00274	0.000850	mg/Kg	1		10/20/19 20:49
Chloromethane	0.0171	U	0.0343	0.0107	mg/Kg	1		10/20/19 20:49
cis-1,2-Dichloroethene	0.0171	U	0.0343	0.0107	mg/Kg	1		10/20/19 20:49
cis-1,3-Dichloropropene	0.00855	U	0.0171	0.00535	mg/Kg	1		10/20/19 20:49
Dibromochloromethane	0.00137	U	0.00274	0.000850	mg/Kg	1		10/20/19 20:49
Dibromomethane	0.0171	U	0.0343	0.0107	mg/Kg	1		10/20/19 20:49
Dichlorodifluoromethane	0.0343	U	0.0686	0.0206	mg/Kg	1		10/20/19 20:49
Ethylbenzene	0.0171	U	0.0343	0.0107	mg/Kg	1		10/20/19 20:49
Freon-113	0.0685	U	0.137	0.0425	mg/Kg	1		10/20/19 20:49
Hexachlorobutadiene	0.0137	U	0.0274	0.00850	mg/Kg	1		10/20/19 20:49
Isopropylbenzene (Cumene)	0.0171	U	0.0343	0.0107	mg/Kg	1		10/20/19 20:49
Methylene chloride	0.0685	U	0.137	0.0425	mg/Kg	1		10/20/19 20:49
Methyl-t-butyl ether	0.0685	U	0.137	0.0425	mg/Kg	1		10/20/19 20:49
Naphthalene	0.0171	U	0.0343	0.0107	mg/Kg	1		10/20/19 20:49
n-Butylbenzene	0.0171	U	0.0343	0.0107	mg/Kg	1		10/20/19 20:49
n-Propylbenzene	0.0171	U	0.0343	0.0107	mg/Kg	1		10/20/19 20:49
o-Xylene	0.0171	U	0.0343	0.0107	mg/Kg	1		10/20/19 20:49
P & M -Xylene	0.0343	U	0.0686	0.0206	mg/Kg	1		10/20/19 20:49
sec-Butylbenzene	0.0171	U	0.0343	0.0107	mg/Kg	1		10/20/19 20:49
Styrene	0.0171	U	0.0343	0.0107	mg/Kg	1		10/20/19 20:49
tert-Butylbenzene	0.0171	U	0.0343	0.0107	mg/Kg	1		10/20/19 20:49
Tetrachloroethene	0.372		0.0171	0.00535	mg/Kg	1		10/20/19 20:49
Toluene	0.0171	U	0.0343	0.0107	mg/Kg	1		10/20/19 20:49
trans-1,2-Dichloroethene	0.0171	U	0.0343	0.0107	mg/Kg	1		10/20/19 20:49
trans-1,3-Dichloropropene	0.00855	U	0.0171	0.00535	mg/Kg	1		10/20/19 20:49
Trichloroethene	0.00343	U	0.00686	0.00206	mg/Kg	1		10/20/19 20:49
Trichlorofluoromethane	0.0343	U	0.0686	0.0206	mg/Kg	1		10/20/19 20:49
Vinyl acetate	0.0685	U	0.137	0.0425	mg/Kg	1		10/20/19 20:49
Vinyl chloride	0.000550	U	0.00110	0.000343	mg/Kg	1		10/20/19 20:49
Xylenes (total)	0.0515	U	0.103	0.0313	mg/Kg	1		10/20/19 20:49
Surrogates								
1,2-Dichloroethane-D4 (surr)	110		71-136		%	1		10/20/19 20:49
4-Bromofluorobenzene (surr)	104		55-151		%	1		10/20/19 20:49
Toluene-d8 (surr)	97.5		85-116		%	1		10/20/19 20:49

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J flagging is activated

Results of **SB19-05-4**

Client Sample ID: **SB19-05-4**
Client Project ID: **103729 Bentley Mall E. Sat.**
Lab Sample ID: 1199855010
Lab Project ID: 1199855

Collection Date: 10/10/19 03:45
Received Date: 10/11/19 10:59
Matrix: Soil/Solid (dry weight)
Solids (%):90.7
Location:

Results by **Volatile GC/MS**

Batch Information

Analytical Batch: VMS19594
Analytical Method: SW8260C
Analyst: KAJ
Analytical Date/Time: 10/20/19 20:49
Container ID: 1199855010-B

Prep Batch: VXX35132
Prep Method: SW5035A
Prep Date/Time: 10/10/19 03:45
Prep Initial Wt./Vol.: 47.245 g
Prep Extract Vol: 29.3832 mL

Results of **Trip Blank**

Client Sample ID: **Trip Blank**
Client Project ID: **103729 Bentley Mall E. Sat.**
Lab Sample ID: 1199855011
Lab Project ID: 1199855

Collection Date: 10/09/19 14:00
Received Date: 10/11/19 10:59
Matrix: Soil/Solid (dry weight)
Solids (%):
Location:

Results by **Volatile GC/MS**

Parameter	Result	Qual	LOQ/CL	DL	Units	DF	Allowable Limits	Date Analyzed
1,1,1,2-Tetrachloroethane	0.0101	U	0.0201	0.00624	mg/Kg	1		10/20/19 19:32
1,1,1-Trichloroethane	0.0126	U	0.0252	0.00785	mg/Kg	1		10/20/19 19:32
1,1,2,2-Tetrachloroethane	0.00101	U	0.00201	0.000624	mg/Kg	1		10/20/19 19:32
1,1,2-Trichloroethane	0.000403	U	0.000805	0.000252	mg/Kg	1		10/20/19 19:32
1,1-Dichloroethane	0.0126	U	0.0252	0.00785	mg/Kg	1		10/20/19 19:32
1,1-Dichloroethene	0.0126	U	0.0252	0.00785	mg/Kg	1		10/20/19 19:32
1,1-Dichloropropene	0.0126	U	0.0252	0.00785	mg/Kg	1		10/20/19 19:32
1,2,3-Trichlorobenzene	0.0251	U	0.0503	0.0151	mg/Kg	1		10/20/19 19:32
1,2,3-Trichloropropane	0.000505	U	0.00101	0.000312	mg/Kg	1		10/20/19 19:32
1,2,4-Trichlorobenzene	0.0126	U	0.0252	0.00785	mg/Kg	1		10/20/19 19:32
1,2,4-Trimethylbenzene	0.0251	U	0.0503	0.0151	mg/Kg	1		10/20/19 19:32
1,2-Dibromo-3-chloropropane	0.0505	U	0.101	0.0312	mg/Kg	1		10/20/19 19:32
1,2-Dibromoethane	0.000505	U	0.00101	0.000312	mg/Kg	1		10/20/19 19:32
1,2-Dichlorobenzene	0.0126	U	0.0252	0.00785	mg/Kg	1		10/20/19 19:32
1,2-Dichloroethane	0.00101	U	0.00201	0.000624	mg/Kg	1		10/20/19 19:32
1,2-Dichloropropane	0.00505	U	0.0101	0.00312	mg/Kg	1		10/20/19 19:32
1,3,5-Trimethylbenzene	0.0126	U	0.0252	0.00785	mg/Kg	1		10/20/19 19:32
1,3-Dichlorobenzene	0.0126	U	0.0252	0.00785	mg/Kg	1		10/20/19 19:32
1,3-Dichloropropane	0.00505	U	0.0101	0.00312	mg/Kg	1		10/20/19 19:32
1,4-Dichlorobenzene	0.0126	U	0.0252	0.00785	mg/Kg	1		10/20/19 19:32
2,2-Dichloropropane	0.0126	U	0.0252	0.00785	mg/Kg	1		10/20/19 19:32
2-Butanone (MEK)	0.126	U	0.252	0.0785	mg/Kg	1		10/20/19 19:32
2-Chlorotoluene	0.0126	U	0.0252	0.00785	mg/Kg	1		10/20/19 19:32
2-Hexanone	0.0505	U	0.101	0.0312	mg/Kg	1		10/20/19 19:32
4-Chlorotoluene	0.0126	U	0.0252	0.00785	mg/Kg	1		10/20/19 19:32
4-Isopropyltoluene	0.0505	U	0.101	0.0252	mg/Kg	1		10/20/19 19:32
4-Methyl-2-pentanone (MIBK)	0.126	U	0.252	0.0785	mg/Kg	1		10/20/19 19:32
Acetone	0.126	U	0.252	0.0785	mg/Kg	1		10/20/19 19:32
Benzene	0.00630	U	0.0126	0.00392	mg/Kg	1		10/20/19 19:32
Bromobenzene	0.0126	U	0.0252	0.00785	mg/Kg	1		10/20/19 19:32
Bromochloromethane	0.0126	U	0.0252	0.00785	mg/Kg	1		10/20/19 19:32
Bromodichloromethane	0.00101	U	0.00201	0.000624	mg/Kg	1		10/20/19 19:32
Bromoform	0.0126	U	0.0252	0.00785	mg/Kg	1		10/20/19 19:32
Bromomethane	0.0101	U	0.0201	0.00624	mg/Kg	1		10/20/19 19:32
Carbon disulfide	0.0505	U	0.101	0.0312	mg/Kg	1		10/20/19 19:32
Carbon tetrachloride	0.00630	U	0.0126	0.00392	mg/Kg	1		10/20/19 19:32
Chlorobenzene	0.0126	U	0.0252	0.00785	mg/Kg	1		10/20/19 19:32

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J flagging is activated

Results of **Trip Blank**

Client Sample ID: **Trip Blank**
Client Project ID: **103729 Bentley Mall E. Sat.**
Lab Sample ID: 1199855011
Lab Project ID: 1199855

Collection Date: 10/09/19 14:00
Received Date: 10/11/19 10:59
Matrix: Soil/Solid (dry weight)
Solids (%):
Location:

Results by **Volatile GC/MS**

Parameter	Result	Qual	LOQ/CL	DL	Units	DF	Allowable Limits	Date Analyzed
Chloroethane	0.101	U	0.201	0.0624	mg/Kg	1		10/20/19 19:32
Chloroform	0.00101	U	0.00201	0.000624	mg/Kg	1		10/20/19 19:32
Chloromethane	0.0126	U	0.0252	0.00785	mg/Kg	1		10/20/19 19:32
cis-1,2-Dichloroethene	0.0126	U	0.0252	0.00785	mg/Kg	1		10/20/19 19:32
cis-1,3-Dichloropropene	0.00630	U	0.0126	0.00392	mg/Kg	1		10/20/19 19:32
Dibromochloromethane	0.00101	U	0.00201	0.000624	mg/Kg	1		10/20/19 19:32
Dibromomethane	0.0126	U	0.0252	0.00785	mg/Kg	1		10/20/19 19:32
Dichlorodifluoromethane	0.0251	U	0.0503	0.0151	mg/Kg	1		10/20/19 19:32
Ethylbenzene	0.0126	U	0.0252	0.00785	mg/Kg	1		10/20/19 19:32
Freon-113	0.0505	U	0.101	0.0312	mg/Kg	1		10/20/19 19:32
Hexachlorobutadiene	0.0101	U	0.0201	0.00624	mg/Kg	1		10/20/19 19:32
Isopropylbenzene (Cumene)	0.0126	U	0.0252	0.00785	mg/Kg	1		10/20/19 19:32
Methylene chloride	0.0505	U	0.101	0.0312	mg/Kg	1		10/20/19 19:32
Methyl-t-butyl ether	0.0505	U	0.101	0.0312	mg/Kg	1		10/20/19 19:32
Naphthalene	0.0126	U	0.0252	0.00785	mg/Kg	1		10/20/19 19:32
n-Butylbenzene	0.0126	U	0.0252	0.00785	mg/Kg	1		10/20/19 19:32
n-Propylbenzene	0.0126	U	0.0252	0.00785	mg/Kg	1		10/20/19 19:32
o-Xylene	0.0126	U	0.0252	0.00785	mg/Kg	1		10/20/19 19:32
P & M -Xylene	0.0251	U	0.0503	0.0151	mg/Kg	1		10/20/19 19:32
sec-Butylbenzene	0.0126	U	0.0252	0.00785	mg/Kg	1		10/20/19 19:32
Styrene	0.0126	U	0.0252	0.00785	mg/Kg	1		10/20/19 19:32
tert-Butylbenzene	0.0126	U	0.0252	0.00785	mg/Kg	1		10/20/19 19:32
Tetrachloroethene	0.00630	U	0.0126	0.00392	mg/Kg	1		10/20/19 19:32
Toluene	0.0126	U	0.0252	0.00785	mg/Kg	1		10/20/19 19:32
trans-1,2-Dichloroethene	0.0126	U	0.0252	0.00785	mg/Kg	1		10/20/19 19:32
trans-1,3-Dichloropropene	0.00630	U	0.0126	0.00392	mg/Kg	1		10/20/19 19:32
Trichloroethene	0.00251	U	0.00503	0.00151	mg/Kg	1		10/20/19 19:32
Trichlorofluoromethane	0.0251	U	0.0503	0.0151	mg/Kg	1		10/20/19 19:32
Vinyl acetate	0.0505	U	0.101	0.0312	mg/Kg	1		10/20/19 19:32
Vinyl chloride	0.000403	U	0.000805	0.000252	mg/Kg	1		10/20/19 19:32
Xylenes (total)	0.0377	U	0.0755	0.0229	mg/Kg	1		10/20/19 19:32
Surrogates								
1,2-Dichloroethane-D4 (surr)	109		71-136		%	1		10/20/19 19:32
4-Bromofluorobenzene (surr)	105		55-151		%	1		10/20/19 19:32
Toluene-d8 (surr)	97.8		85-116		%	1		10/20/19 19:32

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J flagging is activated

Results of **Trip Blank**

Client Sample ID: **Trip Blank**
Client Project ID: **103729 Bentley Mall E. Sat.**
Lab Sample ID: 1199855011
Lab Project ID: 1199855

Collection Date: 10/09/19 14:00
Received Date: 10/11/19 10:59
Matrix: Soil/Solid (dry weight)
Solids (%):
Location:

Results by **Volatile GC/MS**

Batch Information

Analytical Batch: VMS19594
Analytical Method: SW8260C
Analyst: KAJ
Analytical Date/Time: 10/20/19 19:32
Container ID: 1199855011-A

Prep Batch: VXX35132
Prep Method: SW5035A
Prep Date/Time: 10/09/19 14:00
Prep Initial Wt./Vol.: 49.687 g
Prep Extract Vol: 25 mL

Results of **SB19-02-2**

Client Sample ID: **SB19-02-2**
Client Project ID: **103729 Bentley Mall E. Sat.**
Lab Sample ID: 1199855012
Lab Project ID: 1199855

Collection Date: 10/09/19 23:50
Received Date: 10/11/19 10:59
Matrix: Soil/Solid (dry weight)
Solids (%):92.8
Location:

Results by **Volatile GC/MS**

Parameter	Result	Qual	LOQ/CL	DL	Units	DF	Allowable Limits	Date Analyzed
1,1,1,2-Tetrachloroethane	0.0182	U	0.0364	0.0113	mg/Kg	1		10/20/19 21:05
1,1,1-Trichloroethane	0.0227	U	0.0455	0.0142	mg/Kg	1		10/20/19 21:05
1,1,2,2-Tetrachloroethane	0.00182	U	0.00364	0.00113	mg/Kg	1		10/20/19 21:05
1,1,2-Trichloroethane	0.000730	U	0.00146	0.000455	mg/Kg	1		10/20/19 21:05
1,1-Dichloroethane	0.0227	U	0.0455	0.0142	mg/Kg	1		10/20/19 21:05
1,1-Dichloroethene	0.0227	U	0.0455	0.0142	mg/Kg	1		10/20/19 21:05
1,1-Dichloropropene	0.0227	U	0.0455	0.0142	mg/Kg	1		10/20/19 21:05
1,2,3-Trichlorobenzene	0.0454	U	0.0909	0.0273	mg/Kg	1		10/20/19 21:05
1,2,3-Trichloropropane	0.000910	U	0.00182	0.000564	mg/Kg	1		10/20/19 21:05
1,2,4-Trichlorobenzene	0.0227	U	0.0455	0.0142	mg/Kg	1		10/20/19 21:05
1,2,4-Trimethylbenzene	0.0454	U	0.0909	0.0273	mg/Kg	1		10/20/19 21:05
1,2-Dibromo-3-chloropropane	0.0910	U	0.182	0.0564	mg/Kg	1		10/20/19 21:05
1,2-Dibromoethane	0.000910	U	0.00182	0.000564	mg/Kg	1		10/20/19 21:05
1,2-Dichlorobenzene	0.0227	U	0.0455	0.0142	mg/Kg	1		10/20/19 21:05
1,2-Dichloroethane	0.00182	U	0.00364	0.00113	mg/Kg	1		10/20/19 21:05
1,2-Dichloropropane	0.00910	U	0.0182	0.00564	mg/Kg	1		10/20/19 21:05
1,3,5-Trimethylbenzene	0.0227	U	0.0455	0.0142	mg/Kg	1		10/20/19 21:05
1,3-Dichlorobenzene	0.0227	U	0.0455	0.0142	mg/Kg	1		10/20/19 21:05
1,3-Dichloropropane	0.00910	U	0.0182	0.00564	mg/Kg	1		10/20/19 21:05
1,4-Dichlorobenzene	0.0227	U	0.0455	0.0142	mg/Kg	1		10/20/19 21:05
2,2-Dichloropropane	0.0227	U	0.0455	0.0142	mg/Kg	1		10/20/19 21:05
2-Butanone (MEK)	0.228	U	0.455	0.142	mg/Kg	1		10/20/19 21:05
2-Chlorotoluene	0.0227	U	0.0455	0.0142	mg/Kg	1		10/20/19 21:05
2-Hexanone	0.0910	U	0.182	0.0564	mg/Kg	1		10/20/19 21:05
4-Chlorotoluene	0.0227	U	0.0455	0.0142	mg/Kg	1		10/20/19 21:05
4-Isopropyltoluene	0.0910	U	0.182	0.0455	mg/Kg	1		10/20/19 21:05
4-Methyl-2-pentanone (MIBK)	0.228	U	0.455	0.142	mg/Kg	1		10/20/19 21:05
Acetone	0.228	U	0.455	0.142	mg/Kg	1		10/20/19 21:05
Benzene	0.0114	U	0.0227	0.00709	mg/Kg	1		10/20/19 21:05
Bromobenzene	0.0227	U	0.0455	0.0142	mg/Kg	1		10/20/19 21:05
Bromochloromethane	0.0227	U	0.0455	0.0142	mg/Kg	1		10/20/19 21:05
Bromodichloromethane	0.00182	U	0.00364	0.00113	mg/Kg	1		10/20/19 21:05
Bromoform	0.0227	U	0.0455	0.0142	mg/Kg	1		10/20/19 21:05
Bromomethane	0.0182	U	0.0364	0.0113	mg/Kg	1		10/20/19 21:05
Carbon disulfide	0.0910	U	0.182	0.0564	mg/Kg	1		10/20/19 21:05
Carbon tetrachloride	0.0114	U	0.0227	0.00709	mg/Kg	1		10/20/19 21:05
Chlorobenzene	0.0227	U	0.0455	0.0142	mg/Kg	1		10/20/19 21:05

Results of **SB19-02-2**

Client Sample ID: **SB19-02-2**
Client Project ID: **103729 Bentley Mall E. Sat.**
Lab Sample ID: 1199855012
Lab Project ID: 1199855

Collection Date: 10/09/19 23:50
Received Date: 10/11/19 10:59
Matrix: Soil/Solid (dry weight)
Solids (%):92.8
Location:

Results by **Volatile GC/MS**

Parameter	Result	Qual	LOQ/CL	DL	Units	DF	Allowable Limits	Date Analyzed
Chloroethane	0.182 U		0.364	0.113	mg/Kg	1		10/20/19 21:05
Chloroform	0.00182 U		0.00364	0.00113	mg/Kg	1		10/20/19 21:05
Chloromethane	0.0227 U		0.0455	0.0142	mg/Kg	1		10/20/19 21:05
cis-1,2-Dichloroethene	0.0227 U		0.0455	0.0142	mg/Kg	1		10/20/19 21:05
cis-1,3-Dichloropropene	0.0114 U		0.0227	0.00709	mg/Kg	1		10/20/19 21:05
Dibromochloromethane	0.00182 U		0.00364	0.00113	mg/Kg	1		10/20/19 21:05
Dibromomethane	0.0227 U		0.0455	0.0142	mg/Kg	1		10/20/19 21:05
Dichlorodifluoromethane	0.0454 U		0.0909	0.0273	mg/Kg	1		10/20/19 21:05
Ethylbenzene	0.0227 U		0.0455	0.0142	mg/Kg	1		10/20/19 21:05
Freon-113	0.0910 U		0.182	0.0564	mg/Kg	1		10/20/19 21:05
Hexachlorobutadiene	0.0182 U		0.0364	0.0113	mg/Kg	1		10/20/19 21:05
Isopropylbenzene (Cumene)	0.0227 U		0.0455	0.0142	mg/Kg	1		10/20/19 21:05
Methylene chloride	0.0910 U		0.182	0.0564	mg/Kg	1		10/20/19 21:05
Methyl-t-butyl ether	0.0910 U		0.182	0.0564	mg/Kg	1		10/20/19 21:05
Naphthalene	0.0227 U		0.0455	0.0142	mg/Kg	1		10/20/19 21:05
n-Butylbenzene	0.0227 U		0.0455	0.0142	mg/Kg	1		10/20/19 21:05
n-Propylbenzene	0.0227 U		0.0455	0.0142	mg/Kg	1		10/20/19 21:05
o-Xylene	0.0227 U		0.0455	0.0142	mg/Kg	1		10/20/19 21:05
P & M -Xylene	0.0454 U		0.0909	0.0273	mg/Kg	1		10/20/19 21:05
sec-Butylbenzene	0.0227 U		0.0455	0.0142	mg/Kg	1		10/20/19 21:05
Styrene	0.0227 U		0.0455	0.0142	mg/Kg	1		10/20/19 21:05
tert-Butylbenzene	0.0227 U		0.0455	0.0142	mg/Kg	1		10/20/19 21:05
Tetrachloroethene	1.26		0.0227	0.00709	mg/Kg	1		10/20/19 21:05
Toluene	0.0227 U		0.0455	0.0142	mg/Kg	1		10/20/19 21:05
trans-1,2-Dichloroethene	0.0227 U		0.0455	0.0142	mg/Kg	1		10/20/19 21:05
trans-1,3-Dichloropropene	0.0114 U		0.0227	0.00709	mg/Kg	1		10/20/19 21:05
Trichloroethene	0.00455 U		0.00909	0.00273	mg/Kg	1		10/20/19 21:05
Trichlorofluoromethane	0.0454 U		0.0909	0.0273	mg/Kg	1		10/20/19 21:05
Vinyl acetate	0.0910 U		0.182	0.0564	mg/Kg	1		10/20/19 21:05
Vinyl chloride	0.000730 U		0.00146	0.000455	mg/Kg	1		10/20/19 21:05
Xylenes (total)	0.0680 U		0.136	0.0415	mg/Kg	1		10/20/19 21:05
Surrogates								
1,2-Dichloroethane-D4 (surr)	109		71-136		%	1		10/20/19 21:05
4-Bromofluorobenzene (surr)	94.4		55-151		%	1		10/20/19 21:05
Toluene-d8 (surr)	97.6		85-116		%	1		10/20/19 21:05

Print Date: 10/29/2019 2:23:42PM

J flagging is activated

Results of **SB19-02-2**

Client Sample ID: **SB19-02-2**
Client Project ID: **103729 Bentley Mall E. Sat.**
Lab Sample ID: 1199855012
Lab Project ID: 1199855

Collection Date: 10/09/19 23:50
Received Date: 10/11/19 10:59
Matrix: Soil/Solid (dry weight)
Solids (%):92.8
Location:

Results by **Volatile GC/MS**

Batch Information

Analytical Batch: VMS19594
Analytical Method: SW8260C
Analyst: KAJ
Analytical Date/Time: 10/20/19 21:05
Container ID: 1199855012-B

Prep Batch: VXX35132
Prep Method: SW5035A
Prep Date/Time: 10/09/19 23:50
Prep Initial Wt./Vol.: 32.425 g
Prep Extract Vol: 27.3497 mL

Method Blank

Blank ID: MB for HBN 1800877 [SPT/10907]
Blank Lab ID: 1538157

Matrix: Soil/Solid (dry weight)

QC for Samples:
1199855001, 1199855002, 1199855003, 1199855004, 1199855005, 1199855006, 1199855007, 1199855008, 1199855009, 1199855010, 1199855012

Results by **SM21 2540G**

Parameter	Results	LOQ/CL	DL	Units
Total Solids	100			%

Batch Information

Analytical Batch: SPT10907
Analytical Method: SM21 2540G
Instrument:
Analyst: MER
Analytical Date/Time: 10/11/2019 4:53:00PM

SGS North America Inc.
200 West Potter Drive Anchorage, AK 95518
t 907.562.2343 **f** 907.561.5301 www.us.sgs.com

Duplicate Sample Summary

Original Sample ID: 1199851004
Duplicate Sample ID: 1538159
QC for Samples:

Analysis Date: 10/11/2019 16:53
Matrix: Soil/Solid (dry weight)

Results by **SM21 2540G**

NAME	Original	Duplicate	Units	RPD (%)	RPD CL
Total Solids	85.3	85.1	%	0.26	(< 15)

Batch Information

Analytical Batch: SPT10907
Analytical Method: SM21 2540G
Instrument:
Analyst: MER

Print Date: 10/29/2019 2:23:45PM

Duplicate Sample Summary

Original Sample ID: 1199851008
Duplicate Sample ID: 1538160

Analysis Date: 10/11/2019 16:53
Matrix: Soil/Solid (dry weight)

QC for Samples:

1199855001, 1199855002, 1199855003, 1199855004, 1199855005, 1199855006, 1199855007, 1199855008, 1199855009, 1199855010, 1199855012

Results by **SM21 2540G**

NAME	Original	Duplicate	Units	RPD (%)	RPD CL
Total Solids	85.7	86.4	%	0.76	(< 15)

Batch Information

Analytical Batch: SPT10907
Analytical Method: SM21 2540G
Instrument:
Analyst: MER

Print Date: 10/29/2019 2:23:45PM

Duplicate Sample Summary

Original Sample ID: 1199858001
Duplicate Sample ID: 1538161

Analysis Date: 10/11/2019 16:53
Matrix: Soil/Solid (dry weight)

QC for Samples:

1199855001, 1199855002, 1199855003, 1199855004, 1199855005, 1199855006, 1199855007, 1199855008, 1199855009, 1199855010, 1199855012

Results by **SM21 2540G**

NAME	Original	Duplicate	Units	RPD (%)	RPD CL
Total Solids	92.3	93.7	%	1.50	(< 15)

Batch Information

Analytical Batch: SPT10907
Analytical Method: SM21 2540G
Instrument:
Analyst: MER

Print Date: 10/29/2019 2:23:45PM

Method Blank

Blank ID: MB for HBN 1801275 [VXX/35128]
Blank Lab ID: 1539667

Matrix: Soil/Solid (dry weight)

QC for Samples:
1199855001, 1199855002, 1199855003, 1199855004, 1199855005, 1199855006, 1199855007, 1199855008

Results by **SW8260C**

Parameter	Results	LOQ/CL	DL	Units
1,1,1,2-Tetrachloroethane	0.0100U	0.0200	0.00620	mg/Kg
1,1,1-Trichloroethane	0.0125U	0.0250	0.00780	mg/Kg
1,1,2,2-Tetrachloroethane	0.00100U	0.00200	0.000620	mg/Kg
1,1,2-Trichloroethane	0.000400U	0.000800	0.000250	mg/Kg
1,1-Dichloroethane	0.0125U	0.0250	0.00780	mg/Kg
1,1-Dichloroethene	0.0125U	0.0250	0.00780	mg/Kg
1,1-Dichloropropene	0.0125U	0.0250	0.00780	mg/Kg
1,2,3-Trichlorobenzene	0.0250U	0.0500	0.0150	mg/Kg
1,2,3-Trichloropropane	0.000500U	0.00100	0.000310	mg/Kg
1,2,4-Trichlorobenzene	0.0125U	0.0250	0.00780	mg/Kg
1,2,4-Trimethylbenzene	0.0250U	0.0500	0.0150	mg/Kg
1,2-Dibromo-3-chloropropane	0.0500U	0.100	0.0310	mg/Kg
1,2-Dibromoethane	0.000500U	0.00100	0.000310	mg/Kg
1,2-Dichlorobenzene	0.0125U	0.0250	0.00780	mg/Kg
1,2-Dichloroethane	0.00100U	0.00200	0.000620	mg/Kg
1,2-Dichloropropane	0.00500U	0.0100	0.00310	mg/Kg
1,3,5-Trimethylbenzene	0.0125U	0.0250	0.00780	mg/Kg
1,3-Dichlorobenzene	0.0125U	0.0250	0.00780	mg/Kg
1,3-Dichloropropane	0.00500U	0.0100	0.00310	mg/Kg
1,4-Dichlorobenzene	0.0125U	0.0250	0.00780	mg/Kg
2,2-Dichloropropane	0.0125U	0.0250	0.00780	mg/Kg
2-Butanone (MEK)	0.125U	0.250	0.0780	mg/Kg
2-Chlorotoluene	0.0125U	0.0250	0.00780	mg/Kg
2-Hexanone	0.0500U	0.100	0.0310	mg/Kg
4-Chlorotoluene	0.0125U	0.0250	0.00780	mg/Kg
4-Isopropyltoluene	0.0500U	0.100	0.0250	mg/Kg
4-Methyl-2-pentanone (MIBK)	0.125U	0.250	0.0780	mg/Kg
Acetone	0.125U	0.250	0.0780	mg/Kg
Benzene	0.00625U	0.0125	0.00390	mg/Kg
Bromobenzene	0.0125U	0.0250	0.00780	mg/Kg
Bromochloromethane	0.0125U	0.0250	0.00780	mg/Kg
Bromodichloromethane	0.00100U	0.00200	0.000620	mg/Kg
Bromoform	0.0125U	0.0250	0.00780	mg/Kg
Bromomethane	0.0100U	0.0200	0.00620	mg/Kg
Carbon disulfide	0.0500U	0.100	0.0310	mg/Kg
Carbon tetrachloride	0.00625U	0.0125	0.00390	mg/Kg
Chlorobenzene	0.0125U	0.0250	0.00780	mg/Kg
Chloroethane	0.100U	0.200	0.0620	mg/Kg

Method Blank

Blank ID: MB for HBN 1801275 [VXX/35128] Matrix: Soil/Solid (dry weight)
Blank Lab ID: 1539667

QC for Samples:
1199855001, 1199855002, 1199855003, 1199855004, 1199855005, 1199855006, 1199855007, 1199855008

Results by **SW8260C**

Parameter	Results	LOQ/CL	DL	Units
Chloroform	0.00100U	0.00200	0.000620	mg/Kg
Chloromethane	0.0125U	0.0250	0.00780	mg/Kg
cis-1,2-Dichloroethene	0.0125U	0.0250	0.00780	mg/Kg
cis-1,3-Dichloropropene	0.00625U	0.0125	0.00390	mg/Kg
Dibromochloromethane	0.00100U	0.00200	0.000620	mg/Kg
Dibromomethane	0.0125U	0.0250	0.00780	mg/Kg
Dichlorodifluoromethane	0.0250U	0.0500	0.0150	mg/Kg
Ethylbenzene	0.0125U	0.0250	0.00780	mg/Kg
Freon-113	0.0500U	0.100	0.0310	mg/Kg
Hexachlorobutadiene	0.0100U	0.0200	0.00620	mg/Kg
Isopropylbenzene (Cumene)	0.0125U	0.0250	0.00780	mg/Kg
Methylene chloride	0.0500U	0.100	0.0310	mg/Kg
Methyl-t-butyl ether	0.0500U	0.100	0.0310	mg/Kg
Naphthalene	0.0125U	0.0250	0.00780	mg/Kg
n-Butylbenzene	0.0125U	0.0250	0.00780	mg/Kg
n-Propylbenzene	0.0125U	0.0250	0.00780	mg/Kg
o-Xylene	0.0125U	0.0250	0.00780	mg/Kg
P & M -Xylene	0.0250U	0.0500	0.0150	mg/Kg
sec-Butylbenzene	0.0125U	0.0250	0.00780	mg/Kg
Styrene	0.0125U	0.0250	0.00780	mg/Kg
tert-Butylbenzene	0.0125U	0.0250	0.00780	mg/Kg
Tetrachloroethene	0.00625U	0.0125	0.00390	mg/Kg
Toluene	0.0125U	0.0250	0.00780	mg/Kg
trans-1,2-Dichloroethene	0.0125U	0.0250	0.00780	mg/Kg
trans-1,3-Dichloropropene	0.00625U	0.0125	0.00390	mg/Kg
Trichloroethene	0.00250U	0.00500	0.00150	mg/Kg
Trichlorofluoromethane	0.0250U	0.0500	0.0150	mg/Kg
Vinyl acetate	0.0500U	0.100	0.0310	mg/Kg
Vinyl chloride	0.000400U	0.000800	0.000250	mg/Kg
Xylenes (total)	0.0375U	0.0750	0.0228	mg/Kg
Surrogates				
1,2-Dichloroethane-D4 (surr)	102	71-136		%
4-Bromofluorobenzene (surr)	101	55-151		%
Toluene-d8 (surr)	98.1	85-116		%

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Method Blank

Blank ID: MB for HBN 1801275 [VXX/35128]
Blank Lab ID: 1539667

Matrix: Soil/Solid (dry weight)

QC for Samples:
1199855001, 1199855002, 1199855003, 1199855004, 1199855005, 1199855006, 1199855007, 1199855008

Results by **SW8260C**

Parameter	Results	LOQ/CL	DL	Units

Batch Information

Analytical Batch: VMS19590
Analytical Method: SW8260C
Instrument: VRA Agilent GC/MS 7890B/5977A
Analyst: KAJ
Analytical Date/Time: 10/17/2019 7:11:00PM

Prep Batch: VXX35128
Prep Method: SW5035A
Prep Date/Time: 10/17/2019 6:00:00AM
Prep Initial Wt./Vol.: 50 g
Prep Extract Vol: 25 mL

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Blank Spike Summary

Blank Spike ID: LCS for HBN 1199855 [VXX35128]
Blank Spike Lab ID: 1539668
Date Analyzed: 10/17/2019 19:27

Matrix: Soil/Solid (dry weight)

QC for Samples: 1199855001, 1199855002, 1199855003, 1199855004, 1199855005, 1199855006, 1199855007, 1199855008

Results by **SW8260C**

Blank Spike (mg/Kg)

Parameter	Spike	Result	Rec (%)	CL
1,1,1,2-Tetrachloroethane	0.750	0.835	111	(78-125)
1,1,1-Trichloroethane	0.750	0.832	111	(73-130)
1,1,2,2-Tetrachloroethane	0.750	0.832	111	(70-124)
1,1,2-Trichloroethane	0.750	0.799	106	(78-121)
1,1-Dichloroethane	0.750	0.858	114	(76-125)
1,1-Dichloroethene	0.750	0.745	99	(70-131)
1,1-Dichloropropene	0.750	0.853	114	(76-125)
1,2,3-Trichlorobenzene	0.750	0.832	111	(66-130)
1,2,3-Trichloropropane	0.750	0.825	110	(73-125)
1,2,4-Trichlorobenzene	0.750	0.864	115	(67-129)
1,2,4-Trimethylbenzene	0.750	0.841	112	(75-123)
1,2-Dibromo-3-chloropropane	0.750	0.852	114	(61-132)
1,2-Dibromoethane	0.750	0.804	107	(78-122)
1,2-Dichlorobenzene	0.750	0.836	111	(78-121)
1,2-Dichloroethane	0.750	0.786	105	(73-128)
1,2-Dichloropropane	0.750	0.845	113	(76-123)
1,3,5-Trimethylbenzene	0.750	0.817	109	(73-124)
1,3-Dichlorobenzene	0.750	0.826	110	(77-121)
1,3-Dichloropropane	0.750	0.803	107	(77-121)
1,4-Dichlorobenzene	0.750	0.843	112	(75-120)
2,2-Dichloropropane	0.750	0.915	122	(67-133)
2-Butanone (MEK)	2.25	2.49	111	(51-148)
2-Chlorotoluene	0.750	0.838	112	(75-122)
2-Hexanone	2.25	2.55	113	(53-145)
4-Chlorotoluene	0.750	0.863	115	(72-124)
4-Isopropyltoluene	0.750	0.843	112	(73-127)
4-Methyl-2-pentanone (MIBK)	2.25	2.46	109	(65-135)
Acetone	2.25	2.06	92	(36-164)
Benzene	0.750	0.823	110	(77-121)
Bromobenzene	0.750	0.823	110	(78-121)
Bromochloromethane	0.750	0.804	107	(78-125)
Bromodichloromethane	0.750	0.851	114	(75-127)
Bromoform	0.750	0.816	109	(67-132)
Bromomethane	0.750	0.707	94	(53-143)

Blank Spike Summary

Blank Spike ID: LCS for HBN 1199855 [VXX35128]
Blank Spike Lab ID: 1539668
Date Analyzed: 10/17/2019 19:27

Matrix: Soil/Solid (dry weight)

QC for Samples: 1199855001, 1199855002, 1199855003, 1199855004, 1199855005, 1199855006, 1199855007, 1199855008

Results by **SW8260C**

Blank Spike (mg/Kg)

Parameter	Spike	Result	Rec (%)	CL
Carbon disulfide	1.13	1.12	100	(63-132)
Carbon tetrachloride	0.750	0.797	106	(70-135)
Chlorobenzene	0.750	0.814	109	(79-120)
Chloroethane	0.750	0.664	89	(59-139)
Chloroform	0.750	0.811	108	(78-123)
Chloromethane	0.750	0.649	87	(50-136)
cis-1,2-Dichloroethene	0.750	0.844	113	(77-123)
cis-1,3-Dichloropropene	0.750	0.815	109	(74-126)
Dibromochloromethane	0.750	0.791	106	(74-126)
Dibromomethane	0.750	0.829	111	(78-125)
Dichlorodifluoromethane	0.750	0.814	109	(29-149)
Ethylbenzene	0.750	0.834	111	(76-122)
Freon-113	1.13	1.15	102	(66-136)
Hexachlorobutadiene	0.750	0.801	107	(61-135)
Isopropylbenzene (Cumene)	0.750	0.799	107	(68-134)
Methylene chloride	0.750	0.704	94	(70-128)
Methyl-t-butyl ether	1.13	1.21	108	(73-125)
Naphthalene	0.750	0.870	116	(62-129)
n-Butylbenzene	0.750	0.888	118	(70-128)
n-Propylbenzene	0.750	0.834	111	(73-125)
o-Xylene	0.750	0.809	108	(77-123)
P & M -Xylene	1.50	1.61	108	(77-124)
sec-Butylbenzene	0.750	0.814	108	(73-126)
Styrene	0.750	0.844	112	(76-124)
tert-Butylbenzene	0.750	0.803	107	(73-125)
Tetrachloroethene	0.750	0.828	110	(73-128)
Toluene	0.750	0.795	106	(77-121)
trans-1,2-Dichloroethene	0.750	0.742	99	(74-125)
trans-1,3-Dichloropropene	0.750	0.801	107	(71-130)
Trichloroethene	0.750	0.810	108	(77-123)
Trichlorofluoromethane	0.750	0.620	83	(62-140)
Vinyl acetate	0.750	0.901	120	(50-151)
Vinyl chloride	0.750	0.705	94	(56-135)
Xylenes (total)	2.25	2.42	108	(78-124)

Blank Spike Summary

Blank Spike ID: LCS for HBN 1199855 [VXX35128]
Blank Spike Lab ID: 1539668
Date Analyzed: 10/17/2019 19:27

Matrix: Soil/Solid (dry weight)

QC for Samples: 1199855001, 1199855002, 1199855003, 1199855004, 1199855005, 1199855006, 1199855007, 1199855008

Results by **SW8260C**

Blank Spike (mg/Kg)

Parameter	Spike	Result	Rec (%)	CL
Surrogates				
1,2-Dichloroethane-D4 (surr)	0.750	100	100	(71-136)
4-Bromofluorobenzene (surr)	0.750	103	103	(55-151)
Toluene-d8 (surr)	0.750	97.7	98	(85-116)

Batch Information

Analytical Batch: **VMS19590**
Analytical Method: **SW8260C**
Instrument: **VRA Agilent GC/MS 7890B/5977A**
Analyst: **KAJ**

Prep Batch: **VXX35128**
Prep Method: **SW5035A**
Prep Date/Time: **10/17/2019 06:00**
Spike Init Wt./Vol.: 0.750 mg/Kg Extract Vol: 25 mL
Dupe Init Wt./Vol.: Extract Vol:

Print Date: 10/29/2019 2:23:48PM

Matrix Spike Summary

Original Sample ID: 1199855002
MS Sample ID: 1539669 MS
MSD Sample ID: 1539670 MSD

Analysis Date: 10/17/2019 22:43
Analysis Date: 10/17/2019 20:55
Analysis Date: 10/17/2019 21:10
Matrix: Soil/Solid (dry weight)

QC for Samples: 1199855001, 1199855002, 1199855003, 1199855004, 1199855005, 1199855006, 1199855007, 1199855008

Results by **SW8260C**

		Matrix Spike (mg/Kg)			Spike Duplicate (mg/Kg)					
Parameter	Sample	Spike	Result	Rec (%)	Spike	Result	Rec (%)	CL	RPD (%)	RPD CL
1,1,1,2-Tetrachloroethane	0.0150U	0.948	1.04	109	0.948	1.11	117	78-125	7.10	(< 20)
1,1,1-Trichloroethane	0.0188U	0.948	1.05	110	0.948	1.02	108	73-130	2.00	(< 20)
1,1,2,2-Tetrachloroethane	0.00151U	0.948	0.992	105	0.948	1.02	107	70-124	2.60	(< 20)
1,1,2-Trichloroethane	0.000605U	0.948	0.966	102	0.948	1.07	113	78-121	10.30	(< 20)
1,1-Dichloroethane	0.0188U	0.948	1.07	113	0.948	1.06	111	76-125	1.10	(< 20)
1,1-Dichloroethene	0.0188U	0.948	0.951	100	0.948	0.895	94	70-131	6.00	(< 20)
1,1-Dichloropropene	0.0188U	0.948	1.07	113	0.948	1.05	111	76-125	1.70	(< 20)
1,2,3-Trichlorobenzene	0.0377U	0.948	0.807	85	0.948	0.891	94	66-130	9.90	(< 20)
1,2,3-Trichloropropane	0.000755U	0.948	0.985	104	0.948	1.01	106	73-125	2.10	(< 20)
1,2,4-Trichlorobenzene	0.0188U	0.948	0.916	97	0.948	0.964	102	67-129	5.20	(< 20)
1,2,4-Trimethylbenzene	0.0377U	0.948	1.02	108	0.948	1.03	109	75-123	0.86	(< 20)
1,2-Dibromo-3-chloropropane	0.0755U	0.948	0.947	100	0.948	0.945	100	61-132	0.23	(< 20)
1,2-Dibromoethane	0.000755U	0.948	0.975	103	0.948	1.02	108	78-122	4.60	(< 20)
1,2-Dichlorobenzene	0.0188U	0.948	0.989	104	0.948	1.01	107	78-121	2.40	(< 20)
1,2-Dichloroethane	0.00151U	0.948	0.952	100	0.948	0.973	103	73-128	2.20	(< 20)
1,2-Dichloropropane	0.00755U	0.948	1.03	108	0.948	1.05	110	76-123	1.80	(< 20)
1,3,5-Trimethylbenzene	0.0188U	0.948	0.999	105	0.948	0.987	104	73-124	1.20	(< 20)
1,3-Dichlorobenzene	0.0188U	0.948	1.03	108	0.948	1.01	107	77-121	1.40	(< 20)
1,3-Dichloropropane	0.00755U	0.948	0.979	103	0.948	0.983	104	77-121	0.52	(< 20)
1,4-Dichlorobenzene	0.0188U	0.948	1.01	107	0.948	1.02	108	75-120	0.84	(< 20)
2,2-Dichloropropane	0.0188U	0.948	1.17	123	0.948	1.14	121	67-133	1.90	(< 20)
2-Butanone (MEK)	0.189U	2.85	2.83	99	2.85	3.14	110	51-148	10.50	(< 20)
2-Chlorotoluene	0.0188U	0.948	1.04	109	0.948	1.01	106	75-122	2.90	(< 20)
2-Hexanone	0.0755U	2.85	2.93	103	2.85	3.15	111	53-145	7.40	(< 20)
4-Chlorotoluene	0.0188U	0.948	1.05	110	0.948	1.01	107	72-124	3.40	(< 20)
4-Isopropyltoluene	0.0755U	0.948	1.01	106	0.948	1.01	107	73-127	0.50	(< 20)
4-Methyl-2-pentanone (MIBK)	0.189U	2.85	2.90	102	2.85	3.12	110	65-135	7.10	(< 20)
Acetone	0.189U	2.85	2.33	82	2.85	2.52	89	36-164	7.80	(< 20)
Benzene	0.00940U	0.948	1.01	106	0.948	1.01	107	77-121	0.53	(< 20)
Bromobenzene	0.0188U	0.948	1.01	106	0.948	0.998	105	78-121	1.10	(< 20)
Bromochloromethane	0.0188U	0.948	0.992	105	0.948	1.00	106	78-125	1.20	(< 20)
Bromodichloromethane	0.00151U	0.948	1.06	111	0.948	1.06	112	75-127	0.80	(< 20)
Bromoform	0.0188U	0.948	0.999	105	0.948	1.12	118	67-132	11.30	(< 20)
Bromomethane	0.0150U	0.948	0.885	93	0.948	0.897	95	53-143	1.40	(< 20)
Carbon disulfide	0.0755U	1.42	1.52	107	1.42	1.37	97	63-132	10.30	(< 20)
Carbon tetrachloride	0.00940U	0.948	1.02	107	0.948	0.993	105	70-135	2.20	(< 20)
Chlorobenzene	0.0188U	0.948	1.02	108	0.948	1.09	115	79-120	6.70	(< 20)

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Matrix Spike Summary

Original Sample ID: 1199855002
MS Sample ID: 1539669 MS
MSD Sample ID: 1539670 MSD

Analysis Date: 10/17/2019 22:43
Analysis Date: 10/17/2019 20:55
Analysis Date: 10/17/2019 21:10
Matrix: Soil/Solid (dry weight)

QC for Samples: 1199855001, 1199855002, 1199855003, 1199855004, 1199855005, 1199855006, 1199855007, 1199855008

Results by **SW8260C**

		Matrix Spike (mg/Kg)				Spike Duplicate (mg/Kg)					
Parameter	Sample	Spike	Result	Rec (%)		Spike	Result	Rec (%)	CL	RPD (%)	RPD CL
Chloroethane	0.150U	0.948	0.860	91		0.948	0.812	86	59-139	5.70	(< 20)
Chloroform	0.00151U	0.948	0.997	105		0.948	1.00	106	78-123	0.41	(< 20)
Chloromethane	0.0188U	0.948	0.876	92		0.948	0.799	84	50-136	9.10	(< 20)
cis-1,2-Dichloroethene	0.0188U	0.948	1.03	109		0.948	1.05	110	77-123	1.20	(< 20)
cis-1,3-Dichloropropene	0.00940U	0.948	1.00	106		0.948	1.02	108	74-126	1.80	(< 20)
Dibromochloromethane	0.00151U	0.948	0.975	103		0.948	1.07	112	74-126	8.80	(< 20)
Dibromomethane	0.0188U	0.948	1.01	106		0.948	1.03	109	78-125	2.50	(< 20)
Dichlorodifluoromethane	0.0377U	0.948	0.948	100		0.948	0.916	97	29-149	3.50	(< 20)
Ethylbenzene	0.0188U	0.948	1.03	108		0.948	1.09	115	76-122	6.10	(< 20)
Freon-113	0.0755U	1.42	1.45	102		1.42	1.38	97	66-136	5.20	(< 20)
Hexachlorobutadiene	0.0150U	0.948	1.02	108		0.948	0.948	100	61-135	7.10	(< 20)
Isopropylbenzene (Cumene)	0.0188U	0.948	0.984	104		0.948	1.07	113	68-134	8.10	(< 20)
Methylene chloride	0.0755U	0.948	0.849	90		0.948	0.814	86	70-128	4.20	(< 20)
Methyl-t-butyl ether	0.0755U	1.42	1.45	102		1.42	1.46	103	73-125	0.85	(< 20)
Naphthalene	0.0188U	0.948	0.864	91		0.948	0.951	100	62-129	9.60	(< 20)
n-Butylbenzene	0.0188U	0.948	1.03	109		0.948	1.07	112	70-128	3.10	(< 20)
n-Propylbenzene	0.0188U	0.948	1.01	107		0.948	1.00	106	73-125	0.85	(< 20)
o-Xylene	0.0188U	0.948	0.987	104		0.948	1.06	112	77-123	7.20	(< 20)
P & M -Xylene	0.0377U	1.89	2.00	105		1.89	2.10	111	77-124	5.10	(< 20)
sec-Butylbenzene	0.0188U	0.948	0.991	105		0.948	0.993	105	73-126	0.25	(< 20)
Styrene	0.0188U	0.948	1.04	110		0.948	1.12	118	76-124	7.80	(< 20)
tert-Butylbenzene	0.0188U	0.948	0.955	101		0.948	0.967	102	73-125	1.30	(< 20)
Tetrachloroethene	0.604	0.948	1.48	93		0.948	1.50	95	73-128	1.20	(< 20)
Toluene	0.0188U	0.948	0.987	104		0.948	1.05	110	77-121	5.90	(< 20)
trans-1,2-Dichloroethene	0.0188U	0.948	1.22	129	*	0.948	1.06	112	74-125	14.20	(< 20)
trans-1,3-Dichloropropene	0.00940U	0.948	0.989	104		0.948	1.08	114	71-130	8.40	(< 20)
Trichloroethene	0.00377U	0.948	1.01	106		0.948	0.999	105	77-123	1.00	(< 20)
Trichlorofluoromethane	0.0377U	0.948	1.06	112		0.948	0.908	96	62-140	15.80	(< 20)
Vinyl acetate	0.0755U	0.948	1.09	115		0.948	1.15	122	50-151	6.20	(< 20)
Vinyl chloride	0.000605U	0.948	0.901	95		0.948	0.918	97	56-135	1.90	(< 20)
Xylenes (total)	0.0565U	2.85	2.98	105		2.85	3.16	111	78-124	5.80	(< 20)
Surrogates											
1,2-Dichloroethane-D4 (surr)		0.948	0.920	97		0.948	0.944	100	71-136	2.60	
4-Bromofluorobenzene (surr)		1.58	1.37	86		1.58	1.33	85	55-151	1.80	
Toluene-d8 (surr)		0.948	0.943	99		0.948	0.991	105	85-116	5.00	

Print Date: 10/29/2019 2:23:49PM

Matrix Spike Summary

Original Sample ID: 1199855002
MS Sample ID: 1539669 MS
MSD Sample ID: 1539670 MSD

Analysis Date:
Analysis Date: 10/17/2019 20:55
Analysis Date: 10/17/2019 21:10
Matrix: Soil/Solid (dry weight)

QC for Samples: 1199855001, 1199855002, 1199855003, 1199855004, 1199855005, 1199855006, 1199855007, 1199855008

Results by **SW8260C**

		Matrix Spike (%)			Spike Duplicate (%)					
Parameter	Sample	Spike	Result	Rec (%)	Spike	Result	Rec (%)	CL	RPD (%)	RPD CL

Batch Information

Analytical Batch: VMS19590
Analytical Method: SW8260C
Instrument: VRA Agilent GC/MS 7890B/5977A
Analyst: KAJ
Analytical Date/Time: 10/17/2019 8:55:00PM

Prep Batch: VXX35128
Prep Method: Vol. Extraction SW8260 Field Extracted L
Prep Date/Time: 10/17/2019 6:00:00AM
Prep Initial Wt./Vol.: 44.35g
Prep Extract Vol: 25.00mL

Print Date: 10/29/2019 2:23:49PM

Method Blank

Blank ID: MB for HBN 1801322 [VXX/35132]
Blank Lab ID: 1539824

Matrix: Soil/Solid (dry weight)

QC for Samples:
1199855009, 1199855010, 1199855011, 1199855012

Results by **SW8260C**

Parameter	Results	LOQ/CL	DL	Units
1,1,1,2-Tetrachloroethane	0.0100U	0.0200	0.00620	mg/Kg
1,1,1-Trichloroethane	0.0125U	0.0250	0.00780	mg/Kg
1,1,2,2-Tetrachloroethane	0.00100U	0.00200	0.000620	mg/Kg
1,1,2-Trichloroethane	0.000400U	0.000800	0.000250	mg/Kg
1,1-Dichloroethane	0.0125U	0.0250	0.00780	mg/Kg
1,1-Dichloroethene	0.0125U	0.0250	0.00780	mg/Kg
1,1-Dichloropropene	0.0125U	0.0250	0.00780	mg/Kg
1,2,3-Trichlorobenzene	0.0250U	0.0500	0.0150	mg/Kg
1,2,3-Trichloropropane	0.000500U	0.00100	0.000310	mg/Kg
1,2,4-Trichlorobenzene	0.0125U	0.0250	0.00780	mg/Kg
1,2,4-Trimethylbenzene	0.0250U	0.0500	0.0150	mg/Kg
1,2-Dibromo-3-chloropropane	0.0500U	0.100	0.0310	mg/Kg
1,2-Dibromoethane	0.000500U	0.00100	0.000310	mg/Kg
1,2-Dichlorobenzene	0.0125U	0.0250	0.00780	mg/Kg
1,2-Dichloroethane	0.00100U	0.00200	0.000620	mg/Kg
1,2-Dichloropropane	0.00500U	0.0100	0.00310	mg/Kg
1,3,5-Trimethylbenzene	0.0125U	0.0250	0.00780	mg/Kg
1,3-Dichlorobenzene	0.0125U	0.0250	0.00780	mg/Kg
1,3-Dichloropropane	0.00500U	0.0100	0.00310	mg/Kg
1,4-Dichlorobenzene	0.0125U	0.0250	0.00780	mg/Kg
2,2-Dichloropropane	0.0125U	0.0250	0.00780	mg/Kg
2-Butanone (MEK)	0.125U	0.250	0.0780	mg/Kg
2-Chlorotoluene	0.0125U	0.0250	0.00780	mg/Kg
2-Hexanone	0.0500U	0.100	0.0310	mg/Kg
4-Chlorotoluene	0.0125U	0.0250	0.00780	mg/Kg
4-Isopropyltoluene	0.0500U	0.100	0.0250	mg/Kg
4-Methyl-2-pentanone (MIBK)	0.125U	0.250	0.0780	mg/Kg
Acetone	0.125U	0.250	0.0780	mg/Kg
Benzene	0.00625U	0.0125	0.00390	mg/Kg
Bromobenzene	0.0125U	0.0250	0.00780	mg/Kg
Bromochloromethane	0.0125U	0.0250	0.00780	mg/Kg
Bromodichloromethane	0.00100U	0.00200	0.000620	mg/Kg
Bromoform	0.0125U	0.0250	0.00780	mg/Kg
Bromomethane	0.0100U	0.0200	0.00620	mg/Kg
Carbon disulfide	0.0500U	0.100	0.0310	mg/Kg
Carbon tetrachloride	0.00625U	0.0125	0.00390	mg/Kg
Chlorobenzene	0.0125U	0.0250	0.00780	mg/Kg
Chloroethane	0.100U	0.200	0.0620	mg/Kg

Method Blank

Blank ID: MB for HBN 1801322 [VXX/35132]
Blank Lab ID: 1539824

Matrix: Soil/Solid (dry weight)

QC for Samples:
1199855009, 1199855010, 1199855011, 1199855012

Results by **SW8260C**

Parameter	Results	LOQ/CL	DL	Units
Chloroform	0.00100U	0.00200	0.000620	mg/Kg
Chloromethane	0.0125U	0.0250	0.00780	mg/Kg
cis-1,2-Dichloroethene	0.0125U	0.0250	0.00780	mg/Kg
cis-1,3-Dichloropropene	0.00625U	0.0125	0.00390	mg/Kg
Dibromochloromethane	0.00100U	0.00200	0.000620	mg/Kg
Dibromomethane	0.0125U	0.0250	0.00780	mg/Kg
Dichlorodifluoromethane	0.0250U	0.0500	0.0150	mg/Kg
Ethylbenzene	0.0125U	0.0250	0.00780	mg/Kg
Freon-113	0.0500U	0.100	0.0310	mg/Kg
Hexachlorobutadiene	0.0100U	0.0200	0.00620	mg/Kg
Isopropylbenzene (Cumene)	0.0125U	0.0250	0.00780	mg/Kg
Methylene chloride	0.0500U	0.100	0.0310	mg/Kg
Methyl-t-butyl ether	0.0500U	0.100	0.0310	mg/Kg
Naphthalene	0.0125U	0.0250	0.00780	mg/Kg
n-Butylbenzene	0.0125U	0.0250	0.00780	mg/Kg
n-Propylbenzene	0.0125U	0.0250	0.00780	mg/Kg
o-Xylene	0.0125U	0.0250	0.00780	mg/Kg
P & M -Xylene	0.0250U	0.0500	0.0150	mg/Kg
sec-Butylbenzene	0.0125U	0.0250	0.00780	mg/Kg
Styrene	0.0125U	0.0250	0.00780	mg/Kg
tert-Butylbenzene	0.0125U	0.0250	0.00780	mg/Kg
Tetrachloroethene	0.00625U	0.0125	0.00390	mg/Kg
Toluene	0.0125U	0.0250	0.00780	mg/Kg
trans-1,2-Dichloroethene	0.0125U	0.0250	0.00780	mg/Kg
trans-1,3-Dichloropropene	0.00625U	0.0125	0.00390	mg/Kg
Trichloroethene	0.00250U	0.00500	0.00150	mg/Kg
Trichlorofluoromethane	0.0250U	0.0500	0.0150	mg/Kg
Vinyl acetate	0.0500U	0.100	0.0310	mg/Kg
Vinyl chloride	0.000400U	0.000800	0.000250	mg/Kg
Xylenes (total)	0.0375U	0.0750	0.0228	mg/Kg
Surrogates				
1,2-Dichloroethane-D4 (surr)	109	71-136		%
4-Bromofluorobenzene (surr)	105	55-151		%
Toluene-d8 (surr)	96.9	85-116		%

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Method Blank

Blank ID: MB for HBN 1801322 [VXX/35132]
Blank Lab ID: 1539824

Matrix: Soil/Solid (dry weight)

QC for Samples:
1199855009, 1199855010, 1199855011, 1199855012

Results by **SW8260C**

Parameter	Results	LOQ/CL	DL	Units

Batch Information

Analytical Batch: VMS19594
Analytical Method: SW8260C
Instrument: VRA Agilent GC/MS 7890B/5977A
Analyst: KAJ
Analytical Date/Time: 10/20/2019 4:48:00PM

Prep Batch: VXX35132
Prep Method: SW5035A
Prep Date/Time: 10/20/2019 6:00:00AM
Prep Initial Wt./Vol.: 50 g
Prep Extract Vol: 25 mL

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Blank Spike Summary

Blank Spike ID: LCS for HBN 1199855 [VXX35132]
Blank Spike Lab ID: 1539825
Date Analyzed: 10/20/2019 17:03

Matrix: Soil/Solid (dry weight)

QC for Samples: 1199855009, 1199855010, 1199855011, 1199855012

Results by **SW8260C**

Blank Spike (mg/Kg)

Parameter	Spike	Result	Rec (%)	CL
1,1,1,2-Tetrachloroethane	0.750	0.858	114	(78-125)
1,1,1-Trichloroethane	0.750	0.877	117	(73-130)
1,1,2,2-Tetrachloroethane	0.750	0.824	110	(70-124)
1,1,2-Trichloroethane	0.750	0.794	106	(78-121)
1,1-Dichloroethane	0.750	0.857	114	(76-125)
1,1-Dichloroethene	0.750	0.727	97	(70-131)
1,1-Dichloropropene	0.750	0.847	113	(76-125)
1,2,3-Trichlorobenzene	0.750	0.744	99	(66-130)
1,2,3-Trichloropropane	0.750	0.842	112	(73-125)
1,2,4-Trichlorobenzene	0.750	0.786	105	(67-129)
1,2,4-Trimethylbenzene	0.750	0.816	109	(75-123)
1,2-Dibromo-3-chloropropane	0.750	0.879	117	(61-132)
1,2-Dibromoethane	0.750	0.814	109	(78-122)
1,2-Dichlorobenzene	0.750	0.809	108	(78-121)
1,2-Dichloroethane	0.750	0.838	112	(73-128)
1,2-Dichloropropane	0.750	0.830	111	(76-123)
1,3,5-Trimethylbenzene	0.750	0.783	104	(73-124)
1,3-Dichlorobenzene	0.750	0.810	108	(77-121)
1,3-Dichloropropane	0.750	0.797	106	(77-121)
1,4-Dichlorobenzene	0.750	0.807	108	(75-120)
2,2-Dichloropropane	0.750	0.965	129	(67-133)
2-Butanone (MEK)	2.25	2.51	112	(51-148)
2-Chlorotoluene	0.750	0.826	110	(75-122)
2-Hexanone	2.25	2.58	115	(53-145)
4-Chlorotoluene	0.750	0.833	111	(72-124)
4-Isopropyltoluene	0.750	0.797	106	(73-127)
4-Methyl-2-pentanone (MIBK)	2.25	2.51	111	(65-135)
Acetone	2.25	2.08	92	(36-164)
Benzene	0.750	0.794	106	(77-121)
Bromobenzene	0.750	0.808	108	(78-121)
Bromochloromethane	0.750	0.817	109	(78-125)
Bromodichloromethane	0.750	0.906	121	(75-127)
Bromoform	0.750	0.892	119	(67-132)
Bromomethane	0.750	0.670	89	(53-143)

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Blank Spike Summary

Blank Spike ID: LCS for HBN 1199855 [VXX35132]
Blank Spike Lab ID: 1539825
Date Analyzed: 10/20/2019 17:03

Matrix: Soil/Solid (dry weight)

QC for Samples: 1199855009, 1199855010, 1199855011, 1199855012

Results by **SW8260C**

Blank Spike (mg/Kg)

Parameter	Spike	Result	Rec (%)	CL
Carbon disulfide	1.13	1.13	101	(63-132)
Carbon tetrachloride	0.750	0.850	113	(70-135)
Chlorobenzene	0.750	0.806	107	(79-120)
Chloroethane	0.750	0.680	91	(59-139)
Chloroform	0.750	0.838	112	(78-123)
Chloromethane	0.750	0.715	95	(50-136)
cis-1,2-Dichloroethene	0.750	0.829	111	(77-123)
cis-1,3-Dichloropropene	0.750	0.835	111	(74-126)
Dibromochloromethane	0.750	0.836	112	(74-126)
Dibromomethane	0.750	0.852	114	(78-125)
Dichlorodifluoromethane	0.750	0.749	100	(29-149)
Ethylbenzene	0.750	0.809	108	(76-122)
Freon-113	1.13	1.15	102	(66-136)
Hexachlorobutadiene	0.750	0.711	95	(61-135)
Isopropylbenzene (Cumene)	0.750	0.796	106	(68-134)
Methylene chloride	0.750	0.657	88	(70-128)
Methyl-t-butyl ether	1.13	1.24	111	(73-125)
Naphthalene	0.750	0.796	106	(62-129)
n-Butylbenzene	0.750	0.832	111	(70-128)
n-Propylbenzene	0.750	0.805	107	(73-125)
o-Xylene	0.750	0.785	105	(77-123)
P & M -Xylene	1.50	1.58	105	(77-124)
sec-Butylbenzene	0.750	0.773	103	(73-126)
Styrene	0.750	0.828	110	(76-124)
tert-Butylbenzene	0.750	0.768	102	(73-125)
Tetrachloroethene	0.750	0.810	108	(73-128)
Toluene	0.750	0.777	104	(77-121)
trans-1,2-Dichloroethene	0.750	0.835	111	(74-125)
trans-1,3-Dichloropropene	0.750	0.835	111	(71-130)
Trichloroethene	0.750	0.813	108	(77-123)
Trichlorofluoromethane	0.750	0.808	108	(62-140)
Vinyl acetate	0.750	0.921	123	(50-151)
Vinyl chloride	0.750	0.666	89	(56-135)
Xylenes (total)	2.25	2.36	105	(78-124)

Blank Spike Summary

Blank Spike ID: LCS for HBN 1199855 [VXX35132]
Blank Spike Lab ID: 1539825
Date Analyzed: 10/20/2019 17:03

Matrix: Soil/Solid (dry weight)

QC for Samples: 1199855009, 1199855010, 1199855011, 1199855012

Results by **SW8260C**

Blank Spike (mg/Kg)

Parameter	Spike	Result	Rec (%)	CL
Surrogates				
1,2-Dichloroethane-D4 (surr)	0.750	108	108	(71-136)
4-Bromofluorobenzene (surr)	0.750	103	103	(55-151)
Toluene-d8 (surr)	0.750	97	97	(85-116)

Batch Information

Analytical Batch: **VMS19594**
Analytical Method: **SW8260C**
Instrument: **VRA Agilent GC/MS 7890B/5977A**
Analyst: **KAJ**

Prep Batch: **VXX35132**
Prep Method: **SW5035A**
Prep Date/Time: **10/20/2019 06:00**
Spike Init Wt./Vol.: 0.750 mg/Kg Extract Vol: 25 mL
Dupe Init Wt./Vol.: Extract Vol:

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Matrix Spike Summary

Original Sample ID: 1539826
MS Sample ID: 1539827 MS
MSD Sample ID: 1539828 MSD

Analysis Date: 10/20/2019 19:48
Analysis Date: 10/20/2019 18:15
Analysis Date: 10/20/2019 18:30
Matrix: Solid/Soil (Wet Weight)

QC for Samples: 1199855009, 1199855010, 1199855011, 1199855012

Results by **SW8260C**

		Matrix Spike (mg/Kg)			Spike Duplicate (mg/Kg)					
Parameter	Sample	Spike	Result	Rec (%)	Spike	Result	Rec (%)	CL	RPD (%)	RPD CL
1,1,1,2-Tetrachloroethane	0.0810U	6.06	6.80	112	6.06	6.90	114	78-125	1.50	(< 20)
1,1,1-Trichloroethane	0.101U	6.06	7.15	118	6.06	7.17	118	73-130	0.37	(< 20)
1,1,2,2-Tetrachloroethane	0.00810U	6.06	6.58	109	6.06	6.87	113	70-124	4.20	(< 20)
1,1,2-Trichloroethane	0.00323U	6.06	6.62	109	6.06	6.97	115	78-121	5.10	(< 20)
1,1-Dichloroethane	0.101U	6.06	6.90	114	6.06	7.00	116	76-125	1.50	(< 20)
1,1-Dichloroethene	0.101U	6.06	5.83	96	6.06	5.61	93	70-131	3.90	(< 20)
1,1-Dichloropropene	0.101U	6.06	6.97	115	6.06	6.99	115	76-125	0.17	(< 20)
1,2,3-Trichlorobenzene	0.202U	6.06	4.52	75	6.06	5.96	99	66-130	27.60 *	(< 20)
1,2,3-Trichloropropane	0.00404U	6.06	6.58	109	6.06	6.87	114	73-125	4.40	(< 20)
1,2,4-Trichlorobenzene	0.101U	6.06	5.31	88	6.06	6.29	104	67-129	16.90	(< 20)
1,2,4-Trimethylbenzene	0.202U	6.06	6.41	106	6.06	6.58	109	75-123	2.60	(< 20)
1,2-Dibromo-3-chloropropane	0.404U	6.06	6.38	105	6.06	7.33	121	61-132	13.90	(< 20)
1,2-Dibromoethane	0.00404U	6.06	6.35	105	6.06	6.71	111	78-122	5.60	(< 20)
1,2-Dichlorobenzene	0.101U	6.06	6.18	102	6.06	6.54	108	78-121	5.70	(< 20)
1,2-Dichloroethane	0.00810U	6.06	6.57	109	6.06	6.78	112	73-128	3.10	(< 20)
1,2-Dichloropropane	0.0404U	6.06	6.58	109	6.06	6.67	110	76-123	1.30	(< 20)
1,3,5-Trimethylbenzene	0.101U	6.06	6.11	101	6.06	6.18	102	73-124	1.10	(< 20)
1,3-Dichlorobenzene	0.101U	6.06	6.19	102	6.06	6.21	102	77-121	0.20	(< 20)
1,3-Dichloropropane	0.0404U	6.06	6.21	103	6.06	6.55	108	77-121	5.30	(< 20)
1,4-Dichlorobenzene	0.101U	6.06	6.30	104	6.06	6.29	104	75-120	0.16	(< 20)
2,2-Dichloropropane	0.101U	6.06	7.96	131	6.06	7.93	131	67-133	0.43	(< 20)
2-Butanone (MEK)	1.01U	18.2	18.3	101	18.2	20.7	114	51-148	12.30	(< 20)
2-Chlorotoluene	0.101U	6.06	6.45	107	6.06	6.52	108	75-122	1.10	(< 20)
2-Hexanone	0.404U	18.2	19.8	109	18.2	21.7	119	53-145	9.20	(< 20)
4-Chlorotoluene	0.101U	6.06	6.61	109	6.06	6.71	111	72-124	1.60	(< 20)
4-Isopropyltoluene	4.15	6.06	9.62	90	6.06	9.96	96	73-127	3.50	(< 20)
4-Methyl-2-pentanone (MIBK)	1.01U	18.2	19.1	105	18.2	20.9	115	65-135	8.70	(< 20)
Acetone	1.01U	18.2	12.9	71	18.2	14.8	81	36-164	13.30	(< 20)
Benzene	0.0505U	6.06	6.25	103	6.06	6.44	106	77-121	2.90	(< 20)
Bromobenzene	0.101U	6.06	6.56	108	6.06	6.59	109	78-121	0.40	(< 20)
Bromochloromethane	0.101U	6.06	6.47	107	6.06	6.68	110	78-125	3.20	(< 20)
Bromodichloromethane	0.00810U	6.06	7.17	118	6.06	7.34	121	75-127	2.30	(< 20)
Bromoform	0.101U	6.06	7.09	117	6.06	7.35	121	67-132	3.70	(< 20)
Bromomethane	0.0810U	6.06	5.98	99	6.06	5.82	96	53-143	2.70	(< 20)
Carbon disulfide	0.404U	9.08	9.37	103	9.08	8.73	96	63-132	7.20	(< 20)
Carbon tetrachloride	0.0505U	6.06	7.06	117	6.06	7.03	116	70-135	0.43	(< 20)
Chlorobenzene	0.101U	6.06	6.40	106	6.06	6.47	107	79-120	1.10	(< 20)

Print Date: 10/29/2019 2:23:52PM

Matrix Spike Summary

Original Sample ID: 1539826
MS Sample ID: 1539827 MS
MSD Sample ID: 1539828 MSD

Analysis Date: 10/20/2019 19:48
Analysis Date: 10/20/2019 18:15
Analysis Date: 10/20/2019 18:30
Matrix: Solid/Soil (Wet Weight)

QC for Samples: 1199855009, 1199855010, 1199855011, 1199855012

Results by **SW8260C**

		Matrix Spike (mg/Kg)			Spike Duplicate (mg/Kg)					
Parameter	Sample	Spike	Result	Rec (%)	Spike	Result	Rec (%)	CL	RPD (%)	RPD CL
Chloroethane	0.810U	6.06	6.53	108	6.06	6.36	105	59-139	2.70	(< 20)
Chloroform	0.00810U	6.06	6.64	110	6.06	6.71	111	78-123	1.10	(< 20)
Chloromethane	0.101U	6.06	6.14	101	6.06	5.76	95	50-136	6.30	(< 20)
cis-1,2-Dichloroethene	0.101U	6.06	6.60	109	6.06	6.72	111	77-123	1.80	(< 20)
cis-1,3-Dichloropropene	0.0505U	6.06	6.60	109	6.06	6.74	111	74-126	2.10	(< 20)
Dibromochloromethane	0.00810U	6.06	6.60	109	6.06	6.91	114	74-126	4.50	(< 20)
Dibromomethane	0.101U	6.06	6.70	111	6.06	6.99	115	78-125	4.30	(< 20)
Dichlorodifluoromethane	0.202U	6.06	6.33	105	6.06	5.89	97	29-149	7.20	(< 20)
Ethylbenzene	0.101U	6.06	6.45	107	6.06	6.54	108	76-122	1.40	(< 20)
Freon-113	0.404U	9.08	9.12	100	9.08	8.85	98	66-136	2.90	(< 20)
Hexachlorobutadiene	0.0810U	6.06	5.45	90	6.06	5.48	91	61-135	0.55	(< 20)
Isopropylbenzene (Cumene)	0.101U	6.06	6.14	101	6.06	6.38	105	68-134	3.90	(< 20)
Methylene chloride	0.404U	6.06	4.82	80	6.06	4.93	81	70-128	2.30	(< 20)
Methyl-t-butyl ether	0.404U	9.08	9.73	107	9.08	10.2	112	73-125	4.60	(< 20)
Naphthalene	0.0686J	6.06	5.48	89	6.06	6.88	112	62-129	22.60 *	(< 20)
n-Butylbenzene	0.101U	6.06	5.99	99	6.06	6.46	107	70-128	7.60	(< 20)
n-Propylbenzene	0.101U	6.06	6.26	103	6.06	6.38	105	73-125	1.90	(< 20)
o-Xylene	0.101U	6.06	6.17	102	6.06	6.33	104	77-123	2.50	(< 20)
P & M -Xylene	0.202U	12.1	12.4	103	12.1	12.6	104	77-124	1.70	(< 20)
sec-Butylbenzene	0.101U	6.06	5.83	96	6.06	6.02	99	73-126	3.10	(< 20)
Styrene	0.101U	6.06	6.52	108	6.06	6.66	110	76-124	2.00	(< 20)
tert-Butylbenzene	0.101U	6.06	5.86	97	6.06	6.07	100	73-125	3.50	(< 20)
Tetrachloroethene	0.0505U	6.06	6.29	104	6.06	6.63	109	73-128	5.20	(< 20)
Toluene	0.101U	6.06	6.17	102	6.06	6.26	103	77-121	1.40	(< 20)
trans-1,2-Dichloroethene	0.101U	6.06	7.18	119	6.06	7.21	119	74-125	0.48	(< 20)
trans-1,3-Dichloropropene	0.0505U	6.06	6.64	110	6.06	6.83	113	71-130	2.80	(< 20)
Trichloroethene	0.0202U	6.06	6.54	108	6.06	6.57	108	77-123	0.40	(< 20)
Trichlorofluoromethane	0.202U	6.06	7.92	131	6.06	7.18	119	62-140	9.90	(< 20)
Vinyl acetate	0.404U	6.06	7.28	120	6.06	7.77	128	50-151	6.50	(< 20)
Vinyl chloride	0.00323U	6.06	5.92	98	6.06	6.47	107	56-135	8.90	(< 20)
Xylenes (total)	0.303U	18.2	18.6	102	18.2	19.0	104	78-124	2.00	(< 20)
Surrogates										
1,2-Dichloroethane-D4 (surr)		6.06	6.38	105	6.06	6.55	108	71-136	2.70	
4-Bromofluorobenzene (surr)		1.01	0.789	78	1.01	0.777	77	55-151	1.50	
Toluene-d8 (surr)		6.06	5.93	98	6.06	5.84	97	85-116	1.40	

SGS North America Inc.
200 West Potter Drive Anchorage, AK 95518
t 907.562.2343 f 907.561.5301 www.us.sgs.com

Matrix Spike Summary

Original Sample ID: 1539826
MS Sample ID: 1539827 MS
MSD Sample ID: 1539828 MSD

Analysis Date:
Analysis Date: 10/20/2019 18:15
Analysis Date: 10/20/2019 18:30
Matrix: Solid/Soil (Wet Weight)

QC for Samples: 1199855009, 1199855010, 1199855011, 1199855012

Results by **SW8260C**

		Matrix Spike (%)			Spike Duplicate (%)					
Parameter	Sample	Spike	Result	Rec (%)	Spike	Result	Rec (%)	CL	RPD (%)	RPD CL

Batch Information

Analytical Batch: VMS19594
Analytical Method: SW8260C
Instrument: VRA Agilent GC/MS 7890B/5977A
Analyst: KAJ
Analytical Date/Time: 10/20/2019 6:15:01PM

Prep Batch: VXX35132
Prep Method: Vol. Extraction SW8260 Field Extracted L
Prep Date/Time: 10/20/2019 6:00:00AM
Prep Initial Wt./Vol.: 61.92g
Prep Extract Vol: 25.00mL

Print Date: 10/29/2019 2:23:52PM

1199855

SHANNON & WILSON, INC.
GEOTECHNICAL AND ENVIRONMENTAL CONSULTANTS

2355 Hill Road
Fairbanks, AK 99709
(907) 479-0600
www.shannonwilson.com

CHAIN-OF CORD

Laboratory SGS
Attn: Jen Dawkins

Turn Around Time: [X] Normal [ ] Rush — Please Specify

Quote No:

J-Flags: [X] Yes [ ] No

Analytical Methods (include preservative if used)

Sample Identity	Lab No.	Time	Date Sampled	VOCs EPA 8260B	Total Number of Containers	Remarks/Matrix Composition/Grab? Sample Containers
SB19-01-1	(1) AB	22:10	10/9/19	X	2	Soil Grab Sample
SB19-01-4	(2) AB	23:10		X	2	
SB19-02-1	(3) AB	23:30		X	2	
~~SB19-02-4~~		~~24:20~~		~~X~~	~~2~~	
SB19-03-1	(4) AB	24:35		X	2	
SB19-03-3	(5) AB	01:10	10/10/19	X	2	
SB19-04-1	(6) AB	01:40		X	2	
SB19-04-4	(7) AB	02:30		X	2	
SB19-05-1	(8) AB	02:50		X	2	
SB19-05-101	(9) AB	02:40		X	2	

Project Information
- Number: 103729
- Name: Bentley Mall E. Satellite
- Contact: KRF
- Ongoing Project? Yes [X] No [ ]
- Sampler: APW

Sample Receipt
- Total No. of Containers: 23
- COC Seals/Intact? Y/N/NA:
- Received Good Cond./Cold:
- Temp: 1.3
- Delivery Method: Hand

Notes:
All samples not included on COC should be disposed of by the lab.

Relinquished By: 1.	Relinquished By: 2.	Relinquished By: 3.
Signature: Adam Wyborny Time: 14:30	Signature: Jen D. Time: 1500	Signature: Time:
Printed Name: Adam Wyborny Date: 10/10/19	Printed Name: Jen D. Date: 10/10/19	Printed Name: Date:
Company: Shannon & Wilson, Inc.	Company: SGS	Company:

Received By: 1.	Received By: 2.	Received By: 3.
Signature: Time: 1430	Signature: Time:	Signature: Time: 10:59
Printed Name: Jen Dawkins Date: 10/10/19	Printed Name: Date:	Printed Name: AMG Date: 10/11/19
Company: SGS	Company:	Company: SGS 1.3° 1F 1B DSG

Distribution: White - w/shipment - returned to Shannon & Wilson w/ laboratory report
Yellow - w/shipment - for consignee files
Pink - Shannon & Wilson - job file

Page 01 of 02

No. 411525

1199855

SHANNON & WILSON, INC.
GEOTECHNICAL AND ENVIRONMENTAL CONSULTANTS

2355 Hill Road
Fairbanks, AK 99709
(907) 479-0600
www.shannonwilson.com

CHAIN-OF-CUSTODY RECORD

Laboratory SGS
Attn: Jen Dawkins

Turn Around Time:	Quote No:
[X] Normal [ ] Rush	J-Flags: [X] Yes [ ] No
Please Specify	

Analytical Methods (include preservative if used)

Sample Identity	Lab No.	Time	Date Sampled	VOCs EPA 8260B							Total Number of Containers	Remarks/Matrix Composition/Grab? Sample Containers
SB19-05-4	(10) AB	03:45	10/10/19	X							2	Soil Grab Sample
Trip Blank	(11) A	14:00	10/9/19	X							1	MeOH Trip Blank
SB19-02-2	(12) AB	23:50	10/9/19	X							2	Soil Grab Sample

Project Information	
Number:	
Name:	
Contact:	
Ongoing Project? Yes [ ] No [ ]	
Sampler:	RCG

Sample Receipt	
Total No. of Containers:	
COC Seals/Intact? Y/N/NA	
Received Good Cond./Cold	Y
Temp:	2°
Delivery Method:	

Notes:
see

Relinquished By: 1.	Relinquished By: 2.	Relinquished By: 3.
Signature: Adam Wyborny Time: 14:30	Signature: Jen D. Time: 1500	Signature: Time:
Printed Name: Adam Wyborny Date: 10/10/19	Printed Name: Jen D. Date: 10-10-19	Printed Name: Date:
Company: Shannon & Wilson, Inc.	Company: SGS	Company:

Received By: 1.	Received By: 2.	Received By: 3.
Signature: Jen Dawkins Time: 1450	Signature: Time:	Signature: Time: 10:59
Printed Name: Jen Dawkins Date: 10-10-19	Printed Name: Date:	Printed Name: AMG Date: 10/11/19
Company: SGS	Company:	Company: SGS 1F7B 1.3° DSG

Distribution: White - w/shipment - returned to Shannon & Wilson w/ laboratory report
Yellow - w/shipment - for consignee files
Pink - Shannon & Wilson - job file

No. 411527

SGS

Returned Bottles Inventory

Name of individual returning bottles: _____

Date Received: 10/11/19

Client Name: Shannon + Wilson FBKS

Received by: Jaymm JALV

Project Name: 103729 Bentley Mall E Sat.

SGS PM: Jen Dawkins

HDPE/Nalgene:	1-L						
	500-ml						
	250-ml or 8-oz						
	125-ml or 4-oz						
	60-ml or 2-oz						
	other						
amber glass:	1-L						
	500-ml						
	250-ml or 8-oz						
	125-ml or 4-oz with or without septa	20					
	40-ml VOA vial						
	other						
Subtotal:							

Note: Returned bottles (regardless of size/pres.) are billed back at $4/bottle ***unless otherwise quoted***.

Amount to Invoice Client $: 80

WO#: 1199865

F067_Returned_Bottles_Tally_2014-08-05

e-Sample Receipt Form

SGS Workorder #: **1199855**

1 1 9 9 8 5 5

Review Criteria	Condition (Yes, No, N/A)	Exceptions Noted below
Chain of Custody / Temperature Requirements		N/A — Exemption permitted if sampler hand carries/delivers.
Were Custody Seals intact? Note # & location	Yes	1F 1B
COC accompanied samples?	Yes	
DOD: Were samples received in COC corresponding coolers?	N/A	
N/A — **Exemption permitted if chilled & collected <8 hours ago, or for samples where chilling is not required		
Temperature blank compliant* (i.e., 0-6 °C after CF)?	Yes	Cooler ID: 1 @ 1.3 °C Therm. ID: D59
If samples received without a temperature blank, the "cooler temperature" will be documented instead & "COOLER TEMP" will be noted to the right. "ambient" or "chilled" will be noted if neither is available.		Cooler ID: @ °C Therm. ID:
		Cooler ID: @ °C Therm. ID:
		Cooler ID: @ °C Therm. ID:
		Cooler ID: @ °C Therm. ID:
*If >6°C, were samples collected <8 hours ago?	N/A	
If <0°C, were sample containers ice free?	N/A	
Note: Identify containers received at non-compliant temperature . Use form FS-0029 if more space is needed.		
Holding Time / Documentation / Sample Condition Requirements		Note: Refer to form F-083 "Sample Guide" for specific holding times.
Were samples received within holding time?	Yes	
Do samples **match COC**** (i.e.,sample IDs,dates/times collected)?	Yes	
**Note: If times differ <1hr, record details & login per COC.		
***Note: If sample information on containers differs from COC, SGS will default to COC information		
Were analytical requests clear? (i.e., method is specified for analyses with multiple option for analysis (Ex: BTEX, Metals)	Yes	
	N/A	***Exemption permitted for metals (e.g,200.8/6020A).
Were proper containers (type/mass/volume/preservative***)used?	Yes	
Volatile / LL-Hg Requirements		
Were Trip Blanks (i.e., VOAs, LL-Hg) in cooler with samples?	Yes	
Were all water VOA vials free of headspace (i.e., bubbles ≤ 6mm)?	N/A	
Were all soil VOAs field extracted with MeOH+BFB?	Yes	

Note to Client: Any "No", answer above indicates non-compliance with standard procedures and may impact data quality.

Additional notes (if applicable):

e-Sample Receipt Form FBK

SGS Workorder #:	**1199855**	1199855

Review Criteria	Condition (Yes, No, N/A)	Exceptions Noted below
Chain of Custody / Temperature Requirements	Yes	Exemption permitted if sampler hand carries/delivers.
Were Custody Seals intact? Note # & location	N/A	
COC accompanied samples?	Yes	
DOD: Were samples received in COC corresponding coolers?	N/A	
☐ **Exemption permitted if chilled & collected <8 hours ago, or for samples where chilling is not required		
Temperature blank compliant* (i.e., 0-6 °C after CF)?	Yes	Cooler ID: 1 @ 1.3 °C Therm. ID: D51
If samples received without a temperature blank, the "cooler temperature" will be documented instead & "COOLER TEMP" will be noted to the right. "ambient" or "chilled" will be noted if neither is available.		Cooler ID: @ °C Therm. ID:
		Cooler ID: @ °C Therm. ID:
		Cooler ID: @ °C Therm. ID:
If >6°C, were samples collected <8 hours ago?		
If <0°C, were sample containers ice free?		
Note: Identify containers received at non-compliant temperature . Use form FS-0029 if more space is needed.		
Holding Time / Documentation / Sample Condition Requirements		Note: Refer to form F-083 "Sample Guide" for specific holding times.
Do samples **match COC**** (i.e.,sample IDs,dates/times collected)?	N/C	
**Note: If times differ <1hr, record details & login per COC.		
***Note: If sample information on containers differs from COC, SGS will default to COC information		
Were samples in good condition (no leaks/cracks/breakage)?	Yes	
Were analytical requests clear? (i.e., method is specified for analyses with multiple option for analysis (Ex: BTEX, Metals)	Yes	
Were Trip Blanks (i.e., VOAs, LL-Hg) in cooler with samples?	Yes	
Were all water VOA vials free of headspace (i.e., bubbles ≤ 6mm)?	N/A	
Were all soil VOAs field extracted with MeOH+BFB?	N/C	
For Rush/Short Hold Time, was RUSH/Short HT email sent?	N/A	

Note to Client: Any "No", answer above indicates non-compliance with standard procedures and may impact data quality.

Additional notes (if applicable):

SGS Profile #	**347128**	347128

Sample Containers and Preservatives

Container Id	Preservative	Container Condition	Container Id	Preservative	Container Condition
1199855001-A	No Preservative Required	OK			
1199855001-B	Methanol field pres. 4 C	OK			
1199855002-A	No Preservative Required	OK			
1199855002-B	Methanol field pres. 4 C	OK			
1199855003-A	No Preservative Required	OK			
1199855003-B	Methanol field pres. 4 C	OK			
1199855004-A	No Preservative Required	OK			
1199855004-B	Methanol field pres. 4 C	OK			
1199855005-A	No Preservative Required	OK			
1199855005-B	Methanol field pres. 4 C	OK			
1199855006-A	No Preservative Required	OK			
1199855006-B	Methanol field pres. 4 C	OK			
1199855007-A	No Preservative Required	OK			
1199855007-B	Methanol field pres. 4 C	OK			
1199855008-A	No Preservative Required	OK			
1199855008-B	Methanol field pres. 4 C	OK			
1199855009-A	No Preservative Required	OK			
1199855009-B	Methanol field pres. 4 C	OK			
1199855010-A	No Preservative Required	OK			
1199855010-B	Methanol field pres. 4 C	OK			
1199855011-A	Methanol field pres. 4 C	OK			
1199855012-A	No Preservative Required	OK			
1199855012-B	Methanol field pres. 4 C	OK			

Container Condition Glossary

Containers for bacteriological, low level mercury and VOA vials are not opened prior to analysis and will be assigned condition code OK unless evidence indicates than an inappropriate container was submitted.

OK - The container was received at an acceptable pH for the analysis requested.
BU - The container was received with headspace greater than 6mm.
DM - The container was received damaged.
FR - The container was received frozen and not usable for Bacteria or BOD analyses.
IC - The container provided for microbiology analysis was not a laboratory-supplied, pre-sterilized container and therefore was not suitable for analysis.
NC- The container provided was not preserved or was under-preserved. The method does not allow for additional preservative added after collection.
PA - The container was received outside of the acceptable pH for the analysis requested. Preservative was added upon receipt and the container is now at the correct pH. See the Sample Receipt Form for details on the amount and lot # of the preservative added.
PH - The container was received outside of the acceptable pH for the analysis requested. Preservative was added upon receipt, but was insufficient to bring the container to the correct pH for the analysis requested. See the Sample Receipt Form for details on the amount and lot # of the preservative added.
QN - Insufficient sample quantity provided.

APPENDIX D: LABORATORY DATA REVIEW CHECKLIST

Appendix D

Laboratory Data Review Checklist

CONTENTS

Laboratory Data Review Checklist

Completed By:

Rachel Willis

Title:

Environmental Scientist

Date:

November 25, 2019

Consultant Firm:

Shannon & Wilson, Inc.

Laboratory Name:

SGS North America, Inc.

Laboratory Report Number:

1199855

Laboratory Report Date:

October 29, 2019

CS Site Name:

Bentley Mall East Satellite

ADEC File Number:

102.38.122

Hazard Identification Number:

4033

1199855

Laboratory Report Date:

October 29, 2019

CS Site Name:

Bentley Mall East Satellite

Note: Any N/A or No box checked must have an explanation in the comments box.

1. Laboratory

   a. Did an ADEC CS approved laboratory receive and perform all of the submitted sample analyses?

   Yes☒ No☐ N/A☐ Comments:

   SGS North America, Inc. performed all analyses.

   b. If the samples were transferred to another "network" laboratory or sub-contracted to an alternate laboratory, was the laboratory performing the analyses ADEC CS approved?

   Yes☐ No☐ N/A☒ Comments:

   Not applicable, samples were not transferred to another laboratory.

2. Chain of Custody (CoC)

   a. CoC information completed, signed, and dated (including released/received by)?

   Yes☒ No☐ N/A☐ Comments:

   b. Correct analyses requested?

   Yes☒ No☐ N/A☐ Comments:

3. Laboratory Sample Receipt Documentation

   a. Sample/cooler temperature documented and within range at receipt (0° to 6° C)?

   Yes☒ No☐ N/A☐ Comments:

   b. Sample preservation acceptable – acidified waters, Methanol preserved VOC soil (GRO, BTEX, Volatile Chlorinated Solvents, etc.)?

   Yes☒ No☐ N/A☐ Comments:

   COC indicates that soil samples were field preserved with methanol.

1199855

Laboratory Report Date:

October 29, 2019

CS Site Name:

Bentley Mall East Satellite

c. Sample condition documented – broken, leaking (Methanol), zero headspace (VOC vials)?

Yes☒ No☐ N/A☐ Comments:

COC indicates that samples were received in good condition.

d. If there were any discrepancies, were they documented? For example, incorrect sample containers/preservation, sample temperature outside of acceptable range, insufficient or missing samples, etc.?

Yes☒ No☐ N/A☐ Comments:

COC indicates that any samples not included on the COC should be disposed of by the lab. A returned bottles inventory list notes that 20 bottles were returned to Shannon & Wilson, Inc.

e. Data quality or usability affected?

Comments:

No effect on data quality or usability.

4. Case Narrative

a. Present and understandable?

Yes☒ No☐ N/A☐ Comments:

b. Discrepancies, errors, or QC failures identified by the lab?

Yes☒ No☐ N/A☐ Comments:

The Matrix Spike (MS) recovery for trans-1,2,-dichloroethene does not meet laboratory QC criteria and was not detected above the LOQ.

c. Were all corrective actions documented?

Yes☐ No☒ N/A☐ Comments:

Corrective actions were not required.

d. What is the effect on data quality/usability according to the case narrative?

Comments:

Case narrative doesn't describe any effect of data quality and usability.

1199855

Laboratory Report Date:

October 29, 2019

CS Site Name:

Bentley Mall East Satellite

5. Samples Results

a. Correct analyses performed/reported as requested on COC?

Yes☒ No☐ N/A☐ Comments:

Samples were analyzed for Volatile Organic Compounds (VOCs) by EPA Method SW8260B.

b. All applicable holding times met?

Yes☒ No☐ N/A☐ Comments:

c. All soils reported on a dry weight basis?

Yes☒ No☐ N/A☐ Comments:

d. Are the reported LOQs less than the Cleanup Level or the minimum required detection level for the project?

Yes☐ No☒ N/A☐ Comments:

Analytical sensitivity was evaluated to verify that limits of detection (LODs) met the applicable ADEC soil cleanup levels for non-detect results. The analytes 1,1,1,2-tetrachloroethane, 1,1,2,2-tetrachloroehtane, 1,2,3-tirchloropropane, 1,2-dibromoethane, 1,4-dibromorbenzene, 2-hexanone, bromomethane, carbon tetrachloride, cis-1,3-dichloropropene, dibromochloromethane, dibromomethane, hexachlorobutadiene, naphthalene, trans-1,3-dichloropropene, and vinyl chloride had LODs greater than the ADEC Soil Cleanup Levels for one or more project sample. These analytes are identified in the analytical summary table.

e. Data quality or usability affected?

We cannot assess if the analytes noted in section 5.d. are present in the samples at concentrations greater than the associated regulatory limits but below the LOQ.

6. QC Samples

a. Method Blank

i. One method blank reported per matrix, analysis and 20 samples?

Yes☒ No☐ N/A☐ Comments:

1199855

Laboratory Report Date:

October 29, 2019

CS Site Name:

Bentley Mall East Satellite

ii. All method blank results less than limit of quantitation (LOQ) or project specified objectives?

Yes☒ No☐ N/A☐ Comments:

No analytes were detected in the method blank samples.

iii. If above LOQ or project specified objectives, what samples are affected?

Comments:

NA; No analytes were detected in the method blank samples.

iv. Do the affected sample(s) have data flags? If so, are the data flags clearly defined?

Yes☐ No☐ N/A☒ Comments:

No samples are affected. No analytes were detected in the method blank samples.

v. Data quality or usability affected?

Comments:

None; see above.

b. Laboratory Control Sample/Duplicate (LCS/LCSD)

i. Organics – One LCS/LCSD reported per matrix, analysis and 20 samples? (LCS/LCSD required per AK methods, LCS required per SW846)

Yes☒ No☐ N/A☐ Comments:

An LCS was reported for VOC analysis.

ii. Metals/Inorganics – one LCS and one sample duplicate reported per matrix, analysis and 20 samples?

Yes☐ No☐ N/A☒ Comments:

Only VOCs were requested in this work order.

iii. Accuracy – All percent recoveries (%R) reported and within method or laboratory limits and project specified objectives, if applicable? (AK Petroleum methods: AK101 60%-120%, AK102 75%-125%, AK103 60%-120%; all other analyses see the laboratory QC pages)

Yes☒ No☐ N/A☐ Comments:

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iv. Precision – All relative percent differences (RPD) reported and less than method or laboratory limits and project specified objectives, if applicable? RPD reported from LCS/LCSD, and or sample/sample duplicate. (AK Petroleum methods 20%; all other analyses see the laboratory QC pages)

Yes☐ No☐ N/A☒ Comments:

Laboratory precision could not be assessed.

v. If %R or RPD is outside of acceptable limits, what samples are affected?

Comments:

vi. Do the affected sample(s) have data flags? If so, are the data flags clearly defined?

Yes☐ No☐ N/A☒ Comments:

None, see above.

vii. Data quality or usability affected? (Use comment box to explain.)

Comments:

No effect on data quality or usability, see above.

c. Matrix Spike/Matrix Spike Duplicate (MS/MSD)

Note: Leave blank if not required for project

i. Organics – One MS/MSD reported per matrix, analysis and 20 samples?

Yes☒ No☐ N/A☐ Comments:

MS/MSD samples were reported for VOC analysis.

ii. Metals/Inorganics – one MS and one MSD reported per matrix, analysis and 20 samples?

Yes☐ No☐ N/A☒ Comments:

Only VOCs were requested in the workorder.

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iii. Accuracy – All percent recoveries (%R) reported and within method or laboratory limits and project specified objectives, if applicable? (AK Petroleum methods: AK101 60%-120%, AK102 75%-125%, AK103 60%-120%; all other analyses see the laboratory QC pages)

Yes☐ No☒ N/A☐ Comments:

The MS associated with Preparatory Batch VXX35128 had a recovery failure for trans-1,2-dichloroethene. The parent sample, *SB19-01-4*, is associated with the project sample set.

iv. Precision – All relative percent differences (RPD) reported and less than method or laboratory limits and project specified objectives, if applicable? RPD reported from MS/MSD, and or sample/sample duplicate. (AK Petroleum methods 20%; all other analyses see the laboratory QC pages)

Yes☐ No☒ N/A☐ Comments:

The MS/MSD associated with Preparatory Batch VXX35132 had RPD failures for 1,2,3-trichlorobenzene and naphthalene. The parent sample is not associated with the project sample set.

- MS associated with Preparatory Batch VXX35128

v. If %R or RPD is outside of acceptable limits, what samples are affected?

Comments:

The project sample *SB19-01-4* did not have a detection for trans-1,2-dichloroethene. The project sample is not affected by the high MS recovery.

The parent sample associated with the MS/MSD RPD failures for 1,2,3-trichlorobenzene and naphthalene was not a part of the project sample set. The project samples are not affected by the precision failure.

vi. Do the affected sample(s) have data flags? If so, are the data flags clearly defined?

Yes☐ No☒ N/A☐ Comments:

The project samples were not affected by the QC failures.

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vii. Data quality or usability affected? (Use comment box to explain.)

Comments:

No effect on data quality or usability.

d. Surrogates – Organics Only or Isotope Dilution Analytes (IDA) – Isotope Dilution Methods Only

i. Are surrogate/IDA recoveries reported for organic analyses – field, QC and laboratory samples?

Yes☒ No☐ N/A☐ Comments:

ii. Accuracy – All percent recoveries (%R) reported and within method or laboratory limits and project specified objectives, if applicable? (AK Petroleum methods 50-150 %R; all other analyses see the laboratory report pages)

Yes☒ No☐ N/A☐ Comments:

Percent recoveries for all analytes are within laboratory limits.

iii. Do the sample results with failed surrogate/IDA recoveries have data flags? If so, are the data flags clearly defined?

Yes☐ No☐ N/A☒ Comments:

No samples are affected, see above.

iv. Data quality or usability affected?

Comments:

No effect on data quality or usability, see above.

e. Trip Blanks

i. One trip blank reported per matrix, analysis and for each cooler containing volatile samples? (If not, enter explanation below.)

Yes☒ No☐ N/A☐ Comments:

ii. Is the cooler used to transport the trip blank and VOA samples clearly indicated on the COC? (If not, a comment explaining why must be entered below)

Yes☒ No☐ N/A☐ Comments:

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iii. All results less than LOQ and project specified objectives?

Yes☒ No☐ N/A☐ Comments:

iv. If above LOQ or project specified objectives, what samples are affected?

Comments:

No samples are affected. No analytes were detected in trip blank sample.

v. Data quality or usability affected?

Comments:

No effect on data quality or usability, see above.

f. Field Duplicate

i. One field duplicate submitted per matrix, analysis and 10 project samples?

Yes☒ No☐ N/A☐ Comments:

SB19-05-101 is a duplicate for *SB19-05-1*.

ii. Submitted blind to lab?

Yes☒ No☐ N/A☐ Comments:

iii. Precision – All relative percent differences (RPD) less than specified project objectives? (Recommended: 30% water, 50% soil)

RPD (%) = Absolute value of: $\frac{(R_1-R_2)}{((R_1+R_2)/2)} \times 100$

Where R_1 = Sample Concentration
R_2 = Field Duplicate Concentration

Yes☒ No☐ N/A☐ Comments:

Relative percent difference for detected analytes for samples *SB19-05-101* and *SB19-05-1* are within the recommended data quality objective of 50%.

iv. Data quality or usability affected? (Use the comment box to explain why or why not.)

Comments:

No effect on data quality or usability.

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g. Decontamination or Equipment Blank (If not applicable, a comment stating why must be entered below)?

Yes☐ No☐ N/A☒ Comments:

Reusable sampling equipment was not used, so an equipment blank was not required.

i. All results less than LOQ and project specified objectives?

Yes☐ No☐ N/A☒ Comments:

Not applicable, see above.

ii. If above LOQ or project specified objectives, what samples are affected?

Comments:

Not applicable, see above.

iii. Data quality or usability affected?

Comments:

No effect; see above.

7. Other Data Flags/Qualifiers (ACOE, AFCEE, Lab Specific, etc.)

a. Defined and appropriate?

Yes☐ No☐ N/A☒ Comments:

No other data flags or qualifiers are required.

APPENDIX E: QA/QC SUMMARY

Appendix E

QA/QC Summary

APPENDIX E: QA/QC SUMMARY

E.1 OVERVIEW

QC/QA procedures assist in producing data of acceptable quality and reliability. We reviewed the analytical results for laboratory QC samples and conducted our own QA assessment for this project. We reviewed the chain of custody (COC) records and laboratory receipt forms to check that custody was not breached, sample-holding times were met, and the samples were kept chilled (between 0 °C and 6 °C) during shipping. Our QA-review procedures allowed us to document the accuracy and precision of the analytical data, as well as check that the analyses were sufficiently sensitive to meet DEC regulatory levels.

QC procedures in the field included using single-use equipment to reduce the potential for sample cross-contamination. The laboratory report contains a case narrative and forms documenting sample-receipt conditions. Details regarding the results of our QA review are presented below. Additional information is presented in the laboratory report and corresponding DEC LDRC. The SGS report 1199855 contain the October 2019 soil sample results (Appendix C). The corresponding LDRC is presented in Appendix D.

E.2 SAMPLE HANDLING

The soil samples were hand delivered to SGS in Fairbanks. We completed and signed the COC form before delivery. SGS then secured and shipped the samples to SGS in Anchorage for analysis. The SGS laboratory noted that the samples were received in good. The Sample Receipt Checklist noted that the project samples were received in good condition properly preserved. There were no sample handling discrepancies noted by the laboratory; refer to the DEC LDRC for details (Appendix D).

E.3 ACCURACY

Accuracy refers to determining the correct analyte concentration and is a comparison between the measured value and a known or expected value. Laboratory analytical accuracy may be assessed through the analyte recoveries from laboratory control sample/ laboratory control sample duplicate (LCS/LCSD) analyses and matrix spike/matrix spike duplicate (MS/MSD) analyses, and the recovery of analyte surrogates (for organic analytes) added to project samples. The LCSs are spikes of known analyte concentrations added to a clean matrix; the MS/MSDs are spikes of known analyte concentrations in a matrix similar to field samples. The laboratories' LCS were within laboratory acceptance criteria. Refer to the LDRC for details.

E.4 PRECISION

To evaluate the precision of the data, we calculated the relative percent difference (RPD; difference between the sample and its duplicate divided by the mean of the two). RPDs can be evaluated only if the results of the analyses for both the sample and its duplicate are reported above the detection limit. The data quality objective for soil samples RPD is 50 percent. Where concentrations were reported in both samples, we calculated the RPDs. The RPDs were within acceptance criteria.

The laboratory MS/MSD and laboratory-duplicate sample RPDs were within laboratory acceptance, with a few exceptions that did not affect the sample results.

Refer to the LDRC for details.

E.5 DATA QUALITY SUMMARY

By conducting our field activities in general accordance with our standard QC/QA procedures, the samples we collected are considered representative of site conditions at the locations and times they were obtained. Based on our QA review, no datum was rejected as unusable due to QC failures, and our completeness goal of obtaining 85-percent useable data was met. In our opinion, the data produced by the laboratories for this project are suitable for characterizing soil quality at the locations sampled, with the applied qualifications.

IMPORTANT INFORMATION

Important Information

About Your Geotechnical/Environmental Report

IMPORTANT INFORMATION

CONSULTING SERVICES ARE PERFORMED FOR SPECIFIC PURPOSES AND FOR SPECIFIC CLIENTS.

Consultants prepare reports to meet the specific needs of specific individuals. A report prepared for a civil engineer may not be adequate for a construction contractor or even another civil engineer. Unless indicated otherwise, your consultant prepared your report expressly for you and expressly for the purposes you indicated. No one other than you should apply this report for its intended purpose without first conferring with the consultant. No party should apply this report for any purpose other than that originally contemplated without first conferring with the consultant.

THE CONSULTANT'S REPORT IS BASED ON PROJECT-SPECIFIC FACTORS.

A geotechnical/environmental report is based on a subsurface exploration plan designed to consider a unique set of project-specific factors. Depending on the project, these may include the general nature of the structure and property involved; its size and configuration; its historical use and practice; the location of the structure on the site and its orientation; other improvements such as access roads, parking lots, and underground utilities; and the additional risk created by scope-of-service limitations imposed by the client. To help avoid costly problems, ask the consultant to evaluate how any factors that change subsequent to the date of the report may affect the recommendations. Unless your consultant indicates otherwise, your report should not be used (1) when the nature of the proposed project is changed (for example, if an office building will be erected instead of a parking garage, or if a refrigerated warehouse will be built instead of an unrefrigerated one, or chemicals are discovered on or near the site); (2) when the size, elevation, or configuration of the proposed project is altered; (3) when the location or orientation of the proposed project is modified; (4) when there is a change of ownership; or (5) for application to an adjacent site. Consultants cannot accept responsibility for problems that may occur if they are not consulted after factors that were considered in the development of the report have changed.

SUBSURFACE CONDITIONS CAN CHANGE.

Subsurface conditions may be affected as a result of natural processes or human activity. Because a geotechnical/environmental report is based on conditions that existed at the time of subsurface exploration, construction decisions should not be based on a report whose adequacy may have been affected by time. Ask the consultant to advise if additional tests are desirable before construction starts; for example, groundwater conditions commonly vary seasonally.

Construction operations at or adjacent to the site and natural events such as floods, earthquakes, or groundwater fluctuations may also affect subsurface conditions and, thus, the continuing adequacy of a geotechnical/environmental report. The consultant should be kept apprised of any such events and should be consulted to determine if additional tests are necessary.

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MOST RECOMMENDATIONS ARE PROFESSIONAL JUDGMENTS.

Site exploration and testing identifies actual surface and subsurface conditions only at those points where samples are taken. The data were extrapolated by your consultant, who then applied judgment to render an opinion about overall subsurface conditions. The actual interface between materials may be far more gradual or abrupt than your report indicates. Actual conditions in areas not sampled may differ from those predicted in your report. While nothing can be done to prevent such situations, you and your consultant can work together to help reduce their impacts. Retaining your consultant to observe subsurface construction operations can be particularly beneficial in this respect.

A REPORT'S CONCLUSIONS ARE PRELIMINARY.

The conclusions contained in your consultant's report are preliminary, because they must be based on the assumption that conditions revealed through selective exploratory sampling are indicative of actual conditions throughout a site. Actual subsurface conditions can be discerned only during earthwork; therefore, you should retain your consultant to observe actual conditions and to provide conclusions. Only the consultant who prepared the report is fully familiar with the background information needed to determine whether or not the report's recommendations based on those conclusions are valid and whether or not the contractor is abiding by applicable recommendations. The consultant who developed your report cannot assume responsibility or liability for the adequacy of the report's recommendations if another party is retained to observe construction.

THE CONSULTANT'S REPORT IS SUBJECT TO MISINTERPRETATION.

Costly problems can occur when other design professionals develop their plans based on misinterpretation of a geotechnical/environmental report. To help avoid these problems, the consultant should be retained to work with other project design professionals to explain relevant geotechnical, geological, hydrogeological, and environmental findings, and to review the adequacy of their plans and specifications relative to these issues.

BORING LOGS AND/OR MONITORING WELL DATA SHOULD NOT BE SEPARATED FROM THE REPORT.

Final boring logs developed by the consultant are based upon interpretation of field logs (assembled by site personnel), field test results, and laboratory and/or office evaluation of field samples and data. Only final boring logs and data are customarily included in geotechnical/environmental reports. These final logs should not, under any circumstances, be redrawn for inclusion in architectural or other design drawings, because drafters may commit errors or omissions in the transfer process.

To reduce the likelihood of boring log or monitoring well misinterpretation, contractors should be given ready access to the complete geotechnical engineering/environmental report prepared or authorized for their use. If access is provided only to the report prepared for you, you should advise contractors of the report's limitations, assuming that a contractor was not one of the specific persons for whom the report was prepared, and that developing construction cost estimates was not one of

IMPORTANT INFORMATION

the specific purposes for which it was prepared. While a contractor may gain important knowledge from a report prepared for another party, the contractor should discuss the report with your consultant and perform the additional or alternative work believed necessary to obtain the data specifically appropriate for construction cost estimating purposes. Some clients hold the mistaken impression that simply disclaiming responsibility for the accuracy of subsurface information always insulates them from attendant liability. Providing the best available information to contractors helps prevent costly construction problems and the adversarial attitudes that aggravate them to a disproportionate scale.

READ RESPONSIBILITY CLAUSES CLOSELY.

Because geotechnical/environmental engineering is based extensively on judgment and opinion, it is far less exact than other design disciplines. This situation has resulted in wholly unwarranted claims being lodged against consultants. To help prevent this problem, consultants have developed a number of clauses for use in their contracts, reports, and other documents. These responsibility clauses are not exculpatory clauses designed to transfer the consultant's liabilities to other parties; rather, they are definitive clauses that identify where the consultant's responsibilities begin and end. Their use helps all parties involved recognize their individual responsibilities and take appropriate action. Some of these definitive clauses are likely to appear in your report, and you are encouraged to read them closely. Your consultant will be pleased to give full and frank answers to your questions.

The preceding paragraphs are based on information provided by the ASFE/Association of Engineering Firms Practicing in the Geosciences, Silver Spring, Maryland

Reviewed by SMH