

Bristol Integrated Solid Waste
Management Facility
Solid Waste Permit #498
Southwest Regional Office

2022 Annual Groundwater Monitoring Report

Presented to:



City of Bristol
2125 Shakesville Road
Bristol, Virginia 24201

SCS ENGINEERS

02218208.07, Task 2 | April 28, 2023

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Signature/Certification Sheet

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Date: _ April 28, 2023

Reviewer and Qualified Groundwater Scientist Certification:

I certify that I have prepared or supervised the preparation of this report, that it has been prepared in accordance with industry standards and practices, and that the information contained herein is truthful and accurate to the best of my knowledge.

Name: Jennifer S. Robb, Vice President/Project Director

Signature:



Date: April 28, 2023

Annual Report QA/QC Submission Checklist

INCLUDED WITHIN ANNUAL REPORT?	YES	NO
Signature of a qualified groundwater professional	✓	
Solid waste facility permit number & facility name	✓	
Name of current owner/operator & type of facility	✓	
Dates LF began operations and was deemed closed (If applicable)	✓	
Date of last waste receipt (if applicable) [2.b]	✓	
Identified if site is lined or unlined [2.b]	✓	
Identified waste disposal method (trench fill/area fill/etc.) [2.b]	✓	
Total site acreage, and acreage used for waste disposal [2.b]	✓	
Adjoining land use described including any aquifer users [2.c]	✓	
Topographic map included as Figure 1 [2.a]	✓	
Figure 1 shows facility location, includes a bar scale, and north arrow	✓	
Discuss the type, name & age of the geologic unit(s) on site [2.d]	✓	
Description of general site topography [2.d]	✓	
Name of nearest permanent water body, perennial stream, etc. [2.d]	✓	
Description of the uppermost aquifer [2.d]	✓	
Description of the aquifer type (confined vs unconfined) [2.d]	✓	
Date facility entered detection or phase I monitoring [2.b]	✓	
Date facility entered assessment or phase II monitoring [2.b]	✓	
Identified if the facility monitors groundwater under a variance	✓	
Identified the dates of any groundwater variance approvals	✓	
Approval date for wetlands demonstration (if applicable)	✓	
Identified all upgradient and downgradient monitoring wells [2.e]	✓	
Identified if all monitoring wells were sampled during the year [2.e]	✓	
Identified reasons for failure to sample (if applicable) [2.e]	✓	
Identified if any monitoring wells have been abandoned [2 e]	✓	
Identified if any wells require replacement [2.e]	✓	
Included network performance certification statement [2.e]	✓	
Identified groundwater sampling dates during past year [2.f]	✓	
Included site plan drawing as Figure 2 [2.h]	✓	
Figure 2 contains current topographic contours	✓	
Figure 2 contains facility and waste mgmt unit boundaries	✓	
Figure 2 includes all monitoring wells	✓	
Figure 2 includes potentiometric surface contours	✓	
Figure 2 includes groundwater flow direction arrows	✓	
Figure 2 includes all surface water bodies	✓	

INCLUDED WITHIN ANNUAL REPORT?	YES	NO
Figure 2 includes all structures on site, a bar scale, and north arrow	✓	
Listing of groundwater elevation readings in past year [2.h]	✓	
Table of historical groundwater elevation data as Appendix A	✓	
Calculated rate of groundwater flow (distance/year) [2.h]	✓	
Flow rate calculations included as Appendix B	✓	
Identified the name of the analytical laboratory [2.h]	✓	
Identified whether the lab is DCLS Certified	✓	
Identified type of analytical methods used [2.h]	✓	
Identified those constituents found above the LOD and LOQ	✓	
Identified if verification sampling was used during any event	✓	
Identified statistical methods used to analyze groundwater data	✓	
Identified any SSI's noted during prior year of monitoring	✓	
Table of prior detected constituent concentrations in each well [2.g]	✓	
Field data sheet copies included as Appendix C	✓	
Laboratory results & certificates of analysis as CDROM in Appendix D	✓	
Included historical, summary of laboratory results in Appendix E	✓	
Full list of References	✓	
Copy of this QA/QC checklist	✓	

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List of Acronyms

ACL	Alternate Concentration Limit
CAP	Corrective Action Plan
DAA	Draper Aden Associates
EPA	Environmental Protection Agency
ft/yr	feet per year
ft/day	feet per day
GMP	Groundwater Monitoring Plan
GPS	Groundwater Protection Standard
LCS	Laboratory Control Sample
LOD	Limit of Detection
LOQ	Limit of Quantitation
MS/MSD	Matrix Spike/Matrix Spike Duplicate
PVC	Poly Vinyl Chloride
QA/QC	Quality Assurance/Quality Control
RPD	Relative Percent Difference
SCS	Stearns Conrad & Schmidt Consulting Engineers, Inc. (SCS Engineers)
SW	Solid Waste
SWP	Solid Waste Permit
ug/L	micrograms per liter
UPL	Upper Prediction Limit
VAC	Virginia Administrative Code
VDEQ	Virginia Department of Environmental Quality
VOC	Volatile Organic Compound

1.0 EXECUTIVE SUMMARY

This Annual Groundwater Monitoring Report documents assessment groundwater monitoring activities conducted during 2022 for the Bristol Integrated Solid Waste Management Facility's closed landfill under Solid Waste Permit (SWP) #498 located in Bristol, Virginia. The contents of this report provide the results of the groundwater sampling and laboratory analyses conducted during 2022 and documents the results of the evaluation of groundwater data for each 2022 semi-annual monitoring event. The report was prepared in accordance with Virginia Administrative Code (VAC) Title 9, Agency 20, Chapter 81, Section 250 E 2 a, applicable Virginia Department of Environmental Quality (VDEQ) Submission Instructions (VDEQ, 2011), the Landfill's SWP (VDEQ, As Updated) and the Landfill's Groundwater Monitoring Plan (GMP) (STS Consultants, LTD. (STS), 2002).

Groundwater levels were measured at the site's groundwater wells semi-annually (May and December 2022) to assess the groundwater flow direction, estimate groundwater flow rates, and evaluate the effectiveness of the monitoring well network to characterize groundwater quality within the upper-most aquifer. The estimated groundwater flow rates for 2022 in the Lenior geologic unit ranged from five feet per year (ft/yr) to 19 ft/yr with an average of 12 ft/yr. The estimated groundwater flow rates for 2022 in the Knox geologic unit ranged from 11 ft/yr to 36 ft/yr with an average of 23 ft/yr. Based on the 2022 assessment of groundwater flow direction presented below and current knowledge of the site's hydrogeologic conditions, the current groundwater monitoring network effectively monitors the upper-most aquifer as required by 9 VAC 20-81-250 A 3.

- Groundwater within the Lenior-Mosheim and Knox Formations flows south-southwest across the Permit #498 landfill towards the Permit #588 Landfill.
- Background well MW-101 is upgradient of the Permit #498 Landfill.
- Background wells MW-104A and MW-104B are upgradient of the Permit #221 Landfill.
- Compliance wells MW-106A and MW-108 are downgradient of the Permit #498 Landfill.
- Due to the effects of the Permit #588 gradient control system, compliance well MW-205B is upgradient of the Permit #588 Landfill and not hydraulically connected to groundwater flowing beneath the Permit #498 Landfill.

Groundwater samples were collected semi-annually (May and December) from the assessment monitoring well network during 2022. The 1st semi-annual 2022 assessment well samples were analyzed for Column B parameters and the 2nd semi-annual 2022 assessment well samples were analyzed for Column A parameters plus previously detected Column B parameters. The 2022 parameter detections in the assessment monitoring wells consisted of eight metals, sulfide, eight volatile organic compounds (VOCs), and one semi-VOC (SVOC).

Various data evaluation techniques were performed for validated Table 3.1 parameter detections in the assessment monitoring wells, including but not limited to inter-well statistical analysis and direct comparisons to Groundwater Protection Standards (GPS). Inter-well exceedances were identified for three metals and eight VOCs in the assessment monitoring wells for 2022. Verified direct GPS exceedances identified in the assessment monitoring wells for 2022 are summarized below.

Well ID	GPS Exceeding Parameter	2022 Monitoring Events
MW-108	1,1-Dichloroethane	May and December
	Benzene	May and December
	Cobalt	May and December
	Vinyl Chloride	May and December

In accordance with 9 VAC 20-81-250 B 3 f (3) (a), notification of the 1st semi-annual 2022 GPS exceedances was submitted to VDEQ on August 10, 2022 and notification of the 2nd semi-annual 2022 GPS exceedances was submitted to February 10, 2023. A Corrective Action Plan (CAP) (STS, 2004) has been established and is in the process of being implemented for each GPS exceeding constituent and well; thus, no further actions beyond continued monitoring and implementation of the CAP are required at this time. Groundwater monitoring and reporting will continue to be conducted in accordance with the Assessment Monitoring Program (9 VAC 20-81-250 B 3), the Corrective Action Program (9 VAC 20-81-260), and the facility's GMP and Corrective Action Monitoring Plan (CAMP) (STS, 2004).

2.0 INTRODUCTION

This report documents assessment groundwater monitoring activities and data evaluations conducted for the 2022 calendar year for the City of Bristol Permit #498 Landfill. During 2022, groundwater monitoring was performed in accordance with the Assessment Monitoring Program and Corrective Action Program. This report was prepared in accordance with 9 VAC 20-81-250 E 2 a, applicable VDEQ Submission Instructions, and the Landfill's SWP and GMP. The following activities were completed during 2022 and are documented in this report:

- Measurement of groundwater levels in groundwater monitoring wells associated with the landfill.
- Interpretation and mapping of groundwater elevation data.
- Calculation of the estimated groundwater flow rate.
- Semi-annual sampling of three background and three compliance monitoring wells.
- Laboratory analysis of the 1st semi-annual 2022 assessment groundwater samples for Column B parameters.
- Laboratory analysis of the 2nd semi-annual 2022 assessment groundwater samples for Column A parameters and previously detected Column B parameters.
- Semi-annual data evaluation.

The following subsections also present the following site information:

- Summary of the background information for the landfill
- Description of the physical and geologic setting of the landfill
- Description of the upper-most aquifer in the vicinity of the landfill
- History of groundwater monitoring, investigation, and reporting activities
- Summary of variance petitions and other VDEQ approval for the landfill
- The applicability of the landfill to comply with House Bill 2471 requirements
- Description of the landfill's groundwater monitoring well network

2.1 SITE BACKGROUND

The City of Bristol Integrated Solid Waste Management is owned and operated by the City of Bristol (City) and includes three landfills with the following SWP numbers: 221, 498, and 588. Permit #221 Landfill is a closed unlined capped 14-acre landfill located north of the Permit #498 Landfill. As the facility's original waste management unit, the Permit #221 Landfill operated prior to the establishment of the Virginia Solid Waste Management Regulations from the mid 1970's until 1988. The final cover was installed in 1986-1988 and the cover thickness ranges from one to four feet thick based on the boring logs for the landfill gas (LFG) extraction wells. An active LFG collection and control system was installed within the Permit #221 Landfill in July 2000 and currently includes 15 vertical LFG extraction wells. In addition, liquids have been periodically removed from a select number of the LFG extraction wells.

The Permit #588 Landfill is an inactive lined landfill constructed within a former limestone quarry located west of the Permit #498 Landfill. The City began accepting waste in March 1998 and ceased accepting it prior to September 12, 2022 within the Permit #588 Landfill. Prior to October 10, 2022, the City installed a 12-inch-thick intermediate cover across the entire Permit #588 Landfill (aka quarry landfill) in accordance with 9 VAC 20-81-140 (B) (1) (d). Permit #588 Landfill contains active LFG and leachate collection systems. A gradient control underdrain system is in place beneath the secondary liner for the purpose of controlling the water level to a maximum elevation of 1,557 feet above mean sea level. The gradient control water currently discharges to a publicly owned treatment works (POTW).

The eastern portion of the Permit #498 landfill is equipped with a compacted clay liner and leachate collection system, while the western portion is unlined. The area-fill Permit #498 Landfill began receiving municipal solid waste in 1988 and ceased accepting waste in 2000. A portion of the Permit #498 Landfill was mined for usable cover and recyclables and potential future use as a construction and demolition debris landfill in 2021. Mining operations ceased in September 2022. As of March 2022, City staff estimate that intermediate cover has been placed on more than 85 percent of the Permit #498 Landfill.

The active LFG collection and control system for the Permit #498 Landfill currently includes three in-waste vertical LFG extraction wells and four perimeter soil gas extraction wells. Leachate is extracted from the Permit #498 Landfill via a combination of the blanket drain collection system located in the southeastern portion of the landfill and from two of the LFG extraction wells located around the west and south perimeters of the landfill. Liquid is also extracted from the condensate drip-leg located in the southeast corner of the landfill. Leachate collected from the three landfills currently discharges to a POTW.

2.2 PHYSICAL SETTING

The location of the City of Bristol Integrated Solid Waste Management Facility is illustrated on a portion of the Bristol TN, VA, United States Geologic Society 7.5-minute topographic quadrangle map presented as **Figure 1**. The permitted facility boundary encompasses approximately 138 and the area for waste disposal of the Permit #498 Landfill is approximately 12 acres. The Site is located approximately two miles northeast of the City of Bristol, Virginia at the southern end of Shakesville Road. The Permit #498 Landfill is surrounded by the Permit #588 and #221 Landfills, undeveloped acreage, and residential areas. Area residences are served by public water supply. Several unnamed tributaries of Sinking Creek are intermittent streams located east of the Permit #498 Landfill. Sinking Creek is the nearest permanent water body and is located east/southeast of the Permit #498 Landfill.

2.3 GEOLOGIC SETTING

The geologic setting of the facility is within the Middle Ordovician Age Limestones of the Valley and Ridge Physiographic Province. The structural geology of the facility is complex as indicated by the successive folding and thrust faulting in the area. The lower formations encountered within the quarry are located on the northwest limb of a syncline which has an axis located approximately 3,000 feet southeast of the facility. The axis of the syncline trends in a northeast to southwest direction. The formation bedding in the northern portion of the facility is relatively flat lying, however the structural dip increases to a maximum of approximately 20° toward the southern end of the quarry landfill. The upper portion of the bedrock exposed in the quarry landfill consists of the Chepultepec Formation which has been thrust over the Lenoir Formation. The thrust plane dips toward the south-southeast at approximately 15° to 20°. This thrust plane occurred because of

displacement associated with a secondary thrust fault which occurs adjacent to the Bristol Fault located western of the quarry landfill. The Bristol Fault has brought the Honaker Formation into a position where it unconformably overlies the limestones in the area west of the quarry landfill. Below are descriptions of the bedrock formations that underly the facility. The overburden soils within the area of the facility consist of silty to sandy clays and vary in thickness across the facility. (STS, 1992)

- The **Honaker Formation** is the oldest bedrock unit which outcrops near the facility. It is the upper-most bedrock in the western portion of the property and is bounded to the east by the trace of the Bristol Fault. The Bristol Fault has caused the Honaker Formation to partially overlie the Chepultepec and Lenoir Mosheim Formations. The Honaker is a gray to light gray, very fine-grained, medium-bedded, partly cherty dolomite with interbeds of dark gray limestone. Near the quarry landfill the Honaker Formation thickness ranges from a few feet to no more than a few tens of feet due to the shallow dip of the Bristol Fault, which defines its base.
- The **Chepultepec Formation** occurs at the bedrock surface in the central part of the facility and is the upper-most formation exposed in the quarry landfill. It is contained within the thrust block formed by the secondary thrust fault, and its base in the quarry is defined by the thrust fault plane. The Chepultepec is a dark gray, fine-grained, thickly bedded limestone. Within the upper 30 feet, the Chepultepec is moderately-to-severely weathered, and the remainder of the formation is slightly to moderately weathered.

The thickness of the Chepultepec is variable in the vicinity of the quarry landfill. It ranges from a few feet at the northern end of the landfill, where the secondary thrust surface intersects the quarry wall just below the rim, to about 200 feet at the south end of the quarry, where the secondary thrust surface intersects the lower bench. The formation is estimated to be as much as 300 feet thick at the southern edge of the facility.

- The **Knox Group** is a light gray, fine-grained, medium-to-thick-bedded dolomite exposed on the lower portion of the quarry walls and forms the bedrock surface within the secondary thrust block southeast of the quarry landfill. Zones of lithified collapse breccia, typically less than one foot in thickness, but ranging up to five feet, were present in each of the borings performed as part of the Permit #588 Landfill's Part A investigation. The top of the Knox Group is formed by a regional, erosional unconformity which appears as a subtle thin, clay-filled bedding plane with little relief.
- The **Lenoir and Mosheim Formations** are composed of limestone. They are exposed on the quarry walls below the Chepultepec (below the secondary thrust plane) and above the Knox Group. The Lenoir Limestone forms the bedrock surface to the north of the quarry landfill, where it has not been overridden by the secondary thrust. The Lenoir Formation is a dark gray, fine-grained, soft-to-medium-hard, thick-bedded limestone with some pyrite crystals within the argillaceous layers. The Mosheim Formation is a light-to-medium-gray, fine-grained, medium-hard, medium-bedded limestone.
- The **Athens Formation** forms the bedrock surface east of the quarry landfill and beneath most of the Permit #221 and #498 Landfills. The Athens Formation consists of a dark gray, soft to very soft fissile shale.

2.4 AQUIFER RECOGNITION

Groundwater in the upper-most unconfined aquifer beneath the landfill lies within the upper portions of the Knox Group. The Athens, Chepultepec, and Lenoir-Mosheim Formations lie above and are hydraulically connected to the Knox Group. A small unnamed creek serves as a local groundwater recharge source for the groundwater flow system, while the quarry serves as the local groundwater discharge area/sink. The surface water that infiltrates from the stream flows westward toward the quarry through a system of interconnected joints. Groundwater coming from the Permit #221 and #498 Landfills is captured in the gradient control system of the Permit #588 Landfill and does not reach the regional flow system. In addition, the flow from the deeper portions of the Knox Group discharge to the quarry landfill gradient control system.

2.5 MONITORING HISTORY

1988: Groundwater monitoring at the Permit #498 Landfill was initiated.

1994: Groundwater monitoring was initiated in accordance with the Detection Monitoring Program.

1997: The Assessment Monitoring Program was initiated.

July 23, 2002: The list of GPS proposed on November 14, 2000 was incorporated into the Permit #498 Landfill's SWP.

August 22, 2003: An Assessment of Corrective Measures (ACM) was submitted to VDEQ responding to GPS exceedances identified during the 2nd semi-annual 2002 monitoring event.

February 24, 2002: A CAP was submitted to the VDEQ and later revised on August 2, 2004. The Permit #498 Landfill's SWP was amended to incorporate the CAP on August 25, 2006. The selected remedy consists of groundwater extraction (aka Permit #588 Landfill gradient control system), landfill gas extraction, mass dewatering of waste (via landfill gas extraction wells), trench leachate interception, leachate extraction, and Monitored Natural Attenuation (MNA).

November 13, 2013: A Groundwater Monitoring Program Work Plan (Work Plan) that was requested by VDEQ in a meeting between VDEQ, the City, ad Draper Aden Associates, and Genrty, Locke, Rakes & Moore was submitted to address VDEQ's concerns with groundwater monitoring of the Permit #588 Landfill. The work plan proposed modifications to the groundwater monitoring well networks for the Permit #498 and #588 Landfills.

February 18, 2014: The Work Plan was approved by VDEQ and incorporated into the Permit #498 Landfill's SWP. Monitoring under the new work plan began during the 2014 monitoring period.

January 6, and February 11, 2016: MW-210A and MW-210B were installed, respectively, in accordance with the February 18, 2014 Work Plan. A Groundwater Monitoring Well Installation Report, which included the boring log and well completion diagram for each well, was submitted to VDEQ in correspondence dated March 23, 2016.

January 10, 2018: MW-211A and MW-211B were installed in accordance with the February 18, 2014 Work Plan. A Groundwater Monitoring Well Installation Report, which included the boring log and well completion diagram for each well, was submitted to VDEQ in correspondence dated February 16, 2018.

February 5, 2019: A revised Corrective Action Monitoring Plan (CAMP) was submitted to VDEQ for the addition of well pairs MW-210A/MW-210B and MW-211A/MW-211B to be classified as sentinel wells. VDEQ provided a technical review of the revised CAMP in a letter dated June 6, 2019. The CAMP was approved on April 28, 2020, incorporating the well pairs into the network as sentinel wells.

December 11, 2020: A request to update the GPS for arsenic to the calculated background value of 30.9 ug/L was submitted to the VDEQ. The background value for arsenic was approved by VDEQ in a letter dated February 24, 2021.

January 20 – February 21, 2022: Wingfield Environmental, Inc. oversaw the drilling and installation of groundwater monitoring wells MW-5, MW-6, MW-7, MW-8, and MW-9 as performed by M&W Drilling. According to VDEQ, these groundwater monitoring wells were installed as part of an underground storage tank investigation associated with the Bristol Public Works garage.

June 10, 2022: At the request of VDEQ, a letter was submitted to VDEQ summarizing the installation of groundwater monitoring wells MW-5, MW-6, MW-7, MW-8, and MW-9. The letter also contains a hydrologic evaluation of the new wells. Based on an evaluation of the hydrologic evaluation and at the suggestion of VDEQ, MW-9 is a proposed compliance well for the Permit #588 Landfill and a proposed sentinel well for the Permit #498 Landfill. MW-5, MW-6, MW-7, and MW-8 may be maintained as additional wells for groundwater level measurements.

August 10, 2022: A request to update the GPS for sulfide to the calculated background value of 6,230 ug/L was submitted to the VDEQ. The background value was approved by VDEQ in a letter dated October 20, 2022. Other Director approvals are outlined in the previous subsection.

2.6 VARIANCES OR OTHER DIRECTOR APPROVALS

A variance request to reduce the groundwater monitoring reporting frequency while Permit #498 Landfill is in the corrective action program for groundwater was submitted to VDEQ on June 14, 2013. In correspondence dated February 19, 2014, VDEQ approved the variance request.

2.7 HOUSE BILL 2471 REQUIREMENTS

As described in 9 VAC 20-81-250 B 1 e (4), sanitary landfills that accepted waste after June 30, 1999 must perform quarterly groundwater monitoring consistent with the requirements of the special provisions regarding wetlands in Code of Virginia 10.1-1408.5. Landfills that accepted municipal solid waste after June 30, 1999 must increase groundwater-monitoring frequency to a quarterly basis if one of the following wetland criteria is applicable:

- The landfill was constructed on a wetland,
- The landfill has a potential hydrologic connection to a wetland in the event of an escape of liquids from the facility, or
- The landfill is located within one mile of such a wetland.

The above criteria do not apply to the subject site; therefore, groundwater monitoring is conducted on a semi-annual basis.

2.8 MONITORING WELL NETWORK

In accordance with 9 VAC 20-81-250 A 3 a, the assessment groundwater monitoring network was installed to monitor the Lenoir-Mosheim (shallow) and Knox Group (deep) aquifer systems, is capable of yielding groundwater samples from the upper-most aquifer that represent the quality of background groundwater that has not been affected by a release from the waste management unit, and represents the quality of groundwater downgradient of the waste management unit boundary. The assessment groundwater-monitoring network for the Permit #498 Landfill consists of three background monitoring wells and three compliance wells as listed on **Table 1**. **Table 1** also indicates the aquifer system for which each well is screened. The well locations are shown on **Figure 2**.

To delineate VOC and arsenic affected groundwater in the vicinity of compliance wells MW-105A and MW-108, and assessing the effectiveness of the remediation strategy, several groundwater monitoring wells were installed in the vicinity of and downgradient of the affected wells. These wells are sampled as a component of the CAMP. Each corrective action monitoring well location in the vicinity of the affected groundwater has been characterized into one of two classifications (performance or sentinel) as outlined on **Table 1**. The groundwater monitoring well network also consists of 19 additional wells (see **Table 1**) utilized to help describe groundwater flow. **Table 1** also indicates the aquifer system for which each well is screened. The well locations are shown on **Figure 2**.

Table 1. Groundwater Monitoring Well Network

Well Classification	Screened Geologic Unit	Well ID
Background	Athens Shale	MW-101 and MW-104B
	Lenoir Mosheim	MW-104A,
Compliance	Lenoir Mosheim	MW-106A
Compliance/Performance	Lenoir Mosheim	MW-108
Compliance/ Sentinel	Knox Group	MW-205B
Performance	Knox Group	GC Outfall*
Sentinel	Chepultepec	MW-211A
	Knox Group	MW-105B, MW-206B, MW-210B
	Lenoir Mosheim	MW-105A, MW-109, MW-211B
	Secondary Thrust Fault/Lenoir	MW-210A
Additional	Athens Shale	PZ-2, and PZ-3
	Chepultepec	MW-206
	Knox Group	MW-103, MW-106B, MW-107B, MW-5, and MW-9**
	Lenoir Mosheim	MW-6, MW-7, MW-8, MW-107A, MW-110, MW-206A,

*Discharge point to POTW of gradient control system for the Permit #588 Landfill.

**MW-9 was proposed to be incorporated into the Permit #498 Landfill groundwater monitoring well network as a sentinel well in a letter submitted to the Virginia Department of Environmental Quality on July 24, 2022. This letter documented the installation of MW-5, MW-6, MW-7, MW-8, and MW9.

3.0 HYDROLOGIC EVALUATION

In accordance with the VDEQ guidance for annual reporting (VDEQ, 2011), the hydrologic evaluation consists of:

- An assessment of the current well network to effectively monitor the upper-most aquifer (as required by 9 VAC 20-81-250 A 3)
- An assessment of groundwater flow direction
- A calculation of the flow rate for the upper-most aquifer in the vicinity of the landfill

3.1 ANNUAL REVIEW OF MONITORING NETWORK

For each semi-annual monitoring event, static water level measurements were obtained from the groundwater monitoring wells associated with the landfill within the same day and prior to purging and sampling procedures. Static water level measurements were made using an electronic water level probe and measured from the top of the PVC casing to ± 0.01 foot. The static water level measurements of each groundwater monitoring well were used to calculate the elevation of the groundwater which is then used to create a groundwater contour map and establish groundwater flow direction. As included in the following subsections, groundwater elevations were also utilized to calculate groundwater flow velocity.

Groundwater level measurement logs for May 24 and December 5, 2022 are included in **Appendix C**. Historical groundwater elevations dating back to May 2011 are included in **Appendix A**. In addition, a time-series plot is provided in **Appendix A** illustrating the variability of groundwater elevations over time in the background and compliance monitoring wells.

Groundwater contour maps based on the May and December 2022 measurements are included as **Figures 3 - 6**. Groundwater contours were generated using the Surfer™ (Golden Software Vers. 7.04) surface mapping system software using the Kriging gridding method and altered utilizing professional judgement. Based on the 2022 assessment of groundwater flow direction presented below and current knowledge of the site's hydrogeologic conditions, the current groundwater monitoring network effectively monitors the upper-most aquifer as required by 9 VAC 20-81-250 A 3.

- Groundwater within the Lenior-Mosheim and Knox Formations flows south-southwest across the Permit #498 landfill towards the Permit #588 Landfill.
- Background well MW-101 is upgradient of the Permit #498 Landfill.
- Background wells MW-104A and MW-104B are upgradient of the Permit #221 Landfill.
- Compliance wells MW-106A and MW-108 are downgradient of the Permit #498 Landfill.
- Due to the effects of the Permit #588 gradient control system, compliance well MW-205B is upgradient of the Permit #588 Landfill and not hydraulically connected to groundwater flowing beneath the Permit #498 Landfill.

3.2 GROUNDWATER FLOW RATE

An aquifer's flow rate is influenced by the hydraulic gradient, hydraulic conductivity, and porosity of the aquifer. Details regarding each component of the flow rate calculation and groundwater flow rate calculations for the upper-most aquifer in the vicinity of the Landfill are presented in the following sub-sections.

3.2.1 Hydraulic Gradient

The horizontal hydraulic gradient (i) is the change in head (dH) per unit of distance (dL) in the direction of groundwater flow. Hydraulic gradient is the one factor for groundwater velocity calculations that may change over time. Horizontal hydraulic gradients were calculated using the difference between various groundwater contour lines as shown on the May and December 2022 Groundwater Contour Maps included as **Figures 3 - 6**. The 2022 hydraulic gradient calculations are included in **Appendix B**. The hydraulic gradients for the Lenoir Mosheim Limestone geologic unit in 2022 ranged from 0.077 to 0.287 feet per foot (ft/ft), with an average of 0.186 ft/ft. The hydraulic gradients for the Knox geologic unit in 2022 ranged from 0.064 to 0.214 feet per foot (ft/ft), with an average of 0.138 ft/ft.

3.2.2 Hydraulic Conductivity

Hydraulic conductivity (K) is the measure of a specific geological unit's ability to transmit water and is necessary to calculate groundwater rate. It is expressed as the volume of water that will move in a unit time under unit hydraulic gradient through a unit area measured at right angles to the direction of flow. Values for hydraulic conductivity are necessary to calculate groundwater flow rates. Based on the previous analysis of aquifer test data, hydraulic conductivities of 13 ft/yr for the Lenoir geologic unit and 17 ft/yr for the Knox geologic unit were calculated (STS, 1999).

3.2.3 Porosity

Porosity (n_e) is the measure of a material's pore space through which water can flow. The porosity of the Lenoir-Mosheim aquifer is 20% (DAA, 2021). The porosity of the Knox Group aquifer is 10% (STS, 1999).

3.2.4 Groundwater Flow Velocity

Groundwater flow rates for the Lenoir-Mosheim and Knox Group aquifers were calculated using the Darcy equation (Fetter, 1994):

$$v_x = \frac{Ki}{n_e}$$

where:

v_x	=	groundwater flow rate
K	=	hydraulic conductivity
i	=	horizontal hydraulic gradient
n_e	=	effective porosity of the aquifer

As shown in **Appendix B**, groundwater flow rates were calculated utilizing the following:

- Horizontal hydraulic gradients between various groundwater contour lines as shown on the May and December 2022 Groundwater Contour Maps
- Hydraulic conductivity of 13 ft/yr for Lenoir-Mosheim aquifer. Hydraulic conductivity of 17 ft/yr for Knox Group aquifer.
- Porosity of 20% for Lenoir-Mosheim aquifer. Porosity of 10% for Knox Group aquifer.

The estimated groundwater flow rates for 2022 in the Lenoir geologic unit ranged from 5 feet per year (ft/yr) to 19 ft/yr with an average of 12 ft/yr. The estimated groundwater flow rates for 2022 in the Knox geologic unit ranged from 11 ft/yr to 36 ft/yr with an average of 23 ft/yr. Regulated chemical constituents may travel through the subsurface at rates that may be more or less than the groundwater flow velocity due to natural physical, chemical, and biological factors (e.g., dispersion, soil adsorption, chemical degradation, oxidation, and biodegradation).

4.0 GROUNDWATER EVALUATION

The following subsections document the performance of the 2022 semi-annual groundwater monitoring events. Subsections include groundwater sample collection, laboratory procedures, laboratory analytical results, and a review of prior detections.

4.1 GROUNDWATER SAMPLING BACKGROUND

On May 24 – 26 and December 5 and 6, 2022 SCS collected samples for the 1st and 2nd semi-annual 2022 monitoring event, respectively. Daily field logs and well sampling logs for the 2022 monitoring events are included in **Appendix C**.

Each well was purged and sampled in accordance with low flow purging/sampling protocol. Groundwater was extracted from the wells using a portable pump. During purging the following indicator parameters were periodically measured and recorded: dissolved oxygen, oxidation-reduction potential, pH, specific conductance, temperature, and turbidity. Purging was performed until three consecutive measurements of the below indicator parameters met the stabilization criteria shown on **Table 2**.

Table 2. Indicator Parameter Stabilization Criteria

Indicator Parameter	Stabilization Range
Dissolved Oxygen	10%
pH	10%
Specific Conductivity	10%
Temperature	10%

mV = millivolt

s.u. = standard unit

Clean nitrile gloves were worn during purging and sampling procedures and during the handling of equipment that encountered the monitoring wells. Nitrile gloves were changed between each monitoring well. In accordance with the Landfill's GMP, non-dedicated equipment was decontaminated before and after entry into a well using a soapy distilled/deionized water rinse followed by a thorough rinse with plain distilled/deionized water.

The samples were collected in laboratory-provided sampling containers and were stored in a clean, iced cooler for delivery to the contract laboratory. A chain-of-custody form was maintained and submitted with the samples to the laboratory to document sample custody (see **Appendix C**). Upon receipt at the laboratory, the sample containers were inspected for integrity and consistency with the information entered on the chain-of-custody form. The laboratory's sample preservation logs and sample checklists are included in **Appendix D**.

4.2 LABORATORY PROCEDURES

The 2022 samples were delivered to Enthalpy Analytical in Richmond, Virginia for analysis. The laboratory's Virginia Division of Consolidated Laboratory Services certifications are provided in **Appendix D**. The following subsections present the analytical methods utilized by the laboratory, a review of data quality assurance and quality control measures, and a review of the data validation.

4.2.1 Laboratory Analysis

The 1st semi-annual assessment well samples were analyzed for Column B parameters and the 2nd semi-annual assessment well samples were analyzed for Column A parameters plus previously detected Column B parameters. A summary of the specific analytical parameters and appropriate laboratory analytical methods (EPA, 2014) for each 2022 semi-annual monitoring event is shown on **Table 3**.

Table 3. Analytical Parameters/Parameter Groups and Laboratory Analytical Methods

Parameter/Parameter Group	Laboratory Analytical Method(s)
TABLE 3.1 COLUMN A	
Metals	SW-846 Methods 6020B
Volatile Organic Compounds	SW-846 Methods 8011 and 8260D
TABLE 3.1 COLUMN B	
Cyanide	SW-846 Method 9012B
Herbicides	SW-846 Method 8151A
Metals	SW-846 Methods 6020B and 7470A
Pesticides	SW-846 Method 8081B
Poly-Chlorinated Biphenyls	SW-846 Method 8082A
Semi-Volatile Organic Compounds	SW-846 Method 8270E
Sulfide	SW-846 Method 9215
Volatile Organic Compounds	SW-846 Methods 8011 and 8260D
TABLE 3.1 COLUMN B DETECTS	
Cyanide	SW-846 Method 9012B
Herbicides (2,4-D and 2,4,5-TP)	SW-846 Method 8151A
Total Metals (Mercury and Tin)	SW-846 Methods 6020B and 7470A
Semi-Volatile Organic Compounds: Bis(2-ethylhexyl) phthalate, Diethyl phthalate, Di-n-butyl phthalate, and Phenol)	SW-846 Method 8270E
Sulfide	SW-846 Method 9215
Volatile Organic Compound: Naphthalene	SW-846 Methods 8260D

SW = Solid Waste

4.2.2 Data Quality Review

Field quality control involved the collection and analysis of trip and field blanks to verify the sample collection and handling processes did not impair the quality of the samples.

- **Trip Blank** – Trip blanks were prepared for VOC analysis via SW-846 Methods 8011 and 8260. Laboratory personnel filled one of each type of sample bottle with distilled/deionized water and shipped them to SCS. Trip blanks were prepared immediately prior to the sampling event and transported with the empty bottle kits. Field personnel handled the trip blanks like a sample; they remained un-opened, were

transported in the sample cooler, and were returned to the laboratory for analysis. A trip blank is used to indicate potential contamination due to migration of VOCs from the air on the site or in the sample shipping containers through the septum or around the lid of the sampling vials and into the sample.

- **Field Blank** – The field blank is a sample of distilled/deionized water, which was taken to the field and used as rinse water for sampling equipment. The field blank was prepared like the actual samples and returned to the laboratory for identical analysis. A field blank is used to assess whether certain field sampling or cleaning procedures could result in cross-contamination of site samples or if atmospheric contamination has potentially occurred.

Laboratory quality assurance/quality control (QA/QC) involves the routine collection and analysis of method reagent blanks, matrix spike (MS) and matrix spike duplicate (MSD) samples, and laboratory control samples (LCS). A summary of each of these is presented below:

- **Method Reagent Blank** – The method reagent blank is deionized water subjected to the same reagents and manipulations to which site samples are subjected. Positive results in the method reagent blank may indicate either contamination of the chemical reagents or the glassware and implements used to store or prepare the sample and resulting solutions.
- **MS/MSD** – A MS is an aliquot of a field sample with a known concentration of target parameter added to it. An MSD is an intra-laboratory split sample spiked with a known concentration of target parameter. Spiking for each occurs prior to sample analysis. MS/MSD samples are collected for every batch of twenty or fewer samples. Matrix spike recoveries are used to indicate what effect the sample matrix may have on the reported concentration and/or the performance of the sample preparation and analysis.
- **LCS** – These samples consist of deionized water injected with the parameters of interest for single parameter methods and selected parameters for multi-parameter methods according to the appropriate analytical method. LCS samples are prepared and analyzed for each batch containing twenty or fewer samples. LCS recoveries are used to monitor analytical accuracy.

Field and laboratory QA/QC also involves the collection and analysis of a duplicate field sample for each semi-annual monitoring event. Duplicates are two separate samples collected independently in such a manner that they equally represent the medium at a given time and location. Co-located samples provide intra-laboratory precision information for the entire measurement system, including sample collection, homogeneity, handling, shipping, storage, preparation, and analysis.

Table 3 summarizes the parameters detected in the 2022 QC blanks. The laboratory's certificates of analysis for the 2022 field, trip, and method blanks and duplicate samples are included in **Appendix D**. The laboratory QA/QC reports, including the method blank results, for the 2022 semi-annual monitoring events are included in **Appendix G**.

Table 4. Quality Control Detects Summary

Blank ID	Parameter	Concentration (ug/L)	LOD (ug/L)	LOQ (ug/L)
May 2022				
Trip Blank	Acetone	7.21 J	7	10
Field Blank	Acetone	12.1	7	10
December 2022				
Field Blank	Acetone	11.5	7	10

J = Qualifier used if reported concentration is less than the LOQ but greater than the LOD. The concentration is estimated and not validated.

LOD = Limit of Detection

LOQ = Limit of Quantitation

ug/L = micrograms per liter

Table 5 compares the 1st semi-annual 2022 duplicate sample to the original sample for the detected parameters. No duplicate sample was collected from Permit #498 Landfill background or compliance wells for the 2nd semi-annual 2022 monitoring event. A Relative Percent Difference (RPD) less than 20% indicates sample consistency. The RPD was greater than 20% for the May 2022 sample analysis for 1,4-dichlorobenzene, benzene, cadmium, chromium, copper, mercury, toluene, and zinc: thus, indicating potential inconsistency for these analyses.

Table 5. Duplicate Comparison Summary

Parameter	LOD (ug/L)	MW-108 Original Concentration (ug/L)	MW-108 Duplicate Concentration (ug/L)	% Difference
1,1-Dichloroethane	0.6	5.81	6.28	7%
1,4-Dichlorobenzene	0.4	1.75	ND	77%
Arsenic	0.5	13	13	0%
Barium	10	757	733	3%
Benzene	0.4	9.46	7.3	23%
Cadmium	0.1	0.203 J	ND	51%
Chlorobenzene	0.4	1.3	1.31	1%
Chloroethane	0.7	1.22	1.07	12%
Chromium	0.4	1.15	0.473 J	59%
cis-1,2-Dichloroethene	0.4	54.7	61.3	11%
Cobalt	0.2	42.8	41.7	3%
Copper	0.3	2.5	0.716 J	71%
Mercury	0.2	0.57	ND	65%
Nickel	1	35.69	34.63	3%
Phenol	2.34	3.37 J	2.75 J	18%
Toluene	0.5	17.4	10.9	37%
Vinyl chloride	0.5	8.13	7.98	2%

Table 5. Duplicate Comparison Summary

Parameter	LOD (ug/L)	MW-108 Original Concentration (ug/L)	MW-108 Duplicate Concentration (ug/L)	% Difference
Zinc	2.5	54.4	27.6	49%

J = Qualifier used if quantitation of parameter is less than the LOQ but greater than the LOD. Concentration is estimated and not validated.

LOD = laboratory's Limit of Detection

ND = Not Detected. Laboratory's LOD was used for the RPD calculation.

ug/L = micrograms per liter

Since the duplicate detections for 1,4-dichlorobenzene, cadmium, chromium, copper, and mercury were either below the laboratory's LOD or limit of quantitation (LOQ), no further actions are recommended to address these potential inconsistencies. The May 2022 original sample detection for 1,4-dichlorobenzene, chromium, copper, and mercury were subjected to GPS comparison and inter-well statistical evaluation to assess compliance.

The potential inconsistency for the zinc analysis could be due to the presence of suspended sediment within the sample as indicated by the elevated turbidity (82.79 NTU) at the time of sample collection. MW-108 may be re-developed in the future to help address this potential issue. The May 2022 original and duplicate sample detections for zinc were subjected to GPS comparison and inter-well statistical evaluation to assess compliance.

The potential cause of the potential inconsistency for the benzene and toluene analyses is not known. The May 2022 original and duplicate sample detections for these constituents were subjected to GPS comparison and inter-well statistical evaluation to assess compliance.

4.2.3 Data Validation

To identify analytical data that may not represent valid results, data from the 2022 monitoring events were validated by the laboratory and SCS. In accordance with United States Environmental Protection Agency (EPA) guidance (EPA, 1992 and 2017), data validation was performed in the following manner. Data flagged with a "J" qualifier indicates the quantitation of the parameter is less than the laboratory's limit of quantitation (LOQ) but greater than the laboratory's limit of detection (LOD); thus, the concentration is considered estimated. Samples with parameter detections less than five times that of the trip blank, field blank, and/or method blank detection but greater than the laboratory's LOD are flagged with a "B" qualifier. Samples with common lab contaminant parameter detections less than 10 times that of the trip blank, field blank, and/or method/laboratory blank detection but greater than the laboratory's LOD are flagged with a "B" qualifier. B qualified detections are considered not validated as the detection may be anomalous to due to sampling, laboratory, or transportation errors.

Non-detect data and data flagged with a "J" or "B" qualifier were not subjected to inter-well statistical analysis or comparisons to the facility's GPS for compliance purposes. Background data flagged with a "B" qualifier may not be included in the inter-well statistical analysis to preserve the power of the test to detect a potential release from the facility.

The 2022 data flagged with a “J” qualifier are shown on **Tables 5** and **6**. No groundwater monitoring results were flagged with the “B” qualifier for 2022 as no parameters detected in the QC blank were detected in the groundwater samples.

4.3 INORGANIC CONSTITUENTS

Table 6 summarizes the Table 3.1 inorganic parameters detected above the laboratory’s LOD in the background and compliance monitoring wells for each 2022 semi-annual monitoring event. The laboratory’s certificates of analysis for the 2022 semi-annual monitoring events are included in **Appendix D**.

Table 6. Detected Inorganic Parameters

Well Classification		Background			Compliance			LOD (ug/L)	LOQ (ug/L)
Well ID		MW-101	MW-104A	MW-104B	MW-106A	MW-108	MW-205B		
Parameter	Monitoring Event	Concentration (ug/L)							
COLUMN A METALS									
Arsenic	May-2022	1.7	9	ND	3.2	13	0.56 J	0.5	1
	December-2022	0.69 J	6.5	ND	3.4	12	ND	0.5	1
Barium	May-2022	109	70.4	51.7	---	---	93.3	1	5
		---	---	---	290	757	---	10	50
	December-2022	83.2	67.2	26.8	---	---	103	1	5
		---	---	---	274	743	---	10	50
Cadmium	May-2022	0.104 J	ND	ND	ND	0.203 J	ND	0.1	1
	December-2022	ND	ND	ND	ND	0.563 J	ND	0.1	1
Chromium	May-2022	5.38	ND	ND	ND	1.15	ND	0.4	1
	December-2022	ND	ND	ND	ND	1.81	ND	0.6	1

Table 6. Detected Inorganic Parameters

Well Classification		Background			Compliance			LOD (ug/L)	LOQ (ug/L)
Well ID		MW-101	MW-104A	MW-104B	MW-106A	MW-108	MW-205B		
Parameter	Monitoring Event	Concentration (ug/L)							
COLUMN A METALS									
Cobalt	May-2022	18.2	0.986 J	0.286 J	5.43	42.8	ND	0.2	1
		---	---	---	---	41.7 D	---	0.2	1
	December-2022	2.1	1.15	0.998 J	5.44	27.8	ND	0.2	1
Copper	May-2022	14	1.08	ND	ND	2.5	ND	0.3	1
		---	---	---	---	0.716 J,D	---	0.3	1
	December-2022	1.66	ND	ND	ND	0.904 J	ND	0.3	1
Lead	May-2022	ND	ND	ND	ND	ND	ND	1	1
		---	---	---	---	ND D	---	1	1
	December-2022	ND	ND	ND	ND	1.5	ND	1	1
Nickel	May-2022	18.48	1.468	1.095	7.323	35.69	ND	1	1
		---	---	---	---	34.63 D	---	1	1
	December-2022	3.502	1.693	1.421	7.568	22.52	ND	1	1
Zinc	May-2022	16	9.45	ND	ND	54.4	3.43 J	2.5	5
		---	---	---	---	27.6 D	---	2.5	5
	December-2022	3.03 J	ND	ND	ND	96.1	ND	2.5	5
COLUMN B METALS									
Mercury	May-2022	ND	ND	ND	ND	0.57	ND	0.2	0.2
		---	---	---	---	ND D	---	0.2	0.2
	December-2022	ND	ND	ND	ND	1.25	ND	0.2	0.2
Tin	May-2022	ND	ND	4.3	ND	ND	ND	1	1
		---	---	---	---	ND D	---	1	1
	December-2022	ND	1.16	1.13	1.5	ND	ND	1	1

Table 6. Detected Inorganic Parameters

Well Classification		Background			Compliance			LOD (ug/L)	LOQ (ug/L)
Well ID		MW-101	MW-104A	MW-104B	MW-106A	MW-108	MW-205B		
Parameter	Monitoring Event	Concentration (ug/L)							
COLUMN B SULFIDE									
Sulfide	May-2022	ND	ND	6230	ND	ND	ND	800	1000
		---	---	---	---	ND D	---	800	1000
	December-2022	ND	ND	ND	ND	ND	ND	800	1000

--- = not applicable

D = Duplicate sample

J = Qualifier used if quantitation of parameter is less than the LOQ but greater than the LOD. Concentration is estimated and not validated.

LOD = laboratory's Limit of Detection

LOQ = laboratory's Limit of Quantitation

ND = Not Detected

ug/L = micrograms per liter

4.4 ORGANIC CONSTITUENTS

Table 7 summarizes the Table 3.1 organic parameters detected above the laboratory's LOD in the background and compliance monitoring wells for each 2022 semi-annual monitoring event. The laboratory's certificates of analysis for the 2022 semi-annual monitoring events are included in **Appendix D**.

Table 7. Detected Organic Parameters

Well Classification		Background			Compliance			LOD (ug/L)	LOQ (ug/L)
Well ID		MW-101	MW-104A	MW-104B	MW-106A	MW-108	MW-205B		
Parameter	Monitoring Event	Concentration (ug/L)							
COLUMN A VOLATILE ORGANIC COMPOUNDS									
1,1-Dichloroethane	May-2022	ND	ND	ND	1.02	5.81	ND	0.6	1
		---	---	---	---	6.28 D	---	0.6	1
	December-2022	ND	ND	ND	1.02	5.19	ND	0.6	1

Table 7. Detected Organic Parameters

Well Classification		Background			Compliance			LOD (ug/L)	LOQ (ug/L)
Well ID		MW-101	MW-104A	MW-104B	MW-106A	MW-108	MW-205B		
Parameter	Monitoring Event	Concentration (ug/L)							
1,4-Dichlorobenzene	May-2022	ND	ND	ND	ND	1.75	ND	0.4	1
		---	---	---	---	ND D	---	0.4	1
	December-2022	ND	ND	ND	ND	1.65	ND	0.4	1
Benzene	May-2022	ND	ND	ND	ND	9.46	ND	0.4	1
		---	---	---	---	7.3 D	---	0.4	1
	December-2022	ND	ND	ND	ND	39.3	ND	0.4	1
Chlorobenzene	May-2022	ND	ND	ND	ND	1.3	ND	0.4	1
		---	---	---	---	1.31 D	---	0.4	1
	December-2022	ND	ND	ND	ND	1.25	ND	0.4	1
Chloroethane	May-2022	ND	ND	ND	ND	1.22	ND	0.7	1
		---	---	---	---	1.07 D	---	0.7	1
	December-2022	ND	ND	ND	ND	ND	ND	0.7	1
cis-1,2-Dichloroethene	May-2022	ND	ND	ND	0.56 J	54.7	ND	0.4	1
		---	---	---	---	61.3 D	---	0.4	1
	December-2022	ND	ND	ND	0.67 J	44.8	ND	0.4	1
COLUMN A VOLATILE ORGANIC COMPOUNDS									
Toluene	May-2022	ND	ND	ND	ND	17.4	ND	0.5	1
		---	---	---	---	10.9 D	---	0.5	1
	December-2022	ND	ND	ND	ND	ND	ND	0.5	1
Vinyl chloride	May-2022	ND	ND	ND	ND	8.13	ND	0.5	0.5
		---	---	---	---	7.98 D	---	0.5	0.5
	December-2022	ND	ND	ND	ND	11.9	ND	0.5	0.5

Table 7. Detected Organic Parameters

Well Classification		Background			Compliance			LOD (ug/L)	LOQ (ug/L)
Well ID		MW-101	MW-104A	MW-104B	MW-106A	MW-108	MW-205B		
Parameter	Monitoring Event	Concentration (ug/L)							
COLUMN B SEMI-VOLATILE ORGANIC COMPOUNDS									
Phenol	May-2022	ND	ND	ND	ND	3.37 J	ND	2.34	10
		---	---	---	---	2.75 J,D	---	2.34	10
	December-2022	ND	ND	ND	ND	ND	ND	2.34	10

--- = not applicable

D = Duplicate sample

J = Qualifier used if quantitation of parameter is less than the LOQ but greater than the LOD. Concentration is estimated and not validated.

LOD = laboratory's Limit of Detection

LOQ = laboratory's Limit of Quantitation

ND = Not Detected

ug/L = micrograms per liter

4.5 VERIFICATION EVENTS

No verification events were performed in 2022.

4.6 REVIEW OF PRIOR DETECTIONS

A summary of historical analytical results for Table 3.1 parameters detected above the laboratory's LOD in the assessment monitoring wells is included in **Appendix E**. In summary, historically detected Table 3.1 parameters in the assessment wells consist of cyanide, 16 metals, eight semi-volatile organic compounds, sulfide, and 17 VOCs.

In accordance with 9 VAC 20-81-250 B 3 c (1), VDEQ is notified of a verified detection of a Column B parameter that occurs during the annual Table 3.1 Column B assessment monitoring event. Prior to the performance of the 2022 monitoring event, the list of historically detected Column B parameters included the following:

- Cyanide
- Metals: Mercury and Tin
- SVOCs: Bis(2-ethylhexyl) phthalate, Diethyl phthalate, Di-n-butyl phthalate, and Phenol
- Sulfide

Table 8 summarizes the verified Column B (not included on Column A) parameter detections for the May 2022 (1st Semi-Annual) monitoring event. No new verified Column B parameter (not listed on Column A) detections were identified in the 2022 assessment well samples during the annual Column B monitoring event. Therefore, the above list of Column B detects remained unchanged for performance of the 2nd semi-annual 2022 monitoring event. The 2022 Column B detect notification was submitted to VDEQ on July 11, 2022.

Table 8. 2022 Column B Detections Summary

Parameter Group	Parameter	Well ID	May 2022 Concentration (ug/L)	LOD (ug/L)	LOQ (ug/L)
Inorganic	Sulfide	MW-104B	6230	800	1000
Metal	Mercury	MW-108	0.57	0.2	0.2
	Tin	MW-104B	4.3	1	1
SVOC	Phenol	MW-108	3.37 J	2.34	10
			2.75 J,D	2.34	10

D = Duplicate

J = Qualifier used if reported concentration is less than the LOQ but greater than the LOD. The concentration is considered estimated and not validated.

LOD = laboratory's Limit of Detection

LOQ = laboratory's Limit of Quantitation

ug/L = micrograms per liter

SVOC = Semi-volatile organic compound

5.0 STATISTICAL EVALUATION

The following data evaluations were performed for selected Table 3.1 parameters detected in the monitoring wells for 2022: GPS comparisons, data screening, inter-well statistical analysis, and trend analysis. Statistical analysis procedures were performed using the ChemStat (Starpoint Vers. 6.2.1.0) statistical software and Microsoft Excel with significance levels of 95% or 99% (i.e. a false positive rate of 5% or 1%) as described in the following subsections. Parameter concentrations shown on the statistical reports produced by ChemStat are shown in ug/L. The data utilized for the following statistical analyses are provided in **Appendix E**.

5.1 COMPARISONS TO GROUNDWATER PROTECTION STANDARDS

In accordance with 9 VAC 20-81-250 B 3, GPS comparisons were performed to assess if the Permit #498 Landfill will remain in the corrective action program and if there are changes to the monitoring wells of concern and/or the constituents of concern (COCs). Validated Table 3.1 parameter detections identified for the 2022 semi-annual monitoring events in the background and compliance wells were directly compared to the facility's GPS. Comparisons for the 2022 semi-annual monitoring events are included on **Tables 9** and **10**.

Table 9. Direct Comparison to GPS - 1st Semi-Annual 2022

Well ID	Parameter	May 2022 Concentration (ug/L)	GPS (ug/L)	Source of GPS	Concentration >GPS?
BACKGROUND MONITORING WELLS					
MW-101	Arsenic	1.7	30.9	FBAC	No
	Barium	109	2000	EPA-MCL	No
	Chromium	5.38	100	EPA-MCL	No
	Cobalt	18.2	27	FBAC	No
	Copper	14	1300	EPA-MCL	No
	Nickel	18.48	390	VDEQ-ACL	No
	Zinc	16	6000	VDEQ-ACL	No
MW-104A	Arsenic	9	30.9	FBAC	No
	Barium	70.4	2000	EPA-MCL	No
	Copper	1.08	1300	EPA-MCL	No
	Nickel	1.468	390	VDEQ-ACL	No
	Zinc	9.45	6000	VDEQ-ACL	No
MW-104B	Barium	51.7	2000	EPA-MCL	No
	Nickel	1.095	390	VDEQ-ACL	No
	Sulfide	6230	1000	FBAC	YES*
	Tin	4.3	12000	VDEQ-ACL	No

Table 9. Direct Comparison to GPS - 1st Semi-Annual 2022

Well ID	Parameter	May 2022 Concentration (ug/L)	GPS (ug/L)	Source of GPS	Concentration >GPS?
COMPLIANCE WELLS					
MW-106A	1,1-Dichloroethane	1.02	2.8	VDEQ-ACL	No
	Arsenic	3.2	30.9	FBAC	No
	Barium	290	2000	EPA-MCL	No
	Cobalt	5.43	27	FBAC	No
	Nickel	7.323	390	VDEQ-ACL	No
MW-108	1,1-Dichloroethane	5.81	2.8	VDEQ-ACL	YES
		6.28 D	2.8	VDEQ-ACL	YES
	1,4-Dichlorobenzene	1.75	75	EPA-MCL	No
	Arsenic	13	30.9	FBAC	No
		13 D	30.9	FBAC	No
	Barium	757	2000	EPA-MCL	No
		733 D	2000	EPA-MCL	No
	Benzene	9.46	5	EPA-MCL	YES
		7.3 D	5	EPA-MCL	YES
	Chlorobenzene	1.3	100	EPA-MCL	No
		1.31 D	100	EPA-MCL	No
	Chloroethane	1.22	21000	VDEQ-ACL	No
		1.07 D	21000	VDEQ-ACL	No
	Chromium	1.15	100	EPA-MCL	No
	cis-1,2-Dichloroethene	54.7	70	EPA-MCL	No
		61.3 D	70	EPA-MCL	No
	Cobalt	42.8	27	FBAC	YES
		41.7 D	27	FBAC	YES
	Copper	2.5	1300	EPA-MCL	No
	Mercury	0.57	2	EPA-MCL	No
	Nickel	35.69	390	VDEQ-ACL	No
		34.63 D	390	VDEQ-ACL	No
	Toluene	17.4	1000	EPA-MCL	No
		10.9 D	1000	EPA-MCL	No
	Vinyl chloride	8.13	2	EPA-MCL	YES
		7.98 D	2	EPA-MCL	YES
	Zinc	54.4	6000	VDEQ-ACL	No
27.6 D		6000	VDEQ-ACL	No	

Table 9. Direct Comparison to GPS - 1st Semi-Annual 2022

Well ID	Parameter	May 2022 Concentration (ug/L)	GPS (ug/L)	Source of GPS	Concentration >GPS?
COMPLIANCE WELL					
MW-205B	Barium	93.3	2000	EPA-MCL	No

*In a letter to VDEQ dated August 10, 2022, a revised GPS of 6,230 ug/L for sulfide was proposed. The revised GPS of 6,230 ug/L was approved on October 20, 2022. Therefore, no further actions are needed to address this GPS exceedance.

D = Duplicate sample

EPA-MCL = Environmental Protection Agency-Maximum Contaminant Level (updated March 2018)

FBAC = Facility Background

GPS = Groundwater Protection Standard

VDEQ-ACL = Virginia Department of Environmental Quality-Alternate Concentration Limit (updated January 2021)

ug/L = micrograms per liter

Table 10. Direct Comparison to GPS - 2nd Semi-Annual 2022

Well ID	Parameter	December 2022 Concentration (ug/L)	GPS (ug/L)	Source of GPS	Concentration > GPS?
BACKGROUND WELLS					
MW-101	Barium	83.2	2000	EPA-MCL	no
	Cobalt	2.1	27	FBAC	no
	Copper	1.66	1300	EPA-MCL	no
	Nickel	3.502	390	VDEQ-ACL	no
MW-104A	Arsenic	6.5	30.9	FBAC	no
	Barium	67.2	2000	EPA-MCL	no
	Cobalt	1.15	27	FBAC	no
	Nickel	1.693	390	VDEQ-ACL	no
	Tin	1.16	12000	VDEQ-ACL	no
MW-104B	Barium	26.8	2000	EPA-MCL	no
	Nickel	1.421	390	VDEQ-ACL	no
	Tin	1.13	12000	VDEQ-ACL	no
COMPLIANCE WELL					
MW-106A	1,1-Dichloroethane	1.02	2.8	VDEQ-ACL	no
	Arsenic	3.4	30.9	FBAC	no
	Barium	274	2000	EPA-MCL	no
	Cobalt	5.44	27	FBAC	no
	Nickel	7.568	390	VDEQ-ACL	no
	Tin	1.5	12000	VDEQ-ACL	no

Table 10. Direct Comparison to GPS - 2nd Semi-Annual 2022

Well ID	Parameter	December 2022 Concentration (ug/L)	GPS (ug/L)	Source of GPS	Concentration > GPS?
COMPLIANCE WELLS					
MW-108	1,1-Dichloroethane	5.19	2.8	VDEQ-ACL	YES
	1,4-Dichlorobenzene	1.65	75	EPA-MCL	no
	Arsenic	12	30.9	FBAC	no
	Barium	743	2000	EPA-MCL	no
	Benzene	39.3	5	EPA-MCL	YES
	Chlorobenzene	1.25	100	EPA-MCL	no
	Chromium	1.81	100	EPA-MCL	no
	cis-1,2-Dichloroethene	44.8	70	EPA-MCL	no
	Cobalt	27.8	27	FBAC	YES
	Lead	1.5	15	EPA-MCL	no
	Mercury	1.25	2	EPA-MCL	no
	Nickel	22.52	390	VDEQ-ACL	no
	Vinyl chloride	11.9	2	EPA-MCL	YES
	Zinc	96.1	6000	VDEQ-ACL	no
MW-205B	Barium	103	2000	EPA-MCL	no

EPA-MCL = Environmental Protection Agency-Maximum Contaminant Level (updated March 2018)

FBAC = Facility Background

GPS = Groundwater Protection Standard

VDEQ-ACL = Virginia Department of Environmental Quality-Alternate Concentration Limit (updated January 2022)

ug/L = micrograms per liter

5.2 DATA SCREENING

Prior to the performance of the inter-well and trend analyses, each data set was screened for outliers and assessments were made as to the treatment of non-detects and duplicate samples. Duplicates were averaged with the original sample to form an independent data point before statistical analyses were performed. The following subsections describe the data adjustments applied for non-detects and outliers.

5.2.1 Treatment of Non-Detects in Background Data

In accordance with VDEQ guidance (VDEQ, 2008), non-detect data were adjusted accordingly for data sets in which statistical analysis was performed. If the laboratory's LOD was unknown but the laboratory's LOQ was known, the laboratory's LOQ was utilized as the laboratory's LOD for statistical evaluation purposes.

- If 25% or fewer of the values were "not detected", the non-detect results were replaced with the laboratory's LOD divided by two.
- If more than 25%, but less than 50% of the values were reported as "not detected", the non-detect results were adjusted using the Aitchison's Method.

- If 50% or greater of the data were reported as “not detected”, the non-detect results were replaced with the laboratory’s LOD and a non-parametric statistical method was utilized.

5.2.2 Outlier Analysis

Outlier analyses were performed to identify reported values that may be anomalous and, therefore, bias various statistical analyses. The identification of an outlier may be the result of fluctuations in aquifer geochemistry, a release from the landfill, changes in laboratory analytical method or LOD/LOQ, errors during sampling or laboratory analysis, etc.

Outlier analyses were completed for data from upgradient wells MW-101, MW-104A, and MW-104B for parameters in which inter-well statistical analysis was performed. Outlier analyses were also completed for parameters and wells exhibiting a GPS exceedance.

The test for outliers consisted of comparing the historical analytical results for each parameter within each well. The Dixon’s test was performed for data sets containing 25 or fewer results. The Rosner’s test was performed for data sets containing greater than 25 results. Detailed outlier assessments are provided in **Appendix F**.

5.3 INTER-WELL STATISTICAL ANALYSIS

In accordance with 9 VAC 20-81-250 B, inter-well statistical analysis was performed to evaluate if parameter detections are potentially due to the waste management unit and assess if the landfill will remain in the detection monitoring program for the detection monitoring well subset. The inter-well statistical analysis process for the 2022 monitoring events involved:

- Establishing Upgradient/Background Data Sets for Upper Prediction Limit (UPL) Calculations
- Assessing Data Distribution of Upgradient/Background Data Sets
- Calculating UPLs
- Comparing 2022 semi-annual compliance monitoring well results to UPLs

5.3.1 Establishing the Upgradient/Background Data Sets

Inter-well statistical analysis was performed for validated Table 3.1 parameter detections identified in the compliance wells for the 2022 semi-annual monitoring events. To compare the 2022 semi-annual compliance well parameter detections to the UPLs, a UPL was calculated for each parameter utilizing historical data from upgradient wells MW-101, MW-104A, and MW-104B).

The upgradient/background data sets must contain at least eight results for the calculation of a parametric UPL and at least 13 results for the calculation of a non-parametric UPL. In accordance with VDEQ guidance (VDEQ, 2008), select data from MW-101, MW-104A, and MW-104B identified as outliers were not included in the data sets as results may not be representative of upgradient/background aquifer conditions as discussed in Section 5.2.2. In addition, parameter results from MW-101, MW-104A, and MW-104B flagged with a “B” qualifier were not included in the

data sets as results may not be representative of upgradient/background aquifer conditions as discussed in Section 4.2.3.

The dates utilized for the upgradient data sets for the 1st semi-annual 2022 monitoring period included sampling events between June 1999 and May 2022. The dates utilized for the upgradient/background data sets for the 2nd semi-annual 2022 monitoring period included sampling events between June 1999 and December 2022. Each data set contained 50 to 69 results which was sufficient for the calculation of a parametric or non-parametric UPL. A detailed basic statistics report for each upgradient/background data set is included in **Appendix F**.

5.3.2 Assessing Data Distribution

The distribution of each upgradient/background data set with less than 50% non-detects was established in order to select the appropriate UPL calculation method. The barium and cobalt data sets contained more than 50 results; thus, the Shapiro-Francia test was performed to establish data distribution. The data distribution of barium and cobalt was non-normal. The detailed Shapiro-Francia reports are included in **Appendix F**. The data set for 1,1-dichloroethane, 1,4-dichlorobenzene, arsenic, benzene, chlorobenzene, chloroethane, chromium, cis-1,2-dichloroethene, lead, mercury, nickel, tin, toluene, vinyl chloride, and zinc contained greater than 50% non-detects; thus, data distribution was not assessed.

5.3.3 Calculating Upper Prediction Limits

A parametric UPL was calculated for upgradient/background data sets in which the distribution of the data was normal and there were less than 50% non-detects in the data set. A non-parametric UPL was calculated for upgradient/background data sets in which the distribution of the data was non-normal or there were greater than 50% non-detects in the data set. If the calculated UPL was less than the laboratory's current LOQ, the UPL was set to the laboratory's current LOQ for comparison purposes. Each UPL was calculated utilizing the non-parametric prediction limit method. Detailed statistical reports for the prediction limit calculations are included in **Appendix F**.

5.3.4 Upper Prediction Limit Comparisons

Validated Table 3.1 parameter detections identified in the compliance monitoring wells for the 2022 semi-annual monitoring events were directly compared to the UPL. The UPL comparisons are shown on **Table 11**. Due to the identification of verified UPL exceedances for the 2022 monitoring events, groundwater monitoring will continue to be conducted in accordance with the assessment monitoring program.

Table 11. Upper Prediction Limit Comparisons

Well ID	Parameter	Concentration (ug/L)	UPL (ug/L)	Concentration > UPL?
MAY 2022				
MW-106A	1,1-Dichloroethane	1.02	1	YES
	Arsenic	3.2	30.9	no
	Barium	290	203	YES
	Cobalt	5.43	74.3	no
	Nickel	7.323	49.8	no
MW-108	1,1-Dichloroethane	5.81	1	YES
		6.28 D	1	YES
	1,4-Dichlorobenzene	1.75	1	YES
	Arsenic	13	30.9	no
		13 D	30.9	YES
	Barium	757	203	YES
		733 D	203	YES
	Benzene	9.46	1	YES
		7.3 D	1	YES
	Chlorobenzene	1.3	1	YES
		1.31 D	1	YES
	Chloroethane	1.22	1	YES
		1.07 D	1	YES
	Chromium	1.15	5.5	no
	cis-1,2-Dichloroethene	54.7	1	YES
		61.3 D	1	YES
	Cobalt	42.8	74.3	no
		41.7 D	74.3	YES
	Copper	2.5	40.8	no
	Mercury	0.57	0.2	YES
	Nickel	35.69	49.8	no
		34.63 D	49.8	YES
	Toluene	17.4	1	YES
10.9 D		1	YES	
Vinyl chloride	8.13	0.62	YES	
	7.98 D	0.62	YES	
Zinc	54.4	18.8	YES	
	27.6 D	18.8	YES	
MW-205B	Barium	93.3	203	no

Table 11. Upper Prediction Limit Comparisons

Well ID	Parameter	Concentration (ug/L)	UPL (ug/L)	Concentration > UPL?
DECEMBER 2022				
MW-106A	1,1-Dichloroethane	1.02	1.0	YES
	Arsenic	3.4	30.9	no
	Barium	274	203.0	YES
	Cobalt	5.44	74.3	no
	Nickel	7.568	49.8	no
	Tin	1.5	5.0	no
MW-108	1,1-Dichloroethane	5.19	1.0	YES
	1,4-Dichlorobenzene	1.65	1.0	YES
	Arsenic	12	30.9	no
	Barium	743	203.0	YES
	Benzene	39.3	1.0	YES
	Chlorobenzene	1.25	1.0	YES
	Chromium	1.81	5.5	no
	cis-1,2-Dichloroethene	44.8	1.0	YES
	Cobalt	27.8	74.3	no
	Lead	1.5	6.3	no
	Mercury	1.25	0.2	YES
	Nickel	22.52	49.8	no
	Vinyl chloride	11.9	0.62	YES
	Zinc	96.1	18.8	YES
MW-205B	Barium	103	203.0	no

D = Duplicate
 ug/L = micrograms per liter
 UPL = Upper Prediction Limit

5.4 TREND ANALYSIS

Trend analysis was performed for parameters exhibiting a verified GPS exceedance for a 2022 semi-annual assessment monitoring event (not identified as a statistical outlier) in a compliance well to assess if concentrations are increasing or decreasing. Trend analysis involved the performance of the Mann-Kendall trend test and the construction of time-series plots.

Data points identified as outliers were not included in the data sets as results may not be representative of the aquifer conditions as discussed in Section 5.2.2. In addition, parameter results flagged with a “B” qualifier were not included in the data sets as results may not be representative of the aquifer conditions as discussed in Section 4.2.3.

The Mann-Kendall trend analysis results and time-series plot trends are summarized on **Table 12**. The statistical trend test reports and time-series plots are included in **Appendix F**.

Table 12. Trend Analysis Summary

Well ID	Parameter	Mann-Kendall Trend Test Result	Time-Series Plot Trend
MW-108	1,1-Dichloroethane	Downward	Downward
	Cobalt	No Trend	Upward
	Vinyl chloride	No Trend	Upward

5.5 VERIFIED EXCEEDANCES

Verified inter-well statistical exceedances identified in the assessment wells for 2022 are shown on **Table 13**. Due to these exceedances, groundwater monitoring will continue to be conducted in accordance with the Assessment Monitoring Program for MW-106A, MW-108, and MW-205B.

Table 13. Verified Inter-Well Exceedances

Well ID	Inter-Well Exceeding Parameter	2022 Semi-Annual Monitoring Event(s)
MW-106A	1,1-Dichloroethane	May and December
	Barium	May and December
MW-108	1,1-Dichloroethane	May and December
	1,4-Dichlorobenzene	May and December
	Barium	May and December
	Benzene	May and December
	Chlorobenzene	May and December
	Chloroethane	May
	cis-1,2-Dichloroethene	May and December
	Mercury	May and December
	Toluene	May
	Vinyl chloride	May and December
	Zinc	May and December

Verified direct GPS exceedances identified in the assessment wells for 2022 are shown on **Table 13**. Due to the detection of these GPS exceedances, groundwater monitoring will continue to be conducted in accordance with the facility's CAMP. No new COCs or compliance wells of concern were identified in 2022.

Table 14. Verified GPS Exceedances

Well ID	GPS Exceeding Parameter	2022 Monitoring Events
MW-108	1,1-Dichloroethane	May and December
	Benzene	May and December
	Cobalt	May and December
	Vinyl Chloride	May and December

The final lab report for the 1st semi-annual 2022 assessment and corrective action monitoring event was issued by the lab on July 12, 2022. Therefore, notification of the 1st semi-annual 2022 GPS exceedances was submitted to VDEQ on August 10, 2022 in accordance with 9 VAC 20-81-250 B 3 f (3) (a) within the required timeframe.

The final lab report for the 2nd semi-annual 2022 assessment and corrective action monitoring event was issued by the lab on December 30, 2022. Therefore, notification of the 2nd semi-annual 2022 GPS exceedances was submitted to VDEQ on February 10, 2022 in accordance with 9 VAC 20-81-250 B 3 f (3) (a) within the required timeframe.

6.0 SUMMARY AND CONCLUSIONS

In accordance with the Virginia Solid Waste Management Regulations and the facility's SWP and GMP, the following data evaluations were performed for each 2022 semi-annual groundwater monitoring event. Selected data evaluation results are discussed below.

- **Groundwater elevation measurements** were obtained to assess the groundwater flow direction and calculate the groundwater flow rate at the Landfill. The flow direction and locations of each upgradient and compliance well were used to assess if the well network is appropriately monitoring the potential migration of regulated constituents from the landfill within the upper-most aquifer as required by 9 VAC 20-81-250 A 3.
- **Comparisons to GPS** were performed to identify potential impacts to groundwater resources and assess if the landfill will remain in the assessment monitoring program for the subset of assessment monitoring wells.
- **Outlier analysis** was performed to identify potential extreme values that may be due to sampling, laboratory, transportation, or transcription errors or that the elevated concentration may be attributed to the waste management unit.
- **Inter-well statistical analysis** was conducted to evaluate if parameter detections are potentially due to the waste management unit and assess if the facility can stay in, or revert to, the detection monitoring program.
- **Trend analysis** was performed to evaluate if parameter concentrations are increasing or decreasing.

6.1 SUMMARY OF FINDINGS

Groundwater levels were measured at the site's groundwater wells semi-annually (May and December 2022) to assess the groundwater flow direction, estimate groundwater flow rates, and evaluate the effectiveness of the monitoring well network to characterize groundwater quality within the upper-most aquifer. The estimated groundwater flow rates for 2022 in the Lenior geologic unit ranged from 5 ft/yr to 19 ft/yr with an average of 12 ft/yr. The estimated groundwater flow rates for 2022 in the Knox geologic unit ranged from 11 ft/yr to 36 ft/yr with an average of 23 ft/yr. Based on the 2022 assessment of groundwater flow direction presented below and current knowledge of the site's hydrogeologic conditions, the current groundwater monitoring network effectively monitors the upper-most aquifer as required by 9 VAC 20-81-250 A 3.

- Groundwater within the Lenior-Mosheim and Knox Formations flows south-southwest across the Permit #498 landfill towards the Permit #588 Landfill.
- Background well MW-101 is upgradient of the Permit #498 Landfill.
- Background wells MW-104A and MW-104B are upgradient of the Permit #221 Landfill.
- Compliance wells MW-106A and MW-108 are downgradient of the Permit #498 Landfill.

- Due to the effects of the Permit #588 gradient control system, compliance well MW-205B is upgradient of the Permit #588 Landfill and not hydraulically connected to groundwater flowing beneath the Permit #498 Landfill.

Groundwater samples were collected semi-annually (May and December) from the monitoring well network during 2022. The 1st semi-annual 2022 assessment well samples were analyzed for Column B parameters and the 2nd semi-annual 2022 assessment well samples were analyzed for Column A parameters plus previously detected Column B parameters. The 2022 parameter detections in the assessment monitoring wells consisted of eight metals, sulfide, eight volatile organic compounds (VOCs), and one semi-VOC (SVOC).

A GPS exceeding concentration of 1,1-dichloroethane was detected in compliance well MW-108 for the May and December 2022 monitoring events, but concentrations are trending downward. A GPS exceeding concentration of benzene was detected in MW-108 for each 2022 semi-annual monitoring event, however the May and December 2022 concentrations were identified as statistical outliers. GPS exceeding concentrations of cobalt and vinyl chloride were detected in MW-108 for each 2022 semi-annual monitoring event. Cobalt and vinyl chloride concentrations are not exhibiting a statistically significant upward or downward trend, but an upward trend is shown on the time-series plots.

6.2 RECOMMENDED ACTIONS

Regulatory response actions required with regard to the 2022 GPS exceedances have been completed. A CAP has been established and is in the process of being implemented for each GPS exceeding constituent and well; thus, no further actions beyond continued monitoring and implementation of the CAP are required at this time. Groundwater monitoring and reporting will be conducted in accordance with the Assessment Monitoring Program (9 VAC 20-81-250 B 3), the Corrective Action Program (9 VAC 20-81-260) and the Landfill's GMP in 2006. Semi-annual groundwater samples are projected to be collected in June and December 2023. The 1st semi-annual 2023 assessment monitoring well samples will be analyzed for Column B parameters. The 2nd semi-annual 2023 assessment monitoring well samples will be analyzed for Column A parameters and the following historically detected Column B parameters (not listed on Column A), unless a new Column B detection (not listed on Column A) is identified for the 1st semi-annual 2023 monitoring event.

- Cyanide
- Herbicides: 2,4-D and 2,4,5-TP
- Total Metals (Mercury and Tin)
- Semi-Volatile Organic Compounds: Bis(2-ethylexyl) phthalate, Diethyl phthalate and Di-n-butyl phthalate, and Phenol
- Volatile Organic Compound: Dichlorodifluoromethane

Submittal deadlines for each assessment groundwater monitoring report and VDEQ notifications are shown below:

- **Semi-Annual GPS Exceedance Notification** (if an exceedance) - 44 days from issuance of the associated semi-annual final lab report.
- **Annual Column B Detection Notification** (if a detection) - 14 days from issuance of the associated final lab report.
- **2023 Annual Groundwater Monitoring Report** - 120 Days from issuance of the final 2nd semi-annual 2023 lab report.

7.0 REFERENCES

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Virginia Solid Waste Management Regulations, Code of Virginia §§ 9 VAC 20-81-250-260. As updated.

Figures

Figure 1 - Topographic Quadrangle Map

Figure 2 - Site Map

Figure 3 - Groundwater Contour Map (Lenoir) – May 24, 2022

Figure 4 - Groundwater Contour Map (Knox) – May 24, 2022

Figure 5 - Groundwater Contour Map (Lenoir) – December 5, 2022

Figure 6 - Groundwater Contour Map (Knox) – December 5, 2022

DATE: 04/07/2021 FILE NAME: W:\Projects\02218208.07\Figures\Topo Quad
DRAWN BY: LAH



BRISTOL INTEGRATED SOLID WASTE MANAGEMENT FACILITY
BRISTOL, VIRGINIA
SOLID WASTE PERMIT #498

LEGEND

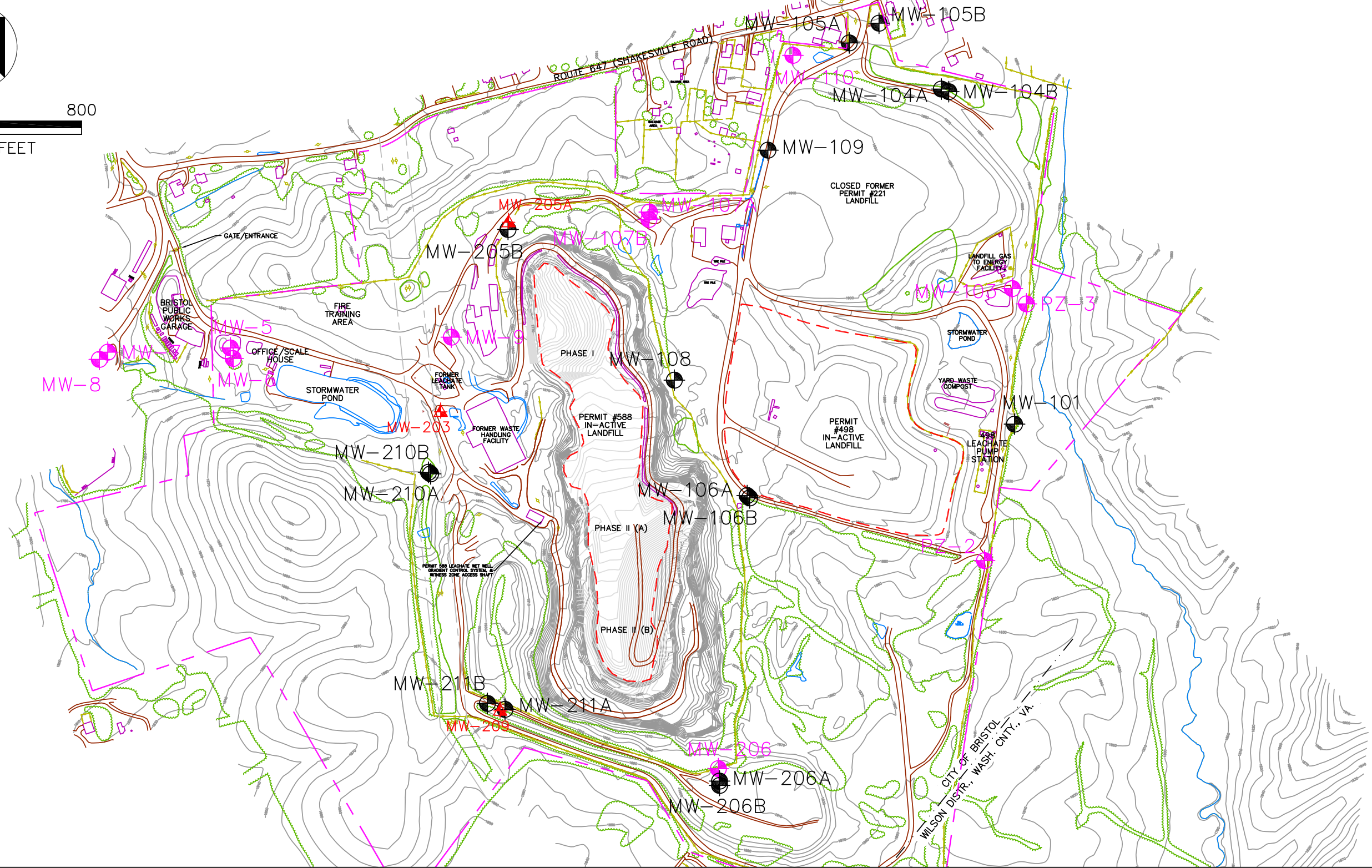
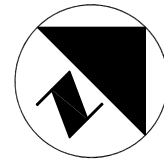
- LIMIT OF WASTE
- - - COUNTY PROPERTY BOUNDARY

0 2000 4000
SCALE IN FEET

SOURCE: BRISTOL TN, VA, USGS 7.5-MIN TOPOGRAPHIC QUADRANGLE 2022

SCS ENGINEERS

FIGURE 1 - TOPOGRAPHIC QUADRANGLE MAP



LEGEND

- TOPOGRAPHIC CONTOUR (FT, AMSL)
- FACILITY BOUNDARY
- LIMIT OF WASTE
- PERMITTED GROUNDWATER MONITORING WELL
- ADDITIONAL GROUNDWATER MONITORING WELL
- PIEZOMETER

FT, AMSL = FEET, ABOVE MEAN SEA LEVEL

NOTES:

1. SITE MAP PROVIDED BY DRAPER ADEN AND ASSOCIATES.
2. GROUNDWATER MONITORING WELL NETWORKS FOR THE PERMIT #588 AND #498 LANDFILLS ARE PROVIDED BELOW.
 - PERMIT #498 BACKGROUND: MW-101, MW-104A, AND MW-104B
 - PERMIT #588 BACKGROUND: MW-106B AND MW-206A
 - PERMIT #588 BACKGROUND AND PERMIT #498 SENTINEL: MW-206B
 - PERMIT #588 BACKGROUND AND PERMIT #498 COMPLIANCE: MW-106A
 - PERMIT #588 BACKGROUND AND PERMIT #498 COMPLIANCE/SENTINEL: MW-205B
 - PERMIT #498 COMPLIANCE/PERFORMANCE: MW-108
 - PERMIT #588 COMPLIANCE AND PERMIT #498 SENTINEL: MW-210A, MW210B, MW211A, AND MW-211B
 - PERMIT #498 PERFORMANCE: GC OUTFALL (AKA. GRADIENT CONTROL SYSTEM)
 - PERMIT #498 SENTINEL: MW-105A, MW-105B, AND MW-109

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NO.	REVISION	DATE

SHEET TITLE	SITE MAP
PROJECT TITLE	2022 ANNUAL GROUNDWATER MONITORING REPORT

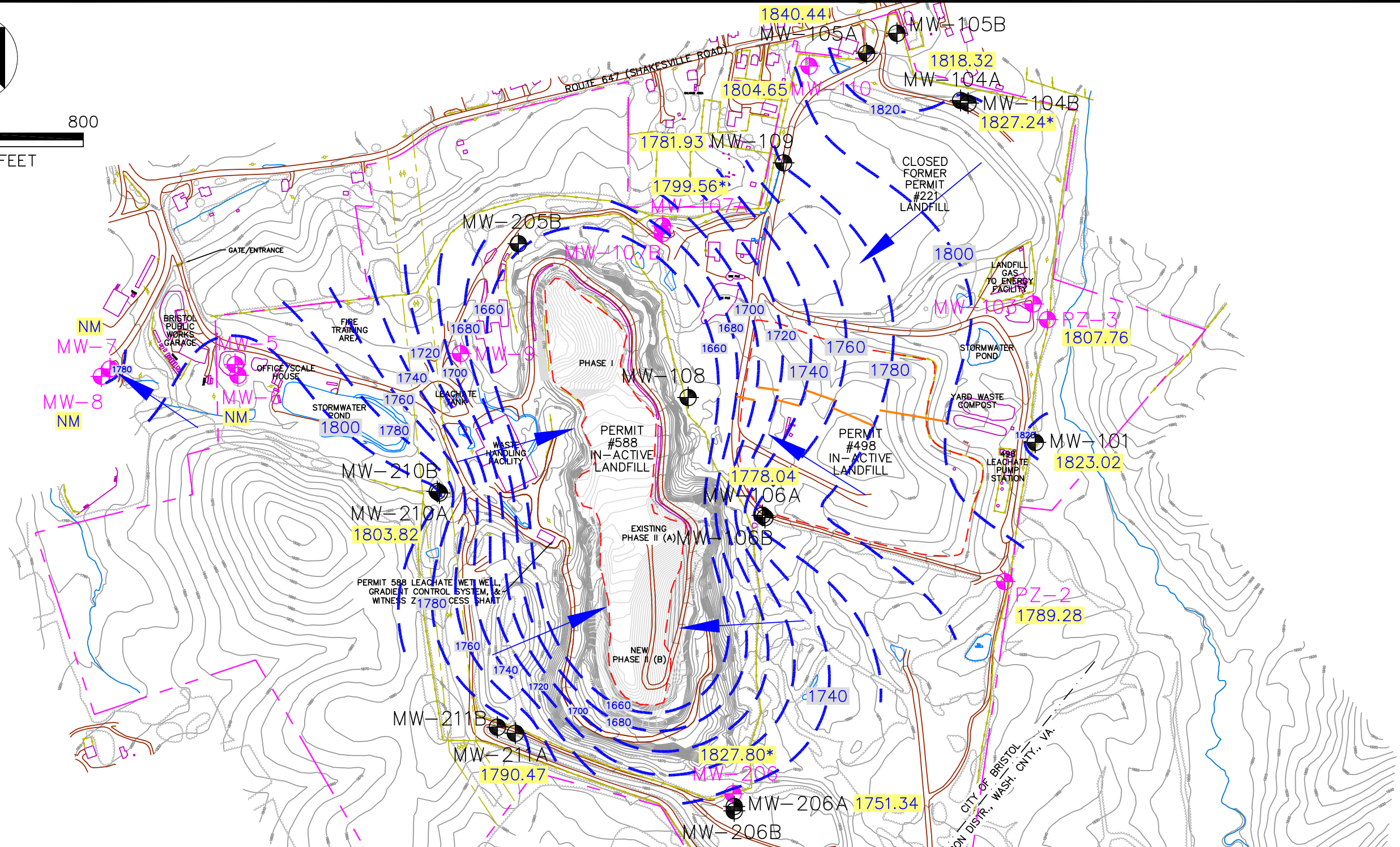
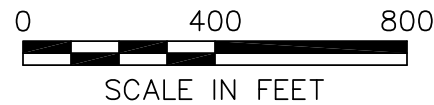
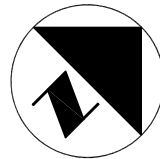
CLIENT
**CITY OF BRISTOL
SANITARY LANDFILL
BRISTOL, VA
SOLID WASTE PERMIT #498**

SCS ENGINEERS
STEARNS, CONRAD AND SCHMIDT
CONSULTING ENGINEERS, INC.
11260 ROGER BACON DRIVE - RESTON, VA 20190
PH. (703) 471-6150 FAX. (703) 471-4876

PROJ. NO. 02218208.07
DATE: 04/10/23

DRAWN BY: LAH
CHECKED BY: JCS

CADD FILE:	SITE MAP
DATE:	04/10/23
SCALE:	AS SHOWN
DRAWING NO.	2 of 6



LEGEND

	TOPOGRAPHIC CONTOUR (FT, AMSL)
	FACILITY BOUNDARY
	LIMIT OF WASTE
	PERMITTED GROUNDWATER MONITORING WELL
	ADDITIONAL GROUNDWATER MONITORING WELL
	GROUNDWATER ELEVATION (FT, AMSL)
	GROUNDWATER CONTOUR (FT, AMSL)
	GROUNDWATER FLOW DIRECTION
	HYDRAULIC GRADIENT

*GROUNDWATER ELEVATIONS WERE NOT USED IN THE CREATION OF THE GROUNDWATER CONTOURS. FT, AMSL = FEET, ABOVE MEAN SEA LEVEL

NOTES:

1. BASE MAP PROVIDED BY DRAPER ADEN AND ASSOCIATES.
2. GROUNDWATER CONTOURS WERE GENERATED USING THE SURFER SURFACE MAPPING SYSTEM SOFTWARE VIA THE KRIGING GRIDDING METHOD AND ALTERED UTILIZING PROFESSIONAL JUDGEMENT.
3. GROUNDWATER MONITORING WELL NETWORKS FOR THE PERMIT #588 AND #498 LANDFILLS ARE PROVIDED BELOW.
 - PERMIT #498 BACKGROUND: MW-101, MW-104A, AND MW-104B
 - PERMIT #588 BACKGROUND: MW-106B AND MW-206A
 - PERMIT #588 BACKGROUND AND PERMIT #498 SENTINEL: MW-206B
 - PERMIT #588 BACKGROUND AND PERMIT #498 COMPLIANCE: MW-106A
 - PERMIT #588 BACKGROUND AND PERMIT #498 COMPLIANCE/SENTINEL: MW-205B
 - PERMIT #498 COMPLIANCE/PERFORMANCE: MW-108
 - PERMIT #588 COMPLIANCE AND PERMIT #498 SENTINEL: MW-210A, MW-210B, MW-211A, AND MW-211B
 - PERMIT #498 PERFORMANCE: GC OUTFALL (AKA. PERMIT #588 GRADIENT CONTROL SYSTEM)
 - PERMIT #498 SENTINEL: MW-105A, MW-105B, AND MW-109

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NO.	REVISION	DATE

SHEET TITLE: GROUNDWATER CONTOUR MAP (LENOIR) - MAY 24, 2022

PROJECT TITLE: ANNUAL GROUNDWATER MONITORING REPORT

CLIENT: CITY OF BRISTOL
SANITARY LANDFILL
BRISTOL, VA
SOLID WASTE PERMIT #498

SCS ENGINEERS
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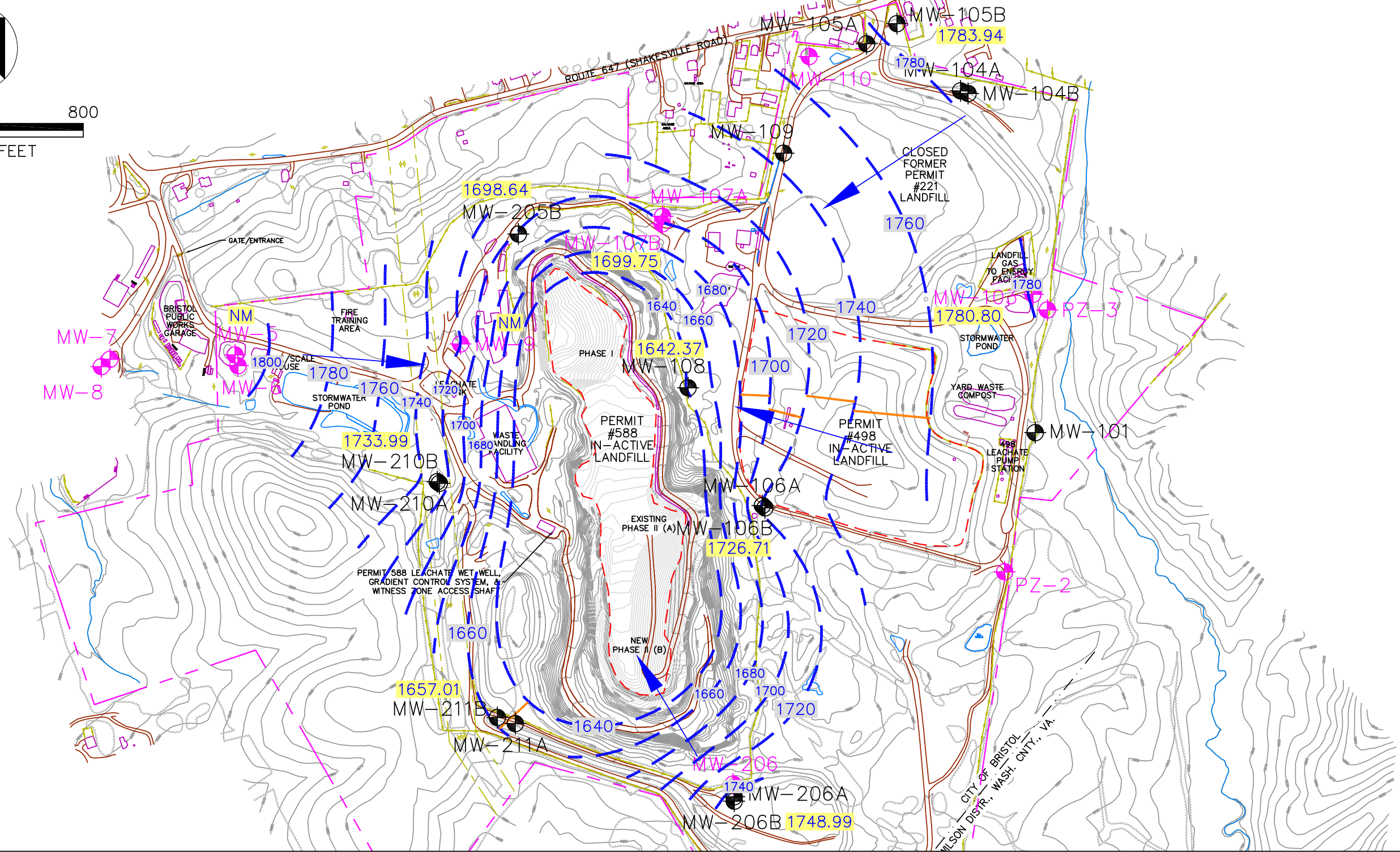
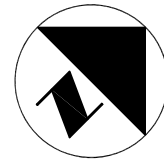
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DWN. BY: LAH
CHK. BY: CSS
APP. BY: CSS

CADD FILE: SITE MAP

DATE: 04/27/23

SCALE: AS SHOWN

DRAWING NO.



LEGEND

	TOPOGRAPHIC CONTOUR (FT, AMSL)
	FACILITY BOUNDARY
	LIMIT OF WASTE
	PERMITTED GROUNDWATER MONITORING WELL
	ADDITIONAL GROUNDWATER MONITORING WELL
	GROUNDWATER ELEVATION (FT, AMSL)
	GROUNDWATER CONTOUR (FT, AMSL)
	GROUNDWATER FLOW DIRECTION
	HYDRAULIC GRADIENT

FT, AMSL = FEET, ABOVE MEAN SEA LEVEL

NOTES:

1. BASE MAP PROVIDED BY DRAPER ADEN AND ASSOCIATES.
2. GROUNDWATER ELEVATIONS WERE MEASURED ON MAY 24, 2022.
3. GROUNDWATER CONTOURS WERE GENERATED USING THE SURFER SURFACE MAPPING SYSTEM SOFTWARE VIA THE KRIGING GRIDDING METHOD AND ALTERED UTILIZING PROFESSIONAL JUDGEMENT.
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 - PERMIT #588 BACKGROUND AND PERMIT #498 SENTINEL: MW-206B
 - PERMIT #588 BACKGROUND AND PERMIT #498 COMPLIANCE: MW-106A
 - PERMIT #588 BACKGROUND AND PERMIT #498 COMPLIANCE/SENTINEL: MW-205B
 - PERMIT #498 COMPLIANCE/PERFORMANCE: MW-108
 - PERMIT #588 COMPLIANCE AND PERMIT #498 SENTINEL: MW-210A, MW210B, MW211A, AND MW-211B
 - PERMIT #498 PERFORMANCE: GC OUTFALL (AKA. GRADIENT CONTROL SYSTEM)
 - PERMIT #498 SENTINEL: MW-105A, MW-105B, AND MW-109

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NO.	REVISION	DATE

SHEET TITLE: GROUNDWATER CONTOUR MAP (KNOX) - MAY 24, 2022

PROJECT TITLE: ANNUAL GROUNDWATER MONITORING REPORT

CLIENT: CITY OF BRISTOL SANITARY LANDFILL BRISTOL, VA SOLID WASTE PERMIT #498

SCS ENGINEERS
 STEARNS, CONRAD AND SCHMIDT CONSULTING ENGINEERS, INC.
 11260 ROGER BACON DRIVE - RESTON, VA 20190
 PH. (703) 471-6150 FAX: (703) 471-4876

PROJ. NO.: 02218208.07
 DATE: 04/27/23

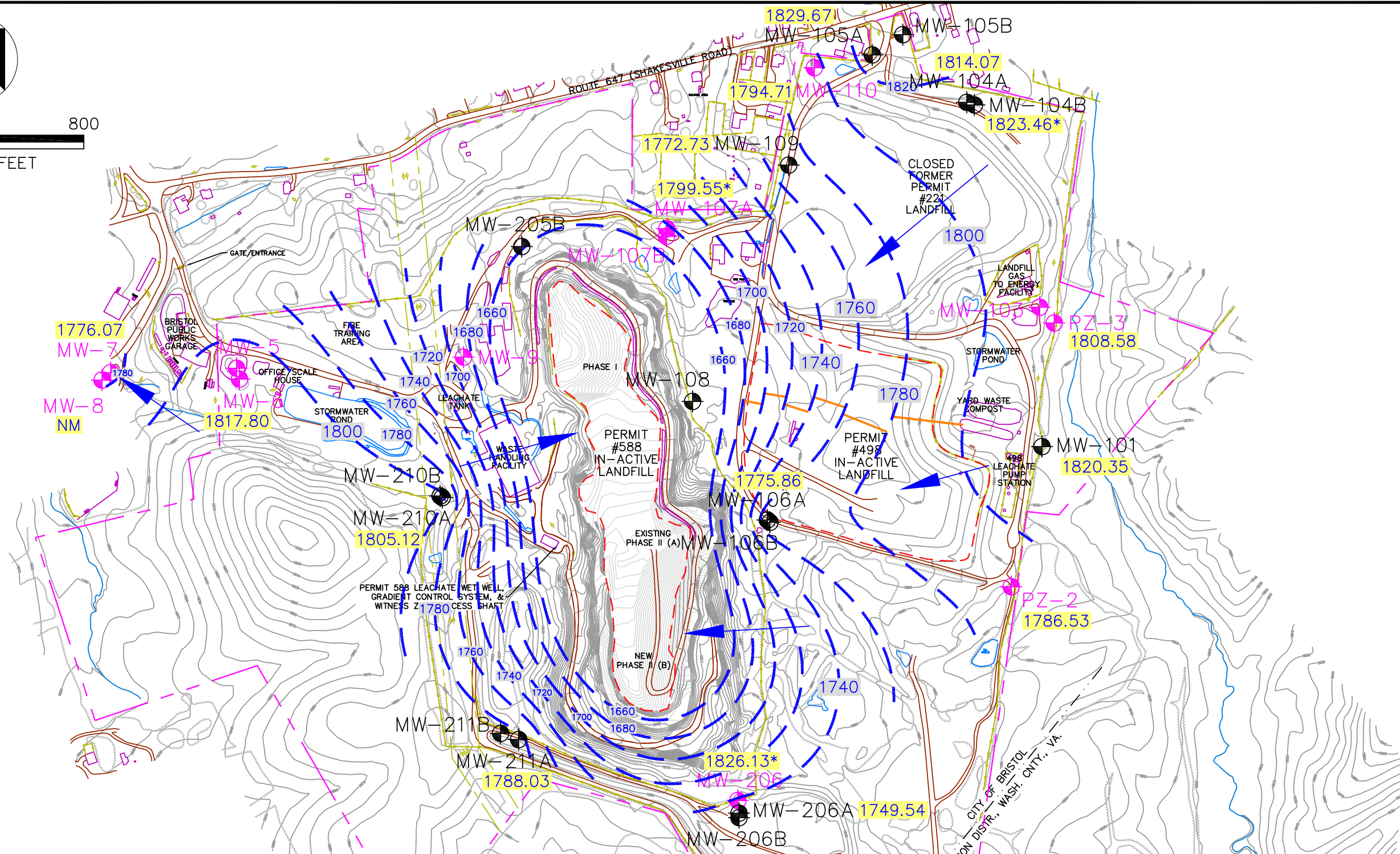
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CADD FILE: SITE MAP

DATE: 04/27/23

SCALE: AS SHOWN

DRAWING NO. 4 of 6



LEGEND

- TOPOGRAPHIC CONTOUR (FT, AMSL)
- FACILITY BOUNDARY
- LIMIT OF WASTE
- PERMITTED GROUNDWATER MONITORING WELL
- ADDITIONAL GROUNDWATER MONITORING WELL
- GROUNDWATER ELEVATION (FT, AMSL)
- GROUNDWATER CONTOUR (FT, AMSL)
- GROUNDWATER FLOW DIRECTION
- HYDRAULIC GRADIENT

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 - PERMIT #588 BACKGROUND AND PERMIT #498 COMPLIANCE: MW-106A
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 - PERMIT #498 COMPLIANCE/PERFORMANCE: MW-108
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 - PERMIT #498 PERFORMANCE: GC OUTFALL (AKA. GRADIENT CONTROL SYSTEM)
 - PERMIT #498 SENTINEL: MW-105A, MW-105B, AND MW-109

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NO.	REVISION	DATE

SHEET TITLE: GROUNDWATER CONTOUR MAP (LENOIR) - DECEMBER 5, 2022

PROJECT TITLE: ANNUAL GROUNDWATER MONITORING REPORT

CLIENT: CITY OF BRISTOL
SANITARY LANDFILL
BRISTOL, VA
SOLID WASTE PERMIT #498

SCS ENGINEERS
STEARNS, CONRAD AND SCHMIDT
CONSULTING ENGINEERS, INC.
11260 ROGER BACON DRIVE - RESTON, VA 20190
PH: (703) 471-6150 FAX: (703) 471-4876

PROJ. NO.: 02218208.07
DATE: 04/27/23

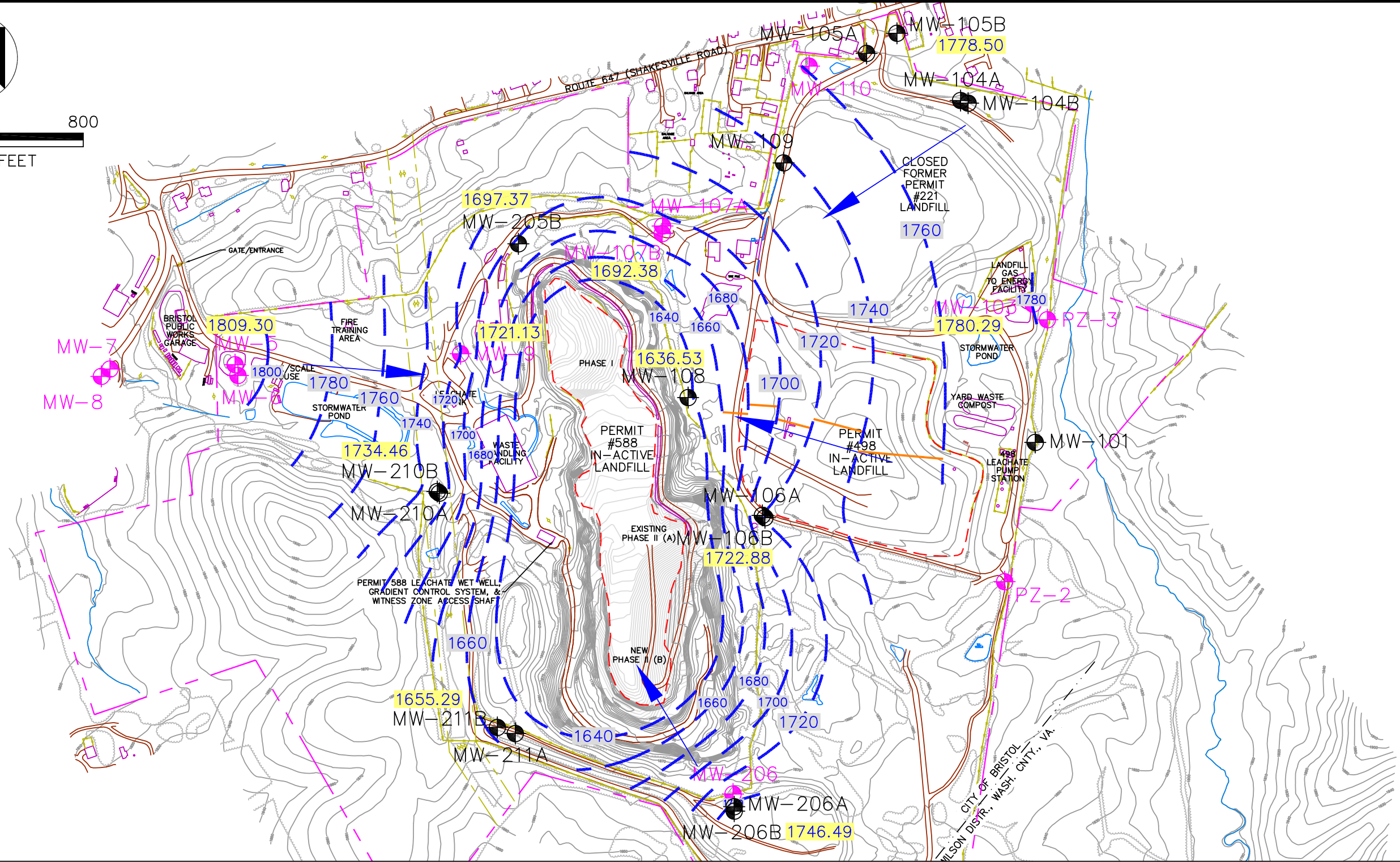
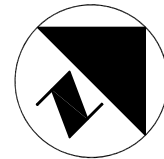
DRAWN BY: LAH
CHECKED BY: CJS

CADD FILE: SITE MAP

DATE: 04/27/23

SCALE: AS SHOWN

DRAWING NO. 5 of 6



LEGEND

- TOPOGRAPHIC CONTOUR (FT, AMSL)
- FACILITY BOUNDARY
- LIMIT OF WASTE
- PERMITTED GROUNDWATER MONITORING WELL
- ADDITIONAL GROUNDWATER MONITORING WELL
- GROUNDWATER ELEVATION (FT, AMSL)
- GROUNDWATER CONTOUR (FT, AMSL)
- GROUNDWATER FLOW DIRECTION
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NO.	REVISION	DATE

SHEET TITLE	GROUNDWATER CONTOUR MAP (KNOX) - DECEMBER 5, 2022
PROJECT TITLE	ANNUAL GROUNDWATER MONITORING REPORT


CLIENT

CITY OF BRISTOL
SANITARY LANDFILL
 BRISTOL, VA
 SOLID WASTE PERMIT #498

SCS ENGINEERS
 STEARNS, CONRAD AND SCHMIDT
 CONSULTING ENGINEERS, INC.
 11260 ROGER BACON DRIVE - RESTON, VA 20190
 PH. (703) 471-6150 FAX. (703) 471-4876

PROJ. NO. 02218208.07
 DATE: 04/27/23
 DRAWN BY: LAH
 CHECK BY: CSB
 APP. BY: [Signature]

CADD FILE:	SITE MAP
DATE:	04/27/23
SCALE:	AS SHOWN
DRAWING NO.	6 of 6



Appendix A
Historical Groundwater Elevation Data

Historical Groundwater Elevations

Date	MW-101	MW-103	MW-104A	MW-104B	MW-105A	MW-105B	MW-106A
5/2/2011	1819.92	1793.22	1824.57	1831.2	1839.65	1799.83	1771.35
11/9/2011	1816.75	1780.59	1812.67	1821.12	1826.29	1775.82	1768.64
5/16/2012	1820.49	1785.67	1820.15	1828.44	1835.01	1786.18	1770
11/13/2012	1818.64	1782.54	1814.9	1823.81	1828.97	1776.6	1767.92
5/13/2013	1819.87	1786.9	1824.32	1831.28	1839.1	1794.91	1770.15
11/4/2013	1814.98	1780.07	1815.74	1824.81	1830.63	1777.86	1768.16
5/5/2014	1819.45	1783.35	1819.25	1828.14	1833.92	1783.13	1769.99
10/28/2014	1819.64	1784.06	1814.5	1822.69	1829.21	1780.66	1767.89
4/27/2015	1821.32	1788.88	1824.03	1831.11	1840.7	1797.94	1771.56
10/26/2015	1821.02	1781.95	1815.12	1824.19	1830.97	1777.13	1770.32
5/2/2016	1822.47	1784.08	1820.64	1828.83	1834.67	1786.01	1772.86
11/1/2016	1814.79	1778.8	1812.19	1821.38	1825.92	1771.4	1771.04
5/2/2017	1822.73	1785.68	1820.82	1829.15	1837.23	1794.78	1765.21
10/31/2017	1822.32	1804.45	1813.69	1822.71	1827.96	1777.39	1772.3
5/1/2018	1821.97	1802.04	1823.28	1831.03	1839.24	1797.14	1772.14
10/30/2018	1822.64	1783.41	1820.16	1828.55	1835.6	1787.59	1774.1
4/29/2019	1822.36	1801.34	1828.34	1834.44	1841.08	1803.56	1777.17
10/28/2019	1822.15	1779.49	1814.25	1823.52	1828.61	1779.62	1775.24
5/4/2020	1822.24	1809.14	1831.37	1836.77	1846.28	1807.75	1781.3
11/17/2020	1823.09	1784.93	1818.21	1827.5	1834.81	1788.21	1780.25
5/17/2021	1820.31	1783.17	1823.52	1830.8	1838.14	1792.74	1781.81
11/8/2021	1822.61	1781.46	1813.25	1822.55	1836.55	1778.26	1775.54
5/24/2022	1823.02	1780.8	1818.32	1827.24	1840.44	1783.94	1778.04
7/18/2022	1819.96	1780.04	1815.7	1825.3	1835.55	1780.75	1774.04
12/5/2022	1820.35	1780.29	1814.07	1823.46	1829.67	1778.5	1775.86

Historical Groundwater Elevations

Date	MW-106B	MW-107A	MW-107B	MW-108	MW-109	MW-110	MW-205B
5/2/2011	1731.38	1807.08	1715.07	1640.05	1800.07	1828.87	1704.23
11/9/2011	1714.98	1799.08	1688.98	1609.86	1768.51	1788.51	1689.89
5/16/2012	1721.96	1800.04	1700.83	1638.57	1786.17	1804.25	1693.2
11/13/2012	1717.82	1799.12	1691.68	1613.15	1772.64	1788.45	1690.56
5/13/2013	1727.01	1802.52	1709.48	1640.84	1795.55	1818.39	1696.57
11/4/2013	1720.91	1799.32	1694.02	1628.14	1774.98	1787.94	1689.25
5/5/2014	1721.11	1799.46	1698.44	1635.42	1782.87	1798.52	1692.88
10/28/2014	1724.52	1800.14	1693.3	1618.21	1777.03	1795.93	1692.68
4/27/2015	1732.49	1810	1713.33	1642.14	1798.21	1825.23	1706.34
10/26/2015	1718.32	1799.21	1691.27	1619.47	1775.28	1788.24	1688.01
5/2/2016	1721.81	1799.38	1698.71	1639.86	1784.04	1804.59	1693.64
11/1/2016	1715.48	1799.14	1687.75	1639.86	1765.41	1778.76	1688.42
5/2/2017	1730.69	1804.05	1707.49	1639.38	1791.19	1822.42	1716.35
10/31/2017	1721.9	1799.22	1689.55	1630.08	1769.83	1793.39	1692.17
5/1/2018	1733.3	1807.29	1713.62	1643.98	1796.66	1823.21	1708.74
10/30/2018	1728.4	1799.98	1700.72	1634.64	1786.96	1809.04	1697.57
4/29/2019	1735.08	1814.44	1720.75	1646.86	1799.09	1834.95	1716.7
10/28/2019	1723.2	1798.65	1691.44	1637.55	1773.64	1803.07	1695.19
5/4/2020	1737.42	1815.19	1720.96	1646.93	1806.13	1845.19	1719.94
11/17/2020	1730.78	1808.88	1716.86	1644.39	1785.47	1810.41	1705.49
5/17/2021	1733.58	1800.3	1719.99	1643.5	1792.63	1814.34	1699.7
11/8/2021	1723.27	1799.6	1720.9	1644.24	1774.24	1811.53	1695.59
5/24/2022	1726.71	1799.56	1699.75	1642.37	1781.93	1804.65	1698.64
7/18/2022	1724.99	1799.61	1695.99	1641.54	1778.62	1797.67	1697.91
12/5/2022	1722.88	1799.55	1692.38	1636.53	1772.73	1794.71	1697.37

Historical Groundwater Elevations

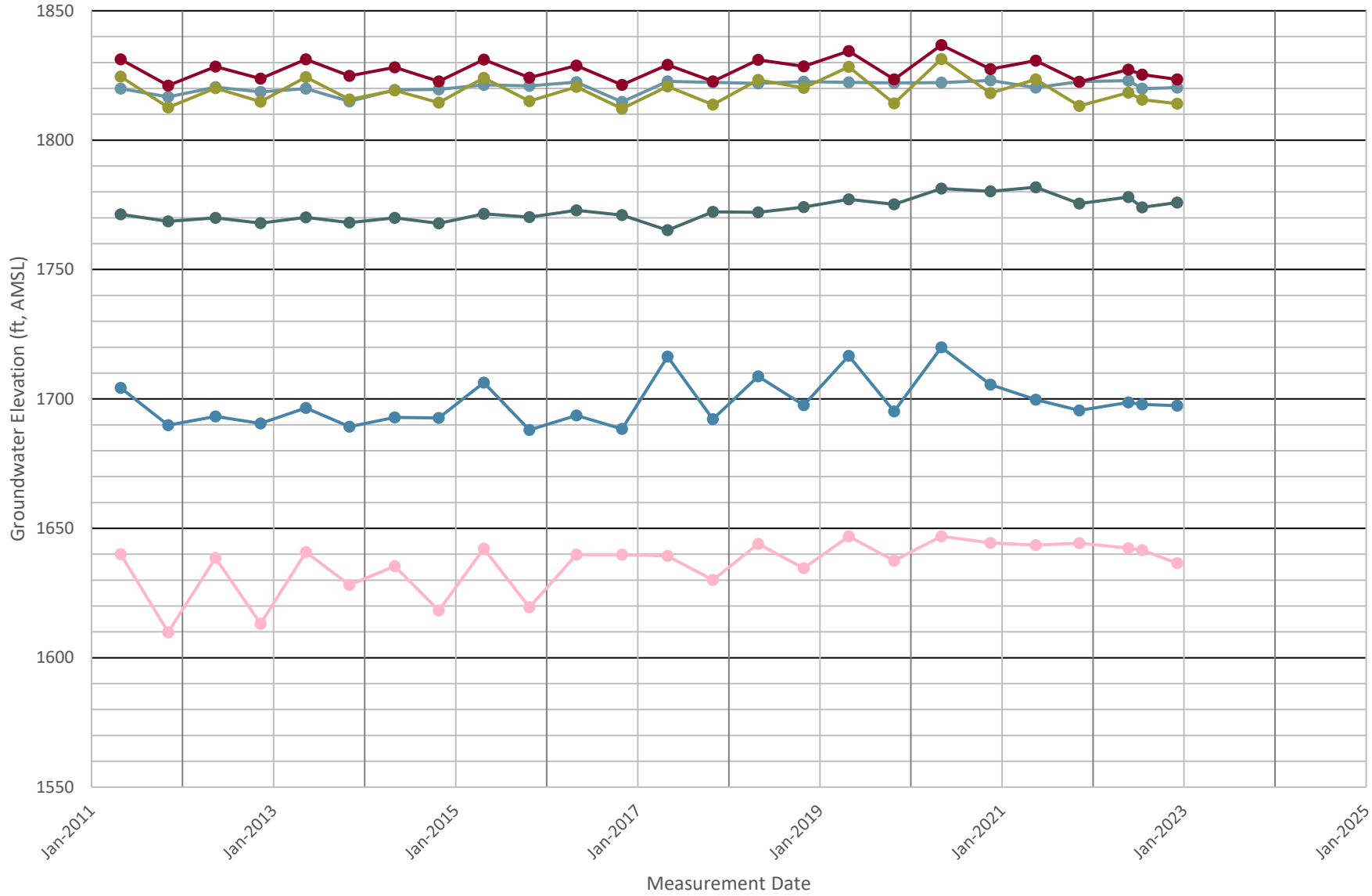
Date	MW-206	MW-206A	MW-206B	MW-210A	MW-210B	MW-211A	MW-211B
5/2/2011	1827.54	1730.92	1731.16	---	---	---	---
11/9/2011	1827.5	1730.79	1721.19	---	---	---	---
5/16/2012	1827.46	1731.9	1725.88	---	---	---	---
11/13/2012	1827.54	1729.64	1723.5	---	---	---	---
5/13/2013	1827.61	1732.74	1727.11	---	---	---	---
11/4/2013	1821.55	1728.81	1722.48	---	---	---	---
5/5/2014	1827.3	1731.05	1724.94	---	---	---	---
10/28/2014	1827.23	1729.85	1727.49	---	---	---	---
4/27/2015	1827.59	1731.77	1734.42	---	---	---	---
10/26/2015	1826.96	1727.78	1726.54	---	---	---	---
5/2/2016	---	1728.6	1728.14	1810.33	1732.2	---	---
11/1/2016	1823.57	1727.41	1725.5	1805.33	1726.76	---	---
5/2/2017	1828.05	1730.54	1736.47	1817.93	1746.77	---	---
10/31/2017	1827.26	1728.2	1728.5	1811.9	1733.56	---	---
5/1/2018	---	1730.72	1736.11	1815.66	1744.49	1694.07	1669.84
10/30/2018	1827.55	1729.63	1732.4	1812.55	1736.86	1793.31	1661.35
4/29/2019	1827.64	1736.93	1743.36	1815.1	1745.95	1795.18	1665.48
10/28/2019	1827.72	1733.03	1734.59	1808.77	1735.23	1789.58	1659.46
5/4/2020	1827.78	1762.08	1762.69	1814.81	1748.22	1797.07	1671.04
11/17/2020	1827.34	1759.87	1756.93	1809.98	1740.51	1794.7	1682.17
5/17/2021	1827.17	1760.62	1759.66	1804.48	1735.62	1793.48	1661.85
11/8/2021	1827.05	1742.48	1742.04	1717.3	1733.54	1788.15	1655.87
5/24/2022	1827.8	1751.34	1748.99	1803.82	1733.99	1790.47	1657.01
7/18/2022	1827.01	1747.46	1746.64	1804.88	1735.14	1789.02	1656.73
12/5/2022	1826.13	1749.54	1746.49	1805.12	1734.46	1788.03	1655.29


Historical Groundwater Elevations

Date	MW-5	MW-6	MW-7	MW-8	MW-9	PZ-2	PZ-3
5/2/2011	---	---	---	---	---	1793.78	1812
11/9/2011	---	---	---	---	---	1781.21	1803.59
5/16/2012	---	---	---	---	---	1787.7	1807.36
11/13/2012	---	---	---	---	---	1783.41	1806.02
5/13/2013	---	---	---	---	---	1792.11	1812.3
11/4/2013	---	---	---	---	---	1786.52	1804.57
5/5/2014	---	---	---	---	---	1787.45	1807.38
10/28/2014	---	---	---	---	---	1785.79	1806.99
4/27/2015	---	---	---	---	---	1792.57	1811.3
10/26/2015	---	---	---	---	---	1786.37	1807.34
5/2/2016	---	---	---	---	---	1790.08	1809.11
11/1/2016	---	---	---	---	---	1781.56	1804.31
5/2/2017	---	---	---	---	---	1791.79	---
10/31/2017	---	---	---	---	---	1787.14	1805.07
5/1/2018	---	---	---	---	---	1792.39	1810.81
10/30/2018	---	---	---	---	---	1791.91	1809.43
4/29/2019	---	---	---	---	---	1798.62	1806.58
10/28/2019	---	---	---	---	---	1790.93	1806.03
5/4/2020	---	---	---	---	---	1800.47	1813.39
11/17/2020	---	---	---	---	---	1794.89	1809.83
5/17/2021	---	---	---	---	---	1795.02	1807.94
11/8/2021	---	---	---	---	---	1788.91	1807.8
5/24/2022	---	---	---	---	---	1789.28	1807.76
7/18/2022	1809.73	1817.93	1775.71	1774.85	1721.04	1788.1	1806.84
12/5/2022	1809.3	1817.8	1776.07	1774.85	1721.13	1786.53	1808.58

Permit # 498 Groundwater Elevations (Compliance Wells)

MW-101 MW-104A MW-104B MW-106A MW-108 MW-205B





Appendix B

Groundwater Flow Rate Calculations

Groundwater Flow Rate Calculations

Lenoir Mosheim Limestone			
Porosity (unitless)			20%
Average Hydraulic Conductivity (ft/yr)			13
Contour Intervals (dH = 5 ft)	dL (ft)	Horizontal Hydraulic Gradient (ft/ft)	Groundwater Flow Rate (ft/yr)
May-2022			
1800 - 1780	252	0.079	5
1780 - 1760	165	0.121	8
1760 - 1740	118	0.169	11
1740 - 1720	89	0.224	15
1720 - 1700	81	0.248	16
1700 - 1680	70	0.287	19
December-2022			
1800 - 1780	260	0.077	5
1780 - 1760	174	0.115	7
1760 - 1740	121	0.165	11
1740 - 1720	92	0.218	14
1720 - 1700	81	0.245	16
1700 - 1680	71	0.282	18
Minimum		0.077	5
Maximum		0.287	19
Average		0.186	12
Knox			
Porosity (unitless)			10%
Average Hydraulic Conductivity (ft/yr)			17
Contour Intervals (dH = 5 ft)	dL (ft)	Horizontal Hydraulic Gradient (ft/ft)	Groundwater Flow Rate (ft/yr)
May-2022			
1760 - 1740	286	0.070	12
1740 - 1720	182	0.110	19
1720 - 1700	125	0.161	27
1700 - 1680	108	0.185	31
December-2022			
1760 - 1740	314	0.064	11
1740 - 1720	190	0.106	18
1720 - 1700	131	0.153	26
1700 - 1680	112	0.179	30
1680 - 1660	93	0.214	36
Minimum		0.064	11
Maximum		0.214	36
Average		0.138	23

dH = change in head (see groundwater contour lines shown on the Groundwater Contour Map)

dL = change in distance (see hydraulic gradient lines shown on the Groundwater Contour Map)

ft = feet

ft/ft = feet per foot

ft/yr = feet per year

Appendix C

Field Sheets and Chains-of-Custody

**SCS ENGINEERS
DAILY FIELD REPORT**

Project Name: City of Bristol Sanitary Landfill	Project Number: 02218208.07
Project Manager: J. Robb	Task: 1
Date: 5/24/2022	Labor Code: 99000
Vehicle: 15 & 21-F150	Field Personnel: M. Nguyen, L. Howard
Miles Billed: --	Travel Time: --

Weather: Overcast, mid 50's-70's

Labor	Hours	Equipment	Materials
1st Semi Groundwater Sampling	13.00	QED Controllers_Low & High Pressure, Coolers, Buckets, Spray Bottles, YSI Multi Meters+Flow Cells, Turbidity Meters, 300' & 500' Water Level Indicators, Heron Camera 500', Sample Pro Pump, Tubing, Generator, Tools	CO ₂ Tanks, Nitrogen Tanks, Paper towels, DI Water, Ice, Nitrile Gloves

Work Completed:

6:35 - Meet Logan, left Hotel, picked up breakfast
 6:45 - 7:00 - Get ice
 7:15 - Arrived at site, went to office meet Mike, drove around with Logan, picked up GW well key
 7:50 - 11:30 - Water level measurements
 12:27 - 13:05 - Minh_purged and sampled MW-206A
 13:16 - 14:32 - Logan_purged and sampled MW-105A
 14:15 - 15:05 - Minh_purged and sampled MW-104B
 15:23 - 16:49 - Logan_purged and sampled MW-104A
 16:16 - 17:06 - Minh_purged and sampled MW-210A
 17:47 - 18:45 - Logan_purged and sampled MW-109
 17:53 - 18:33 - Minh_purged and sampled MW-210B
 19:37 - Left site

Prepared By: M. Nguyen | **Review By:** J. Robb

**SCS ENGINEERS
DAILY FIELD REPORT**

Project Name: City of Bristol Sanitary Landfill		Project Number: 02218208.07	
		Task: 1	Labor Code: 99000
Project Manager: J. Robb		Field Personnel: M. Nguyen, L. Howard	
Date: 5/25/2022	Vehicle: 15 & 21-F150	Miles Billed: --	Travel Time: --
Weather: Sunny in the morning, overcast in the afternoon, mid 80's			
Labor	Hours	Equipment	Materials
1st Semi Groundwater Sampling	13.50	QED Controllers_Low & High Pressure, Coolers, Buckets, Spray Bottles, YSI Multi Meters+Flow Cells, Turbidity Meters, 300' & 500' Water Level Indicators, Heron Camera 500', Sample Pro Pump, Tubing, Generator, Tools	CO ₂ Tanks, Nitrogen Tanks, Paper towels, DI Water, Ice, Nitrile Gloves
Work Completed:			
6:33 - Meet Logan, left Hotel			
6:40 - 6:55 - Bought ice, left Walmart, picked up breakfast, stopped for gas			
7:15 - Arrived at site			
7:38 - 8:53 - Minh_purged and sampled MW-105B			
7:35 - 8:41 - Logan_purged and sampled MW-101			
10:14 - 11:41 - Minh_purged and sampled MW-106B			
10:10 - 11:16 - Logan_purged and sampled MW-106A			
packaged samples coolers, Logan meet the courier, left site to Hotel picked up MP10H/HU			
tested high pressure controller at MW-108, ran out of Nitrogen gas in 20 min			
stopped purging			
13:29 - 14:24 - Minh_purged and sampled MW-205B/MS/MSD			
Done at 17:30, went to MW-206B, attempted to purged well, need high pressure controller			
14:30-16:00 -Logan attempt to sample condensate at Flare, document flare station (
17:18 - 18:09 - Logan_purged and sampled MW-211A			
18:15 - Wet Well Sampling: 2 hrs 02218208.05 T6			
19:10 - Minh & Logan _ grab Leachate sample			
19:25 - Minh & Logan _grab Leachate #2 sample			
cleaned equipment			
20:16 - Left site - dinner			
21:10 - 21:30 - Bought ice at Walmart pack sample coolers			
Prepared By: M. Nguyen		Review By: J. Robb	

**SCS ENGINEERS
DAILY FIELD REPORT**

Project Name: City of Bristol Sanitary Landfill	Project Number: 02218208.07
Project Manager: J. Robb	Task: 1 Labor Code: 99000
Date: 5/26/2022 Vehicle: 15 & 21-F150	Field Personnel: M. Nguyen, L. Howard
Miles Billed: --	Travel Time: 4.50

Weather: Cloudy in the morning, heavy rain in the afternoon

Labor	Hours	Equipment	Materials
1st Semi Groundwater Sampling	12.50	QED Controllers_Low & High Pressure, Coolers, Buckets, Spray Bottles, YSI Multi Meters+Flow Cells, Turbidity Meters, 300' & 500' Water Level Indicators, Heron Camera 500', Sample Pro Pump, Tubing, Generator, Tools	CO ₂ Tanks, Nitrogen Tanks, Paper towels, DI Water, Ice, Nitrile Gloves

Work Completed:

6:10 Logan checked out Hotel, went to Home Depot for well cap high pressure adaptor
 went to Air Gas in Bristol rented the 330 CU FT Nitrogen tank

7:05 - 7:20 - Minh, get ice at Walmart

8:15 - 8:30 - Meet Logan at Tractor supply, look for adaptor

8:45 - Arrived at site, went to MW-108

8:51 - 9:16 - MW-108 heavy sediment, clogged check valve every few pumps, water draining back to the inside. Bladder also collapsed, temporary fixed bladder

9:30 - 11:30 - Trouble shoot MW-108, pump is not working, left to MW-206B

11:55 - 12:25 - Minh_purged and sampled MW-206B
 Logan went to meet Mike for GC Outfall
 help Logan finished up GC Outfall sampling

14:55 - left site, Logan exchanged 330CU FT nitrogen tank (tank was empty after MW-206B sampling)

14:55 - Minh went out picked up lunch

15:30 - 17:20 - Trouble shoot pump again, heavy sediment, pulled pump 10ft from the bottom

17:25 - 19:10 - Purged and sampled MW-108 / DUPLICATE
 Logan went to camera & took DTB of some of the wells

21:05 - Logan & Minh_Left site, stopped for gas, picked up dinner

01:30 - Minh_Arrived home

Prepared By: M. Nguyen **Review By:** J. Robb

Groundwater Level Measurement Log

SCS Engineers
296 Victory Road
Winchester, Virginia 22602
(540) 662-7097

Project Name: City of Bristol Sanitary Landfill Project Numl 02218208.07

Date : 5/24/22 Task: 1

Well ID	Time	Depth to Water (ft)	Depth to Bottom Measured 052422 (ft)	Depth to Bottom Before (ft)	Water Column Thickness (ft)	Top of Casing Elevation (ft, AMSL)	Groundwater Elevation (ft, AMSL)	P V C	Remarks
MW-101	9:16	3.15	--	110.50	107.35	1826.17	1823.02	6"	
MW-103	9:23	70.45	322.40	321.00	251.95	1851.25	1780.80	4"	
MW-104A	10:19	40.25	104.65	104.50	64.40	1858.57	1818.32	4"	
MW-104B	10:16	29.39	78.28	78.50	48.89	1856.63	1827.24	4"	
MW-105A	10:00	42.06	134.15	134.20	92.09	1882.50	1840.44	4"	
MW-105B	10:05	106.56	383.10	382.70	276.54	1890.50	1783.94	4"	
MW-106A	8:24	146.24	199.50	199.50	53.26	1924.28	1778.04	4"	
MW-106B	8:26	197.60	419.13	418.20	221.53	1924.31	1726.71	2"	
MW-107A	8:06	113.94	121.60	119.80	7.66	1913.50	1799.56	4"	
MW-107B	8:14	216.07	382.00	374.40	165.93	1915.82	1699.75	6"	
MW-108	8:39	303.13	388.50	388.20	85.37	1945.50	1642.37	4"	
MW-109	9:36	129.06	248.25	246.80	119.19	1910.99	1781.93	6"	
MW-110	9:46	77.18	206.23	--	129.05	1881.83	1804.65	2"	
MW-205B	7:58	181.76	345.30	343.00	163.54	1880.40	1698.64	6"	
MW-206	8:56	81.40	--	165.00	83.60	1909.20	1827.80	6"	
MW-206A	9:02	159.35	--	240.30	80.95	1910.69	1751.34	4"	
MW-206B	8:57	160.61	353.18	357.80	192.57	1909.60	1748.99	4"	
MW-210A	10:58	37.96	149.47	150.00	111.51	1841.78	1803.82	2"	
MW-210B	10:49	107.09	362.18	360.00	255.09	1841.08	1733.99	4"	
MW-211A	11:03	122.16	218.91	215.00	96.75	1912.63	1790.47	4"	
MW-211B	11:20	247.28	448.61	447.00	201.33	1904.29	1657.01	4"	
PZ-2	9:12	60.53	105.38	108.80	44.85	1849.81	1789.28	4"	
PZ-3	9:27	24.09	104.03	105.00	79.94	1831.85	1807.76	4"	

Field Personnel M. Nguyen, L. Howard Checked By: K. Starks/J. Robb

<h2 style="text-align: center; margin: 0;">Well Sampling / MicroPurge Log</h2>	SCS ENGINEERS 296 Victory Road Winchester, Virginia 22602 (540) 662-7097
--------------------------------------------------------------------------------	------------------------------------------------------------------------------------------

Project Name: City of Bristol Sanitary Landfill	Job Number: 02218208.07
Well Number: MW-101	Date: <u>052522</u>
Well Diameter (in): <u>2 6" open-B?</u>	1 Well Volume (gal) = (?gal x 3.7854) : <u>135.22 2.51287</u>
Total Well Depth (ft): 95.20	QED Controller Settings: <u>60 2 25/5</u>
Depth to Pump (ft): <u>—</u>	Purging Time Initiated: <u>735</u>
Depth to Water (ft): <u>3.15</u>	Purging Time Completed: <u>840</u>
Water Column Thickness (ft): <u>92.05</u>	Total Gallons Purged: <u>7.5</u>

WELL PURGING RECORD

Time	Volume Purged (Litters)	Temperature (°C)	pH (s.u.)	Specific Conductance (uS/cm)	ORP (mV)	D.O (mg/L)	Turbidity (NTU)	Comments (water color, odor, sediment, cloudy, etc.)
740	0.7	15.0	6.47	733	-40.2	1.27	71000	<i>Noddy brown</i>
745	1.2	15.0	6.46	7062	-43.7	0.91	71000	
750	1.7	15.0	6.45	615.1	-39.4	0.41	234.1	<i>cloudy flow cell</i>
755	2.2	15.0	6.45	601.1	-42.5	0.26	208.9	<i>floc. sediment</i>
800	2.7	15.0	6.45	591.8	-43.8	0.23	217.9	
805	3.2	15.0	6.46	586.2	-45.5	0.22	187.2	
810	3.7	15.0	6.46	581.5	-43.5	0.23	192.8	
839	6.5	15.0	6.46	576.1	-55.2	0.17	182.9	<i>Talk to LF</i>
835	7.0	15.1	6.46	574.8	-56.8	0.16	192.5	<i>Manager</i>
840	7.5	15.0	6.45	572.6	-58.0	0.15	143.6	
Stabilization Range		±10%	±10%	±10%	--	±10%	--	Purge Rate ≤ 100 mL/min

GROUNDWATER SAMPLING RECORD

Sample Number	Collection Time	Parameter	Container	Preservative
<i>MW-101</i>	<i>gwl</i>	T 3.1 Col B VOCs 8260	3 - 40 mL Voa	HCl
		T 3.1 Col B VOCs 8011	2 - 60 mL Voa	HCl
		T 3.1 Col B Cyanide	1 - 250 mL plastic	NaOH
		T 3.1 Col B Herbicide, PCB	<u>2#</u> - 1L Amber	None
		T 3.1 Col B Pesticide, SVOCs	2 - 1L Amber	None
		T 3.1 Col B Sulfide	1 - 250m L plastic	NaOH + ZnAC
		T 3.1 Col B Metals	1 - 500 mL plastic	HNO3

Samples Shipped By: Courier Laboratory: Enthalpy Analytical
 Sampler(s): C. Howard Checked By: J. Robb

Well Sampling / MicroPurge Log

SCS ENGINEERS
 296 Victory Road
 Winchester, Virginia 22602
 (540) 662-7097

Project Name:	City of Bristol Sanitary Landfill	Job Number:	02218208.07
Well Number:	MW-104A	Date:	05 24 22
Well Diameter (in):	4"	1 Well Volume (gal) = (?gal x 3.7854) :	159.2
Total Well Depth (ft):	104.50 GS	QED Controller Settings:	125 2 25/2
Depth to Pump (ft):	-	Purging Time Initiated:	1523
Depth to Water (ft):	40.25	Purging Time Completed:	1648
Water Column Thickness (ft):	64.4	Total Gallons Purged:	8.5 L

WELL PURGING RECORD

Time	Volume Purged (Liters)	Temperature (°C)	pH (s.u.)	Specific Conductance (uS/cm)	ORP (mV)	D.O (mg/L)	Turbidity (NTU)	Comments (water color, odor, sediment, cloudy, etc.)
1528	0.5	14.5	6.14	1105	-27.0	6.24	6.06	clear no odor
1533	1.0	14.4	6.20	1080	-39.7	5.49	6.74	
1538	1.5	14.4	6.21	1073	-44.0	5.03	7.46	
1543	2.0	14.3	6.21	1064	-48.1	4.63	7.69	
1548	2.5	14.2	6.20	1048	-52.4	3.31	7.07	
1553	3.0	14.1	6.20	1046	-54.3	2.69	7.45	
1558	3.5	14.1	6.20	1046	-56.0	2.46	7.30	
1603	4.0	14.1	6.20	1049	-56.8	1.93	7.51	
1608	4.5	14.2	6.20	1052	-57.2	1.66	7.48	
1613	5.0	14.2	6.19	1058	-57.2	1.56	7.98	
1618	5.5	14.2	6.18	1067	-56.7	1.40	7.43	
1623	6.0	14.3	6.16	1080	-56.3	1.24	7.82	
1628	6.5	14.7	6.17	1090	-56.0	1.08	7.64	
1633	7.0	14.3	6.09	1096	-55.3	0.97	7.89	
1638	7.5	14.3	6.07	1107	-54.8	0.89	-	
1643	8.0	14.4	6.06	1118	-53.7	0.84	8.35	
1648	8.5	14.3	6.04	1126	-53.2	0.81	8.31	
Stabilization Range		±10%	±10%	±10%	--	±10%	--	Purge Rate < 100 mL/min

GROUNDWATER SAMPLING RECORD

Sample Number	Collection Time	Parameter	Container	Preservative
MW-104A 104A	1549	T 3.1 Col B VOCs 8260	3 - 40 mL Voa	HCl
		T 3.1 Col B VOCs 8011	2 - 60 mL Voa	HCl
		T 3.1 Col B Cyanide	1 - 250 mL plastic	NaOH
		T 3.1 Col B Herbicide, PCB	2 - 1L Amber	None
		T 3.1 Col B Pesticide, SVOCs	2 - 1L Amber	None
		T 3.1 Col B Sulfide	1 - 250m L plastic	NaOH + ZnAC
		T 3.1 Col B Metals	1 - 500 mL plastic	HNO3

Samples Shipped By: Courier Laboratory: Enthalpy Analytical
 Sampler(s): C. Hand Checked By: J. Robb

Well Sampling / MicroPurge Log

SCS ENGINEERS
 296 Victory Road
 Winchester, Virginia 22602
 (540) 662-7097

Project Name:	City of Bristol Sanitary Landfill	Job Number:	02218208.07
Well Number:	MW-104B	Date:	05/22/22
Well Diameter (in):	4"	1 Well Volume (gal) = (?gal x 3.7854) :	31.92 / 170.84
Total Well Depth (ft):	78.50 28	QED Controller Settings:	
Depth to Pump (ft):	N/A	Purging Time Initiated:	1415
Depth to Water (ft):	29.39	Purging Time Completed:	1500
Water Column Thickness (ft):	48.89	Total Gallons Purged:	LITERS : 3.8

WELL PURGING RECORD

Time	Volume Purged (Litters)	Temperature (°C)	pH (s.u.)	Specific Conductance (uS/cm)	ORP (mV)	D.O (mg/L)	Turbidity (NTU)	Comments (water color, odor, sediment, cloudy, etc.)
1420	.5	14.4	6.60	1067	-38.8	1.76	2.21	CLEAR NO MILK
1425	1.0	14.5	6.59	1067	-119.3	1.05	5.43	ODOR, floating
1430	1.40	14.5	6.61	1085	-143.3	0.91	7.77	small black
1435	1.80	14.8	6.62	1091	-157.9	0.83	4.93	particles
1440	2.2	14.9	6.62	1097	-165.9	0.77	5.42	
1445	2.6	14.8	6.61	1103	-171.2	0.70	5.88	
1450	3.0	15.0	6.61	1103	-174.8	0.65	6.03	
1455	3.4	15.0	6.61	1106	-176.8	0.63	5.15	
1500	3.8	15.1	6.61	1107	-178.6	0.61	5.05	
		✓	✓	✓		✓		
Stabilization Range		±10%	±10%	±10%	--	±10%	--	Purge Rate < 100 mL/min

GROUNDWATER SAMPLING RECORD

Sample Number	Collection Time	Parameter	Container	Preservative
MW-104B	1505	T 3.1 Col B VOCs 8260	3 - 40 mL Voa	HCl
		T 3.1 Col B VOCs 8011	2 - 60 mL Voa	HCl
		T 3.1 Col B Cyanide	1 - 250 mL plastic	NaOH
		T 3.1 Col B Herbicide, PCB	1 - 1L Amber	None
		T 3.1 Col B Pesticide, SVOCs	2 - 1L Amber	None
		T 3.1 Col B Sulfide	1 - 250m L plastic	NaOH + ZnAC
		T 3.1 Col B Metals	1 - 500 mL plastic	HNO3

Samples Shipped By: Courier Laboratory: Enthalpy Analytical
 Sampler(s): MW Checked By: J. Robb

Well Sampling / MicroPurge Log

SCS ENGINEERS
 296 Victory Road
 Winchester, Virginia 22602
 (540) 662-7097

Project Name:	City of Bristol Sanitary Landfill	Job Number:	02218208.07
Well Number:	MW-106A	Date:	052522
Well Diameter (in):	4"	1 Well Volume (gal) = (?gal x 3.7854):	34.78 gal = 131.6 L
Total Well Depth (ft):	199.50 ✓	QED Controller Settings:	—
Depth to Pump (ft):	—	Purging Time Initiated:	1010
Depth to Water (ft):	146.24	Purging Time Completed:	1115
Water Column Thickness (ft):	53.26	Total Gallons Purged:	6.5 L

WELL PURGING RECORD

Time	Volume Purged (Liters)	Temperature (°C)	pH (s.u.)	Specific Conductance (uS/cm)	ORP (mV)	D.O (mg/L)	Turbidity (NTU)	Comments (water color, odor, sediment, cloudy, etc.)
1015	0.5	17.1	7.45	687	39.2	7.68	21.28	clear
1020	1.0	16.9	7.38	728	40.7	7.17	1.50	no odor
1025	1.5	16.8	6.46	—	—	—	0.58	meter dead
1030	2.0	16.8	6.27	1139	-0.7	2.64	0.58	3.55
1035	2.5	16.7	6.26	1155	-10.1	1.67	1.72	
1040	3.0	17.2	6.62	—	—	—	—	Flaw cell
1045	3.5	17.3	6.27	1159	-17.7	1.30	4.36	Protoned
1050	4.0	17.1	6.25	1157	-19.2	1.19	2.25	
1055	4.5	17.0	6.25	1157	-20.2	1.13	1.85	
1100	5.0	17.0	6.18	1156	-20.8	1.05	1.31	
1105	5.5	16.9	6.25	1157	-22.0	0.94	1.02	
1110	6.0	16.9	6.25	1156	-22.4	0.92	1.56	
1115	6.5	16.7.0	6.21	1156	-22.8	1.90	0.83	
Stabilization Range		±10%	±10%	±10%	--	±10%	--	Purge Rate < 100 mL/min

GROUNDWATER SAMPLING RECORD

Sample Number	Collection Time	Parameter	Container	Preservative
MW-106A	1116	T 3.1 Col B VOCs 8260	3 - 40 mL Voa	HCl
		T 3.1 Col B VOCs 8011	2 - 60 mL Voa	HCl
		T 3.1 Col B Cyanide	1 - 250 mL plastic	NaOH
		T 3.1 Col B Herbicide, PCB	2A - 1L Amber	None
		T 3.1 Col B Pesticide, SVOCs	2 - 1L Amber	None
		T 3.1 Col B Sulfide	1 - 250m L plastic	NaOH + ZnAC
		T 3.1 Col B Metals	1 - 500 mL plastic	HNO3

Samples Shipped By: Courier Laboratory: Enthalpy Analytical
 Sampler(s): L. Howard Checked By: J. Robb

Well Sampling / MicroPurge Log

PAGE 1 OF 2

SCS ENGINEERS
 296 Victory Road
 Winchester, Virginia 22602
 (540) 662-7097

Project Name:	City of Bristol Sanitary Landfill	Job Number:	02218208.07
Well Number:	MW-108	Date:	052622
Well Diameter (in):	4"	1 Well Volume (gal) = (?gal x 3.7854):	51.63 195.45
Total Well Depth (ft):	388.20 50	QED Controller Settings:	195/60 psi 20/co
Depth to Pump (ft):	N/A	Purging Time Initiated:	1600 / 851 / 1630
Depth to Water (ft):	303.13	Purging Time Completed:	1805
Water Column Thickness (ft):	79.07	Total Gallons Purged:	11.0

WELL PURGING RECORD

Time	Volume Purged (Liters)	Temperature (°C)	pH (s.u.)	Specific Conductance (uS/cm)	ORP (mV)	D.O (mg/L)	Turbidity (NTU)	Comments (water color, odor, sediment, cloudy, etc.)
1627	2.5	19.0	6.81	920	53.6	6.27		orange cloudy
		fan	at	if	Nitrogen			
856	.5	18.5	6.45	1368	-4.2	3.38	176.3	
901	1.0	18.3	6.61	1406	-0.5	3.48	98.97	
906	1.5	18.5	6.55	1369	-10.6	2.39	181.5	
911	2.0	-	-	-	-	-	-	CRACKS
916	6.0	18.4	6.48	1394	-42.5	6.8	71100	orange
921		112.8	LEFT TO	206				
1725	7.0	18.7	7.14	1225	-9.8	5.24	71100	ORANGE
1730	7.5	18.3	6.78	1339	-3.7	4.22	↓	HEAVY SEDIMENT
1735	8.0	18.3	6.80	1316	1.5	4.35	↓	
1740	8.5	18.1	6.60	1276	11.3	2.67	↓	
1745	9.0	18.1	6.50	1330	-16.7	2.01	↓	
1750	9.5	18.1	6.44	1334	-20.3	1.68	198.4	
1755	10.0	18.1	6.44	1338	-13.9	1.47	99.21	
1800	10.5	18.1	6.43	1340	-13.6	1.48	95.32	388.5 DTB
Ferrous Iron = 5.50		mg/L @ (Time) = 1825		1825				
Stabilization Range		±10%	±10%	±10%	--	±10%	--	Purge Rate < 100 mL/min

GROUNDWATER SAMPLING RECORD (QA/QC/MS/MSD)

DUPLICATE

Sample Number	Collection Time	Parameter	Container	Preservative
MW-108	1810	T 3.1 Col B VOCs 8260	3 - 40 mL Voa	HCl
		T 3.1 Col B VOCs 8011	2 - 60 mL Voa	HCl
		T 3.1 Col B Cyanide	1 - 250 mL plastic	NaOH
		T 3.1 Col B Herbicide, PCB Pesticide, SVOCs	4 - 1L Amber	None
		T 3.1 Col B Sulfide	1 - 250m L plastic	NaOH + ZnAC
		Alkalinity & Chloride	1 - 500mL plastic	None
		Methane/Ethane/Ethene	3 - 40 mL Voa	HCl
		T 3.1 Col B Metals	1 - 500 mL plastic	HNO3

Samples Shipped By: Courier Laboratory: Enthalpy Analytical
 Sampler(s): W / LH Checked By: J. Robb

Well Sampling / MicroPurge Log

page 2 of 2 MP10 H/HU

SCS ENGINEERS
 296 Victory Road
 Winchester, Virginia 22602
 (540) 662-7097

Project Name: City of Bristol Sanitary Landfill	Job Number: 02218208.07
Well Number: MW-108	Date: 052622
Well Diameter (in): 4"	1 Well Volume (gal) = (?gal x 3.7854): 51.63 / 195.45
Total Well Depth (ft): 388.50	QED Controller Settings: 195 PSI 1CPM 40/20
Depth to Pump (ft): N/A	Purging Time Initiated: 1630
Depth to Water (ft): 303.13	Purging Time Completed: 1805
Water Column Thickness (ft): 79.07	Total Gallons Purged: 11.0

WELL PURGING RECORD

Time	Volume Purged (Liters)	Temperature (°C)	pH (s.u.)	Specific Conductance (uS/cm)	ORP (mV)	D.O (mg/L)	Turbidity (NTU)	Comments (water color, odor, sediment, cloudy, etc.)
1805	11.0	18.2	6.42	1339	-15.4	1.44	8279	

Ferrous Iron = 5.50 mg/L @ (Time) = 18285
 Stabilization Range ±10% ±10% ±10% -- ±10% -- Purge Rate < 100 mL/min

GROUNDWATER SAMPLING RECORD QA/QC 1 DUP

Sample Number	Collection Time	Parameter	Container	Preservative
MW-108 DUP	1810 1910	T 3.1 Col B VOCs 8260	3 - 40 mL Voa	HCl
		T 3.1 Col B VOCs 8011	2 - 60 mL Voa	HCl
		T 3.1 Col B Cyanide	1 - 250 mL plastic	NaOH
		T 3.1 Col B Herbicide, PCB Pesticide, SVOCs	4 - 1L Amber	None
		T 3.1 Col B Sulfide	1 - 250m L plastic	NaOH + ZnAC
		Alkalinity & Chloride	1 - 500mL plastic	None
		Methane/Ethane/Ethene	3 - 40 mL Voa	HCl
		T 3.1 Col B Metals	1 - 500 mL plastic	HNO3

Samples Shipped By: Courier Laboratory: Enthalpy Analytical
 Sampler(s): MW LH Checked By: J. Robb

Well Sampling / MicroPurge Log

SCS ENGINEERS
 296 Victory Road
 Winchester, Virginia 22602
 (540) 662-7097

Project Name:	City of Bristol Sanitary Landfill	Job Number:	02218208.07
Well Number:	MW-205B	Date:	052522
Well Diameter (in):	6"	1 Well Volume (gal) = (?gal x 3.7854):	237.02 / 897.23
Total Well Depth (ft):	343.00	QED Controller Settings:	255' 1CPM 44/16
Depth to Pump (ft):	N/A	Purging Time Initiated:	1329
Depth to Water (ft):	181.76	Purging Time Completed:	1419
Water Column Thickness (ft):	161.24 x 1.47	Total Gallons Purged:	5 LITERS:

WELL PURGING RECORD

Time	Volume Purged (Liters)	Temperature (°C)	pH (s.u.)	Specific Conductance (uS/cm)	ORP (mV)	D.O (mg/L)	Turbidity (NTU)	Comments (water color, odor, sediment, cloudy, etc.)
1334	.5	17.0	7.96	498.3	-47.2	7.58	0.32	CLEAR NO ODO
1339	1.0	17.4	7.78	513.9	-47.2	6.01	0.73	
1344	1.5	17.4	7.32	605.6	-49.9	3.70	0.82	
1349	2.0	17.4	7.25	651	-57.6	3.31	0.56	
1354	2.5	17.4	7.16	688	-68.6	2.34	0.39	
1359	3.0	17.3	7.12	718	-76.1	1.90	1.26	
1404	3.5	17.1	7.10	726	-81.1	1.50	3.22	
1409	4.0	17.1	7.08	730	-84.5	1.33	7.74	cloudy NO
1414	4.5	17.0	7.07	733	-86.1	1.28	8.51	ODOR
1419	5.0	17.1	7.07	734	-89.1	1.23	8.62	
		✓	✓	✓		✓		

Ferrous Iron = 1.51 mg/L @ (Time) = 1430
 Stabilization Range ±10% ±10% ±10% -- ±10% -- Purge Rate < 100 mL/min

GROUNDWATER SAMPLING RECORD/QA/QC/DUPLICATE MS/MSD

Sample Number	Collection Time	Parameter	Container	Preservative
MW-205B MS/MSD DUPLICATE	1424	T 3.1 Col B VOCs 8260	3 - 40 mL Voa	HCl
		T 3.1 Col B VOCs 8011	2 - 60 mL Voa	HCl
		T 3.1 Col B Cyanide	1 - 250 mL plastic	NaOH
		T 3.1 Col B Herbicide, PCB, Pesticide, SVOCs	4 - 1L Amber	None
		T 3.1 Col B Sulfide	1 - 250m L plastic	NaOH + ZnAC
		Alkalinity & Chloride	1 - 500mL plastic	None
		Methane/Ethane/Ethene	3 - 40 mL Voa	HCl
		T 3.1 Col B Metals	1 - 500 mL plastic	HNO3

Samples Shipped By: Courier Laboratory: Enthalpy Analytical
 Sampler(s): MW Checked By: J. Robb

CHAIN OF CUSTODY

COMPANY NAME: SCS Engineers	INVOICE TO: SCS Reston	Project Name: City of Bristol 1st Semi-Annual
CONTACT: Jennifer Robb	INVOICE CONTACT: Jennifer Robb	Site Name:
ADDRESS: 296 Victory Road, Winchester, VA 22602	INVOICE ADDRESS:	PROJECT NUMBER: 022182768.07 TI
PHONE #: (703) 471-6150	INVOICE PHONE #:	P.O. #:
FAX #: (703) 471-6676	EMAIL: jrobb@scsengineers.com	Pretreatment Program:

Is sample for compliance reporting? **YES** Va Is sample from a chlorinated supply? YES **NO** PWS I.D. #:

SAMPLER NAME (PRINT): **L. HOWARD**
M. NGUYEN SAMPLER SIGNATURE: *[Signature]* Turn Around Time: 10 Day(s)

Matrix Codes: WW=Waste Water GW=Ground Water DW=Drinking Water S=Soil/Solids OR=Organic A=Air WP=Wipe OT=Other

CLIENT SAMPLE I.D.	Grab	Composite	Field Filtered (Dissolved Metals)	Composite Start Date	Composite Start Time	Grab Date or Composite Stop Date	Grab Time or Composite Stop Time	Time Preserved	Matrix (See Codes)	Number of Containers	ANALYSIS / (PRESERVATIVE)						COMMENTS	
											VSWMR Table 3.1 B	VOC Table 3.1 B /EDB 8011	MEE	Chloride	Alkalinity	VSWMR TABLE 3.1 A		
1) MW-206 A	X					052422	1305		GW	6								
2) MW-104 B	X					↓	1505		GW	12	X							
3) MW-104 A	X					↓	1649		GW	12	X							
4) MW-101	X					052522	841		GW	12	X							
5) MW-106 B	X					↓	1141		GW	6					X			5.2°C
6) MW-106 A	X					↓	1116		GW	12	X							271
7)																		on ice
8)																		sealed
9)																		
10) TRIP BLANK	X					051922	1220		DI	6	X	X						

RECEIVED: <i>[Signature]</i> DATE / TIME: 1335	RECEIVED: LCN DATE / TIME: 052522 1202	QC Data Package	LAB USE ONLY	COOLER TEMP _____ °C
RECEIVED: LCN DATE / TIME: 052522 1202	RECEIVED: <i>[Signature]</i> DATE / TIME: 5/26/22 0800	Level I <input type="checkbox"/>	SCS-W	22E1388
RECEIVED: LCN DATE / TIME: 052522 1202	RECEIVED: <i>[Signature]</i> DATE / TIME: 5/26/22 0800	Level II <input checked="" type="checkbox"/>	1st Semi-Annual 2022	Recd: 05/26/2022 Due: 06/10/2022
RECEIVED: LCN DATE / TIME: 052522 1202	RECEIVED: <i>[Signature]</i> DATE / TIME: 5/26/22 0800	Level III <input type="checkbox"/>		
RECEIVED: LCN DATE / TIME: 052522 1202	RECEIVED: <i>[Signature]</i> DATE / TIME: 5/26/22 0800	Level IV <input type="checkbox"/>		

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Sample Preservation Log

Order ID 22E1388

Date Performed: 5/27/22

Analyst Performing Check: Mas for DLJ

Table with columns for Sample ID, Container ID, Metals, Cyanide, Sulfide, Ammonia, TKN, Phos, Tot, NO3+NO2, DRO, Pesticide, SVOC, CrVI, and Pas/VOC. Includes handwritten 'X' marks in various cells.

NaOH ID: _____ HNO3 ID: 2E01121 CrVI preserved date/time: _____
H2SO4 ID: _____ Na2S2O5 ID: _____ Buffer Sol'n ID: _____
HCL ID: _____ Na2SO3 ID: _____ 1N NaOH ID: _____
* pH must be adjusted between 8.3 - 9.7

Metals were received with pH = 3. HNO3 was added at 1105 on 27 May 2022 by DLJ in the Log-In room to bring pH= <2.

Sample Preservation Log

Order ID: 22E1388

Date Performed: 5/27/22

Analyst Performing Check: Mrs An DLJ

Sample ID	Container ID	Metals		Cyanide		Sulfide		Ammonia		TKN		Phos, Tot		NO3+NO2		DRO		Pesticide (8081/804/808) PCB DW only		BYOG (323/270/825)		CrVI * **		Pest/PCB (808)/BYOG(825)										
		pH as Received	Final pH	pH as Received	Final pH	pH as Received	Final pH	pH as Received	Final pH	pH as Received	Final pH	pH as Received	Final pH	pH as Received	Final pH	pH as Received	Final pH	Received Res. Cl	Final + Dr.	Received Res. Cl	Final + Dr.	Received pH	Final pH	pH as Received	Final pH	pH as Received	Final pH	pH as Received	Final pH					
		< 2	Other	> 12	Other	> 8	Other	< 1	Other	< 2	Other	< 2	Other	< 2	Other	< 2	Other	+	.	+	.			< 1	Other		Other		Other					
08	A			✓																														
08	F	✓																																
08	F																																	
08	H					✓																												
09	A			✓																														
09	E	✓																																
09	F																																	
09	H			✓																														
10	C	✓																																
11	A			✓																														
11	E	✓																																
11	F																																	
11	H			✓																														

NaOH ID: _____ HNO₃ ID: 2E01121
 H₂SO₄ ID: _____ Na₂S₂O₃ ID: _____
 HCL ID: _____ Na₂SO₃ ID: _____

CrVI preserved date/time: _____
 * pH must be adjusted between 9.3 - 9.7
 Buffer Soft ID: _____
 1N NaOH ID: _____

Metals were received with pH = 3. HNO₃ was added at 1105 on 27 May 2022 by DLJ in the Log-In room to bring pH = <2.

**W.Va only certifies DISS CrVI and not T CrVI as an approved analyte under 40CFR138 for waste water.

Certificate of Analysis

Client Name: SCS Engineers-Winchester
Client Site I.D.: City of Bristol 1st Semi-Annual 2022
Submitted To: Jennifer Robb

Date Issued: 7/12/2022 2:30:28PM

Laboratory Order ID: 22E1388

Sample Conditions Checklist

Samples Received at:	5.20°C
How were samples received?	Logistics Courier
Were Custody Seals used? If so, were they received intact?	Yes
Are the custody papers filled out completely and correctly?	Yes
Do all bottle labels agree with custody papers?	Yes
Is the temperature blank or representative sample within acceptable limits or received on ice, and recently taken?	Yes
Are all samples within holding time for requested laboratory tests?	Yes
Is a sufficient amount of sample provided to perform the tests included?	Yes
Are all samples in appropriate containers for the analyses requested?	Yes
Were volatile organic containers received?	Yes
Are all volatile organic and TOX containers free of headspace?	Yes
Is a trip blank provided for each VOC sample set? VOC sample sets include EPA8011, EPA504, EPA8260, EPA624, EPA8015 GRO, EPA8021, EPA524, and RSK-175.	Yes
Are all samples received appropriately preserved? Note that metals containers do not require field preservation but lab preservation may delay analysis.	Yes

CHAIN OF CUSTODY

COMPANY NAME: SCS Engineers	INVOICE TO: SCS Reston	Project Name: City of Bristol 1st Semi-Annual
CONTACT: Jennifer Robb	INVOICE CONTACT: Jennifer Robb	Site Name:
ADDRESS: 296 Victory Road, Winchester, VA 22602	INVOICE ADDRESS:	PROJECT NUMBER: 02218208.07T1
PHONE #: (703) 471-6150	INVOICE PHONE #:	P.O. #:
FAX #: (703) 471-6676	EMAIL: jrobb@scsengineers.com	Pretreatment Program:

Is sample for compliance reporting? YES Va
Is sample from a chlorinated supply? YES NO

SAMPLER NAME (PRINT): L. HOWARD
M. NGUYEN
SAMPLER SIGNATURE: [Signature]

PWS I.D. #: _____
Turn Around Time: 10 Day(s)

Matrix Codes: WW=Waste Water GW=Ground Water DW=Drinking Water S=Soil/Solids OR=Organic A=Air WP=Wipe OT=Other

CLIENT SAMPLE I.D.	Grab	Composite	Field Filtered (Dissolved Metals)	Composite Start Date	Composite Start Time	Grab Date or Composite Stop Date	Grab Time or Composite Stop Time	Time Preserved	Matrix (See Codes)	Number of Containers	ANALYSIS / (PRESERVATIVE)							COMMENTS
											As and Co 6020	Hg	Bis (2-ethylhexyl) phthalate 1,1-Dichloroethane, Benzene, and Vinyl Chloride	MEE	Chloride	Alkalinity	VSWNR TABLE 3.1A	
1) MW-105 A	X				052422	1432		GW	10	X	X	X	X	X	X			
2) MW-210 A	X				↓	1706		GW	12		X	X	X	X	X			
3) MW-210 B	X				↓	1833		GW	12		X	X	X	X	X			
4) MW-109 109	X				↓	1845		GW	10	X	X	X	X	X	X			
5) MW-105 B	X				052522	853		GW	10	X	X	X	X	X	X			
6)																		
7)																	5.2°C	
8)																	LF1	
9)																	onice	
10)																	Sealed	

QC Data Package

Level I

Level II

Level III

Level IV

LAB USE ONLY
SCS-W
1st Semi-Annual 2022
Recd: 05/26/2022 Due: 06/10/2022

COOLER TEMP
22E1388 °C

v130325002
J Semi Annual

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CHAIN OF CUSTODY

PAGE 1 OF 1

COMPANY NAME: SCS Engineers	INVOICE TO: SCS Reston	Project Name: City of Bristol 1st Semi-Annual
CONTACT: Jennifer Robb	INVOICE CONTACT: Jennifer Robb	Site Name:
ADDRESS: 296 Victory Road, Winchester, VA 22602	INVOICE ADDRESS:	PROJECT NUMBER: 02218208.07 TI
PHONE #: (703) 471-6150	INVOICE PHONE #:	P.O. #:
FAX #: (703) 471-6676	EMAIL: Jrobb@scsengineers.com	Pretreatment Program:
Is sample for compliance reporting? YES Va	Is sample from a chlorinated supply? YES NO	PWS I.D. #:
SAMPLER NAME (PRINT): L. HOWARD M. NGUYEN	SAMPLER SIGNATURE: <i>[Signature]</i>	Turn Around Time: 10 Day(s)

Matrix Codes: WW=Waste Water GW=Ground Water DW=Drinking Water S=Soil/Solids OR=Organic A=Air WP=Wipe OT=Other

CLIENT SAMPLE I.D.	Grab	Composite	Field Filtered (Dissolved Metals)	Composite Start Date	Composite Start Time	Grab Date or Composite Stop Date	Grab Time or Composite Stop Time	Time Preserved	Matrix (See Codes)	Number of Containers	ANALYSIS / (PRESERVATIVE)							COMMENTS		
											VSWMR Table 3.1A	VOC Table 3.1A/EDB 8011	Chloride	Alkalinity	MEE	Hg	Bis (2-ethylhexyl) phthalate			
																	VSWMR TABLE 3.1B			
1) TRIP BLANK	X					051922	1220		DI	6		X								
2) MW-205 B/M/S/MSIX						052522	1424		GW	51			X	X	X				X	
3) FIELD BLANK	X					↓	1500		DI	17			X	X	X				X	
4) MW-211 A	X					↓	1819		GW	12	X		X	X	X	X	X			
5) MW-206 B	X					052622	1225		GW	11	X		X	X	X					
6) MW-211 B	X					↓	1355		GW	12	X		X	X	X	X	X			
7) MW-108	X					↓	1810		GW	17			X	X	X				X	
8) MW-108 DUPLICATE						↓	1910		GW	17			X	X	X				X	
9)																				
10)																				

RECEIVED: DATE / TIME	RECEIVED: DATE / TIME	QC Data Package	LAB USE ONLY	COOLER TEMP 3.0 °C
052722 1500 LCN	MM 5/27/22 LCN	Level I <input type="checkbox"/>	271 Sealed Ice	
	MM 5/27/22 1630	Level II <input checked="" type="checkbox"/>		SCS-W 22E1463
		Level III <input type="checkbox"/>		1st Semi-Annual 2022
		Level IV <input type="checkbox"/>		Recd: 05/27/2022 Due: 06/13/2022

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INITIALS
 formerly Air, Water & Soil Laboratories

CHAIN OF CUSTODY

PAGE | OF |

COMPANY NAME: SCS Engineers	INVOICE TO: SCS Reston	Project Name: City of Bristol 1st Semi-Annual
CONTACT: Jennifer Robb	INVOICE CONTACT: Jennifer Robb	Site Name:
ADDRESS: 296 Victory Road, Winchester, VA 22602	INVOICE ADDRESS:	PROJECT NUMBER: 02218708.07 T1
PHONE #: (703) 471-6150	INVOICE PHONE #:	P.O. #:
FAX #: (703) 471-6676	EMAIL: jrobb@scsengineers.com	Pretreatment Program:

Is sample for compliance reporting? **YES** Va Is sample from a chlorinated supply? YES **NO** PWS I.D. #:

SAMPLER NAME (PRINT): *L. HOWARD* SAMPLER SIGNATURE: *[Signature]* Turn Around Time: 10 Day(s)

Matrix Codes: WW=Waste Water GW=Ground Water DW=Drinking Water S=Soil/Solids OR=Organic A=Air WP=Wipe OT=Other

CLIENT SAMPLE I.D.	Grab	Composite	Field Filtered (Dissolved Metals)	Composite Start Date	Composite Start Time	Grab Date or Composite Stop Date	Grab Time or Composite Stop Time	Time Preserved	Matrix (See Codes)	Number of Containers	ANALYSIS / (PRESERVATIVE)							COMMENTS					
											VSWMR Table 3.1A	VOC Table 3.1A/EEDB 8011	Chloride	Alkalinity	MEE	Hg	Bis (2-ethylhexyl) phthalate		VSWMR TABLE 3.1B				
1) TRIP BLANK	X					05/19/22	270		DI	6		X											
2) MW-205 B/MS/HIGH	X					052522	1424		GW	1			X	X	X								
3) FIELD BLANK	X					↓	1500		DI	17			X	X	X								
4) MW-211A	X					↓	1719	1809	GW	12	X		X	X	X	X						(MN) 052722	
5) MW-200 B	X					052622	1225		GW	11	X		X	X	X							01310	
6) MW-211 B	X					↓	1355		GW	12	X		X	X	X	X							
7) MW-108	X					↓	1810		GW	7			X	X	X							X	
8) MW-108 Duplicates	X					↓	1910		GW	7			X	X	X							X	
9)																							

Page 179 of 183	INQUIRED: <i>[Signature]</i> DATE / TIME: 052722 @ 1500	RECEIVED: <i>LCN</i> DATE / TIME: <i>5/27/22 1630</i>	QC Data Package	LAB USE ONLY	COOLER TEMP <i>30</i> °C
	INQUIRED: <i>LCN</i> DATE / TIME:	RECEIVED: <i>mm</i> DATE / TIME:	Level I <input type="checkbox"/>	<i>271 sealed ice</i>	SCS-W 1st Semi-Annual 2022 Recd: 05/27/2022 Due: 06/13/2022
	INQUIRED: DATE / TIME:	RECEIVED: DATE / TIME:	Level II <input checked="" type="checkbox"/>		
	INQUIRED: DATE / TIME:	RECEIVED: DATE / TIME:	Level III <input type="checkbox"/>		
INQUIRED: DATE / TIME:	RECEIVED: DATE / TIME:	Level IV <input type="checkbox"/>			



Sample Preservation Log

Order ID: 22E1463

Date Performed: 5/31/22

Analyst Performing Check: MNM

Sample ID	Container ID	Metals		Cyanide		Sulfide		Ammonia		TKN		Phos, Tot		NO3+NO2		DRO		Pesticide (8081/808/808) PCB DW only		SVOC (824/827/828)			CrVI * **		Pass/POB (808) / SVOC(825)									
		pH as Received		pH as Received		pH as Received		pH as Received		pH as Received		pH as Received		pH as Received		pH as Received		pH as Received		Received	Received	Received	Final	Final	Final	Final	Final	Final	Final	Final				
		< 2	Other	> 12	Other	> 8	Other	< 1	Other	< 2	Other	< 2	Other	< 2	Other	< 2	Other	< 2	Other	+	-	+	-	+	-	+	-	< 1	Other	Other	Other	Other		
2	G			/																														
2	D	/																																
2	T																																	
2	W					/																												
2	AD			/																														
2	AE			/																														
2	AF			/																														
2	AG			/																														
2	AL	/																																
2	AM	/																																
3	C			/																														
3	H	/																																
3	K			/																														
3	L																																	
4	E	/																																

NaOH ID: _____ HNO₃ ID: _____ GrVI preserved date/time: _____ Analyst Init: _____
 * pH must be adjusted between 9.3 - 9.7
 H₂SO₄ ID: _____ Na₂S₂O₈ ID: _____ Buffer Sol'n ID: _____
 HCL ID: _____ Na₂SO₃ ID: _____ 1N NaOH ID: _____ 8N NaOH: _____

Metals were received with pH = 4. HNO₃ was added at 1029 on 31 May 2022 by MNM in the Log-In room to bring pH = <2.

**W.Va only certifies DISS CrVI and not T CrVI as an approved analyte under 40CFR136 for waste water.

Certificate of Analysis

Client Name: SCS Engineers-Winchester
Client Site I.D.: City of Bristol 1st Semi-Annual 2022
Submitted To: Jennifer Robb

Date Issued: 7/12/2022 2:25:23PM

Laboratory Order ID: 22E1463

Sample Conditions Checklist

Samples Received at:	3.00°C
How were samples received?	Logistics Courier
Were Custody Seals used? If so, were they received intact?	Yes
Are the custody papers filled out completely and correctly?	Yes
Do all bottle labels agree with custody papers?	Yes
Is the temperature blank or representative sample within acceptable limits or received on ice, and recently taken?	Yes
Are all samples within holding time for requested laboratory tests?	Yes
Is a sufficient amount of sample provided to perform the tests included?	Yes
Are all samples in appropriate containers for the analyses requested?	Yes
Were volatile organic containers received?	Yes
Are all volatile organic and TOX containers free of headspace?	Yes
Is a trip blank provided for each VOC sample set? VOC sample sets include EPA8011, EPA504, EPA8260, EPA624, EPA8015 GRO, EPA8021, EPA524, and RSK-175.	Yes
Are all samples received appropriately preserved? Note that metals containers do not require field preservation but lab preservation may delay analysis.	Yes

**SCS ENGINEERS
DAILY FIELD REPORT**

Project Name: City of Bristol Sanitary Landfill		Project Number: 02218208.07	
Project Manager: J. Robb		Task: 1	Labor Code: 99000
Date: 12/5/2022		Field Personnel: M. Nguyen, A. Minnick	
Vehicle: 15&21-F150	Miles Billed: --	Travel Time: --	
Weather: High 20's to Low 50's, Cloudy			
Labor	Hours	Equipment	Materials
2nd Semi Groundwater Sampling	9.5	QED Controllers_Low & High Pressure, Coolers, Buckets, Spray Bottles, YSI Multi Meters+Flow Cells, Turbidity Meters, 300' & 500' Water Level Indicators, Heron Camera 500', Sample Pro Pump, Tubing, Generator, Tools	CO ₂ Tanks, Nitrogen Tanks, Paper towels, DI Water, Ice, Nitrile Gloves
Work Completed:			
Anthony Tasks:			
7:00 - Arrived on site			
7:15 - 9:50 - Conducted water levels onsite with Minh			
10:18 - 10:49 - Purged and sampled MW-206A			
11:20 - 12:21 - Purged and sampled MW-104A			
12:35 - 13:45 - Replaced bladder pump on MW-108 with Minh			
13:50 - 14:56 - Purged and sampled MW-104B			
15:35 - 16:25 - Setup grundfos within MW-9 with Minh			
16:30 - Left site			
Minh Tasks:			
6:45 - Meet Tony, went to Walmart, bought ice			
7:20 - 9:50 - Arrived at site, meet Tony, conducted water level measurements			
went to MW-206B, trouble shoot the air line quick connect, QED air line quick connect is leaking			
find parts, made air line adaptor for MP10H/HU to pump air line			
11:05 - 11:50 - Purged and sampled MW-206B			
12:10 - 13:45 - Trouble shoot MW-108, called Tony, pulled pump, pump check vale filled with particles making it not working properly, cleaned check vale and replaced pump's bladder			
13:50 - 14:35 - Purged and sampled MW-108 / MS / MSD			
set up MW-9 grundfos pump with Tony for well development in the morning 120622			
16:30 - Left site			
Prepared By: M. Nguyen, A. Minnick		Review By: J. Robb	

**SCS ENGINEERS
DAILY FIELD REPORT**

Project Name: City of Bristol Sanitary Landfill	Project Number: 02218208.07
	Task: 1 Labor Code: 99000

Project Manager: J. Robb	Field Personnel: M. Nguyen, A. Minnick
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Date: 12/6/2022	Vehicle: 15&21-F150	Miles Billed: --	Travel Time: --
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Weather: High 40's to High 50's, Rain showers

Labor	Hours	Equipment	Materials
2nd Semi Groundwater Sampling	T 8.0 M 8.5	QED Controllers_Low & High Pressure, Coolers, Buckets, Spray Bottles, YSI Multi Meters+Flow Cells, Turbidity Meters, 300' & 500' Water Level Indicators, Heron Camera 500', Sample Pro Pump, Tubing, Generator, Tools	CO ₂ Tanks, Nitrogen Tanks, Paper towels, DI Water, Ice, Nitrile Gloves

Work Completed:

Anthony Tasks:

7:18 - Arrived on site
7:30 - 10:00 - Completed well development on MW-9 with Minh
10:30 - Sampled Gradient Control with Minh
10:45 - Sampled Gradient Control Duplicate with Minh
11:02 - 11:33 - Purged and sampled MW-211A
12:10 - 12:46 - Purged and sampled MW-106A
13:27 - 14:02 - Purged and sampled MW-101
14:43 - Packed up truck, left site to grab ice for samples
15:15 - Grabbed ice at Bristol Walmart, left for hotel

Minh Tasks:

6:45 - Left to Home Depot, bought clamps for MW-9 grundfos pump safety cable
7:30 - 10:00 - MW-9 Well Development
well goes dry, recharge rate 10min/ft
10:00 - 11:00 - Sampled GC Outfall & DUPLICATE with Tony
11:09 - 11:49 - Purged and sampled MW-211B
12:20 - 13:15 - Purged and sampled MW-106B
14:00 - 15:00 - Purged and sampled MW-205B
15:40 - Left site, meet Tony at Hotel, get ice for coolers

Prepared By: M. Nguyen, A. Minnick	Review By: J. Robb
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Groundwater Level Measurement Log

Project Name:		City of Bristol Sanitary Landfills				Project Number:		02218208.07	
Date :		12/5/22				Task:		1	
Well ID	Time	Depth to Water (ft)	Depth to Bottom (ft)	Water Column Thickness (ft)	Screen Length (ft)	Top of PVC Casing Elevation (ft, AMSL)	Groundwater Elevation (ft, AMSL)	Well Diameter (in)	Remarks
MW-101	8:36	5.82	110.50	104.68	---	1826.17	1820.35	6	
MW-103	8:40	70.96	322.40	251.44	20	1851.25	1780.29	4	
MW-104A	9:10	44.50	105.30	60.80	15	1858.57	1814.07	4	
MW-104B	9:11	33.17	78.50	45.33	15	1856.63	1823.46	4	
MW-105A	9:02	52.83	136.10	83.27	15	1882.50	1829.67	4	
MW-105B	9:05	112.00	383.10	271.10	20	1890.50	1778.50	4	
MW-106A	8:00	148.42	199.50	51.08	20	1924.28	1775.86	4	
MW-106B	7:59	201.43	419.13	217.70	10	1924.31	1722.88	2	
MW-107A	9:18	113.95	121.60	7.65	25	1913.50	1799.55	4	
MW-107B	9:16	223.44	382.00	158.56	15	1915.82	1692.38	6	
MW-108	7:50	308.97	388.50	79.53	25	1945.50	1636.53	4	
MW-109	8:56	138.26	248.25	109.99	15	1910.99	1772.73	6	
MW-110	9:00	87.12	206.23	119.11	---	1881.83	1794.71	2	
MW-205B	9:23	183.03	345.30	162.27	10	1880.40	1697.37	6	
MW-206	8:17	83.07	139.60	56.53	---	1909.20	1826.13	6	
MW-206A	8:08	161.15	243.00	81.85	15	1910.69	1749.54	4	
MW-206B	8:12	163.11	357.80	194.69	10	1909.60	1746.49	4	
MW-210A	9:34	36.66	150.00	113.34	10	1841.78	1805.12	2	
MW-210B	9:33	106.62	362.18	255.56	10	1841.08	1734.46	4	
MW-211A	9:48	124.60	218.91	94.31	10	1912.63	1788.03	4	
MW-211B	9:44	249.00	448.61	199.61	20	1904.29	1655.29	4	
MW-5	7:21	13.52	275.51	261.99	10	1822.82	1809.30	4	
MW-6	7:19	4.57	195.04	190.47	10	1822.37	1817.80	4	
MW-7	7:33	0.56	86.22	85.66	10	1776.63	1776.07	4	
MW-8	7:35	0.00	135.77	135.77	15	1774.85	1774.85	4	Artesian
MW-9	9:27	130.69	277.20	146.51	15	1851.82	1721.13	4	
PZ-2	8:32	63.28	108.80	45.52	15	1849.81	1786.53	4	
PZ-3	8:48	23.27	105.00	81.73	15	1831.85	1808.58	4	

Field Personnel: M. Nguyen, A. Minnick

Checked By: J. Robb

ft = feet

ft, AMSL = feet, above mean sea level

in = inches

Notes:

1. Depth to bottom and water measured from the top of the PVC casing.
2. Depth to bottom provided in the Groundwater Monitoring Plan dated April 2020 for the following wells: MW-101, MW-104A, MW-104B, MW-105A, MW-206B, MW-210A.
3. Depth to bottom measured on July 18, 2022 for the following wells: MW-5, MW-6, MW-7, MW-206, MW-206A.
4. Depth to bottom measured on May 24, 2022 for the following wells: MW-103, MW-104A, MW-105B, MW-106A, MW-106B, MW-107A, MW-10;
5. Depth to bottom provided on boring log for the following wells: MW-8 and MW-9.

Well Sampling / MicroPurge Log

SCS ENGINEERS
 296 Victory Road
 Winchester, Virginia 22602
 (540) 662-7097

Project Name:	City of Bristol Sanitary Landfill	Job Number:	02218208.07 T1
Well Number:	MW-101	Date:	120622
Well Diameter (in):	6"	1 Well Volume (gal):	131.39
Total Well Depth (ft):	95.20	QED Controller Settings:	60ft 20rpm 25/5
Depth to Pump (ft):	~35	Purging Time Initiated:	1327
Depth to Water (ft):	5.82	Purging Time Completed:	1402
Water Column Thickness (ft):	89.38	Total Gallons Purged:	2.25

WELL PURGING RECORD

Time	Volume Purged (Gallons)	Temperature (°C)	pH (s.u.)	Specific Conductance (uS/cm)	ORP (mV)	D.O (mg/L)	Turbidity (NTU)	Comments (water color, odor, sediment, cloudy, etc.)
1332	0.25	12.6	6.77	4134.1	51.5	8.18	62.08	Clear, Brownish
1337	0.16	12.5	6.77	4128.8	53.9	6.37	48.78	hue
1342	1.0	12.3	6.78	4260	48.3	6.11	24.04	very fine
1347	1.3	12.4	6.85	4234	41.1	4.70	71100	white sediment
1352	1.6	12.4	6.78	4268	48.1	5.34	81.23	
1357	2.0	12.4	6.78	4257	50.4	5.35	52.03	
1402	2.25	12.4	6.74	4242	50.5	5.32	35.92	
		✓	✓	✓	-	✓	-	
Stabilization Range		±10%	±10%	±10%	--	±10%	--	

GROUNDWATER SAMPLING RECORD

Sample Number	Collection Time	Parameter	Container	Preservative
MW-101	1403	T 3.1 A VOCs 8260 + VOC (Dichlorodifluoromethane)	3 - 40 mL Voa	HCl
		T 3.1 A VOCs 8011	2 - 60 mL Voa	HCl
		T 3.1 Col B Cyanide	1 - 250 mL plastic	NaOH
		Herbicides (2,4-D and 2,4,5-TP)	1 - 1L Amber	None
		SVOCs (Bis(2-ethylhexyl) phthalate, Diethyl phthalate, Di-n-butyl phthalate, and Phenol)	1 - 1L Amber	None
		T 3.1 Col B Sulfide	1 - 250m L plastic	NaOH + ZnAC
		T 3.1 Metals+Mercury and Tin	1 - 500 mL plastic	HNO3

Samples Shipped By: Courier Laboratory: Enthalpy Analytical
 Sample(s): AW-101 Checked By: J. Robb
 M:\Projects\02218208\07 Data and Calculations\2022\22-12\22-12 Bristol 2nd Semi GW Sample Logs

Well Sampling / MicroPurge Log

SCS ENGINEERS
 296 Victory Road
 Winchester, Virginia 22602
 (540) 662-7097

Project Name:	City of Bristol Sanitary Landfill	Job Number:	02218208.07 T1
Well Number:	MW-104A	Date:	120522
Well Diameter (in):	4"	1 Well Volume (gal):	39,28
Total Well Depth (ft):	104.65	QED Controller Settings:	125FT 2CPM 25/5
Depth to Pump (ft):	Dedicated ~100"	Purging Time Initiated:	1120
Depth to Water (ft):	44.50	Purging Time Completed:	1220
Water Column Thickness (ft):	60.15	Total Gallons Purged:	5.9

WELL PURGING RECORD

Time	Volume Purged (Gallons)	Temperature (°C)	pH (s.u.)	Specific Conductance (uS/cm)	ORP (mV)	D.O (mg/L)	Turbidity (NTU)	Comments (water color, odor, sediment, cloudy, etc.)
1125	0.4	13.2	6.88	1088	-26.2	0.92	1.85	clear, no odor
1130	0.9	13.2	6.86	1146	-30.9	0.09	1.01	
1135	0.4	13.2	6.84	1177	-31.4	1.31	0.02	
1140	1.9	13.3	6.84	1193	-32.1	1.05	0.00	
1145	2.4	13.2	6.83	1209	-33.4	0.82	0.00	
1150	2.9	13.2	6.83	1221	-36.7	0.71	0.00	
1155	3.4	13.2	6.84	1229	-38.9	0.66	0.00	
1200	3.9	13.3	6.82	1232	-39.5	0.63	0.00	
1205	4.4	13.3	6.81	1240	-41.9	0.55	0.00	
1210	4.9	13.3	6.81	1247	-44.7	0.50	0.00	
1215	5.4	13.3	6.81	1251	-47.2	0.48	0.00	
1220	5.9	13.3	6.81	1255	-48.9	0.46	0.00	
		✓	✓	✓	-	✓	-	
Stabilization Range		±10%	±10%	±10%	--	±10%	--	

GROUNDWATER SAMPLING RECORD

Sample Number	Collection Time	Parameter	Container	Preservative
MW-104A	1221	T 3.1 A VOCs 8260 + VOC (Dichlorodifluoromethane)	3 - 40 mL Voa	HCl
		T 3.1 A VOCs 8011	2 - 60 mL Voa	HCl
		T 3.1 Col B Cyanide	1 - 250 mL plastic	NaOH
		Herbicides (2,4-D and 2,4,5-TP)	1 - 1L Amber	None
		SVOCs (Bis(2-ethylhexyl) phthalate, Diethyl phthalate, Di-n-butyl phthalate, and Phenol)	1 - 1L Amber	None
		T 3.1 Col B Sulfide	1 - 250m L plastic	NaOH + ZnAC
		T 3.1 Metals+Mercury and Tin	1 - 500 mL plastic	HNO3

Samples Shipped By: Courier Laboratory: Enthalpy Analytical
 Sampler(s): A. Mianich Checked By: J. Robb
 M:\Projects\02218208.07 Data and Calculations\2022\22-12\22-12 Bristol 2nd Semi GW Sample Logs

Well Sampling / MicroPurge Log

SCS ENGINEERS
 296 Victory Road
 Winchester, Virginia 22602
 (540) 662-7097

Project Name:	City of Bristol Sanitary Landfill	Job Number:	02218208.07 T1
Well Number:	MW-104B	Date:	120522
Well Diameter (in):	4"	1 Well Volume (gal):	29.46
Total Well Depth (ft):	78.28	QED Controller Settings:	110FT 2CPM 20/10
Depth to Pump (ft):	Dedicated ~73	Purging Time Initiated:	1350
Depth to Water (ft):	33.17	Purging Time Completed:	1455
Water Column Thickness (ft):	45.11	Total Gallons Purged:	6.5

WELL PURGING RECORD

Time	Volume Purged (Gallons)	Temperature (°C)	pH (s.u.)	Specific Conductance (uS/cm)	ORP (mV)	D.O (mg/L)	Turbidity (NTU)	Comments (water color, odor, sediment, cloudy, etc.)
1355	0.5	13.3	6.83	1045	-209.9	0.97	0.00	Clear, A: no odor
1400	1.0	13.4	6.82	1037	-218.0	0.67	0.00	
1405	1.5	13.3	6.82	1030	-215.1	0.56	0.00	
1410	2.0	13.4	6.80	1023	-205.3	0.49	0.00	
1415	2.5	13.4	6.80	1018	-197.2	0.45	0.00	
1420	3.0	13.4	6.79	1016	-193.6	0.39	0.00	
1425	3.5	13.4	6.80	1000	-185.3	0.29	0.00	
1430	4.0	13.4	6.80	997	-183.5	0.29	0.00	
1435	4.5	13.4	6.80	994	-178.6	0.55	0.00	
1440	5.0	13.4	6.79	993	-174.5	0.48	0.00	
1445	5.5	13.4	6.80	992	-171.1	0.31	0.00	
1450	6.0	13.4	6.80	991	-168.2	0.30	0.00	
1455	6.5	13.4	6.79	991	-165.8	0.29	0.00	
		✓	✓	✓	-	✓	-	
Stabilization Range		±10%	±10%	±10%	--	±10%	--	

GROUNDWATER SAMPLING RECORD

Sample Number	Collection Time	Parameter	Container	Preservative
MW-104B	1456	T 3.1 A VOCs 8260 + VOC (Dichlorodifluoromethane)	3 - 40 mL Voa	HCl
		T 3.1 A VOCs 8011	2 - 60 mL Voa	HCl
		T 3.1 Col B Cyanide	1 - 250 mL plastic	NaOH
		Herbicides (2,4-D and 2,4,5-TP)	1 - 1L Amber	None
		SVOCs (Bis(2-ethylhexyl) phthalate, Diethyl phthalate, Di-n-butyl phthalate, and Phenol)	1 - 1L Amber	None
		T 3.1 Col B Sulfide	1 - 250m L plastic	NaOH + ZnAC
		T 3.1 Metals+Mercury and Tin	1 - 500 mL plastic	HNO3

Samples Shipped By: Courier Laboratory: Enthalpy Analytical

Sampler(s): A. Mirmich Checked By: J. Robb
 M:\Projects\02218208.07>Data and Calculations\2022\22-12\22-12 Bristol 2nd Semi GW Sample Logs

Well Sampling / MicroPurge Log

SCS ENGINEERS
 296 Victory Road
 Winchester, Virginia 22602
 (540) 662-7097

Project Name:	City of Bristol Sanitary Landfill	Job Number:	02218208.07 T1
Well Number:	MW-106A	Date:	120622
Well Diameter (in):	4"	1 Well Volume (gal):	33.35
Total Well Depth (ft):	199.50	QED Controller Settings:	225FT 1CPM 40/20
Depth to Pump (ft):	Dedicated	Purging Time Initiated:	1210
Depth to Water (ft):	148.42	Purging Time Completed:	1245
Water Column Thickness (ft):	51.08	Total Gallons Purged:	2.4

WELL PURGING RECORD

Time	Volume Purged (Gallons)	Temperature (°C)	pH (s.u.)	Specific Conductance (uS/cm)	ORP (mV)	D.O (mg/L)	Turbidity (NTU)	Comments (water color, odor, sediment, cloudy, etc.)
1215	0.3	15.9	6.96	1051	45.5	2.86	0.00	clear, no odor
1220	0.6	15.9	6.88	1092	-10.4	1.26	0.32	
1225	1.0	15.7	6.80	1145	-81.8	1.43	0.00	
1230	1.5	15.7	6.79	1139	-75.9	0.81	0.00	
1235	1.9	15.7	6.79	1138	-74.8	0.67	0.00	
1240	2.2	15.6	6.79	1137	-73.6	0.62	0.00	
1245	2.4	15.7	6.79	1138	-71.5	0.64	0.00	
		✓	✓	✓	-	✓	✓	
Stabilization Range		±10%	±10%	±10%	--	±10%	--	

GROUNDWATER SAMPLING RECORD

Sample Number	Collection Time	Parameter	Container	Preservative
MW-106A	1246	T 3.1 A VOCs 8260 + VOC (Dichlorodifluoromethane)	3 - 40 mL Voa	HCl
		T 3.1 A VOCs 8011	2 - 60 mL Voa	HCl
		T 3.1 Col B Cyanide	1 - 250 mL plastic	NaOH
		Herbicides (2,4-D and 2,4,5-TP)	1 - 1L Amber	None
		SVOCs (Bis(2-ethylhexyl) phthalate, Diethyl phthalate, Di-n-butyl phthalate, and Phenol)	1 - 1L Amber	None
		T 3.1 Col B Sulfide	1 - 250m L plastic	NaOH + ZnAC
		T 3.1 Metals+Mercury and Tin	1 - 500 mL plastic	HNO3

Samples Shipped By: Courier Laboratory: Enthalpy Analytical
 Sampler(s): A Mionick Checked By: J. Robb
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Well Sampling / MicroPurge Log

FIXED PUMP W/TONY

SCS ENGINEERS
296 Victory Road
Winchester, Virginia 22602
(540) 662-7097

Project Name: City of Bristol Sanitary Landfill	Job Number: 02218208.07
Well Number: MW-108	Date: 120522
Well Diameter (in): 4"	1 Well Volume (gal):
Total Well Depth (ft): 388.50	QED MP10H/HU Settings: 180 195-210 PSI 1CPM 40/20
Depth to Pump (ft): N/A	Purging Time Initiated: 1350
Depth to Water (ft): 308.97	Purging Time Completed: 1430
Water Column Thickness (ft):	Total Gallons Purged: 2.0

WELL PURGING RECORD

Time	Volume Purged (Liters)	Temperature (°C)	pH (s.u.)	Specific Conductance (uS/cm)	ORP (mV)	D.O (mg/L)	Turbidity (NTU)	Comments (water color, odor, sediment, cloudy, etc.)
1355	.25	17.4	6.82	1130	-51.6	3.93	26.49	cloudy orange
1400	.50	17.3	6.68	1256	-66.0	2.80	25.1	
1405	.75	17.4	6.65	1289	-76.0	1.88	22.78	
1410	1.0	17.5	6.64	1286	-72.1	1.62	25.22	
1415	1.25	17.6	6.63	1281	-78.6	1.60	25.57	
1420	1.50	17.7	6.63	1274	-83.4	1.10	23.31	
1425	1.75	17.8	6.63	1263	-84.0	1.11	23.16	
1430	2.0	17.7	6.63	1258	-84.2	1.05	26.23	
Stabilization Range		±10%	±10%	±10%	--	±10%	--	

GROUNDWATER SAMPLING RECORD/QA/QC/MS/MSD

Sample Number	Collection Time	Parameter	Container	Preservative
MW-108	1435	T 3.1 A VOCs 8260 + VOC (Dichlorodifluoromethane)	3 - 40 mL Voa	HCl
		T 3.1 A VOCs 8011	2 - 60 mL Voa	HCl
		T 3.1 Col B Cyanide	1 - 250 mL plastic	NaOH
		Alkalinity	1 - 500mL plastic	None
		Chloride	1 - 250mL plastic	None
		Herbicides (2,4-D and 2,4,5-TP)	1 - 1L Amber	None
		SVOCs (Bis(2-ethylhexyl) phthalate, Diethyl phthalate, Di-n-butyl phthalate, and Phenol)	1 - 1L Amber	None
		T 3.1 Col B Sulfide	1 - 250m L plastic	NaOH + ZnAC
		T 3.1 Metals+Mercury and Tin	1 - 500 mL plastic	HNO3
		Methane/Ethane/Ethene	3 - 40 mL Voa	HCl
MS/MSD		T 3.1 Col B Metals	1 - 500 mL plastic	HNO3

Samples Shipped By: Courier Laboratory: Enthalpy Analytical

Sampler(s): MW Checked By: J. Robb

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Well Sampling / MicroPurge Log

SCS ENGINEERS
 296 Victory Road
 Winchester, Virginia 22602
 (540) 662-7097

Project Name:	City of Bristol Sanitary Landfill	Job Number:	02218208.07 T1
Well Number:	MW-205B	Date:	120622
Well Diameter (in):	6"	1 Well Volume (gal):	238.54
Total Well Depth (ft):	345.30	QED Controller Settings:	MPIDHU 120 FT 1CPM 44/16
Depth to Pump (ft):	N/A	Purging Time Initiated:	1400 45/15
Depth to Water (ft):	183.03	Purging Time Completed:	1455
Water Column Thickness (ft):	162.27	Total Gallons Purged:	3.65

WELL PURGING RECORD

Time	Volume Purged (Gallons)	Temperature (°C)	pH (s.u.)	Specific Conductance (uS/cm)	ORP (mV)	D.O (mg/L)	Turbidity (NTU)	Comments (water color, odor, sediment, cloudy, etc.)
1405	.3	15.2	7.64	562	-19.5	6.08	0.90	CLEAR
1410	.6	15.0	6.82	675	-47.7	2.62	2.21	
1415	.9	14.9	7.11	685	-82.0	1.26	1.91	
1420	1.2	14.9	7.23	685	-88.6	1.09	1.50	
1425	1.5	14.9	7.28	685	-96.8	.86	0.68	
1430	1.9	14.9	7.37	685	-104.9	.73	0.50	
1435	2.25	14.9	7.33	685	-109.9	.61	1.17	
1440	2.6	14.9	7.34	684	-114.5	.60	1.12	
1445	2.95	14.9	7.35	684	-114.7	.50	.49	
1450	3.3	14.9	7.34	684	-119.1	.49	.70	
1455	3.65	14.9	7.34	684	-122.4	.48	.42	
Stabilization Range		±10%	±10%	±10%	--	±10%	--	

GROUNDWATER SAMPLING RECORD

Sample Number	Collection Time	Parameter	Container	Preservative
MW-205B	1500	T 3.1 A VOCs 8260 + VOC (Dichlorodifluoromethane)	3 - 40 mL Voa	HCl
		T 3.1 A VOCs 8011	2 - 60 mL Voa	HCl
		T 3.1 Col B Cyanide	1 - 250 mL plastic	NaOH
		Herbicides (2,4-D and 2,4,5-TP)	1 - 1L Amber	None
		SVOCs (Bis(2-ethylhexyl) phthalate, Diethyl phthalate, Di-n-butyl phthalate, and Phenol)	1 - 1L Amber	None
		T 3.1 Col B Sulfide	1 - 250m L plastic	NaOH + ZnAC
		T 3.1 Metals+Mercury and Tin	1 - 500 mL plastic	HNO3

Samples Shipped By: Courier Laboratory: Enthalpy Analytical
 Sampler(s): MW Checked By: J. Robb
 M:\Projects\02218208.07 Data and Calculations\2022\22-12\22-12 Bristol 2nd Semi GW Sample Logs

CHAIN OF CUSTODY

COMPANY NAME: SCS Engineers	INVOICE TO: SCS Reston	Project Name: City of Bristol 2nd Semi-Annual
CONTACT: Jennifer Robb	INVOICE CONTACT: Jennifer Robb	Site Name:
ADDRESS: 296 Victory Road, Winchester, VA 22602	INVOICE ADDRESS:	PROJECT NUMBER: 02218208.07 T1
PHONE #: (703) 471-6150	INVOICE PHONE #:	P.O. #:
FAX #: (703) 471-6676	EMAIL: jrobb@scsengineers.com	Pretreatment Program:

Is sample for compliance reporting? YES No Va Is sample from a chlorinated supply? YES NO PWS I.D. #:

SAMPLER NAME (PRINT): M. NGUYEN
Anthony Minarch SAMPLER SIGNATURE: [Signature] Turn Around Time: 10 Day(s)

Matrix Codes: WW=Waste Water GW=Ground Water DW=Drinking Water S=Soil/Solids OR=Organic A=Air WP=Wipe OT=Other

CLIENT SAMPLE I.D.	Grab	Composite	Field Filtered (Dissolved Metals)	Composite Start Date	Composite Start Time	Grab Date or Composite Stop Date	Grab Time or Composite Stop Time	Time Preserved	Matrix (See Codes)	Number of Containers	ANALYSIS / (PRESERVATIVE)							COMMENTS
											VSWMR 3.1A (VOCs, EDB, Metals)	CN SW9012	Herb SW8151 (2,4-D & 2,4,5-TP)	Hg (7470) & Sn (6020)	Sulfide	VOC 3.1B Detects (Dichlorodifluoromethane)	SVOCs (3.1b Detects): (Bis(2-ethylhexyl) phthalate, Diethyl phthalate, Di-n-butyl phthalate, and Phenol)	
1) MW-104 B	X					120522	1456		GW 10	10	X	X	X	X	X	X		
2) MW-104 A	X					120522	1221		GW 10	10	X	X	X	X	X	X		
3) MW-106 A	X					120622	1246		GW 10	10	X	X	X	X	X	X		
4) MW-101	X					↓	1403		GW 10	10	X	X	X	X	X	X		
5) MW-205 B	X					↓	1500		GW 10	10	X	X	X	X	X	X		
6)																		
7)																	277	
8)																	Ice	
9)																	sealed	
10)																	4.0°C	

RELINQUISHED: <u>[Signature]</u>	DATE / TIME: 12/22/2022 01400	RECEIVED: <u>LCN</u>	DATE / TIME:
RELINQUISHED: <u>LCN</u>	DATE / TIME:	RECEIVED: <u>mm 12/8/22 0800</u>	DATE / TIME:
RELINQUISHED:	DATE / TIME:	RECEIVED:	DATE / TIME:

SCS-W 22L0423
Solid Waste Permit #498 & 588 Sen
Recd: 12/08/2022 Due: 12/22/2022
v130325002

COOLER TEMP _____ °C

Page 194 of 202

CHAIN OF CUSTODY

COMPANY NAME: SCS Engineers	INVOICE TO: SCS Reston	Project Name: City of Bristol 2nd Semi-Annual
CONTACT: Jennifer Robb	INVOICE CONTACT: Jennifer Robb	Site Name:
ADDRESS: 296 Victory Road, Winchester, VA 22602	INVOICE ADDRESS:	PROJECT NUMBER: 02218208.07 T1
PHONE #: (703) 471-6150	INVOICE PHONE #:	P.O. #:
FAX #: (703) 471-6676	EMAIL: jrobb@scsengineers.com	Pretreatment Program:
Is sample for compliance reporting? YES <input checked="" type="checkbox"/> Va	Is sample from a chlorinated supply? YES <input type="checkbox"/> NO <input checked="" type="checkbox"/>	PWS I.D. #:

SAMPLER NAME (PRINT): M. NGUYEN
Anthony Mimick

SAMPLER SIGNATURE: [Signature]

Turn Around Time: 10 Day

Matrix Codes: WW=Waste Water GW=Ground Water DW=Drinking Water S=Soil/Solids OR=Organic A=Air WP=Wipe OT=Other

CLIENT SAMPLE I.D.	Grab	Composite	Field Filtered (Dissolved Metals)	Composite Start Date	Composite Start Time	Grab Date or Composite Stop Date	Grab Time or Composite Stop Time	Time Preserved	Matrix (See Codes)	Number of Containers	ANALYSIS / (PRESERVATIVE)						COMMENTS	
											VSWMR 3.1A (VOCs, EDB, Metals)	VOCs 8260 & 8011						
1) MW-206A	X					120522	1049		GW	6	X							
2) MW-206B	X					↓	1150		GW	6	X							
3) MW-211A	X					120622	1133		GW	6	X							
4) MW-211B	X					↓	1149		GW	6	X							
5) MW-106B	X					↓	1315		GW	6	X							
6) MW-210A	X					120722	924		GW	6	X							277
7) MW-210B	X					↓	9:39		GW	6	X							1ce
8)																		sealed
9)																		4.0°C
10)																		

RELINQUISHED: [Signature] DATE / TIME: 12/07/22 1400 RECEIVED: LCN DATE / TIME: 12/18/22 0500

QC Data Pack Level I Level II

SCS-W Solid Waste Permit #498 & 588 Sen
Recd: 12/08/2022 Due: 12/22/2022

22L0423

TEMP _____ °C

130325002

Page 195 of 202

CHAIN OF CUSTODY

COMPANY NAME: SCS Engineers	INVOICE TO: SCS Reston	Project Name: City of Bristol 1st Semi-Annual
CONTACT: Jennifer Robb	INVOICE CONTACT: Jennifer Robb	Site Name:
ADDRESS: 296 Victory Road, Winchester, VA 22602	INVOICE ADDRESS:	PROJECT NUMBER: 02218208.07 T1
PHONE #: (703) 471-6150	INVOICE PHONE #:	P.O. #:
FAX #: (703) 471-6676	EMAIL: jrobb@scsengineers.com	Pretreatment Program:

Is sample for compliance reporting? YES **Yes** **Yes** **No**
 Is sample from a chlorinated supply? YES **NO** **Yes** **Yes** **No**

SAMPLER NAME (PRINT): **A. MINNICK**
M. NGUYEN
 SAMPLER SIGNATURE: *[Signature]*
 Turn Around Time: **10 DAYS** ¹⁰

Matrix Codes: WW=Waste Water GW=Ground Water DW=Drinking Water S=Soil/Solids OR=Organic A=Air WP=Wipe OT=Other

CLIENT SAMPLE I.D.	Grab	Composite	Field Filtered (Dissolved Metals)	Composite Start Date	Composite Start Time	Grab Date or Composite Stop Date	Grab Time or Composite Stop Time	Time Preserved	Matrix (See Codes)	Number of Containers	ANALYSIS / (PRESERVATIVE)									
											VSWMR 3.1A (VOCs, EDB, Metals)	CN SW9012	Herb SW8151 (2,4-D & 2,4,5-TP)	Hg (7470) & Sn (6020)	Sulfide	VOC 3.1B Detects (Dichlorodifluoromethane)	Alkalinity, Chloride 300.0	MEE RSK 175	SVOCs: (Bis(2-ethylhexyl) phthalate, Diethyl phthalate, Di-n-butyl phthalate, and Phenol)	PLEASE NOTE PRES INTERFERENCE CHE RATE (L/m)
1) MW-108 / MS / MSD	X					120522	1435		GW	45	X	X	X	X	X	X	X	X		
2) GC OUTFALL	X					120622	1030		GW	15	X	X	X	X	X	X	X	X		
3) GC OUTFALL DUPLICATE						↓	1045		GW	15	X	X	X	X	X	X	X	X		
4) FIELD BLANK	X					↓	1301		GW	15	X	X	X	X	X	X	X	X		
5) TRIP BLANK	X					112922	1100		DI	6	X				X		X		→ VOCs 8260	
6)																			8011	
7)																			MEE	
8)																			277	
9)																			100	
10)																			sealed	

RELINQUISHED: <i>[Signature]</i>	DATE / TIME: 120722 1400	RECEIVED: LCN	DATE / TIME:
RELINQUISHED: LCN	DATE / TIME:	RECEIVED: mm	DATE / TIME: 12/8/22 0800
RELINQUISHED:	DATE / TIME:	RECEIVED:	DATE / TIME:

QC Data: **22L0423**
 Level I
 Level II
 Level III

SCS-W 22L0423
Solid Waste Permit #498 & 588 Sen
Recd: 12/08/2022 Due: 12/22/2022

TEMP: **4.0 °C**

v130325002



Sample Preservation Log

Order ID: 22L0423

Date Performed: 12/9/22

Analyst Performing Check: CSB

Sample ID	Container ID	Metals			Cyanide			Sulfide			Ammonia			TKN			Phos, Tot			NO3+NO2			DRO			Pesticide (8081/808/508) PCB DW only			SVOC (825/8270/825)			CrVI **		Pest/PCB (508) / SVOC(825)						
		pH as Received		Final pH	pH as Received		Final pH	pH as Received		Final pH	pH as Received		Final pH	pH as Received		Final pH	pH as Received		Final pH	pH as Received		Final pH	Received Res. Cl		final + or -	Received Res. Cl		final + or -	Received pH	Final pH	pH as Received		Final pH	pH as Received		Final pH				
		<2	Other		> 12	Other		> 9	Other		<2	Other		<2	Other		<2	Other		<2	Other		<2	Other		+	-				+	-		<2	Other		Other	Other	Other	Other
		<2		Other		> 12		Other		> 9		Other		<2		Other		<2		Other		<2		Other		+		-		<2		Other		Other						
01	A			/																																				
01	D																																							
01	E	/																																						
01	F							/																																
02	A			/																																				
02	D																																							
02	E	/																																						
02	F							/																																
03	A			/																																				
03	D																																							
03	E	4	<2																																					
03	F							/																																
04	A			/																																				
04	D																																							
04	E	/																																						

NaOH ID: _____ HNO3 ID: 2K02236 CrVI preserved date/time: _____ Analyst Initials: _____
 H2SO4 ID: _____ Na2S2O3 ID: _____ Buffer Sol'n ID: _____
 HCL ID: _____ Na2SO3 ID: _____ 1N NaOH ID: _____ 5N NaOH: _____

Metals were received with pH = 3,4,5,7
 HNO3 was added at 1000 on 9 December
 2022 by ATG in the Log-In room to bring
 pH = <2.

**W.Va only certifies DISS CrVI and not T CrVI as an approved analyte under 40CFR136 for waste water.



Sample Preservation Log

Order ID 22L0423

Date Performed: 12/9/22

Analyst Performing Check: CSB

Sample ID	Container ID	Metals		Cyanide		Sulfide		Ammonia		TKN		Phos, Tot		NO3+NO2		DRO		Pesticide (8081/808/508) PCB DW only			SVOC (525/5270/525)			CrVI * **		Pest/PCB (508) / SVOC(525)											
		pH as Received		pH as Received		pH as Received		pH as Received		pH as Received		pH as Received		pH as Received		pH as Received		pH as Received		Received Res. Cl	final + or -	Received Res. Cl	final + or -	Received pH	Final pH	pH as Received		pH as Received		pH as Received							
		< 2	Other	> 12	Other	> 6	Other	< 2	Other	< 2	Other	< 2	Other	< 2	Other	< 2	Other	< 2	Other	+	-	+	-	+	-	< 2	Other	Final pH	Other	Final pH	Other	Final pH					
04	F					/																															
05	A			/																																	
05	D																																				
05	E	/																																			
05	F			/																																	
06	D	/																																			
07	D		3 42																																		
08	D	/																																			
09	D	/																																			
10	D	/																																			
11	D	/																																			
12	D	/																																			
13	C			/																																	
13	I																																				
13	J		5 42																																		

NaOH ID: _____ HNO3 ID: 2K02236 CrVI preserved date/time: _____ Analyst Initials: _____
 * pH must be adjusted between 9.3 - 9.7
 H2SO4 ID: _____ Na2S2O3 ID: _____ Buffer Sol'n ID: _____
 HCL ID: _____ Na2SO3 ID: _____ 1N NaOH ID: _____ 5N NaOH: _____

Metals were received with pH = 3,4,5,7
 HNO3 was added at 1000 on 9 December
 2022 by ATGin the Log-In room to bring
 pH= <2.

**W.Va only certifies DISS CrVI and not T CrVI as an approved analyte under 40CFR136 for waste water.



Sample Preservation Log

Order ID 22L0423

Date Performed: 12/9/22

Analyst Performing Check: CSR

Sample ID	Container ID	Metals		Cyanide		Sulfide		Ammonia		TKN		Phos, Tot		NO3+NO2		DRO		Pesticide (8081/808/508) PCB DW only			SVOC (525/6270/625)			CrVI * **		Pest/PCB (508) / SVOC(525)								
		pH as Received		pH as Received		pH as Received		pH as Received		pH as Received		pH as Received		pH as Received		pH as Received		pH as Received		Received Res. Cl	final + or -	Received Res. Cl	final + or -	Received pH	Final pH	pH as Received	Final pH	pH as Received	Final pH	pH as Received	Final pH			
		<2	Other	>12	Other	> 8	Other	<2	Other	<2	Other	<2	Other	<2	Other	<2	Other	<2	Other	+	-	+	-			<2	Other		Other		Other			
13	K					/																												
13	AJ	5	<2																															
13	AK	5	<2																															
13	AN					/																												
13	AO					/																												
13	AP					/																												
13	AQ					/																												
14	C					/																												
14	I																																	
14	J	7	<2																															
14	K					/																												
15	C					/																												
15	I																																	
15	J	/																																
15	K					/																												

NaOH ID: _____ HNO3 ID: 2KO 2236 CrVI preserved date/time: _____ Analyst Initials: _____
 * pH must be adjusted between 9.3 - 9.7
 H2SO4 ID: _____ Na2S2O3 ID: _____ Buffer Sol'n ID: _____
 HCL ID: _____ Na2SO3 ID: _____ 1N NaOH ID: _____ 5N NaOH: _____

Metals were received with pH = 3,4,5,7
 HNO3 was added at 1000 on 9 December
 2022 by ATG in the Log-In room to bring
 pH = <2.

**W.Va only certifies DISS CrVI and not T CrVI as an approved analyte under 40CFR138 for waste water.



Sample Preservation Log

Order ID 22L0423

Date Performed: 12/9/22

Analyst Performing Check: CSB

Sample ID	Container ID	Metals		Cyanide		Sulfide		Ammonia		TKN		Phos, Tot		NO3+NO2		DRO		Pesticide (8081/808/508) PCB DW only			SVOC (525/8270/625)			CrVI * **		Pest/PCB (508) / SVOC(525)								
		pH as Received		pH as Received		pH as Received		pH as Received		pH as Received		pH as Received		pH as Received		pH as Received		pH as Received		Received Res. Cl	final + or -	Received Res. Cl	final + or -	Received pH	Final pH	pH as Received		pH as Received						
		< 2	Other	> 12	Other	> 8	Other	< 2	Other	< 2	Other	< 2	Other	< 2	Other	< 2	Other	< 2	Other	+	-	+	-			< 2	Other		Other					
16	C			/																														
16	I																																	
16	J			/																														
16	K					/																												

NaOH ID: _____ HNO₃ ID: 2K022 36 CrVI preserved date/time: _____ Analyst Initials: _____
 *pH must be adjusted between 9.3 - 9.7
 H₂SO₄ ID: _____ Na₂S₂O₃ ID: _____ Buffer Sol'n ID: _____
 HCL ID: _____ Na₂SO₃ ID: _____ 1N NaOH ID: _____ 5N NaOH: _____

Metals were received with pH = 3,4,5,7
 HNO₃ was added at 1000 on 9 December 2022 by ATG in the Log-In room to bring pH = <2.

**W.Va only certifies DISS CrVI and not T CrVI as an approved analyte under 40CFR136 for waste water.

Certificate of Analysis


Client Name: SCS Engineers-Winchester
 Client Site I.D.: City of Bristol 2nd Semi-Annual
 Submitted To: Jennifer Robb

Date Issued: 12/30/2022 11:56:27AM

Laboratory Order ID: 22L0423

Sample Conditions Checklist

Samples Received at:	4.00°C
How were samples received?	Logistics Courier
Were Custody Seals used? If so, were they received intact?	Yes
Are the custody papers filled out completely and correctly?	Yes
Do all bottle labels agree with custody papers?	Yes
Is the temperature blank or representative sample within acceptable limits or received on ice, and recently taken?	Yes
Are all samples within holding time for requested laboratory tests?	Yes
Is a sufficient amount of sample provided to perform the tests included?	Yes
Are all samples in appropriate containers for the analyses requested?	Yes
Were volatile organic containers received?	Yes
Are all volatile organic and TOX containers free of headspace?	Yes
Is a trip blank provided for each VOC sample set? VOC sample sets include EPA8011, EPA504, EPA8260, EPA624, EPA8015 GRO, EPA8021, EPA524, and RSK-175.	Yes
Are all samples received appropriately preserved? Note that metals containers do not require field preservation but lab preservation may delay analysis.	Yes



Appendix D

Laboratory Analytical Results



1941 Reymet Road • Richmond, Virginia 23237 • Tel: (804)-358-8295 Fax: (804)-358-8297

Certificate of Analysis

Final Report

Laboratory Order ID 22E1388

Client Name: SCS Engineers-Winchester
296 Victory Road
Winchester, VA 22602

Date Received: May 26, 2022 8:00
Date Issued: July 12, 2022 14:30
Project Number: 02218208.07T1
Purchase Order:

Submitted To: Jennifer Robb

Client Site I.D.: City of Bristol 1st Semi-Annual 2022

Enclosed are the results of analyses for samples received by the laboratory on 05/26/2022 08:00. If you have any questions concerning this report, please feel free to contact the laboratory.

Sincerely,

Ted Soyars
Technical Director

End Notes:

The test results listed in this report relate only to the samples submitted to the laboratory and as received by the Laboratory.

Unless otherwise noted, the test results for solid materials are calculated on a wet weight basis. Analyses for pH, dissolved oxygen, temperature, residual chlorine and sulfite that are performed in the laboratory do not meet NELAC requirements due to extremely short holding times. These analyses should be performed in the field. The results of field analyses performed by the Sampler included in the Certificate of Analysis are done so at the client's request and are not included in the laboratory's fields of certification nor have they been audited for adherence to a reference method or procedure.

The signature on the final report certifies that these results conform to all applicable NELAC standards unless otherwise specified. For a complete list of the Laboratory's NELAC certified parameters please contact customer service.

This report shall not be reproduced except in full without the expressed and written approval of an authorized representative of Enthalpy Analytical.

Analysis Detects Report

Client Name: SCS Engineers-Winchester
 Client Site ID: City of Bristol 1st Semi-Annual 2022
 Submitted To: Jennifer Robb

Date Issued: 7/12/2022 2:30:28PM

Laboratory Sample ID: 22E1388-01 **Client Sample ID: MW-105A**

Parameter	Samp ID	Reference Method	Sample Results	Qual	LOD	LOQ	Dil. Factor	Units
Arsenic	01	SW6020B	20		0.50	1.0	1	ug/L
Cobalt	01	SW6020B	7.12		0.200	1.00	1	ug/L
1,1-Dichloroethane	01	SW8260D	1.14		0.60	1.00	1	ug/L
Vinyl chloride	01	SW8260D	1.44		0.50	0.50	1	ug/L
bis (2-Ethylhexyl) phthalate	01	SW8270E	6.05		4.67	5.00	1	ug/L
Methane	01	RSK175M	25.4		1.50	5.00	1	ug/L
Alkalinity	01	SM22 2320B-2011	320		5.0	5.0	1	mg/L
Chloride	01	SW9056A	21.7		0.5	1.0	1	mg/L

Laboratory Sample ID: 22E1388-02 **Client Sample ID: MW-210A**

Parameter	Samp ID	Reference Method	Sample Results	Qual	LOD	LOQ	Dil. Factor	Units
Arsenic	02	SW6020B	6.5		0.50	1.0	1	ug/L
Barium	02	SW6020B	35.7		1.00	5.00	1	ug/L
Zinc	02	SW6020B	3.69	J	2.50	5.00	1	ug/L
Methane	02	RSK175M	17.1		1.50	5.00	1	ug/L
Alkalinity	02	SM22 2320B-2011	306		5.0	5.0	1	mg/L
Chloride	02	SW9056A	36.4		0.5	1.0	1	mg/L

Analysis Detects Report

Client Name: SCS Engineers-Winchester
 Client Site ID: City of Bristol 1st Semi-Annual 2022
 Submitted To: Jennifer Robb

Date Issued: 7/12/2022 2:30:28PM

Laboratory Sample ID: 22E1388-03 **Client Sample ID: MW-210B**

Parameter	Samp ID	Reference Method	Sample Results	Qual	LOD	LOQ	Dil. Factor	Units
Barium	03	SW6020B	68.7		1.00	5.00	1	ug/L
Cobalt	03	SW6020B	0.231	J	0.200	1.00	1	ug/L
Copper	03	SW6020B	0.636	J	0.300	1.00	1	ug/L
Nickel	03	SW6020B	2.323		1.000	1.000	1	ug/L
Acetone	03	SW8260D	7.41	J	7.00	10.0	1	ug/L
Alkalinity	03	SM22 2320B-2011	330		5.0	5.0	1	mg/L
Chloride	03	SW9056A	14.1		0.5	1.0	1	mg/L

Laboratory Sample ID: 22E1388-04 **Client Sample ID: MW-109**

Parameter	Samp ID	Reference Method	Sample Results	Qual	LOD	LOQ	Dil. Factor	Units
Arsenic	04	SW6020B	1.5		0.50	1.0	1	ug/L
Methane	04	RSK175M	27.3		1.50	5.00	1	ug/L
Alkalinity	04	SM22 2320B-2011	242		5.0	5.0	1	mg/L
Chloride	04	SW9056A	1.3		0.5	1.0	1	mg/L

Laboratory Sample ID: 22E1388-05 **Client Sample ID: MW-105B**

Parameter	Samp ID	Reference Method	Sample Results	Qual	LOD	LOQ	Dil. Factor	Units
Arsenic	05	SW6020B	0.94	J	0.50	1.0	1	ug/L
Methane	05	RSK175M	6.11		1.50	5.00	1	ug/L
Alkalinity	05	SM22 2320B-2011	148		5.0	5.0	1	mg/L
Chloride	05	SW9056A	4.0		0.5	1.0	1	mg/L

Analysis Detects Report

Client Name: SCS Engineers-Winchester
 Client Site ID: City of Bristol 1st Semi-Annual 2022
 Submitted To: Jennifer Robb

Date Issued: 7/12/2022 2:30:28PM

Laboratory Sample ID: 22E1388-06 **Client Sample ID: MW-206A**

Parameter	Samp ID	Reference Method	Sample Results	Qual	LOD	LOQ	Dil. Factor	Units
Arsenic	06	SW6020B	1.5		0.50	1.0	1	ug/L
Barium	06	SW6020B	84.5		1.00	5.00	1	ug/L
Cadmium	06	SW6020B	0.108	J	0.100	1.00	1	ug/L
Chromium	06	SW6020B	2.34		0.400	1.00	1	ug/L
Cobalt	06	SW6020B	1.65		0.200	1.00	1	ug/L
Copper	06	SW6020B	2.06		0.300	1.00	1	ug/L
Lead	06	SW6020B	2.0		1.0	1.0	1	ug/L
Nickel	06	SW6020B	14.93		1.000	1.000	1	ug/L
Silver	06	SW6020B	1.79		0.0600	1.00	1	ug/L
Zinc	06	SW6020B	11.8		2.50	5.00	1	ug/L
Acetone	06	SW8260D	8.56	J	7.00	10.0	1	ug/L

Laboratory Sample ID: 22E1388-07 **Client Sample ID: MW-104B**

Parameter	Samp ID	Reference Method	Sample Results	Qual	LOD	LOQ	Dil. Factor	Units
Barium	07	SW6020B	51.7		1.00	5.00	1	ug/L
Cobalt	07	SW6020B	0.286	J	0.200	1.00	1	ug/L
Nickel	07	SW6020B	1.095		1.000	1.000	1	ug/L
Tin	07	SW6020B	4.30		1.00	1.00	1	ug/L
Sulfide	07	SW9215	6.23		0.80	1.00	1	mg/L

Analysis Detects Report

Client Name: SCS Engineers-Winchester
 Client Site ID: City of Bristol 1st Semi-Annual 2022
 Submitted To: Jennifer Robb

Date Issued: 7/12/2022 2:30:28PM

Laboratory Sample ID: 22E1388-08 Client Sample ID: MW-104A

Parameter	Samp ID	Reference Method	Sample Results	Qual	LOD	LOQ	Dil. Factor	Units
Arsenic	08	SW6020B	9.0		0.50	1.0	1	ug/L
Barium	08	SW6020B	70.4		1.00	5.00	1	ug/L
Cobalt	08	SW6020B	0.986	J	0.200	1.00	1	ug/L
Copper	08	SW6020B	1.08		0.300	1.00	1	ug/L
Nickel	08	SW6020B	1.468		1.000	1.000	1	ug/L
Zinc	08	SW6020B	9.45		2.50	5.00	1	ug/L

Laboratory Sample ID: 22E1388-09 Client Sample ID: MW-101

Parameter	Samp ID	Reference Method	Sample Results	Qual	LOD	LOQ	Dil. Factor	Units
Arsenic	09	SW6020B	1.7		0.50	1.0	1	ug/L
Barium	09	SW6020B	109		1.00	5.00	1	ug/L
Cadmium	09	SW6020B	0.104	J	0.100	1.00	1	ug/L
Chromium	09	SW6020B	5.38		0.400	1.00	1	ug/L
Cobalt	09	SW6020B	18.2		0.200	1.00	1	ug/L
Copper	09	SW6020B	14.0		0.300	1.00	1	ug/L
Nickel	09	SW6020B	18.48		1.000	1.000	1	ug/L
Zinc	09	SW6020B	16.0		2.50	5.00	1	ug/L

Analysis Detects Report

 Client Name: SCS Engineers-Winchester
 Client Site ID: City of Bristol 1st Semi-Annual 2022
 Submitted To: Jennifer Robb

Date Issued: 7/12/2022 2:30:28PM

Laboratory Sample ID: 22E1388-10 Client Sample ID: MW-106B

Parameter	Samp ID	Reference Method	Sample Results	Qual	LOD	LOQ	Dil. Factor	Units
Arsenic	10	SW6020B	1.0		0.50	1.0	1	ug/L
Barium	10	SW6020B	108		1.00	5.00	1	ug/L
Cobalt	10	SW6020B	0.472	J	0.200	1.00	1	ug/L
Copper	10	SW6020B	0.725	J	0.300	1.00	1	ug/L
Zinc	10	SW6020B	2.58	J	2.50	5.00	1	ug/L
1,1-Dichloroethane	10	SW8260D	1.11		0.60	1.00	1	ug/L

Laboratory Sample ID: 22E1388-11 Client Sample ID: MW-106A

Parameter	Samp ID	Reference Method	Sample Results	Qual	LOD	LOQ	Dil. Factor	Units
Arsenic	11	SW6020B	3.2		0.50	1.0	1	ug/L
Barium	11RE1	SW6020B	290		10.0	50.0	10	ug/L
Cobalt	11	SW6020B	5.43		0.200	1.00	1	ug/L
Nickel	11	SW6020B	7.323		1.000	1.000	1	ug/L
1,1-Dichloroethane	11	SW8260D	1.02		0.60	1.00	1	ug/L
cis-1,2-Dichloroethylene	11	SW8260D	0.56	J	0.40	1.00	1	ug/L

Laboratory Sample ID: 22E1388-12 Client Sample ID: Trip Blank

Parameter	Samp ID	Reference Method	Sample Results	Qual	LOD	LOQ	Dil. Factor	Units
Acetone	12RE1	SW8260D	7.21	J	7.00	10.0	1	ug/L

Note that this report is not the "Certificate of Analysis". This report only lists the target analytes that displayed concentrations that exceeded the detection limit specified for that analyte. For a complete listing of all analytes requested and the results of the analysis see the "Certificate of Analysis".

Certificate of Analysis

Client Name: SCS Engineers-Winchester
 Client Site I.D.: City of Bristol 1st Semi-Annual 2022
 Submitted To: Jennifer Robb

Date Issued: 7/12/2022 2:30:28PM

ANALYTICAL REPORT FOR SAMPLES

Sample ID	Laboratory ID	Matrix	Date Sampled	Date Received
MW-105A	22E1388-01	Ground Water	05/24/2022 14:32	05/26/2022 08:00
MW-210A	22E1388-02	Ground Water	05/24/2022 17:06	05/26/2022 08:00
MW-210B	22E1388-03	Ground Water	05/24/2022 18:33	05/26/2022 08:00
MW-109	22E1388-04	Ground Water	05/24/2022 18:45	05/26/2022 08:00
MW-105B	22E1388-05	Ground Water	05/25/2022 08:53	05/26/2022 08:00
MW-206A	22E1388-06	Ground Water	05/24/2022 13:05	05/26/2022 08:00
MW-104B	22E1388-07	Ground Water	05/24/2022 15:05	05/26/2022 08:00
MW-104A	22E1388-08	Ground Water	05/24/2022 16:49	05/26/2022 08:00
MW-101	22E1388-09	Ground Water	05/25/2022 08:41	05/26/2022 08:00
MW-106B	22E1388-10	Ground Water	05/25/2022 11:41	05/26/2022 08:00
MW-106A	22E1388-11	Ground Water	05/25/2022 11:16	05/26/2022 08:00
Trip Blank	22E1388-12	Ground Water	05/19/2022 12:20	05/26/2022 08:00

Final COA reissued on 6/27 to update reportinglist and limits per COC.

Certificate of Analysis

 Client Name: SCS Engineers-Winchester
 Client Site I.D.: City of Bristol 1st Semi-Annual 2022
 Submitted To: Jennifer Robb

Date Issued: 7/12/2022 2:30:28PM

Client Sample ID: MW-105A

Laboratory Sample ID: 22E1388-01

Parameter	Samp ID	CAS	Reference Method	Sample Prep Date/Time	Analyzed Date/Time	Sample Results	Qual	LOD	LOQ	DF	Units	Analyst
Metals (Total) by EPA 6000/7000 Series Methods												
Arsenic	01	7440-38-2	SW6020B	05/31/2022 13:00	06/02/2022 14:35	20		0.50	1.0	1	ug/L	RCV
Cobalt	01	7440-48-4	SW6020B	05/31/2022 13:00	06/02/2022 14:35	7.12		0.200	1.00	1	ug/L	RCV
Mercury	01	7439-97-6	SW7470A	06/07/2022 08:37	06/07/2022 14:00	BLOD		0.00020	0.00020	1	mg/L	MWL
Volatile Organic Compounds by GCMS												
1,1-Dichloroethane	01	75-34-3	SW8260D	05/27/2022 16:41	05/27/2022 16:41	1.14		0.60	1.00	1	ug/L	BMR
Benzene	01	71-43-2	SW8260D	05/27/2022 16:41	05/27/2022 16:41	BLOD		0.40	1.00	1	ug/L	BMR
Vinyl chloride	01	75-01-4	SW8260D	05/27/2022 16:41	05/27/2022 16:41	1.44		0.50	0.50	1	ug/L	BMR
Surr: 1,2-Dichloroethane-d4 (Surr)	01	100 %	70-120	05/27/2022 16:41	05/27/2022 16:41							
Surr: 4-Bromofluorobenzene (Surr)	01	94.4 %	75-120	05/27/2022 16:41	05/27/2022 16:41							
Surr: Dibromofluoromethane (Surr)	01	95.3 %	70-130	05/27/2022 16:41	05/27/2022 16:41							
Surr: Toluene-d8 (Surr)	01	101 %	70-130	05/27/2022 16:41	05/27/2022 16:41							
Semivolatile Organic Compounds by GCMS												
bis (2-Ethylhexyl) phthalate	01	117-81-7	SW8270E	05/27/2022 10:00	06/03/2022 18:33	6.05		4.67	5.00	1	ug/L	MGG
Surr: 2,4,6-Tribromophenol (Surr)	01	59.6 %	10-86	05/27/2022 10:00	06/03/2022 18:33							
Surr: 2-Fluorobiphenyl (Surr)	01	93.9 %	9-87	05/27/2022 10:00	06/03/2022 18:33							S
Surr: 2-Fluorophenol (Surr)	01	47.5 %	10-52	05/27/2022 10:00	06/03/2022 18:33							
Surr: Nitrobenzene-d5 (Surr)	01	85.4 %	10-98.5	05/27/2022 10:00	06/03/2022 18:33							
Surr: Phenol-d5 (Surr)	01	33.2 %	5-33	05/27/2022 10:00	06/03/2022 18:33							S
Surr: p-Terphenyl-d14 (Surr)	01	75.8 %	27-133	05/27/2022 10:00	06/03/2022 18:33							
Head Space Analysis by GC												
Ethane	01	74-84-0	RSK175M	06/02/2022 11:25	06/02/2022 11:25	BLOD		1.50	5.00	1	ug/L	BMR
Ethene	01	74-85-1	RSK175M	06/02/2022 11:25	06/02/2022 11:25	BLOD		1.50	5.00	1	ug/L	BMR
Methane	01	74-82-8	RSK175M	06/02/2022 11:25	06/02/2022 11:25	25.4		1.50	5.00	1	ug/L	BMR
Surr: Acetylene (Surr)	01	107 %	70-130	06/02/2022 11:25	06/02/2022 11:25							

Certificate of Analysis

Client Name: SCS Engineers-Winchester
 Client Site I.D.: City of Bristol 1st Semi-Annual 2022
 Submitted To: Jennifer Robb

Date Issued: 7/12/2022 2:30:28PM

Client Sample ID: MW-105A

Laboratory Sample ID: 22E1388-01

Parameter	Samp ID	CAS	Reference Method	Sample Prep Date/Time	Analyzed Date/Time	Sample Results	Qual	LOD	LOQ	DF	Units	Analyst
Wet Chemistry Analysis												
Alkalinity	01	NA	SM22 2320B-2011	06/07/2022 09:19	06/07/2022 09:19	320		5.0	5.0	1	mg/L	MKS
Chloride	01	16887-00-6	SW9056A	05/27/2022 22:52	05/27/2022 22:52	21.7		0.5	1.0	1	mg/L	MGG

Certificate of Analysis

Client Name: SCS Engineers-Winchester
 Client Site I.D.: City of Bristol 1st Semi-Annual 2022
 Submitted To: Jennifer Robb

Date Issued: 7/12/2022 2:30:28PM

Client Sample ID: MW-210A

Laboratory Sample ID: 22E1388-02

Parameter	Samp ID	CAS	Reference Method	Sample Prep Date/Time	Analyzed Date/Time	Sample Results	Qual	LOD	LOQ	DF	Units	Analyst
Metals (Total) by EPA 6000/7000 Series Methods												
Silver	02	7440-22-4	SW6020B	05/31/2022 13:00	06/02/2022 14:38	BLOD		0.0600	1.00	1	ug/L	RCV
Arsenic	02	7440-38-2	SW6020B	05/31/2022 13:00	06/02/2022 14:38	6.5		0.50	1.0	1	ug/L	RCV
Barium	02	7440-39-3	SW6020B	05/31/2022 13:00	06/02/2022 14:38	35.7		1.00	5.00	1	ug/L	RCV
Beryllium	02	7440-41-7	SW6020B	05/31/2022 13:00	06/02/2022 14:38	BLOD		0.200	1.00	1	ug/L	RCV
Cadmium	02	7440-43-9	SW6020B	05/31/2022 13:00	06/02/2022 14:38	BLOD		0.100	1.00	1	ug/L	RCV
Cobalt	02	7440-48-4	SW6020B	05/31/2022 13:00	06/02/2022 14:38	BLOD		0.200	1.00	1	ug/L	RCV
Chromium	02	7440-47-3	SW6020B	05/31/2022 13:00	06/02/2022 14:38	BLOD		0.400	1.00	1	ug/L	RCV
Copper	02	7440-50-8	SW6020B	05/31/2022 13:00	06/02/2022 14:38	BLOD		0.300	1.00	1	ug/L	RCV
Mercury	02	7439-97-6	SW7470A	06/09/2022 10:29	06/09/2022 14:50	BLOD		0.00020	0.00020	1	mg/L	MWL
Nickel	02	7440-02-0	SW6020B	05/31/2022 13:00	06/02/2022 14:38	BLOD		1.000	1.000	1	ug/L	RCV
Lead	02	7439-92-1	SW6020B	05/31/2022 13:00	06/02/2022 14:38	BLOD		1.0	1.0	1	ug/L	RCV
Antimony	02	7440-36-0	SW6020B	05/31/2022 13:00	06/02/2022 14:38	BLOD		1.0	1.0	1	ug/L	RCV
Selenium	02	7782-49-2	SW6020B	05/31/2022 13:00	06/02/2022 14:38	BLOD		0.850	1.00	1	ug/L	RCV
Thallium	02	7440-28-0	SW6020B	05/31/2022 13:00	06/02/2022 14:38	BLOD		1.0	1.0	1	ug/L	RCV
Vanadium	02	7440-62-2	SW6020B	05/31/2022 13:00	06/02/2022 14:38	BLOD		2.50	5.00	1	ug/L	RCV
Zinc	02	7440-66-6	SW6020B	05/31/2022 13:00	06/02/2022 14:38	3.69	J	2.50	5.00	1	ug/L	RCV

Certificate of Analysis

Client Name: SCS Engineers-Winchester
 Client Site I.D.: City of Bristol 1st Semi-Annual 2022
 Submitted To: Jennifer Robb

Date Issued: 7/12/2022 2:30:28PM

Client Sample ID: MW-210A

Laboratory Sample ID: 22E1388-02

Parameter	Samp ID	CAS	Reference Method	Sample Prep Date/Time	Analyzed Date/Time	Sample Results	Qual	LOD	LOQ	DF	Units	Analyst
Volatile Organic Compounds by GCMS												
1,1,1,2-Tetrachloroethane	02	630-20-6	SW8260D	05/27/2022 16:52	05/27/2022 16:52	BLOD		0.40	0.40	1	ug/L	BMR
1,1,1-Trichloroethane	02	71-55-6	SW8260D	05/27/2022 16:52	05/27/2022 16:52	BLOD		0.60	1.00	1	ug/L	BMR
1,1,2,2-Tetrachloroethane	02	79-34-5	SW8260D	05/27/2022 16:52	05/27/2022 16:52	BLOD		0.30	0.40	1	ug/L	BMR
1,1,2-Trichloroethane	02	79-00-5	SW8260D	05/27/2022 16:52	05/27/2022 16:52	BLOD		0.50	1.00	1	ug/L	BMR
1,1-Dichloroethane	02	75-34-3	SW8260D	05/27/2022 16:52	05/27/2022 16:52	BLOD		0.60	1.00	1	ug/L	BMR
1,1-Dichloroethylene	02	75-35-4	SW8260D	05/27/2022 16:52	05/27/2022 16:52	BLOD		0.70	1.00	1	ug/L	BMR
1,2,3-Trichloropropane	02	96-18-4	SW8260D	05/27/2022 16:52	05/27/2022 16:52	BLOD		0.40	1.00	1	ug/L	BMR
1,2-Dichlorobenzene	02	95-50-1	SW8260D	05/27/2022 16:52	05/27/2022 16:52	BLOD		0.40	1.00	1	ug/L	BMR
1,2-Dichloroethane	02	107-06-2	SW8260D	05/27/2022 16:52	05/27/2022 16:52	BLOD		0.70	1.00	1	ug/L	BMR
1,2-Dichloropropane	02	78-87-5	SW8260D	05/27/2022 16:52	05/27/2022 16:52	BLOD		0.40	1.00	1	ug/L	BMR
1,4-Dichlorobenzene	02	106-46-7	SW8260D	05/27/2022 16:52	05/27/2022 16:52	BLOD		0.40	1.00	1	ug/L	BMR
2-Butanone (MEK)	02	78-93-3	SW8260D	05/27/2022 16:52	05/27/2022 16:52	BLOD		3.00	10.0	1	ug/L	BMR
2-Hexanone (MBK)	02	591-78-6	SW8260D	05/27/2022 16:52	05/27/2022 16:52	BLOD		2.20	5.00	1	ug/L	BMR
4-Methyl-2-pentanone (MIBK)	02	108-10-1	SW8260D	05/27/2022 16:52	05/27/2022 16:52	BLOD		1.50	5.00	1	ug/L	BMR
Acetone	02	67-64-1	SW8260D	05/27/2022 16:52	05/27/2022 16:52	BLOD		7.00	10.0	1	ug/L	BMR
Acrylonitrile	02	107-13-1	SW8260D	05/27/2022 16:52	05/27/2022 16:52	BLOD		1.70	5.00	1	ug/L	BMR
Benzene	02	71-43-2	SW8260D	05/27/2022 16:52	05/27/2022 16:52	BLOD		0.40	1.00	1	ug/L	BMR
Bromochloromethane	02	74-97-5	SW8260D	05/27/2022 16:52	05/27/2022 16:52	BLOD		0.50	1.00	1	ug/L	BMR
Bromodichloromethane	02	75-27-4	SW8260D	05/27/2022 16:52	05/27/2022 16:52	BLOD		0.40	0.50	1	ug/L	BMR
Bromoform	02	75-25-2	SW8260D	05/27/2022 16:52	05/27/2022 16:52	BLOD		0.40	1.00	1	ug/L	BMR
Bromomethane	02	74-83-9	SW8260D	05/27/2022 16:52	05/27/2022 16:52	BLOD		0.80	1.00	1	ug/L	BMR
Carbon disulfide	02	75-15-0	SW8260D	05/27/2022 16:52	05/27/2022 16:52	BLOD		5.00	10.0	1	ug/L	BMR
Carbon tetrachloride	02	56-23-5	SW8260D	05/27/2022 16:52	05/27/2022 16:52	BLOD		0.50	1.00	1	ug/L	BMR
Chlorobenzene	02	108-90-7	SW8260D	05/27/2022 16:52	05/27/2022 16:52	BLOD		0.40	1.00	1	ug/L	BMR

Certificate of Analysis

Client Name: SCS Engineers-Winchester
 Client Site I.D.: City of Bristol 1st Semi-Annual 2022
 Submitted To: Jennifer Robb

Date Issued: 7/12/2022 2:30:28PM

Client Sample ID: MW-210A

Laboratory Sample ID: 22E1388-02

Parameter	Samp ID	CAS	Reference Method	Sample Prep Date/Time	Analyzed Date/Time	Sample Results	Qual	LOD	LOQ	DF	Units	Analyst
Volatile Organic Compounds by GCMS												
Chloroethane	02	75-00-3	SW8260D	05/27/2022 16:52	05/27/2022 16:52	BLOD		0.70	1.00	1	ug/L	BMR
Chloroform	02	67-66-3	SW8260D	05/27/2022 16:52	05/27/2022 16:52	BLOD		0.50	0.50	1	ug/L	BMR
Chloromethane	02	74-87-3	SW8260D	05/27/2022 16:52	05/27/2022 16:52	BLOD		0.95	1.00	1	ug/L	BMR
cis-1,2-Dichloroethylene	02	156-59-2	SW8260D	05/27/2022 16:52	05/27/2022 16:52	BLOD		0.40	1.00	1	ug/L	BMR
cis-1,3-Dichloropropene	02	10061-01-5	SW8260D	05/27/2022 16:52	05/27/2022 16:52	BLOD		0.30	1.00	1	ug/L	BMR
Dibromochloromethane	02	124-48-1	SW8260D	05/27/2022 16:52	05/27/2022 16:52	BLOD		0.35	0.50	1	ug/L	BMR
Dibromomethane	02	74-95-3	SW8260D	05/27/2022 16:52	05/27/2022 16:52	BLOD		0.40	1.00	1	ug/L	BMR
Ethylbenzene	02	100-41-4	SW8260D	05/27/2022 16:52	05/27/2022 16:52	BLOD		0.40	1.00	1	ug/L	BMR
Iodomethane	02	74-88-4	SW8260D	05/27/2022 16:52	05/27/2022 16:52	BLOD		6.00	10.0	1	ug/L	BMR
m+p-Xylenes	02	179601-23-1	SW8260D	05/27/2022 16:52	05/27/2022 16:52	BLOD		0.60	2.00	1	ug/L	BMR
Methylene chloride	02	75-09-2	SW8260D	05/27/2022 16:52	05/27/2022 16:52	BLOD		4.00	4.00	1	ug/L	BMR
o-Xylene	02	95-47-6	SW8260D	05/27/2022 16:52	05/27/2022 16:52	BLOD		0.40	1.00	1	ug/L	BMR
Styrene	02	100-42-5	SW8260D	05/27/2022 16:52	05/27/2022 16:52	BLOD		0.40	1.00	1	ug/L	BMR
Tetrachloroethylene (PCE)	02	127-18-4	SW8260D	05/27/2022 16:52	05/27/2022 16:52	BLOD		0.40	1.00	1	ug/L	BMR
Toluene	02	108-88-3	SW8260D	05/27/2022 16:52	05/27/2022 16:52	BLOD		0.50	1.00	1	ug/L	BMR
trans-1,2-Dichloroethylene	02	156-60-5	SW8260D	05/27/2022 16:52	05/27/2022 16:52	BLOD		0.60	1.00	1	ug/L	BMR
trans-1,3-Dichloropropene	02	10061-02-6	SW8260D	05/27/2022 16:52	05/27/2022 16:52	BLOD		0.30	1.00	1	ug/L	BMR
trans-1,4-Dichloro-2-butene	02	110-57-6	SW8260D	05/27/2022 16:52	05/27/2022 16:52	BLOD		1.00	4.00	1	ug/L	BMR
Trichloroethylene	02	79-01-6	SW8260D	05/27/2022 16:52	05/27/2022 16:52	BLOD		0.40	1.00	1	ug/L	BMR
Trichlorofluoromethane	02	75-69-4	SW8260D	05/27/2022 16:52	05/27/2022 16:52	BLOD		0.80	1.00	1	ug/L	BMR
Vinyl acetate	02	108-05-4	SW8260D	05/27/2022 16:52	05/27/2022 16:52	BLOD		2.00	10.0	1	ug/L	BMR
Vinyl chloride	02	75-01-4	SW8260D	05/27/2022 16:52	05/27/2022 16:52	BLOD		0.50	0.50	1	ug/L	BMR
Xylenes, Total	02	1330-20-7	SW8260D	05/27/2022 16:52	05/27/2022 16:52	BLOD		1.00	3.00	1	ug/L	BMR

Certificate of Analysis

Client Name: SCS Engineers-Winchester

Date Issued: 7/12/2022 2:30:28PM

Client Site I.D.: City of Bristol 1st Semi-Annual 2022

Submitted To: Jennifer Robb

Client Sample ID: MW-210A

Laboratory Sample ID: 22E1388-02

Parameter	Samp ID	CAS	Reference Method	Sample Prep Date/Time	Analyzed Date/Time	Sample Results	Qual	LOD	LOQ	DF	Units	Analyst
Volatile Organic Compounds by GCMS												
Surr: 1,2-Dichloroethane-d4 (Surr)	02	107 %	70-120	05/27/2022 16:52	05/27/2022 16:52							
Surr: 4-Bromofluorobenzene (Surr)	02	96.2 %	75-120	05/27/2022 16:52	05/27/2022 16:52							
Surr: Dibromofluoromethane (Surr)	02	102 %	70-130	05/27/2022 16:52	05/27/2022 16:52							
Surr: Toluene-d8 (Surr)	02	100 %	70-130	05/27/2022 16:52	05/27/2022 16:52							

Certificate of Analysis

Client Name: SCS Engineers-Winchester
 Client Site I.D.: City of Bristol 1st Semi-Annual 2022
 Submitted To: Jennifer Robb

Date Issued: 7/12/2022 2:30:28PM

Client Sample ID: MW-210A

Laboratory Sample ID: 22E1388-02

Parameter	Samp ID	CAS	Reference Method	Sample Prep Date/Time	Analyzed Date/Time	Sample Results	Qual	LOD	LOQ	DF	Units	Analyst
Semivolatle Organic Compounds by GCMS												
bis (2-Ethylhexyl) phthalate	02	117-81-7	SW8270E	05/27/2022 10:00	06/03/2022 19:06	BLOD		4.67	5.00	1	ug/L	MGG
Surr: 2,4,6-Tribromophenol (Surr)	02	57.0 %	10-86	05/27/2022 10:00	06/03/2022 19:06							
Surr: 2-Fluorobiphenyl (Surr)	02	79.5 %	9-87	05/27/2022 10:00	06/03/2022 19:06							
Surr: 2-Fluorophenol (Surr)	02	37.1 %	10-52	05/27/2022 10:00	06/03/2022 19:06							
Surr: Nitrobenzene-d5 (Surr)	02	73.8 %	10-98.5	05/27/2022 10:00	06/03/2022 19:06							
Surr: Phenol-d5 (Surr)	02	29.4 %	5-33	05/27/2022 10:00	06/03/2022 19:06							
Surr: p-Terphenyl-d14 (Surr)	02	87.3 %	27-133	05/27/2022 10:00	06/03/2022 19:06							

Certificate of Analysis

Client Name: SCS Engineers-Winchester

Date Issued: 7/12/2022 2:30:28PM

Client Site I.D.: City of Bristol 1st Semi-Annual 2022

Submitted To: Jennifer Robb

Client Sample ID: MW-210A

Laboratory Sample ID: 22E1388-02

Parameter	Samp ID	CAS	Reference Method	Sample Prep Date/Time	Analyzed Date/Time	Sample Results	Qual	LOD	LOQ	DF	Units	Analyst
Micro-extractables by GC/ECD												
1,2-Dibromoethane (EDB)	02	106-93-4	SW8011	06/01/2022 11:30	06/02/2022 07:41	BLOD		0.008	0.010	1	ug/L	LBH2
1,2,3-Trichloropropane	02	96-18-4	SW8011	06/01/2022 11:30	06/02/2022 07:41	BLOD		0.009	0.010	1	ug/L	LBH2
1,2-Dibromo-3-chloropropane (DBCP)	02	96-12-8	SW8011	06/01/2022 11:30	06/02/2022 07:41	BLOD		0.005	0.010	1	ug/L	LBH2

Certificate of Analysis

Client Name: SCS Engineers-Winchester
 Client Site I.D.: City of Bristol 1st Semi-Annual 2022
 Submitted To: Jennifer Robb

Date Issued: 7/12/2022 2:30:28PM

Client Sample ID: MW-210A

Laboratory Sample ID: 22E1388-02

Parameter	Samp ID	CAS	Reference Method	Sample Prep Date/Time	Analyzed Date/Time	Sample Results	Qual	LOD	LOQ	DF	Units	Analyst
Head Space Analysis by GC												
Ethane	02	74-84-0	RSK175M	06/02/2022 11:38	06/02/2022 11:38	BLOD		1.50	5.00	1	ug/L	BMR
Ethene	02	74-85-1	RSK175M	06/02/2022 11:38	06/02/2022 11:38	BLOD		1.50	5.00	1	ug/L	BMR
Methane	02	74-82-8	RSK175M	06/02/2022 11:38	06/02/2022 11:38	17.1		1.50	5.00	1	ug/L	BMR
<i>Surr: Acetylene (Surr)</i>	02	111 %	70-130	06/02/2022 11:38	06/02/2022 11:38							

Certificate of Analysis

Client Name: SCS Engineers-Winchester

Date Issued: 7/12/2022 2:30:28PM

Client Site I.D.: City of Bristol 1st Semi-Annual 2022

Submitted To: Jennifer Robb

Client Sample ID: MW-210A

Laboratory Sample ID: 22E1388-02

Parameter	Samp ID	CAS	Reference Method	Sample Prep Date/Time	Analyzed Date/Time	Sample Results	Qual	LOD	LOQ	DF	Units	Analyst
Wet Chemistry Analysis												
Alkalinity	02	NA	SM22 2320B-2011	06/07/2022 09:19	06/07/2022 09:19	306		5.0	5.0	1	mg/L	MKS
Chloride	02	16887-00-6	SW9056A	05/28/2022 00:15	05/28/2022 00:15	36.4		0.5	1.0	1	mg/L	MGG

Certificate of Analysis

Client Name: SCS Engineers-Winchester
 Client Site I.D.: City of Bristol 1st Semi-Annual 2022
 Submitted To: Jennifer Robb

Date Issued: 7/12/2022 2:30:28PM

Client Sample ID: MW-210B

Laboratory Sample ID: 22E1388-03

Parameter	Samp ID	CAS	Reference Method	Sample Prep Date/Time	Analyzed Date/Time	Sample Results	Qual	LOD	LOQ	DF	Units	Analyst
Metals (Total) by EPA 6000/7000 Series Methods												
Silver	03	7440-22-4	SW6020B	05/31/2022 13:00	06/02/2022 14:41	BLOD		0.0600	1.00	1	ug/L	RCV
Arsenic	03	7440-38-2	SW6020B	05/31/2022 13:00	06/02/2022 14:41	BLOD		0.50	1.0	1	ug/L	RCV
Barium	03	7440-39-3	SW6020B	05/31/2022 13:00	06/02/2022 14:41	68.7		1.00	5.00	1	ug/L	RCV
Beryllium	03	7440-41-7	SW6020B	05/31/2022 13:00	06/02/2022 14:41	BLOD		0.200	1.00	1	ug/L	RCV
Cadmium	03	7440-43-9	SW6020B	05/31/2022 13:00	06/02/2022 14:41	BLOD		0.100	1.00	1	ug/L	RCV
Cobalt	03	7440-48-4	SW6020B	05/31/2022 13:00	06/02/2022 14:41	0.231	J	0.200	1.00	1	ug/L	RCV
Chromium	03	7440-47-3	SW6020B	05/31/2022 13:00	06/02/2022 14:41	BLOD		0.400	1.00	1	ug/L	RCV
Copper	03	7440-50-8	SW6020B	05/31/2022 13:00	06/02/2022 14:41	0.636	J	0.300	1.00	1	ug/L	RCV
Mercury	03	7439-97-6	SW7470A	06/09/2022 10:29	06/09/2022 14:56	BLOD		0.00020	0.00020	1	mg/L	MWL
Nickel	03	7440-02-0	SW6020B	05/31/2022 13:00	06/02/2022 14:41	2.323		1.000	1.000	1	ug/L	RCV
Lead	03	7439-92-1	SW6020B	05/31/2022 13:00	06/02/2022 14:41	BLOD		1.0	1.0	1	ug/L	RCV
Antimony	03	7440-36-0	SW6020B	05/31/2022 13:00	06/02/2022 14:41	BLOD		1.0	1.0	1	ug/L	RCV
Selenium	03	7782-49-2	SW6020B	05/31/2022 13:00	06/02/2022 14:41	BLOD		0.850	1.00	1	ug/L	RCV
Thallium	03	7440-28-0	SW6020B	05/31/2022 13:00	06/02/2022 14:41	BLOD		1.0	1.0	1	ug/L	RCV
Vanadium	03	7440-62-2	SW6020B	05/31/2022 13:00	06/02/2022 14:41	BLOD		2.50	5.00	1	ug/L	RCV
Zinc	03	7440-66-6	SW6020B	05/31/2022 13:00	06/02/2022 14:41	BLOD		2.50	5.00	1	ug/L	RCV

Certificate of Analysis

Client Name: SCS Engineers-Winchester
 Client Site I.D.: City of Bristol 1st Semi-Annual 2022
 Submitted To: Jennifer Robb

Date Issued: 7/12/2022 2:30:28PM

Client Sample ID: MW-210B

Laboratory Sample ID: 22E1388-03

Parameter	Samp ID	CAS	Reference Method	Sample Prep Date/Time	Analyzed Date/Time	Sample Results	Qual	LOD	LOQ	DF	Units	Analyst
Volatile Organic Compounds by GCMS												
1,1,1,2-Tetrachloroethane	03	630-20-6	SW8260D	05/27/2022 17:16	05/27/2022 17:16	BLOD		0.40	0.40	1	ug/L	BMR
1,1,1-Trichloroethane	03	71-55-6	SW8260D	05/27/2022 17:16	05/27/2022 17:16	BLOD		0.60	1.00	1	ug/L	BMR
1,1,2,2-Tetrachloroethane	03	79-34-5	SW8260D	05/27/2022 17:16	05/27/2022 17:16	BLOD		0.30	0.40	1	ug/L	BMR
1,1,2-Trichloroethane	03	79-00-5	SW8260D	05/27/2022 17:16	05/27/2022 17:16	BLOD		0.50	1.00	1	ug/L	BMR
1,1-Dichloroethane	03	75-34-3	SW8260D	05/27/2022 17:16	05/27/2022 17:16	BLOD		0.60	1.00	1	ug/L	BMR
1,1-Dichloroethylene	03	75-35-4	SW8260D	05/27/2022 17:16	05/27/2022 17:16	BLOD		0.70	1.00	1	ug/L	BMR
1,2,3-Trichloropropane	03	96-18-4	SW8260D	05/27/2022 17:16	05/27/2022 17:16	BLOD		0.40	1.00	1	ug/L	BMR
1,2-Dichlorobenzene	03	95-50-1	SW8260D	05/27/2022 17:16	05/27/2022 17:16	BLOD		0.40	1.00	1	ug/L	BMR
1,2-Dichloroethane	03	107-06-2	SW8260D	05/27/2022 17:16	05/27/2022 17:16	BLOD		0.70	1.00	1	ug/L	BMR
1,2-Dichloropropane	03	78-87-5	SW8260D	05/27/2022 17:16	05/27/2022 17:16	BLOD		0.40	1.00	1	ug/L	BMR
1,4-Dichlorobenzene	03	106-46-7	SW8260D	05/27/2022 17:16	05/27/2022 17:16	BLOD		0.40	1.00	1	ug/L	BMR
2-Butanone (MEK)	03	78-93-3	SW8260D	05/27/2022 17:16	05/27/2022 17:16	BLOD		3.00	10.0	1	ug/L	BMR
2-Hexanone (MBK)	03	591-78-6	SW8260D	05/27/2022 17:16	05/27/2022 17:16	BLOD		2.20	5.00	1	ug/L	BMR
4-Methyl-2-pentanone (MIBK)	03	108-10-1	SW8260D	05/27/2022 17:16	05/27/2022 17:16	BLOD		1.50	5.00	1	ug/L	BMR
Acetone	03	67-64-1	SW8260D	05/27/2022 17:16	05/27/2022 17:16	7.41	J	7.00	10.0	1	ug/L	BMR
Acrylonitrile	03	107-13-1	SW8260D	05/27/2022 17:16	05/27/2022 17:16	BLOD		1.70	5.00	1	ug/L	BMR
Benzene	03	71-43-2	SW8260D	05/27/2022 17:16	05/27/2022 17:16	BLOD		0.40	1.00	1	ug/L	BMR
Bromochloromethane	03	74-97-5	SW8260D	05/27/2022 17:16	05/27/2022 17:16	BLOD		0.50	1.00	1	ug/L	BMR
Bromodichloromethane	03	75-27-4	SW8260D	05/27/2022 17:16	05/27/2022 17:16	BLOD		0.40	0.50	1	ug/L	BMR
Bromoform	03	75-25-2	SW8260D	05/27/2022 17:16	05/27/2022 17:16	BLOD		0.40	1.00	1	ug/L	BMR
Bromomethane	03	74-83-9	SW8260D	05/27/2022 17:16	05/27/2022 17:16	BLOD		0.80	1.00	1	ug/L	BMR
Carbon disulfide	03	75-15-0	SW8260D	05/27/2022 17:16	05/27/2022 17:16	BLOD		5.00	10.0	1	ug/L	BMR
Carbon tetrachloride	03	56-23-5	SW8260D	05/27/2022 17:16	05/27/2022 17:16	BLOD		0.50	1.00	1	ug/L	BMR
Chlorobenzene	03	108-90-7	SW8260D	05/27/2022 17:16	05/27/2022 17:16	BLOD		0.40	1.00	1	ug/L	BMR

Certificate of Analysis

Client Name: SCS Engineers-Winchester
 Client Site I.D.: City of Bristol 1st Semi-Annual 2022
 Submitted To: Jennifer Robb

Date Issued: 7/12/2022 2:30:28PM

Client Sample ID: MW-210B

Laboratory Sample ID: 22E1388-03

Parameter	Samp ID	CAS	Reference Method	Sample Prep Date/Time	Analyzed Date/Time	Sample Results	Qual	LOD	LOQ	DF	Units	Analyst
Volatile Organic Compounds by GCMS												
Chloroethane	03	75-00-3	SW8260D	05/27/2022 17:16	05/27/2022 17:16	BLOD		0.70	1.00	1	ug/L	BMR
Chloroform	03	67-66-3	SW8260D	05/27/2022 17:16	05/27/2022 17:16	BLOD		0.50	0.50	1	ug/L	BMR
Chloromethane	03	74-87-3	SW8260D	05/27/2022 17:16	05/27/2022 17:16	BLOD		0.95	1.00	1	ug/L	BMR
cis-1,2-Dichloroethylene	03	156-59-2	SW8260D	05/27/2022 17:16	05/27/2022 17:16	BLOD		0.40	1.00	1	ug/L	BMR
cis-1,3-Dichloropropene	03	10061-01-5	SW8260D	05/27/2022 17:16	05/27/2022 17:16	BLOD		0.30	1.00	1	ug/L	BMR
Dibromochloromethane	03	124-48-1	SW8260D	05/27/2022 17:16	05/27/2022 17:16	BLOD		0.35	0.50	1	ug/L	BMR
Dibromomethane	03	74-95-3	SW8260D	05/27/2022 17:16	05/27/2022 17:16	BLOD		0.40	1.00	1	ug/L	BMR
Ethylbenzene	03	100-41-4	SW8260D	05/27/2022 17:16	05/27/2022 17:16	BLOD		0.40	1.00	1	ug/L	BMR
Iodomethane	03	74-88-4	SW8260D	05/27/2022 17:16	05/27/2022 17:16	BLOD		6.00	10.0	1	ug/L	BMR
m+p-Xylenes	03	179601-23-1	SW8260D	05/27/2022 17:16	05/27/2022 17:16	BLOD		0.60	2.00	1	ug/L	BMR
Methylene chloride	03	75-09-2	SW8260D	05/27/2022 17:16	05/27/2022 17:16	BLOD		4.00	4.00	1	ug/L	BMR
o-Xylene	03	95-47-6	SW8260D	05/27/2022 17:16	05/27/2022 17:16	BLOD		0.40	1.00	1	ug/L	BMR
Styrene	03	100-42-5	SW8260D	05/27/2022 17:16	05/27/2022 17:16	BLOD		0.40	1.00	1	ug/L	BMR
Tetrachloroethylene (PCE)	03	127-18-4	SW8260D	05/27/2022 17:16	05/27/2022 17:16	BLOD		0.40	1.00	1	ug/L	BMR
Toluene	03	108-88-3	SW8260D	05/27/2022 17:16	05/27/2022 17:16	BLOD		0.50	1.00	1	ug/L	BMR
trans-1,2-Dichloroethylene	03	156-60-5	SW8260D	05/27/2022 17:16	05/27/2022 17:16	BLOD		0.60	1.00	1	ug/L	BMR
trans-1,3-Dichloropropene	03	10061-02-6	SW8260D	05/27/2022 17:16	05/27/2022 17:16	BLOD		0.30	1.00	1	ug/L	BMR
trans-1,4-Dichloro-2-butene	03	110-57-6	SW8260D	05/27/2022 17:16	05/27/2022 17:16	BLOD		1.00	4.00	1	ug/L	BMR
Trichloroethylene	03	79-01-6	SW8260D	05/27/2022 17:16	05/27/2022 17:16	BLOD		0.40	1.00	1	ug/L	BMR
Trichlorofluoromethane	03	75-69-4	SW8260D	05/27/2022 17:16	05/27/2022 17:16	BLOD		0.80	1.00	1	ug/L	BMR
Vinyl acetate	03	108-05-4	SW8260D	05/27/2022 17:16	05/27/2022 17:16	BLOD		2.00	10.0	1	ug/L	BMR
Vinyl chloride	03	75-01-4	SW8260D	05/27/2022 17:16	05/27/2022 17:16	BLOD		0.50	0.50	1	ug/L	BMR
Xylenes, Total	03	1330-20-7	SW8260D	05/27/2022 17:16	05/27/2022 17:16	BLOD		1.00	3.00	1	ug/L	BMR

Certificate of Analysis

Client Name: SCS Engineers-Winchester

Date Issued: 7/12/2022 2:30:28PM

Client Site I.D.: City of Bristol 1st Semi-Annual 2022

Submitted To: Jennifer Robb

Client Sample ID: MW-210B

Laboratory Sample ID: 22E1388-03

Parameter	Samp ID	CAS	Reference Method	Sample Prep Date/Time	Analyzed Date/Time	Sample Results	Qual	LOD	LOQ	DF	Units	Analyst
Volatile Organic Compounds by GCMS												
Surr: 1,2-Dichloroethane-d4 (Surr)	03	100 %	70-120	05/27/2022 17:16	05/27/2022 17:16							
Surr: 4-Bromofluorobenzene (Surr)	03	98.0 %	75-120	05/27/2022 17:16	05/27/2022 17:16							
Surr: Dibromofluoromethane (Surr)	03	102 %	70-130	05/27/2022 17:16	05/27/2022 17:16							
Surr: Toluene-d8 (Surr)	03	100 %	70-130	05/27/2022 17:16	05/27/2022 17:16							

Certificate of Analysis

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Client Sample ID: MW-210B

Laboratory Sample ID: 22E1388-03

Parameter	Samp ID	CAS	Reference Method	Sample Prep Date/Time	Analyzed Date/Time	Sample Results	Qual	LOD	LOQ	DF	Units	Analyst
Semivolatle Organic Compounds by GCMS												
bis (2-Ethylhexyl) phthalate	03	117-81-7	SW8270E	05/27/2022 10:00	06/03/2022 19:39	BLOD		4.67	5.00	1	ug/L	MGG
Surr: 2,4,6-Tribromophenol (Surr)	03	59.9 %	10-86	05/27/2022 10:00	06/03/2022 19:39							S
Surr: 2-Fluorobiphenyl (Surr)	03	99.0 %	9-87	05/27/2022 10:00	06/03/2022 19:39							S
Surr: 2-Fluorophenol (Surr)	03	46.4 %	10-52	05/27/2022 10:00	06/03/2022 19:39							S
Surr: Nitrobenzene-d5 (Surr)	03	90.8 %	10-98.5	05/27/2022 10:00	06/03/2022 19:39							S
Surr: Phenol-d5 (Surr)	03	35.5 %	5-33	05/27/2022 10:00	06/03/2022 19:39							S
Surr: p-Terphenyl-d14 (Surr)	03	81.4 %	27-133	05/27/2022 10:00	06/03/2022 19:39							S

Certificate of Analysis

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Client Sample ID: MW-210B

Laboratory Sample ID: 22E1388-03

Parameter	Samp ID	CAS	Reference Method	Sample Prep Date/Time	Analyzed Date/Time	Sample Results	Qual	LOD	LOQ	DF	Units	Analyst
Micro-extractables by GC/ECD												
1,2-Dibromoethane (EDB)	03	106-93-4	SW8011	06/01/2022 11:30	06/02/2022 08:03	BLOD		0.008	0.010	1	ug/L	LBH2
1,2,3-Trichloropropane	03	96-18-4	SW8011	06/01/2022 11:30	06/02/2022 08:03	BLOD		0.009	0.010	1	ug/L	LBH2
1,2-Dibromo-3-chloropropane (DBCP)	03	96-12-8	SW8011	06/01/2022 11:30	06/02/2022 08:03	BLOD		0.005	0.010	1	ug/L	LBH2

Certificate of Analysis

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 Submitted To: Jennifer Robb

Date Issued: 7/12/2022 2:30:28PM

Client Sample ID: MW-210B

Laboratory Sample ID: 22E1388-03

Parameter	Samp ID	CAS	Reference Method	Sample Prep Date/Time	Analyzed Date/Time	Sample Results	Qual	LOD	LOQ	DF	Units	Analyst
Head Space Analysis by GC												
Ethane	03	74-84-0	RSK175M	06/02/2022 11:51	06/02/2022 11:51	BLOD		1.50	5.00	1	ug/L	BMR
Ethene	03	74-85-1	RSK175M	06/02/2022 11:51	06/02/2022 11:51	BLOD		1.50	5.00	1	ug/L	BMR
Methane	03	74-82-8	RSK175M	06/02/2022 11:51	06/02/2022 11:51	BLOD		1.50	5.00	1	ug/L	BMR
<i>Surr: Acetylene (Surr)</i>	03	118 %	70-130	06/02/2022 11:51	06/02/2022 11:51							

Certificate of Analysis

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Client Site I.D.: City of Bristol 1st Semi-Annual 2022

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Laboratory Sample ID: 22E1388-03

Parameter	Samp ID	CAS	Reference Method	Sample Prep Date/Time	Analyzed Date/Time	Sample Results	Qual	LOD	LOQ	DF	Units	Analyst
Wet Chemistry Analysis												
Alkalinity	03	NA	SM22 2320B-2011	06/07/2022 09:19	06/07/2022 09:19	330		5.0	5.0	1	mg/L	MKS
Chloride	03	16887-00-6	SW9056A	05/28/2022 00:43	05/28/2022 00:43	14.1		0.5	1.0	1	mg/L	MGG

Certificate of Analysis

Client Name: SCS Engineers-Winchester
 Client Site I.D.: City of Bristol 1st Semi-Annual 2022
 Submitted To: Jennifer Robb

Date Issued: 7/12/2022 2:30:28PM

Client Sample ID: MW-109

Laboratory Sample ID: 22E1388-04

Parameter	Samp ID	CAS	Reference Method	Sample Prep Date/Time	Analyzed Date/Time	Sample Results	Qual	LOD	LOQ	DF	Units	Analyst
Metals (Total) by EPA 6000/7000 Series Methods												
Arsenic	04	7440-38-2	SW6020B	05/31/2022 13:00	06/02/2022 14:43	1.5		0.50	1.0	1	ug/L	RCV
Cobalt	04	7440-48-4	SW6020B	05/31/2022 13:00	06/02/2022 14:43	BLOD		0.200	1.00	1	ug/L	RCV
Mercury	04	7439-97-6	SW7470A	06/09/2022 10:29	06/09/2022 14:58	BLOD		0.00020	0.00020	1	mg/L	MWL

Certificate of Analysis

Client Name: SCS Engineers-Winchester
 Client Site I.D.: City of Bristol 1st Semi-Annual 2022
 Submitted To: Jennifer Robb

Date Issued: 7/12/2022 2:30:28PM

Client Sample ID: MW-109

Laboratory Sample ID: 22E1388-04

Parameter	Samp ID	CAS	Reference Method	Sample Prep Date/Time	Analyzed Date/Time	Sample Results	Qual	LOD	LOQ	DF	Units	Analyst
Volatile Organic Compounds by GCMS												
1,1-Dichloroethane	04	75-34-3	SW8260D	05/27/2022 17:05	05/27/2022 17:05	BLOD		0.60	1.00	1	ug/L	BMR
Benzene	04	71-43-2	SW8260D	05/27/2022 17:05	05/27/2022 17:05	BLOD		0.40	1.00	1	ug/L	BMR
Vinyl chloride	04	75-01-4	SW8260D	05/27/2022 17:05	05/27/2022 17:05	BLOD		0.50	0.50	1	ug/L	BMR
<i>Surr: 1,2-Dichloroethane-d4 (Surr)</i>	<i>04</i>	<i>94.6 %</i>	<i>70-120</i>	<i>05/27/2022 17:05</i>	<i>05/27/2022 17:05</i>							
<i>Surr: 4-Bromofluorobenzene (Surr)</i>	<i>04</i>	<i>93.3 %</i>	<i>75-120</i>	<i>05/27/2022 17:05</i>	<i>05/27/2022 17:05</i>							
<i>Surr: Dibromofluoromethane (Surr)</i>	<i>04</i>	<i>93.9 %</i>	<i>70-130</i>	<i>05/27/2022 17:05</i>	<i>05/27/2022 17:05</i>							
<i>Surr: Toluene-d8 (Surr)</i>	<i>04</i>	<i>101 %</i>	<i>70-130</i>	<i>05/27/2022 17:05</i>	<i>05/27/2022 17:05</i>							

Certificate of Analysis

Client Name: SCS Engineers-Winchester
 Client Site I.D.: City of Bristol 1st Semi-Annual 2022
 Submitted To: Jennifer Robb

Date Issued: 7/12/2022 2:30:28PM

Client Sample ID: MW-109

Laboratory Sample ID: 22E1388-04

Parameter	Samp ID	CAS	Reference Method	Sample Prep Date/Time	Analyzed Date/Time	Sample Results	Qual	LOD	LOQ	DF	Units	Analyst
Semivolatle Organic Compounds by GCMS												
bis (2-Ethylhexyl) phthalate	04	117-81-7	SW8270E	05/27/2022 10:00	06/03/2022 20:12	BLOD		4.67	5.00	1	ug/L	MGG
Surr: 2,4,6-Tribromophenol (Surr)	04	58.2 %	10-86	05/27/2022 10:00	06/03/2022 20:12							
Surr: 2-Fluorobiphenyl (Surr)	04	80.4 %	9-87	05/27/2022 10:00	06/03/2022 20:12							
Surr: 2-Fluorophenol (Surr)	04	39.1 %	10-52	05/27/2022 10:00	06/03/2022 20:12							
Surr: Nitrobenzene-d5 (Surr)	04	75.0 %	10-98.5	05/27/2022 10:00	06/03/2022 20:12							
Surr: Phenol-d5 (Surr)	04	30.2 %	5-33	05/27/2022 10:00	06/03/2022 20:12							
Surr: p-Terphenyl-d14 (Surr)	04	81.8 %	27-133	05/27/2022 10:00	06/03/2022 20:12							

Certificate of Analysis

Client Name: SCS Engineers-Winchester
 Client Site I.D.: City of Bristol 1st Semi-Annual 2022
 Submitted To: Jennifer Robb

Date Issued: 7/12/2022 2:30:28PM

Client Sample ID: MW-109

Laboratory Sample ID: 22E1388-04

Parameter	Samp ID	CAS	Reference Method	Sample Prep Date/Time	Analyzed Date/Time	Sample Results	Qual	LOD	LOQ	DF	Units	Analyst
Head Space Analysis by GC												
Ethane	04	74-84-0	RSK175M	06/02/2022 12:04	06/02/2022 12:04	BLOD		1.50	5.00	1	ug/L	BMR
Ethene	04	74-85-1	RSK175M	06/02/2022 12:04	06/02/2022 12:04	BLOD		1.50	5.00	1	ug/L	BMR
Methane	04	74-82-8	RSK175M	06/02/2022 12:04	06/02/2022 12:04	27.3		1.50	5.00	1	ug/L	BMR
<i>Surr: Acetylene (Surr)</i>	04	124 %	70-130	06/02/2022 12:04	06/02/2022 12:04							

Certificate of Analysis

Client Name: SCS Engineers-Winchester

Date Issued: 7/12/2022 2:30:28PM

Client Site I.D.: City of Bristol 1st Semi-Annual 2022

Submitted To: Jennifer Robb

Client Sample ID: MW-109

Laboratory Sample ID: 22E1388-04

Parameter	Samp ID	CAS	Reference Method	Sample Prep Date/Time	Analyzed Date/Time	Sample Results	Qual	LOD	LOQ	DF	Units	Analyst
Wet Chemistry Analysis												
Alkalinity	04	NA	SM22 2320B-2011	06/07/2022 09:19	06/07/2022 09:19	242		5.0	5.0	1	mg/L	MKS
Chloride	04	16887-00-6	SW9056A	05/28/2022 02:07	05/28/2022 02:07	1.3		0.5	1.0	1	mg/L	MGG

Certificate of Analysis

Client Name: SCS Engineers-Winchester
 Client Site I.D.: City of Bristol 1st Semi-Annual 2022
 Submitted To: Jennifer Robb

Date Issued: 7/12/2022 2:30:28PM

Client Sample ID: MW-105B

Laboratory Sample ID: 22E1388-05

Parameter	Samp ID	CAS	Reference Method	Sample Prep Date/Time	Analyzed Date/Time	Sample Results	Qual	LOD	LOQ	DF	Units	Analyst
Metals (Total) by EPA 6000/7000 Series Methods												
Arsenic	05	7440-38-2	SW6020B	05/31/2022 13:00	06/02/2022 14:46	0.94	J	0.50	1.0	1	ug/L	RCV
Cobalt	05	7440-48-4	SW6020B	05/31/2022 13:00	06/02/2022 14:46	BLOD		0.200	1.00	1	ug/L	RCV
Mercury	05	7439-97-6	SW7470A	06/09/2022 10:29	06/09/2022 14:59	BLOD		0.00020	0.00020	1	mg/L	MWL

Certificate of Analysis

Client Name: SCS Engineers-Winchester
 Client Site I.D.: City of Bristol 1st Semi-Annual 2022
 Submitted To: Jennifer Robb

Date Issued: 7/12/2022 2:30:28PM

Client Sample ID: MW-105B

Laboratory Sample ID: 22E1388-05

Parameter	Samp ID	CAS	Reference Method	Sample Prep Date/Time	Analyzed Date/Time	Sample Results	Qual	LOD	LOQ	DF	Units	Analyst
Volatile Organic Compounds by GCMS												
1,1-Dichloroethane	05	75-34-3	SW8260D	05/27/2022 17:30	05/27/2022 17:30	BLOD		0.60	1.00	1	ug/L	BMR
Benzene	05	71-43-2	SW8260D	05/27/2022 17:30	05/27/2022 17:30	BLOD		0.40	1.00	1	ug/L	BMR
Vinyl chloride	05	75-01-4	SW8260D	05/27/2022 17:30	05/27/2022 17:30	BLOD		0.50	0.50	1	ug/L	BMR
<i>Surr: 1,2-Dichloroethane-d4 (Surr)</i>	<i>05</i>	<i>100 %</i>	<i>70-120</i>	<i>05/27/2022 17:30</i>	<i>05/27/2022 17:30</i>							
<i>Surr: 4-Bromofluorobenzene (Surr)</i>	<i>05</i>	<i>94.2 %</i>	<i>75-120</i>	<i>05/27/2022 17:30</i>	<i>05/27/2022 17:30</i>							
<i>Surr: Dibromofluoromethane (Surr)</i>	<i>05</i>	<i>95.2 %</i>	<i>70-130</i>	<i>05/27/2022 17:30</i>	<i>05/27/2022 17:30</i>							
<i>Surr: Toluene-d8 (Surr)</i>	<i>05</i>	<i>100 %</i>	<i>70-130</i>	<i>05/27/2022 17:30</i>	<i>05/27/2022 17:30</i>							

Certificate of Analysis

Client Name: SCS Engineers-Winchester
 Client Site I.D.: City of Bristol 1st Semi-Annual 2022
 Submitted To: Jennifer Robb

Date Issued: 7/12/2022 2:30:28PM

Client Sample ID: MW-105B

Laboratory Sample ID: 22E1388-05

Parameter	Samp ID	CAS	Reference Method	Sample Prep Date/Time	Analyzed Date/Time	Sample Results	Qual	LOD	LOQ	DF	Units	Analyst
Semivolatle Organic Compounds by GCMS												
bis (2-Ethylhexyl) phthalate	05	117-81-7	SW8270E	05/27/2022 10:00	06/03/2022 20:45	BLOD		4.67	5.00	1	ug/L	MGG
Surr: 2,4,6-Tribromophenol (Surr)	05	68.1 %	10-86	05/27/2022 10:00	06/03/2022 20:45							
Surr: 2-Fluorobiphenyl (Surr)	05	105 %	9-87	05/27/2022 10:00	06/03/2022 20:45							S
Surr: 2-Fluorophenol (Surr)	05	47.9 %	10-52	05/27/2022 10:00	06/03/2022 20:45							
Surr: Nitrobenzene-d5 (Surr)	05	90.4 %	10-98.5	05/27/2022 10:00	06/03/2022 20:45							
Surr: Phenol-d5 (Surr)	05	37.0 %	5-33	05/27/2022 10:00	06/03/2022 20:45							S
Surr: p-Terphenyl-d14 (Surr)	05	86.0 %	27-133	05/27/2022 10:00	06/03/2022 20:45							

Certificate of Analysis

Client Name: SCS Engineers-Winchester

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Client Site I.D.: City of Bristol 1st Semi-Annual 2022

Submitted To: Jennifer Robb

Client Sample ID: MW-105B

Laboratory Sample ID: 22E1388-05

Parameter	Samp ID	CAS	Reference Method	Sample Prep Date/Time	Analyzed Date/Time	Sample Results	Qual	LOD	LOQ	DF	Units	Analyst
Head Space Analysis by GC												
Ethane	05	74-84-0	RSK175M	06/02/2022 12:16	06/02/2022 12:16	BLOD		1.50	5.00	1	ug/L	BMR
Ethene	05	74-85-1	RSK175M	06/02/2022 12:16	06/02/2022 12:16	BLOD		1.50	5.00	1	ug/L	BMR
Methane	05	74-82-8	RSK175M	06/02/2022 12:16	06/02/2022 12:16	6.11		1.50	5.00	1	ug/L	BMR
<i>Surr: Acetylene (Surr)</i>	05	111 %	70-130	06/02/2022 12:16	06/02/2022 12:16							

Certificate of Analysis

Client Name: SCS Engineers-Winchester

Date Issued: 7/12/2022 2:30:28PM

Client Site I.D.: City of Bristol 1st Semi-Annual 2022

Submitted To: Jennifer Robb

Client Sample ID: MW-105B

Laboratory Sample ID: 22E1388-05

Parameter	Samp ID	CAS	Reference Method	Sample Prep Date/Time	Analyzed Date/Time	Sample Results	Qual	LOD	LOQ	DF	Units	Analyst
Wet Chemistry Analysis												
Alkalinity	05	NA	SM22 2320B-2011	06/08/2022 16:42	06/08/2022 16:42	148		5.0	5.0	1	mg/L	MAH
Chloride	05	16887-00-6	SW9056A	05/28/2022 02:34	05/28/2022 02:34	4.0		0.5	1.0	1	mg/L	MGG

Certificate of Analysis

Client Name: SCS Engineers-Winchester
 Client Site I.D.: City of Bristol 1st Semi-Annual 2022
 Submitted To: Jennifer Robb

Date Issued: 7/12/2022 2:30:28PM

Client Sample ID: MW-206A

Laboratory Sample ID: 22E1388-06

Parameter	Samp ID	CAS	Reference Method	Sample Prep Date/Time	Analyzed Date/Time	Sample Results	Qual	LOD	LOQ	DF	Units	Analyst
Metals (Total) by EPA 6000/7000 Series Methods												
Silver	06	7440-22-4	SW6020B	05/31/2022 13:00	06/02/2022 14:48	1.79		0.0600	1.00	1	ug/L	RCV
Arsenic	06	7440-38-2	SW6020B	05/31/2022 13:00	06/02/2022 14:48	1.5		0.50	1.0	1	ug/L	RCV
Barium	06	7440-39-3	SW6020B	05/31/2022 13:00	06/02/2022 14:48	84.5		1.00	5.00	1	ug/L	RCV
Beryllium	06	7440-41-7	SW6020B	05/31/2022 13:00	06/02/2022 14:48	BLOD		0.200	1.00	1	ug/L	RCV
Cadmium	06	7440-43-9	SW6020B	05/31/2022 13:00	06/02/2022 14:48	0.108	J	0.100	1.00	1	ug/L	RCV
Cobalt	06	7440-48-4	SW6020B	05/31/2022 13:00	06/02/2022 14:48	1.65		0.200	1.00	1	ug/L	RCV
Chromium	06	7440-47-3	SW6020B	05/31/2022 13:00	06/02/2022 14:48	2.34		0.400	1.00	1	ug/L	RCV
Copper	06	7440-50-8	SW6020B	05/31/2022 13:00	06/02/2022 14:48	2.06		0.300	1.00	1	ug/L	RCV
Nickel	06	7440-02-0	SW6020B	05/31/2022 13:00	06/02/2022 14:48	14.93		1.000	1.000	1	ug/L	RCV
Lead	06	7439-92-1	SW6020B	05/31/2022 13:00	06/02/2022 14:48	2.0		1.0	1.0	1	ug/L	RCV
Antimony	06	7440-36-0	SW6020B	05/31/2022 13:00	06/02/2022 14:48	BLOD		1.0	1.0	1	ug/L	RCV
Selenium	06	7782-49-2	SW6020B	05/31/2022 13:00	06/02/2022 14:48	BLOD		0.850	1.00	1	ug/L	RCV
Thallium	06	7440-28-0	SW6020B	05/31/2022 13:00	06/02/2022 14:48	BLOD		1.0	1.0	1	ug/L	RCV
Vanadium	06	7440-62-2	SW6020B	05/31/2022 13:00	06/02/2022 14:48	BLOD		2.50	5.00	1	ug/L	RCV
Zinc	06	7440-66-6	SW6020B	05/31/2022 13:00	06/02/2022 14:48	11.8		2.50	5.00	1	ug/L	RCV

Certificate of Analysis

Client Name: SCS Engineers-Winchester
 Client Site I.D.: City of Bristol 1st Semi-Annual 2022
 Submitted To: Jennifer Robb

Date Issued: 7/12/2022 2:30:28PM

Client Sample ID: MW-206A

Laboratory Sample ID: 22E1388-06

Parameter	Samp ID	CAS	Reference Method	Sample Prep Date/Time	Analyzed Date/Time	Sample Results	Qual	LOD	LOQ	DF	Units	Analyst
Volatile Organic Compounds by GCMS												
1,1,1,2-Tetrachloroethane	06	630-20-6	SW8260D	05/27/2022 17:40	05/27/2022 17:40	BLOD		0.40	0.40	1	ug/L	BMR
1,1,1-Trichloroethane	06	71-55-6	SW8260D	05/27/2022 17:40	05/27/2022 17:40	BLOD		0.60	1.00	1	ug/L	BMR
1,1,2,2-Tetrachloroethane	06	79-34-5	SW8260D	05/27/2022 17:40	05/27/2022 17:40	BLOD		0.30	0.40	1	ug/L	BMR
1,1,2-Trichloroethane	06	79-00-5	SW8260D	05/27/2022 17:40	05/27/2022 17:40	BLOD		0.50	1.00	1	ug/L	BMR
1,1-Dichloroethane	06	75-34-3	SW8260D	05/27/2022 17:40	05/27/2022 17:40	BLOD		0.60	1.00	1	ug/L	BMR
1,1-Dichloroethylene	06	75-35-4	SW8260D	05/27/2022 17:40	05/27/2022 17:40	BLOD		0.70	1.00	1	ug/L	BMR
1,2,3-Trichloropropane	06	96-18-4	SW8260D	05/27/2022 17:40	05/27/2022 17:40	BLOD		0.40	1.00	1	ug/L	BMR
1,2-Dichlorobenzene	06	95-50-1	SW8260D	05/27/2022 17:40	05/27/2022 17:40	BLOD		0.40	1.00	1	ug/L	BMR
1,2-Dichloroethane	06	107-06-2	SW8260D	05/27/2022 17:40	05/27/2022 17:40	BLOD		0.70	1.00	1	ug/L	BMR
1,2-Dichloropropane	06	78-87-5	SW8260D	05/27/2022 17:40	05/27/2022 17:40	BLOD		0.40	1.00	1	ug/L	BMR
1,4-Dichlorobenzene	06	106-46-7	SW8260D	05/27/2022 17:40	05/27/2022 17:40	BLOD		0.40	1.00	1	ug/L	BMR
2-Butanone (MEK)	06	78-93-3	SW8260D	05/27/2022 17:40	05/27/2022 17:40	BLOD		3.00	10.0	1	ug/L	BMR
2-Hexanone (MBK)	06	591-78-6	SW8260D	05/27/2022 17:40	05/27/2022 17:40	BLOD		2.20	5.00	1	ug/L	BMR
4-Methyl-2-pentanone (MIBK)	06	108-10-1	SW8260D	05/27/2022 17:40	05/27/2022 17:40	BLOD		1.50	5.00	1	ug/L	BMR
Acetone	06	67-64-1	SW8260D	05/27/2022 17:40	05/27/2022 17:40	8.56	J	7.00	10.0	1	ug/L	BMR
Acrylonitrile	06	107-13-1	SW8260D	05/27/2022 17:40	05/27/2022 17:40	BLOD		1.70	5.00	1	ug/L	BMR
Benzene	06	71-43-2	SW8260D	05/27/2022 17:40	05/27/2022 17:40	BLOD		0.40	1.00	1	ug/L	BMR
Bromochloromethane	06	74-97-5	SW8260D	05/27/2022 17:40	05/27/2022 17:40	BLOD		0.50	1.00	1	ug/L	BMR
Bromodichloromethane	06	75-27-4	SW8260D	05/27/2022 17:40	05/27/2022 17:40	BLOD		0.40	0.50	1	ug/L	BMR
Bromoform	06	75-25-2	SW8260D	05/27/2022 17:40	05/27/2022 17:40	BLOD		0.40	1.00	1	ug/L	BMR
Bromomethane	06	74-83-9	SW8260D	05/27/2022 17:40	05/27/2022 17:40	BLOD		0.80	1.00	1	ug/L	BMR
Carbon disulfide	06	75-15-0	SW8260D	05/27/2022 17:40	05/27/2022 17:40	BLOD		5.00	10.0	1	ug/L	BMR
Carbon tetrachloride	06	56-23-5	SW8260D	05/27/2022 17:40	05/27/2022 17:40	BLOD		0.50	1.00	1	ug/L	BMR
Chlorobenzene	06	108-90-7	SW8260D	05/27/2022 17:40	05/27/2022 17:40	BLOD		0.40	1.00	1	ug/L	BMR

Certificate of Analysis

Client Name: SCS Engineers-Winchester
 Client Site I.D.: City of Bristol 1st Semi-Annual 2022
 Submitted To: Jennifer Robb

Date Issued: 7/12/2022 2:30:28PM

Client Sample ID: MW-206A

Laboratory Sample ID: 22E1388-06

Parameter	Samp ID	CAS	Reference Method	Sample Prep Date/Time	Analyzed Date/Time	Sample Results	Qual	LOD	LOQ	DF	Units	Analyst
Volatile Organic Compounds by GCMS												
Chloroethane	06	75-00-3	SW8260D	05/27/2022 17:40	05/27/2022 17:40	BLOD		0.70	1.00	1	ug/L	BMR
Chloroform	06	67-66-3	SW8260D	05/27/2022 17:40	05/27/2022 17:40	BLOD		0.50	0.50	1	ug/L	BMR
Chloromethane	06	74-87-3	SW8260D	05/27/2022 17:40	05/27/2022 17:40	BLOD		0.95	1.00	1	ug/L	BMR
cis-1,2-Dichloroethylene	06	156-59-2	SW8260D	05/27/2022 17:40	05/27/2022 17:40	BLOD		0.40	1.00	1	ug/L	BMR
cis-1,3-Dichloropropene	06	10061-01-5	SW8260D	05/27/2022 17:40	05/27/2022 17:40	BLOD		0.30	1.00	1	ug/L	BMR
Dibromochloromethane	06	124-48-1	SW8260D	05/27/2022 17:40	05/27/2022 17:40	BLOD		0.35	0.50	1	ug/L	BMR
Dibromomethane	06	74-95-3	SW8260D	05/27/2022 17:40	05/27/2022 17:40	BLOD		0.40	1.00	1	ug/L	BMR
Ethylbenzene	06	100-41-4	SW8260D	05/27/2022 17:40	05/27/2022 17:40	BLOD		0.40	1.00	1	ug/L	BMR
Iodomethane	06	74-88-4	SW8260D	05/27/2022 17:40	05/27/2022 17:40	BLOD		6.00	10.0	1	ug/L	BMR
m+p-Xylenes	06	179601-23-1	SW8260D	05/27/2022 17:40	05/27/2022 17:40	BLOD		0.60	2.00	1	ug/L	BMR
Methylene chloride	06	75-09-2	SW8260D	05/27/2022 17:40	05/27/2022 17:40	BLOD		4.00	4.00	1	ug/L	BMR
o-Xylene	06	95-47-6	SW8260D	05/27/2022 17:40	05/27/2022 17:40	BLOD		0.40	1.00	1	ug/L	BMR
Styrene	06	100-42-5	SW8260D	05/27/2022 17:40	05/27/2022 17:40	BLOD		0.40	1.00	1	ug/L	BMR
Tetrachloroethylene (PCE)	06	127-18-4	SW8260D	05/27/2022 17:40	05/27/2022 17:40	BLOD		0.40	1.00	1	ug/L	BMR
Toluene	06	108-88-3	SW8260D	05/27/2022 17:40	05/27/2022 17:40	BLOD		0.50	1.00	1	ug/L	BMR
trans-1,2-Dichloroethylene	06	156-60-5	SW8260D	05/27/2022 17:40	05/27/2022 17:40	BLOD		0.60	1.00	1	ug/L	BMR
trans-1,3-Dichloropropene	06	10061-02-6	SW8260D	05/27/2022 17:40	05/27/2022 17:40	BLOD		0.30	1.00	1	ug/L	BMR
trans-1,4-Dichloro-2-butene	06	110-57-6	SW8260D	05/27/2022 17:40	05/27/2022 17:40	BLOD		1.00	4.00	1	ug/L	BMR
Trichloroethylene	06	79-01-6	SW8260D	05/27/2022 17:40	05/27/2022 17:40	BLOD		0.40	1.00	1	ug/L	BMR
Trichlorofluoromethane	06	75-69-4	SW8260D	05/27/2022 17:40	05/27/2022 17:40	BLOD		0.80	1.00	1	ug/L	BMR
Vinyl acetate	06	108-05-4	SW8260D	05/27/2022 17:40	05/27/2022 17:40	BLOD		2.00	10.0	1	ug/L	BMR
Vinyl chloride	06	75-01-4	SW8260D	05/27/2022 17:40	05/27/2022 17:40	BLOD		0.50	0.50	1	ug/L	BMR
Xylenes, Total	06	1330-20-7	SW8260D	05/27/2022 17:40	05/27/2022 17:40	BLOD		1.00	3.00	1	ug/L	BMR

Certificate of Analysis

Client Name: SCS Engineers-Winchester

Date Issued: 7/12/2022 2:30:28PM

Client Site I.D.: City of Bristol 1st Semi-Annual 2022

Submitted To: Jennifer Robb

Client Sample ID: MW-206A

Laboratory Sample ID: 22E1388-06

Parameter	Samp ID	CAS	Reference Method	Sample Prep Date/Time	Analyzed Date/Time	Sample Results	Qual	LOD	LOQ	DF	Units	Analyst
Volatile Organic Compounds by GCMS												
Surr: 1,2-Dichloroethane-d4 (Surr)	06	106 %	70-120	05/27/2022 17:40	05/27/2022 17:40							
Surr: 4-Bromofluorobenzene (Surr)	06	96.9 %	75-120	05/27/2022 17:40	05/27/2022 17:40							
Surr: Dibromofluoromethane (Surr)	06	102 %	70-130	05/27/2022 17:40	05/27/2022 17:40							
Surr: Toluene-d8 (Surr)	06	99.6 %	70-130	05/27/2022 17:40	05/27/2022 17:40							

Certificate of Analysis

Client Name: SCS Engineers-Winchester

Date Issued: 7/12/2022 2:30:28PM

Client Site I.D.: City of Bristol 1st Semi-Annual 2022

Submitted To: Jennifer Robb

Client Sample ID: MW-206A

Laboratory Sample ID: 22E1388-06

Parameter	Samp ID	CAS	Reference Method	Sample Prep Date/Time	Analyzed Date/Time	Sample Results	Qual	LOD	LOQ	DF	Units	Analyst
Micro-extractables by GC/ECD												
1,2-Dibromoethane (EDB)	06	106-93-4	SW8011	06/01/2022 11:30	06/02/2022 08:24	BLOD		0.008	0.010	1	ug/L	LBH2
1,2,3-Trichloropropane	06	96-18-4	SW8011	06/01/2022 11:30	06/02/2022 08:24	BLOD		0.009	0.010	1	ug/L	LBH2
1,2-Dibromo-3-chloropropane (DBCP)	06	96-12-8	SW8011	06/01/2022 11:30	06/02/2022 08:24	BLOD		0.005	0.010	1	ug/L	LBH2

Certificate of Analysis

Client Name: SCS Engineers-Winchester
 Client Site I.D.: City of Bristol 1st Semi-Annual 2022
 Submitted To: Jennifer Robb

Date Issued: 7/12/2022 2:30:28PM

Client Sample ID: MW-104B

Laboratory Sample ID: 22E1388-07

Parameter	Samp ID	CAS	Reference Method	Sample Prep Date/Time	Analyzed Date/Time	Sample Results	Qual	LOD	LOQ	DF	Units	Analyst
Metals (Total) by EPA 6000/7000 Series Methods												
Silver	07	7440-22-4	SW6020B	05/31/2022 13:00	06/02/2022 14:51	BLOD		0.0600	1.00	1	ug/L	RCV
Arsenic	07	7440-38-2	SW6020B	05/31/2022 13:00	06/02/2022 14:51	BLOD		0.50	1.0	1	ug/L	RCV
Barium	07	7440-39-3	SW6020B	05/31/2022 13:00	06/02/2022 14:51	51.7		1.00	5.00	1	ug/L	RCV
Beryllium	07	7440-41-7	SW6020B	05/31/2022 13:00	06/02/2022 14:51	BLOD		0.200	1.00	1	ug/L	RCV
Cadmium	07	7440-43-9	SW6020B	05/31/2022 13:00	06/02/2022 14:51	BLOD		0.100	1.00	1	ug/L	RCV
Cobalt	07	7440-48-4	SW6020B	05/31/2022 13:00	06/02/2022 14:51	0.286	J	0.200	1.00	1	ug/L	RCV
Chromium	07	7440-47-3	SW6020B	05/31/2022 13:00	06/02/2022 14:51	BLOD		0.400	1.00	1	ug/L	RCV
Copper	07	7440-50-8	SW6020B	05/31/2022 13:00	06/02/2022 14:51	BLOD		0.300	1.00	1	ug/L	RCV
Mercury	07	7439-97-6	SW7470A	06/09/2022 10:29	06/09/2022 15:01	BLOD		0.00020	0.00020	1	mg/L	MWL
Nickel	07	7440-02-0	SW6020B	05/31/2022 13:00	06/02/2022 14:51	1.095		1.000	1.000	1	ug/L	RCV
Lead	07	7439-92-1	SW6020B	05/31/2022 13:00	06/02/2022 14:51	BLOD		1.0	1.0	1	ug/L	RCV
Antimony	07	7440-36-0	SW6020B	05/31/2022 13:00	06/02/2022 14:51	BLOD		1.0	1.0	1	ug/L	RCV
Selenium	07	7782-49-2	SW6020B	05/31/2022 13:00	06/02/2022 14:51	BLOD		0.850	1.00	1	ug/L	RCV
Tin	07	7440-31-5	SW6020B	05/31/2022 13:00	06/02/2022 14:51	4.30		1.00	1.00	1	ug/L	RCV
Thallium	07	7440-28-0	SW6020B	05/31/2022 13:00	06/02/2022 14:51	BLOD		1.0	1.0	1	ug/L	RCV
Vanadium	07	7440-62-2	SW6020B	05/31/2022 13:00	06/02/2022 14:51	BLOD		2.50	5.00	1	ug/L	RCV
Zinc	07	7440-66-6	SW6020B	05/31/2022 13:00	06/02/2022 14:51	BLOD		2.50	5.00	1	ug/L	RCV

Certificate of Analysis

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 Client Site I.D.: City of Bristol 1st Semi-Annual 2022
 Submitted To: Jennifer Robb

Date Issued: 7/12/2022 2:30:28PM

Client Sample ID: MW-104B

Laboratory Sample ID: 22E1388-07

Parameter	Samp ID	CAS	Reference Method	Sample Prep Date/Time	Analyzed Date/Time	Sample Results	Qual	LOD	LOQ	DF	Units	Analyst
Volatile Organic Compounds by GCMS												
1,1,1,2-Tetrachloroethane	07	630-20-6	SW8260D	05/27/2022 18:04	05/27/2022 18:04	BLOD		0.40	0.40	1	ug/L	BMR
1,1,1-Trichloroethane	07	71-55-6	SW8260D	05/27/2022 18:04	05/27/2022 18:04	BLOD		0.60	1.00	1	ug/L	BMR
1,1,2,2-Tetrachloroethane	07	79-34-5	SW8260D	05/27/2022 18:04	05/27/2022 18:04	BLOD		0.30	0.40	1	ug/L	BMR
1,1,2-Trichloroethane	07	79-00-5	SW8260D	05/27/2022 18:04	05/27/2022 18:04	BLOD		0.50	1.00	1	ug/L	BMR
1,1-Dichloroethane	07	75-34-3	SW8260D	05/27/2022 18:04	05/27/2022 18:04	BLOD		0.60	1.00	1	ug/L	BMR
1,1-Dichloroethylene	07	75-35-4	SW8260D	05/27/2022 18:04	05/27/2022 18:04	BLOD		0.70	1.00	1	ug/L	BMR
1,1-Dichloropropene	07	563-58-6	SW8260D	05/27/2022 18:04	05/27/2022 18:04	BLOD		0.60	1.00	1	ug/L	BMR
1,2,3-Trichloropropane	07	96-18-4	SW8260D	05/27/2022 18:04	05/27/2022 18:04	BLOD		0.40	1.00	1	ug/L	BMR
1,2,4-Trichlorobenzene	07	120-82-1	SW8260D	05/27/2022 18:04	05/27/2022 18:04	BLOD		0.50	1.00	1	ug/L	BMR
1,2-Dichlorobenzene	07	95-50-1	SW8260D	05/27/2022 18:04	05/27/2022 18:04	BLOD		0.40	1.00	1	ug/L	BMR
1,2-Dichloroethane	07	107-06-2	SW8260D	05/27/2022 18:04	05/27/2022 18:04	BLOD		0.70	1.00	1	ug/L	BMR
1,2-Dichloropropane	07	78-87-5	SW8260D	05/27/2022 18:04	05/27/2022 18:04	BLOD		0.40	1.00	1	ug/L	BMR
1,3-Dichlorobenzene	07	541-73-1	SW8260D	05/27/2022 18:04	05/27/2022 18:04	BLOD		0.30	1.00	1	ug/L	BMR
1,3-Dichloropropane	07	142-28-9	SW8260D	05/27/2022 18:04	05/27/2022 18:04	BLOD		1.00	1.00	1	ug/L	BMR
1,4-Dichlorobenzene	07	106-46-7	SW8260D	05/27/2022 18:04	05/27/2022 18:04	BLOD		0.40	1.00	1	ug/L	BMR
2,2-Dichloropropane	07	594-20-7	SW8260D	05/27/2022 18:04	05/27/2022 18:04	BLOD		0.60	2.00	1	ug/L	BMR
2-Butanone (MEK)	07	78-93-3	SW8260D	05/27/2022 18:04	05/27/2022 18:04	BLOD		3.00	10.0	1	ug/L	BMR
2-Hexanone (MBK)	07	591-78-6	SW8260D	05/27/2022 18:04	05/27/2022 18:04	BLOD		2.20	5.00	1	ug/L	BMR
4-Methyl-2-pentanone (MIBK)	07	108-10-1	SW8260D	05/27/2022 18:04	05/27/2022 18:04	BLOD		1.50	5.00	1	ug/L	BMR
Acetone	07	67-64-1	SW8260D	05/27/2022 18:04	05/27/2022 18:04	BLOD		7.00	10.0	1	ug/L	BMR
Acetonitrile	07	75-05-8	SW8260D	05/27/2022 18:04	05/27/2022 18:04	BLOD		8.00	10.0	1	ug/L	BMR
Acrolein	07	107-02-8	SW8260D	05/27/2022 18:04	05/27/2022 18:04	BLOD		6.00	10.0	1	ug/L	BMR
Acrylonitrile	07	107-13-1	SW8260D	05/27/2022 18:04	05/27/2022 18:04	BLOD		1.70	5.00	1	ug/L	BMR
Allyl chloride	07	107-05-1	SW8260D	05/27/2022 18:04	05/27/2022 18:04	BLOD		0.60	1.00	1	ug/L	BMR

Certificate of Analysis

Client Name: SCS Engineers-Winchester
 Client Site I.D.: City of Bristol 1st Semi-Annual 2022
 Submitted To: Jennifer Robb

Date Issued: 7/12/2022 2:30:28PM

Client Sample ID: MW-104B

Laboratory Sample ID: 22E1388-07

Parameter	Samp ID	CAS	Reference Method	Sample Prep Date/Time	Analyzed Date/Time	Sample Results	Qual	LOD	LOQ	DF	Units	Analyst
Volatile Organic Compounds by GCMS												
Benzene	07	71-43-2	SW8260D	05/27/2022 18:04	05/27/2022 18:04	BLOD		0.40	1.00	1	ug/L	BMR
Bromochloromethane	07	74-97-5	SW8260D	05/27/2022 18:04	05/27/2022 18:04	BLOD		0.50	1.00	1	ug/L	BMR
Bromodichloromethane	07	75-27-4	SW8260D	05/27/2022 18:04	05/27/2022 18:04	BLOD		0.40	0.50	1	ug/L	BMR
Bromoform	07	75-25-2	SW8260D	05/27/2022 18:04	05/27/2022 18:04	BLOD		0.40	1.00	1	ug/L	BMR
Bromomethane	07	74-83-9	SW8260D	05/27/2022 18:04	05/27/2022 18:04	BLOD		0.80	1.00	1	ug/L	BMR
Carbon disulfide	07	75-15-0	SW8260D	05/27/2022 18:04	05/27/2022 18:04	BLOD		5.00	10.0	1	ug/L	BMR
Carbon tetrachloride	07	56-23-5	SW8260D	05/27/2022 18:04	05/27/2022 18:04	BLOD		0.50	1.00	1	ug/L	BMR
Chlorobenzene	07	108-90-7	SW8260D	05/27/2022 18:04	05/27/2022 18:04	BLOD		0.40	1.00	1	ug/L	BMR
Chloroethane	07	75-00-3	SW8260D	05/27/2022 18:04	05/27/2022 18:04	BLOD		0.70	1.00	1	ug/L	BMR
Chloroform	07	67-66-3	SW8260D	05/27/2022 18:04	05/27/2022 18:04	BLOD		0.50	0.50	1	ug/L	BMR
Chloromethane	07	74-87-3	SW8260D	05/27/2022 18:04	05/27/2022 18:04	BLOD		0.95	1.00	1	ug/L	BMR
Chloroprene	07	126-99-8	SW8260D	05/27/2022 18:04	05/27/2022 18:04	BLOD		0.50	5.00	1	ug/L	BMR
cis-1,2-Dichloroethylene	07	156-59-2	SW8260D	05/27/2022 18:04	05/27/2022 18:04	BLOD		0.40	1.00	1	ug/L	BMR
cis-1,3-Dichloropropene	07	10061-01-5	SW8260D	05/27/2022 18:04	05/27/2022 18:04	BLOD		0.30	1.00	1	ug/L	BMR
Dibromochloromethane	07	124-48-1	SW8260D	05/27/2022 18:04	05/27/2022 18:04	BLOD		0.35	0.50	1	ug/L	BMR
Dibromomethane	07	74-95-3	SW8260D	05/27/2022 18:04	05/27/2022 18:04	BLOD		0.40	1.00	1	ug/L	BMR
Dichlorodifluoromethane	07	75-71-8	SW8260D	05/27/2022 18:04	05/27/2022 18:04	BLOD		0.95	1.00	1	ug/L	BMR
Ethyl methacrylate	07	97-63-2	SW8260D	05/27/2022 18:04	05/27/2022 18:04	BLOD		0.70	5.00	1	ug/L	BMR
Ethylbenzene	07	100-41-4	SW8260D	05/27/2022 18:04	05/27/2022 18:04	BLOD		0.40	1.00	1	ug/L	BMR
Iodomethane	07	74-88-4	SW8260D	05/27/2022 18:04	05/27/2022 18:04	BLOD		6.00	10.0	1	ug/L	BMR
Isobutyl Alcohol	07	78-83-1	SW8260D	05/27/2022 18:04	05/27/2022 18:04	BLOD		25.0	40.0	1	ug/L	BMR
m+p-Xylenes	07	179601-23-1	SW8260D	05/27/2022 18:04	05/27/2022 18:04	BLOD		0.60	2.00	1	ug/L	BMR
Methacrylonitrile	07	126-98-7	SW8260D	05/27/2022 18:04	05/27/2022 18:04	BLOD		1.00	1.50	1	ug/L	BMR

Certificate of Analysis

Client Name: SCS Engineers-Winchester
 Client Site I.D.: City of Bristol 1st Semi-Annual 2022
 Submitted To: Jennifer Robb

Date Issued: 7/12/2022 2:30:28PM

Client Sample ID: MW-104B

Laboratory Sample ID: 22E1388-07

Parameter	Samp ID	CAS	Reference Method	Sample Prep Date/Time	Analyzed Date/Time	Sample Results	Qual	LOD	LOQ	DF	Units	Analyst
Volatile Organic Compounds by GCMS												
Methyl methacrylate	07	80-62-6	SW8260D	05/27/2022 18:04	05/27/2022 18:04	BLOD		0.70	2.00	1	ug/L	BMR
Methylene chloride	07	75-09-2	SW8260D	05/27/2022 18:04	05/27/2022 18:04	BLOD		4.00	4.00	1	ug/L	BMR
Naphthalene	07	91-20-3	SW8260D	05/27/2022 18:04	05/27/2022 18:04	BLOD		0.80	1.00	1	ug/L	BMR
o-Xylene	07	95-47-6	SW8260D	05/27/2022 18:04	05/27/2022 18:04	BLOD		0.40	1.00	1	ug/L	BMR
Propionitrile	07	107-12-0	SW8260D	05/27/2022 18:04	05/27/2022 18:04	BLOD		7.50	40.0	1	ug/L	BMR
Styrene	07	100-42-5	SW8260D	05/27/2022 18:04	05/27/2022 18:04	BLOD		0.40	1.00	1	ug/L	BMR
Tetrachloroethylene (PCE)	07	127-18-4	SW8260D	05/27/2022 18:04	05/27/2022 18:04	BLOD		0.40	1.00	1	ug/L	BMR
Toluene	07	108-88-3	SW8260D	05/27/2022 18:04	05/27/2022 18:04	BLOD		0.50	1.00	1	ug/L	BMR
trans-1,2-Dichloroethylene	07	156-60-5	SW8260D	05/27/2022 18:04	05/27/2022 18:04	BLOD		0.60	1.00	1	ug/L	BMR
trans-1,3-Dichloropropene	07	10061-02-6	SW8260D	05/27/2022 18:04	05/27/2022 18:04	BLOD		0.30	1.00	1	ug/L	BMR
trans-1,4-Dichloro-2-butene	07	110-57-6	SW8260D	05/27/2022 18:04	05/27/2022 18:04	BLOD		1.00	4.00	1	ug/L	BMR
Trichloroethylene	07	79-01-6	SW8260D	05/27/2022 18:04	05/27/2022 18:04	BLOD		0.40	1.00	1	ug/L	BMR
Trichlorofluoromethane	07	75-69-4	SW8260D	05/27/2022 18:04	05/27/2022 18:04	BLOD		0.80	1.00	1	ug/L	BMR
Vinyl acetate	07	108-05-4	SW8260D	05/27/2022 18:04	05/27/2022 18:04	BLOD		2.00	10.0	1	ug/L	BMR
Vinyl chloride	07	75-01-4	SW8260D	05/27/2022 18:04	05/27/2022 18:04	BLOD		0.50	0.50	1	ug/L	BMR
Xylenes, Total	07	1330-20-7	SW8260D	05/27/2022 18:04	05/27/2022 18:04	BLOD		1.00	3.00	1	ug/L	BMR
<i>Surr: 1,2-Dichloroethane-d4 (Surr)</i>	07	103 %	70-120	05/27/2022 18:04	05/27/2022 18:04							
<i>Surr: 4-Bromofluorobenzene (Surr)</i>	07	97.6 %	75-120	05/27/2022 18:04	05/27/2022 18:04							
<i>Surr: Dibromofluoromethane (Surr)</i>	07	101 %	70-130	05/27/2022 18:04	05/27/2022 18:04							
<i>Surr: Toluene-d8 (Surr)</i>	07	101 %	70-130	05/27/2022 18:04	05/27/2022 18:04							

Certificate of Analysis

Client Name: SCS Engineers-Winchester
 Client Site I.D.: City of Bristol 1st Semi-Annual 2022
 Submitted To: Jennifer Robb

Date Issued: 7/12/2022 2:30:28PM

Client Sample ID: MW-104B

Laboratory Sample ID: 22E1388-07

Parameter	Samp ID	CAS	Reference Method	Sample Prep Date/Time	Analyzed Date/Time	Sample Results	Qual	LOD	LOQ	DF	Units	Analyst
Semivolatile Organic Compounds by GCMS												
1,2,4,5-Tetrachlorobenzene	07	95-94-3	SW8270E	05/31/2022 09:00	05/31/2022 23:46	BLOD		1.87	10.0	1	ug/L	MGG
1,3,5-Trinitrobenzene	07	99-35-4	SW8270E	05/31/2022 09:00	05/31/2022 23:46	BLOD		0.93	5.00	1	ug/L	MGG
1,3-Dinitrobenzene	07	99-65-0	SW8270E	05/31/2022 09:00	05/31/2022 23:46	BLOD		2.34	2.50	1	ug/L	MGG
1,4-Naphthoquinone	07	130-15-4	SW8270E	05/31/2022 09:00	05/31/2022 23:46	BLOD		1.87	10.0	1	ug/L	MGG
1-Naphthylamine	07	134-32-7	SW8270E	05/31/2022 09:00	05/31/2022 23:46	BLOD		0.93	10.0	1	ug/L	MGG
2,3,4,6-Tetrachlorophenol	07	58-90-2	SW8270E	05/31/2022 09:00	05/31/2022 23:46	BLOD		0.93	10.0	1	ug/L	MGG
2,4,5-Trichlorophenol	07	95-95-4	SW8270E	05/31/2022 09:00	05/31/2022 23:46	BLOD		0.93	10.0	1	ug/L	MGG
2,4,6-Trichlorophenol	07	88-06-2	SW8270E	05/31/2022 09:00	05/31/2022 23:46	BLOD		7.48	10.0	1	ug/L	MGG
2,4-Dichlorophenol	07	120-83-2	SW8270E	05/31/2022 09:00	05/31/2022 23:46	BLOD		2.80	10.0	1	ug/L	MGG
2,4-Dimethylphenol	07	105-67-9	SW8270E	05/31/2022 09:00	05/31/2022 23:46	BLOD		4.67	4.67	1	ug/L	MGG
2,4-Dinitrophenol	07	51-28-5	SW8270E	05/31/2022 09:00	05/31/2022 23:46	BLOD		7.48	50.0	1	ug/L	MGG
2,4-Dinitrotoluene	07	121-14-2	SW8270E	05/31/2022 09:00	05/31/2022 23:46	BLOD		5.61	10.0	1	ug/L	MGG
2,6-Dichlorophenol	07	87-65-0	SW8270E	05/31/2022 09:00	05/31/2022 23:46	BLOD		0.93	10.0	1	ug/L	MGG
2,6-Dinitrotoluene	07	606-20-2	SW8270E	05/31/2022 09:00	05/31/2022 23:46	BLOD		3.74	10.0	1	ug/L	MGG
2-Acetylaminofluorene	07	53-96-3	SW8270E	05/31/2022 09:00	05/31/2022 23:46	BLOD		2.34	2.50	1	ug/L	MGG
2-Chloronaphthalene	07	91-58-7	SW8270E	05/31/2022 09:00	05/31/2022 23:46	BLOD		4.21	10.0	1	ug/L	MGG
2-Chlorophenol	07	95-57-8	SW8270E	05/31/2022 09:00	05/31/2022 23:46	BLOD		3.27	10.0	1	ug/L	MGG
2-Methylnaphthalene	07	91-57-6	SW8270E	05/31/2022 09:00	05/31/2022 23:46	BLOD		1.87	10.0	1	ug/L	MGG
2-Naphthylamine	07	91-59-8	SW8270E	05/31/2022 09:00	05/31/2022 23:46	BLOD		1.87	10.0	1	ug/L	MGG
2-Nitroaniline	07	88-74-4	SW8270E	05/31/2022 09:00	05/31/2022 23:46	BLOD		1.87	20.0	1	ug/L	MGG
2-Nitrophenol	07	88-75-5	SW8270E	05/31/2022 09:00	05/31/2022 23:46	BLOD		5.61	10.0	1	ug/L	MGG
3,3'-Dichlorobenzidine	07	91-94-1	SW8270E	05/31/2022 09:00	05/31/2022 23:46	BLOD		3.74	10.0	1	ug/L	MGG
3,3'-Dimethylbenzidine	07	119-93-7	SW8270E	05/31/2022 09:00	05/31/2022 23:46	BLOD		2.34	2.50	1	ug/L	MGG
3-Methylcholanthrene	07	56-49-5	SW8270E	05/31/2022 09:00	05/31/2022 23:46	BLOD		0.93	10.0	1	ug/L	MGG

Certificate of Analysis

Client Name: SCS Engineers-Winchester
 Client Site I.D.: City of Bristol 1st Semi-Annual 2022
 Submitted To: Jennifer Robb

Date Issued: 7/12/2022 2:30:28PM

Client Sample ID: MW-104B

Laboratory Sample ID: 22E1388-07

Parameter	Samp ID	CAS	Reference Method	Sample Prep Date/Time	Analyzed Date/Time	Sample Results	Qual	LOD	LOQ	DF	Units	Analyst
Semivolatile Organic Compounds by GCMS												
3-Nitroaniline	07	99-09-2	SW8270E	05/31/2022 09:00	05/31/2022 23:46	BLOD		1.87	20.0	1	ug/L	MGG
4,6-Dinitro-2-methylphenol	07	534-52-1	SW8270E	05/31/2022 09:00	05/31/2022 23:46	BLOD		7.48	50.0	1	ug/L	MGG
4-Aminobiphenyl	07	92-67-1	SW8270E	05/31/2022 09:00	05/31/2022 23:46	BLOD		1.87	10.0	1	ug/L	MGG
4-Bromophenyl phenyl ether	07	101-55-3	SW8270E	05/31/2022 09:00	05/31/2022 23:46	BLOD		3.27	10.0	1	ug/L	MGG
4-Chloroaniline	07	106-47-8	SW8270E	05/31/2022 09:00	05/31/2022 23:46	BLOD		1.87	10.0	1	ug/L	MGG
4-Chlorophenyl phenyl ether	07	7005-72-3	SW8270E	05/31/2022 09:00	05/31/2022 23:46	BLOD		3.27	10.0	1	ug/L	MGG
4-Nitroaniline	07	100-01-6	SW8270E	05/31/2022 09:00	05/31/2022 23:46	BLOD		1.87	20.0	1	ug/L	MGG
4-Nitrophenol	07	100-02-7	SW8270E	05/31/2022 09:00	05/31/2022 23:46	BLOD		1.87	50.0	1	ug/L	MGG
5-Nitro-o-toluidine	07	99-55-8	SW8270E	05/31/2022 09:00	05/31/2022 23:46	BLOD		1.87	10.0	1	ug/L	MGG
7,12-Dimethylbenz (a) anthracene	07	57-97-6	SW8270E	05/31/2022 09:00	05/31/2022 23:46	BLOD		1.87	10.0	1	ug/L	MGG
Acenaphthene	07	83-32-9	SW8270E	05/31/2022 09:00	05/31/2022 23:46	BLOD		3.74	10.0	1	ug/L	MGG
Acenaphthylene	07	208-96-8	SW8270E	05/31/2022 09:00	05/31/2022 23:46	BLOD		3.74	10.0	1	ug/L	MGG
Acetophenone	07	98-86-2	SW8270E	05/31/2022 09:00	05/31/2022 23:46	BLOD		1.87	20.0	1	ug/L	MGG
Anthracene	07	120-12-7	SW8270E	05/31/2022 09:00	05/31/2022 23:46	BLOD		4.67	10.0	1	ug/L	MGG
Benzo (a) anthracene	07	56-55-3	SW8270E	05/31/2022 09:00	05/31/2022 23:46	BLOD		3.27	9.35	1	ug/L	MGG
Benzo (a) pyrene	07	50-32-8	SW8270E	05/31/2022 09:00	05/31/2022 23:46	BLOD		0.19	0.20	1	ug/L	MGG
Benzo (b) fluoranthene	07	205-99-2	SW8270E	05/31/2022 09:00	05/31/2022 23:46	BLOD		3.74	10.0	1	ug/L	MGG
Benzo (g,h,i) perylene	07	191-24-2	SW8270E	05/31/2022 09:00	05/31/2022 23:46	BLOD		4.67	10.0	1	ug/L	MGG
Benzo (k) fluoranthene	07	207-08-9	SW8270E	05/31/2022 09:00	05/31/2022 23:46	BLOD		5.61	10.0	1	ug/L	MGG
Benzyl alcohol	07	100-51-6	SW8270E	05/31/2022 09:00	05/31/2022 23:46	BLOD		0.93	20.0	1	ug/L	MGG
bis (2-Chloroethoxy) methane	07	111-91-1	SW8270E	05/31/2022 09:00	05/31/2022 23:46	BLOD		3.27	10.0	1	ug/L	MGG
bis (2-Chloroethyl) ether	07	111-44-4	SW8270E	05/31/2022 09:00	05/31/2022 23:46	BLOD		3.27	10.0	1	ug/L	MGG
2,2'-Oxybis (1-chloropropane)	07	108-60-1	SW8270E	05/31/2022 09:00	05/31/2022 23:46	BLOD		2.80	10.0	1	ug/L	MGG
bis (2-Ethylhexyl) phthalate	07	117-81-7	SW8270E	05/31/2022 09:00	05/31/2022 23:46	BLOD		4.67	5.00	1	ug/L	MGG

Certificate of Analysis

Client Name: SCS Engineers-Winchester
 Client Site I.D.: City of Bristol 1st Semi-Annual 2022
 Submitted To: Jennifer Robb

Date Issued: 7/12/2022 2:30:28PM

Client Sample ID: MW-104B

Laboratory Sample ID: 22E1388-07

Parameter	Samp ID	CAS	Reference Method	Sample Prep Date/Time	Analyzed Date/Time	Sample Results	Qual	LOD	LOQ	DF	Units	Analyst
Semivolatile Organic Compounds by GCMS												
Butyl benzyl phthalate	07	85-68-7	SW8270E	05/31/2022 09:00	05/31/2022 23:46	BLOD		6.54	10.0	1	ug/L	MGG
Chlorobenzilate	07	510-15-6	SW8270E	05/31/2022 09:00	05/31/2022 23:46	BLOD		2.34	2.50	1	ug/L	MGG
Chrysene	07	218-01-9	SW8270E	05/31/2022 09:00	05/31/2022 23:46	BLOD		3.74	10.0	1	ug/L	MGG
Diallate	07	2303-16-4	SW8270E	05/31/2022 09:00	05/31/2022 23:46	BLOD		2.34	2.50	1	ug/L	MGG
Dibenz (a,h) anthracene	07	53-70-3	SW8270E	05/31/2022 09:00	05/31/2022 23:46	BLOD		4.67	10.0	1	ug/L	MGG
Dibenzofuran	07	132-64-9	SW8270E	05/31/2022 09:00	05/31/2022 23:46	BLOD		1.87	5.00	1	ug/L	MGG
Diethyl phthalate	07	84-66-2	SW8270E	05/31/2022 09:00	05/31/2022 23:46	BLOD		2.80	10.0	1	ug/L	MGG
Dimethoate	07	60-51-5	SW8270E	05/31/2022 09:00	05/31/2022 23:46	BLOD		2.34	2.50	1	ug/L	MGG
Dimethyl phthalate	07	131-11-3	SW8270E	05/31/2022 09:00	05/31/2022 23:46	BLOD		3.27	10.0	1	ug/L	MGG
Di-n-butyl phthalate	07	84-74-2	SW8270E	05/31/2022 09:00	05/31/2022 23:46	BLOD		3.74	10.0	1	ug/L	MGG
Di-n-octyl phthalate	07	117-84-0	SW8270E	05/31/2022 09:00	05/31/2022 23:46	BLOD		7.48	10.0	1	ug/L	MGG
Diphenylamine	07	122-39-4	SW8270E	05/31/2022 09:00	05/31/2022 23:46	BLOD		1.87	10.0	1	ug/L	MGG
Disulfoton	07	298-04-4	SW8270E	05/31/2022 09:00	05/31/2022 23:46	BLOD		2.34	2.50	1	ug/L	MGG
Ethyl methanesulfonate	07	62-50-0	SW8270E	05/31/2022 09:00	05/31/2022 23:46	BLOD		0.93	20.0	1	ug/L	MGG
Ethyl parathion	07	56-38-2	SW8270E	05/31/2022 09:00	05/31/2022 23:46	BLOD		2.34	2.50	1	ug/L	MGG
Famphur	07	52-85-7	SW8270E	05/31/2022 09:00	05/31/2022 23:46	BLOD		2.34	2.50	1	ug/L	MGG
Fluoranthene	07	206-44-0	SW8270E	05/31/2022 09:00	05/31/2022 23:46	BLOD		4.67	10.0	1	ug/L	MGG
Fluorene	07	86-73-7	SW8270E	05/31/2022 09:00	05/31/2022 23:46	BLOD		3.74	10.0	1	ug/L	MGG
Hexachlorobenzene	07	118-74-1	SW8270E	05/31/2022 09:00	05/31/2022 23:46	BLOD		0.93	0.93	1	ug/L	MGG
Hexachlorobutadiene	07	87-68-3	SW8270E	05/31/2022 09:00	05/31/2022 23:46	BLOD		4.21	10.0	1	ug/L	MGG
Hexachlorocyclopentadiene	07	77-47-4	SW8270E	05/31/2022 09:00	05/31/2022 23:46	BLOD		3.74	10.0	1	ug/L	MGG
Hexachloroethane	07	67-72-1	SW8270E	05/31/2022 09:00	05/31/2022 23:46	BLOD		3.27	10.0	1	ug/L	MGG
Hexachloropropene	07	1888-71-7	SW8270E	05/31/2022 09:00	05/31/2022 23:46	BLOD		1.87	2.50	1	ug/L	MGG
Indeno (1,2,3-cd) pyrene	07	193-39-5	SW8270E	05/31/2022 09:00	05/31/2022 23:46	BLOD		2.80	10.0	1	ug/L	MGG

Certificate of Analysis

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Client Sample ID: MW-104B

Laboratory Sample ID: 22E1388-07

Parameter	Samp ID	CAS	Reference Method	Sample Prep Date/Time	Analyzed Date/Time	Sample Results	Qual	LOD	LOQ	DF	Units	Analyst
Semivolatle Organic Compounds by GCMS												
Isodrin	07	465-73-6	SW8270E	05/31/2022 09:00	05/31/2022 23:46	BLOD		0.93	10.0	1	ug/L	MGG
Isophorone	07	78-59-1	SW8270E	05/31/2022 09:00	05/31/2022 23:46	BLOD		4.67	10.0	1	ug/L	MGG
Isosafrole	07	120-58-1	SW8270E	05/31/2022 09:00	05/31/2022 23:46	BLOD		1.87	10.0	1	ug/L	MGG
Kepona	07	143-50-0	SW8270E	05/31/2022 09:00	05/31/2022 23:46	BLOD		1.87	9.35	1	ug/L	MGG
m+p-Cresols	07	1319-77-3	SW8270E	05/31/2022 09:00	05/31/2022 23:46	BLOD		0.93	10.0	1	ug/L	MGG
Methapyrilene	07	91-80-5	SW8270E	05/31/2022 09:00	05/31/2022 23:46	BLOD		0.93	10.0	1	ug/L	MGG
Methyl methanesulfonate	07	66-27-3	SW8270E	05/31/2022 09:00	05/31/2022 23:46	BLOD	C	0.93	10.0	1	ug/L	MGG
Methyl parathion	07	298-00-0	SW8270E	05/31/2022 09:00	05/31/2022 23:46	BLOD		1.87	2.50	1	ug/L	MGG
Nitrobenzene	07	98-95-3	SW8270E	05/31/2022 09:00	05/31/2022 23:46	BLOD		2.80	10.0	1	ug/L	MGG
n-Nitrosodiethylamine	07	55-18-5	SW8270E	05/31/2022 09:00	05/31/2022 23:46	BLOD		2.34	2.50	1	ug/L	MGG
n-Nitrosodimethylamine	07	62-75-9	SW8270E	05/31/2022 09:00	05/31/2022 23:46	BLOD		2.80	10.0	1	ug/L	MGG
n-Nitrosodi-n-butylamine	07	924-16-3	SW8270E	05/31/2022 09:00	05/31/2022 23:46	BLOD		1.87	10.0	1	ug/L	MGG
n-Nitrosodi-n-propylamine	07	621-64-7	SW8270E	05/31/2022 09:00	05/31/2022 23:46	BLOD		3.27	10.0	1	ug/L	MGG
n-Nitrosodiphenylamine	07	86-30-6	SW8270E	05/31/2022 09:00	05/31/2022 23:46	BLOD		2.80	10.0	1	ug/L	MGG
n-Nitrosomethylethylamine	07	10595-95-6	SW8270E	05/31/2022 09:00	05/31/2022 23:46	BLOD		1.87	2.50	1	ug/L	MGG
n-Nitrosopiperidine	07	100-75-4	SW8270E	05/31/2022 09:00	05/31/2022 23:46	BLOD		1.87	10.0	1	ug/L	MGG
n-Nitrosopyrrolidine	07	930-55-2	SW8270E	05/31/2022 09:00	05/31/2022 23:46	BLOD		1.87	2.50	1	ug/L	MGG
o,o,o-Triethyl phosphorothioate	07	126-68-1	SW8270E	05/31/2022 09:00	05/31/2022 23:46	BLOD		1.87	10.0	1	ug/L	MGG
o,o-Diethyl o-2-pyrazinyl phosphorothioate	07	297-97-2	SW8270E	05/31/2022 09:00	05/31/2022 23:46	BLOD		1.87	10.0	1	ug/L	MGG
o+m+p-Cresols	07	1319-77-3	SW8270E	05/31/2022 09:00	05/31/2022 23:46	BLOD		2.80	10.0	1	ug/L	MGG
o-Cresol	07	95-48-7	SW8270E	05/31/2022 09:00	05/31/2022 23:46	BLOD		7.48	10.0	1	ug/L	MGG
o-Toluidine	07	95-53-4	SW8270E	05/31/2022 09:00	05/31/2022 23:46	BLOD		1.87	2.50	1	ug/L	MGG
p-(Dimethylamino) azobenzene	07	60-11-7	SW8270E	05/31/2022 09:00	05/31/2022 23:46	BLOD		0.93	2.50	1	ug/L	MGG

Certificate of Analysis

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Date Issued: 7/12/2022 2:30:28PM

Client Sample ID: MW-104B

Laboratory Sample ID: 22E1388-07

Parameter	Samp ID	CAS	Reference Method	Sample Prep Date/Time	Analyzed Date/Time	Sample Results	Qual	LOD	LOQ	DF	Units	Analyst
Semivolatile Organic Compounds by GCMS												
p-Chloro-m-cresol	07	59-50-7	SW8270E	05/31/2022 09:00	05/31/2022 23:46	BLOD		7.48	10.0	1	ug/L	MGG
Pentachlorobenzene	07	608-93-5	SW8270E	05/31/2022 09:00	05/31/2022 23:46	BLOD		1.87	10.0	1	ug/L	MGG
Pentachloronitrobenzene (quintozene)	07	82-68-8	SW8270E	05/31/2022 09:00	05/31/2022 23:46	BLOD		0.93	9.35	1	ug/L	MGG
Phenacetin	07	62-44-2	SW8270E	05/31/2022 09:00	05/31/2022 23:46	BLOD		0.93	10.0	1	ug/L	MGG
Phenanthrene	07	85-01-8	SW8270E	05/31/2022 09:00	05/31/2022 23:46	BLOD		7.48	10.0	1	ug/L	MGG
Phenol	07	108-95-2	SW8270E	05/31/2022 09:00	05/31/2022 23:46	BLOD		2.34	10.0	1	ug/L	MGG
Phorate	07	298-02-2	SW8270E	05/31/2022 09:00	05/31/2022 23:46	BLOD		1.87	2.50	1	ug/L	MGG
p-Phenylenediamine	07	106-50-3	SW8270E	05/31/2022 09:00	05/31/2022 23:46	BLOD	C	1.87	10.0	1	ug/L	MGG
Pronamide	07	23950-58-5	SW8270E	05/31/2022 09:00	05/31/2022 23:46	BLOD		1.87	10.0	1	ug/L	MGG
Pyrene	07	129-00-0	SW8270E	05/31/2022 09:00	05/31/2022 23:46	BLOD		6.54	10.0	1	ug/L	MGG
Safrole	07	94-59-7	SW8270E	05/31/2022 09:00	05/31/2022 23:46	BLOD		1.87	2.50	1	ug/L	MGG
<i>Surr: 2,4,6-Tribromophenol (Surr)</i>	07	70.2 %	10-86	05/31/2022 09:00	05/31/2022 23:46							
<i>Surr: 2-Fluorobiphenyl (Surr)</i>	07	81.2 %	9-87	05/31/2022 09:00	05/31/2022 23:46							
<i>Surr: 2-Fluorophenol (Surr)</i>	07	42.2 %	10-52	05/31/2022 09:00	05/31/2022 23:46							
<i>Surr: Nitrobenzene-d5 (Surr)</i>	07	91.1 %	10-98.5	05/31/2022 09:00	05/31/2022 23:46							
<i>Surr: Phenol-d5 (Surr)</i>	07	29.8 %	5-33	05/31/2022 09:00	05/31/2022 23:46							
<i>Surr: p-Terphenyl-d14 (Surr)</i>	07	89.0 %	27-133	05/31/2022 09:00	05/31/2022 23:46							

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Parameter	Samp ID	CAS	Reference Method	Sample Prep Date/Time	Analyzed Date/Time	Sample Results	Qual	LOD	LOQ	DF	Units	Analyst
Organochlorine Pesticides and PCBs by GC/ECD												
PCB as Aroclor 1016	07	12674-11-2	SW8082A	05/31/2022 09:00	06/01/2022 12:47	BLOD		0.140	0.200	1	ug/L	LBH2
PCB as Aroclor 1221	07	11104-28-2	SW8082A	05/31/2022 09:00	06/01/2022 12:47	BLOD		0.140	0.200	1	ug/L	LBH2
PCB as Aroclor 1232	07	11141-16-5	SW8082A	05/31/2022 09:00	06/01/2022 12:47	BLOD		0.140	0.200	1	ug/L	LBH2
PCB as Aroclor 1242	07	53469-21-9	SW8082A	05/31/2022 09:00	06/01/2022 12:47	BLOD		0.140	0.200	1	ug/L	LBH2
PCB as Aroclor 1248	07	12672-29-6	SW8082A	05/31/2022 09:00	06/01/2022 12:47	BLOD		0.140	0.200	1	ug/L	LBH2
PCB as Aroclor 1254	07	11097-69-1	SW8082A	05/31/2022 09:00	06/01/2022 12:47	BLOD		0.140	0.200	1	ug/L	LBH2
PCB as Aroclor 1260	07	11096-82-5	SW8082A	05/31/2022 09:00	06/01/2022 12:47	BLOD		0.140	0.200	1	ug/L	LBH2
<i>Surr: DCB</i>	07	65.9 %	30-105	05/31/2022 09:00	06/01/2022 12:47							
<i>Surr: TCMX</i>	07	70.0 %	30-105	05/31/2022 09:00	06/01/2022 12:47							
4,4'-DDD	07	72-54-8	SW8081B	05/31/2022 09:00	06/01/2022 12:47	BLOD		0.005	0.050	1	ug/L	LBH2
4,4'-DDE	07	72-55-9	SW8081B	05/31/2022 09:00	06/01/2022 12:47	BLOD		0.005	0.050	1	ug/L	LBH2
4,4'-DDT	07	50-29-3	SW8081B	05/31/2022 09:00	06/01/2022 12:47	BLOD		0.005	0.050	1	ug/L	LBH2
Aldrin	07	309-00-2	SW8081B	05/31/2022 09:00	06/01/2022 12:47	BLOD		0.005	0.050	1	ug/L	LBH2
alpha-BHC	07	319-84-6	SW8081B	05/31/2022 09:00	06/01/2022 12:47	BLOD		0.005	0.050	1	ug/L	LBH2
alpha-Chlordane	07	5103-71-9	SW8081B	05/31/2022 09:00	06/01/2022 12:47	BLOD		0.005	0.050	1	ug/L	LBH2
beta-BHC	07	319-85-7	SW8081B	05/31/2022 09:00	06/01/2022 12:47	BLOD		0.019	0.050	1	ug/L	LBH2
Chlordane	07	57-74-9	SW8081B	05/31/2022 09:00	06/01/2022 12:47	BLOD		0.187	0.200	1	ug/L	LBH2
delta-BHC	07	319-86-8	SW8081B	05/31/2022 09:00	06/01/2022 12:47	BLOD		0.005	0.050	1	ug/L	LBH2
Dieldrin	07	60-57-1	SW8081B	05/31/2022 09:00	06/01/2022 12:47	BLOD		0.005	0.050	1	ug/L	LBH2
Endosulfan I	07	959-98-8	SW8081B	05/31/2022 09:00	06/01/2022 12:47	BLOD		0.005	0.050	1	ug/L	LBH2
Endosulfan II	07	33213-65-9	SW8081B	05/31/2022 09:00	06/01/2022 12:47	BLOD		0.005	0.050	1	ug/L	LBH2
Endosulfan sulfate	07	1031-07-8	SW8081B	05/31/2022 09:00	06/01/2022 12:47	BLOD		0.005	0.050	1	ug/L	LBH2
Endrin	07	72-20-8	SW8081B	05/31/2022 09:00	06/01/2022 12:47	BLOD		0.005	0.050	1	ug/L	LBH2
Endrin aldehyde	07	7421-93-4	SW8081B	05/31/2022 09:00	06/01/2022 12:47	BLOD		0.005	0.050	1	ug/L	LBH2

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Laboratory Sample ID: 22E1388-07

Parameter	Samp ID	CAS	Reference Method	Sample Prep Date/Time	Analyzed Date/Time	Sample Results	Qual	LOD	LOQ	DF	Units	Analyst
Organochlorine Pesticides and PCBs by GC/ECD												
gamma-BHC (Lindane)	07	58-89-9	SW8081B	05/31/2022 09:00	06/01/2022 12:47	BLOD		0.005	0.050	1	ug/L	LBH2
gamma-Chlordane	07	5103-74-2	SW8081B	05/31/2022 09:00	06/01/2022 12:47	BLOD		0.005	0.050	1	ug/L	LBH2
Heptachlor	07	76-44-8	SW8081B	05/31/2022 09:00	06/01/2022 12:47	BLOD		0.005	0.050	1	ug/L	LBH2
Heptachlor epoxide	07	1024-57-3	SW8081B	05/31/2022 09:00	06/01/2022 12:47	BLOD		0.005	0.050	1	ug/L	LBH2
Methoxychlor	07	72-43-5	SW8081B	05/31/2022 09:00	06/01/2022 12:47	BLOD		0.005	0.050	1	ug/L	LBH2
Toxaphene	07	8001-35-2	SW8081B	05/31/2022 09:00	06/01/2022 12:47	BLOD		0.187	1.00	1	ug/L	LBH2
Surr: TCMX	07	70.0 %	18-112	05/31/2022 09:00	06/01/2022 12:47							
Surr: DCB	07	102 %	27-131	05/31/2022 09:00	06/01/2022 12:47							

Certificate of Analysis

Client Name: SCS Engineers-Winchester
 Client Site I.D.: City of Bristol 1st Semi-Annual 2022
 Submitted To: Jennifer Robb

Date Issued: 7/12/2022 2:30:28PM

Client Sample ID: MW-104B

Laboratory Sample ID: 22E1388-07

Parameter	Samp ID	CAS	Reference Method	Sample Prep Date/Time	Analyzed Date/Time	Sample Results	Qual	LOD	LOQ	DF	Units	Analyst
Organochlorine Herbicides by GC/ECD												
2,4,5-T	07	93-76-5	SW8151A	05/31/2022 16:20	06/09/2022 13:05	BLOD		0.200	0.500	1	ug/L	LBH2
2,4,5-TP (Silvex)	07	93-72-1	SW8151A	05/31/2022 16:20	06/09/2022 13:05	BLOD		0.107	0.500	1	ug/L	LBH2
2,4-D	07	94-75-7	SW8151A	05/31/2022 16:20	06/09/2022 13:05	BLOD		0.200	0.500	1	ug/L	LBH2
Dinoseb	07	88-85-7	SW8151A	05/31/2022 16:20	06/09/2022 13:05	BLOD		0.200	0.500	1	ug/L	LBH2
Pentachlorophenol	07	87-86-5	SW8151A	05/31/2022 16:20	06/09/2022 13:05	BLOD		0.200	0.500	1	ug/L	LBH2
<i>Surr: DCAA (Surr)</i>	07	91.5 %	48.5-134	05/31/2022 16:20	06/09/2022 13:05							

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Micro-extractables by GC/ECD												
1,2-Dibromoethane (EDB)	07	106-93-4	SW8011	06/01/2022 11:30	06/02/2022 08:46	BLOD		0.008	0.010	1	ug/L	LBH2
1,2,3-Trichloropropane	07	96-18-4	SW8011	06/01/2022 11:30	06/02/2022 08:46	BLOD		0.009	0.010	1	ug/L	LBH2
1,2-Dibromo-3-chloropropane (DBCP)	07	96-12-8	SW8011	06/01/2022 11:30	06/02/2022 08:46	BLOD		0.005	0.010	1	ug/L	LBH2

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Parameter	Samp ID	CAS	Reference Method	Sample Prep Date/Time	Analyzed Date/Time	Sample Results	Qual	LOD	LOQ	DF	Units	Analyst
Wet Chemistry Analysis												
Cyanide	07	57-12-5	SW9012B	06/06/2022 17:25	06/06/2022 17:25	BLOD	CI	0.01	0.01	1	mg/L	Omnion Use
Sulfide	07	18496-25-8	SW9215	05/27/2022 18:30	05/27/2022 18:30	6.23		0.80	1.00	1	mg/L	MJRL

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Client Sample ID: MW-104A

Laboratory Sample ID: 22E1388-08

Parameter	Samp ID	CAS	Reference Method	Sample Prep Date/Time	Analyzed Date/Time	Sample Results	Qual	LOD	LOQ	DF	Units	Analyst
Metals (Total) by EPA 6000/7000 Series Methods												
Silver	08	7440-22-4	SW6020B	05/31/2022 13:00	06/02/2022 14:54	BLOD		0.0600	1.00	1	ug/L	RCV
Arsenic	08	7440-38-2	SW6020B	05/31/2022 13:00	06/02/2022 14:54	9.0		0.50	1.0	1	ug/L	RCV
Barium	08	7440-39-3	SW6020B	05/31/2022 13:00	06/02/2022 14:54	70.4		1.00	5.00	1	ug/L	RCV
Beryllium	08	7440-41-7	SW6020B	05/31/2022 13:00	06/02/2022 14:54	BLOD		0.200	1.00	1	ug/L	RCV
Cadmium	08	7440-43-9	SW6020B	05/31/2022 13:00	06/02/2022 14:54	BLOD		0.100	1.00	1	ug/L	RCV
Cobalt	08	7440-48-4	SW6020B	05/31/2022 13:00	06/02/2022 14:54	0.986	J	0.200	1.00	1	ug/L	RCV
Chromium	08	7440-47-3	SW6020B	05/31/2022 13:00	06/02/2022 14:54	BLOD		0.400	1.00	1	ug/L	RCV
Copper	08	7440-50-8	SW6020B	05/31/2022 13:00	06/02/2022 14:54	1.08		0.300	1.00	1	ug/L	RCV
Mercury	08	7439-97-6	SW7470A	06/09/2022 10:29	06/09/2022 15:03	BLOD		0.00020	0.00020	1	mg/L	MWL
Nickel	08	7440-02-0	SW6020B	05/31/2022 13:00	06/02/2022 14:54	1.468		1.000	1.000	1	ug/L	RCV
Lead	08	7439-92-1	SW6020B	05/31/2022 13:00	06/02/2022 14:54	BLOD		1.0	1.0	1	ug/L	RCV
Antimony	08	7440-36-0	SW6020B	05/31/2022 13:00	06/02/2022 14:54	BLOD		1.0	1.0	1	ug/L	RCV
Selenium	08	7782-49-2	SW6020B	05/31/2022 13:00	06/02/2022 14:54	BLOD		0.850	1.00	1	ug/L	RCV
Tin	08	7440-31-5	SW6020B	05/31/2022 13:00	06/02/2022 14:54	BLOD		1.00	1.00	1	ug/L	RCV
Thallium	08	7440-28-0	SW6020B	05/31/2022 13:00	06/02/2022 14:54	BLOD		1.0	1.0	1	ug/L	RCV
Vanadium	08	7440-62-2	SW6020B	05/31/2022 13:00	06/02/2022 14:54	BLOD		2.50	5.00	1	ug/L	RCV
Zinc	08	7440-66-6	SW6020B	05/31/2022 13:00	06/02/2022 14:54	9.45		2.50	5.00	1	ug/L	RCV

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Laboratory Sample ID: 22E1388-08

Parameter	Samp ID	CAS	Reference Method	Sample Prep Date/Time	Analyzed Date/Time	Sample Results	Qual	LOD	LOQ	DF	Units	Analyst
Volatile Organic Compounds by GCMS												
1,1,1,2-Tetrachloroethane	08	630-20-6	SW8260D	05/27/2022 18:29	05/27/2022 18:29	BLOD		0.40	0.40	1	ug/L	BMR
1,1,1-Trichloroethane	08	71-55-6	SW8260D	05/27/2022 18:29	05/27/2022 18:29	BLOD		0.60	1.00	1	ug/L	BMR
1,1,2,2-Tetrachloroethane	08	79-34-5	SW8260D	05/27/2022 18:29	05/27/2022 18:29	BLOD		0.30	0.40	1	ug/L	BMR
1,1,2-Trichloroethane	08	79-00-5	SW8260D	05/27/2022 18:29	05/27/2022 18:29	BLOD		0.50	1.00	1	ug/L	BMR
1,1-Dichloroethane	08	75-34-3	SW8260D	05/27/2022 18:29	05/27/2022 18:29	BLOD		0.60	1.00	1	ug/L	BMR
1,1-Dichloroethylene	08	75-35-4	SW8260D	05/27/2022 18:29	05/27/2022 18:29	BLOD		0.70	1.00	1	ug/L	BMR
1,1-Dichloropropene	08	563-58-6	SW8260D	05/27/2022 18:29	05/27/2022 18:29	BLOD		0.60	1.00	1	ug/L	BMR
1,2,3-Trichloropropane	08	96-18-4	SW8260D	05/27/2022 18:29	05/27/2022 18:29	BLOD		0.40	1.00	1	ug/L	BMR
1,2,4-Trichlorobenzene	08	120-82-1	SW8260D	05/27/2022 18:29	05/27/2022 18:29	BLOD		0.50	1.00	1	ug/L	BMR
1,2-Dichlorobenzene	08	95-50-1	SW8260D	05/27/2022 18:29	05/27/2022 18:29	BLOD		0.40	1.00	1	ug/L	BMR
1,2-Dichloroethane	08	107-06-2	SW8260D	05/27/2022 18:29	05/27/2022 18:29	BLOD		0.70	1.00	1	ug/L	BMR
1,2-Dichloropropane	08	78-87-5	SW8260D	05/27/2022 18:29	05/27/2022 18:29	BLOD		0.40	1.00	1	ug/L	BMR
1,3-Dichlorobenzene	08	541-73-1	SW8260D	05/27/2022 18:29	05/27/2022 18:29	BLOD		0.30	1.00	1	ug/L	BMR
1,3-Dichloropropane	08	142-28-9	SW8260D	05/27/2022 18:29	05/27/2022 18:29	BLOD		1.00	1.00	1	ug/L	BMR
1,4-Dichlorobenzene	08	106-46-7	SW8260D	05/27/2022 18:29	05/27/2022 18:29	BLOD		0.40	1.00	1	ug/L	BMR
2,2-Dichloropropane	08	594-20-7	SW8260D	05/27/2022 18:29	05/27/2022 18:29	BLOD		0.60	2.00	1	ug/L	BMR
2-Butanone (MEK)	08	78-93-3	SW8260D	05/27/2022 18:29	05/27/2022 18:29	BLOD		3.00	10.0	1	ug/L	BMR
2-Hexanone (MBK)	08	591-78-6	SW8260D	05/27/2022 18:29	05/27/2022 18:29	BLOD		2.20	5.00	1	ug/L	BMR
4-Methyl-2-pentanone (MIBK)	08	108-10-1	SW8260D	05/27/2022 18:29	05/27/2022 18:29	BLOD		1.50	5.00	1	ug/L	BMR
Acetone	08	67-64-1	SW8260D	05/27/2022 18:29	05/27/2022 18:29	BLOD		7.00	10.0	1	ug/L	BMR
Acetonitrile	08	75-05-8	SW8260D	05/27/2022 18:29	05/27/2022 18:29	BLOD		8.00	10.0	1	ug/L	BMR
Acrolein	08	107-02-8	SW8260D	05/27/2022 18:29	05/27/2022 18:29	BLOD		6.00	10.0	1	ug/L	BMR
Acrylonitrile	08	107-13-1	SW8260D	05/27/2022 18:29	05/27/2022 18:29	BLOD		1.70	5.00	1	ug/L	BMR
Allyl chloride	08	107-05-1	SW8260D	05/27/2022 18:29	05/27/2022 18:29	BLOD		0.60	1.00	1	ug/L	BMR

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Laboratory Sample ID: 22E1388-08

Parameter	Samp ID	CAS	Reference Method	Sample Prep Date/Time	Analyzed Date/Time	Sample Results	Qual	LOD	LOQ	DF	Units	Analyst
Volatile Organic Compounds by GCMS												
Benzene	08	71-43-2	SW8260D	05/27/2022 18:29	05/27/2022 18:29	BLOD		0.40	1.00	1	ug/L	BMR
Bromochloromethane	08	74-97-5	SW8260D	05/27/2022 18:29	05/27/2022 18:29	BLOD		0.50	1.00	1	ug/L	BMR
Bromodichloromethane	08	75-27-4	SW8260D	05/27/2022 18:29	05/27/2022 18:29	BLOD		0.40	0.50	1	ug/L	BMR
Bromoform	08	75-25-2	SW8260D	05/27/2022 18:29	05/27/2022 18:29	BLOD		0.40	1.00	1	ug/L	BMR
Bromomethane	08	74-83-9	SW8260D	05/27/2022 18:29	05/27/2022 18:29	BLOD		0.80	1.00	1	ug/L	BMR
Carbon disulfide	08	75-15-0	SW8260D	05/27/2022 18:29	05/27/2022 18:29	BLOD		5.00	10.0	1	ug/L	BMR
Carbon tetrachloride	08	56-23-5	SW8260D	05/27/2022 18:29	05/27/2022 18:29	BLOD		0.50	1.00	1	ug/L	BMR
Chlorobenzene	08	108-90-7	SW8260D	05/27/2022 18:29	05/27/2022 18:29	BLOD		0.40	1.00	1	ug/L	BMR
Chloroethane	08	75-00-3	SW8260D	05/27/2022 18:29	05/27/2022 18:29	BLOD		0.70	1.00	1	ug/L	BMR
Chloroform	08	67-66-3	SW8260D	05/27/2022 18:29	05/27/2022 18:29	BLOD		0.50	0.50	1	ug/L	BMR
Chloromethane	08	74-87-3	SW8260D	05/27/2022 18:29	05/27/2022 18:29	BLOD		0.95	1.00	1	ug/L	BMR
Chloroprene	08	126-99-8	SW8260D	05/27/2022 18:29	05/27/2022 18:29	BLOD		0.50	5.00	1	ug/L	BMR
cis-1,2-Dichloroethylene	08	156-59-2	SW8260D	05/27/2022 18:29	05/27/2022 18:29	BLOD		0.40	1.00	1	ug/L	BMR
cis-1,3-Dichloropropene	08	10061-01-5	SW8260D	05/27/2022 18:29	05/27/2022 18:29	BLOD		0.30	1.00	1	ug/L	BMR
Dibromochloromethane	08	124-48-1	SW8260D	05/27/2022 18:29	05/27/2022 18:29	BLOD		0.35	0.50	1	ug/L	BMR
Dibromomethane	08	74-95-3	SW8260D	05/27/2022 18:29	05/27/2022 18:29	BLOD		0.40	1.00	1	ug/L	BMR
Dichlorodifluoromethane	08	75-71-8	SW8260D	05/27/2022 18:29	05/27/2022 18:29	BLOD		0.95	1.00	1	ug/L	BMR
Ethyl methacrylate	08	97-63-2	SW8260D	05/27/2022 18:29	05/27/2022 18:29	BLOD		0.70	5.00	1	ug/L	BMR
Ethylbenzene	08	100-41-4	SW8260D	05/27/2022 18:29	05/27/2022 18:29	BLOD		0.40	1.00	1	ug/L	BMR
Iodomethane	08	74-88-4	SW8260D	05/27/2022 18:29	05/27/2022 18:29	BLOD		6.00	10.0	1	ug/L	BMR
Isobutyl Alcohol	08	78-83-1	SW8260D	05/27/2022 18:29	05/27/2022 18:29	BLOD		25.0	40.0	1	ug/L	BMR
m+p-Xylenes	08	179601-23-1	SW8260D	05/27/2022 18:29	05/27/2022 18:29	BLOD		0.60	2.00	1	ug/L	BMR
Methacrylonitrile	08	126-98-7	SW8260D	05/27/2022 18:29	05/27/2022 18:29	BLOD		1.00	1.50	1	ug/L	BMR

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Client Sample ID: MW-104A

Laboratory Sample ID: 22E1388-08

Parameter	Samp ID	CAS	Reference Method	Sample Prep Date/Time	Analyzed Date/Time	Sample Results	Qual	LOD	LOQ	DF	Units	Analyst
Volatile Organic Compounds by GCMS												
Methyl methacrylate	08	80-62-6	SW8260D	05/27/2022 18:29	05/27/2022 18:29	BLOD		0.70	2.00	1	ug/L	BMR
Methylene chloride	08	75-09-2	SW8260D	05/27/2022 18:29	05/27/2022 18:29	BLOD		4.00	4.00	1	ug/L	BMR
Naphthalene	08	91-20-3	SW8260D	05/27/2022 18:29	05/27/2022 18:29	BLOD		0.80	1.00	1	ug/L	BMR
o-Xylene	08	95-47-6	SW8260D	05/27/2022 18:29	05/27/2022 18:29	BLOD		0.40	1.00	1	ug/L	BMR
Propionitrile	08	107-12-0	SW8260D	05/27/2022 18:29	05/27/2022 18:29	BLOD		7.50	40.0	1	ug/L	BMR
Styrene	08	100-42-5	SW8260D	05/27/2022 18:29	05/27/2022 18:29	BLOD		0.40	1.00	1	ug/L	BMR
Tetrachloroethylene (PCE)	08	127-18-4	SW8260D	05/27/2022 18:29	05/27/2022 18:29	BLOD		0.40	1.00	1	ug/L	BMR
Toluene	08	108-88-3	SW8260D	05/27/2022 18:29	05/27/2022 18:29	BLOD		0.50	1.00	1	ug/L	BMR
trans-1,2-Dichloroethylene	08	156-60-5	SW8260D	05/27/2022 18:29	05/27/2022 18:29	BLOD		0.60	1.00	1	ug/L	BMR
trans-1,3-Dichloropropene	08	10061-02-6	SW8260D	05/27/2022 18:29	05/27/2022 18:29	BLOD		0.30	1.00	1	ug/L	BMR
trans-1,4-Dichloro-2-butene	08	110-57-6	SW8260D	05/27/2022 18:29	05/27/2022 18:29	BLOD		1.00	4.00	1	ug/L	BMR
Trichloroethylene	08	79-01-6	SW8260D	05/27/2022 18:29	05/27/2022 18:29	BLOD		0.40	1.00	1	ug/L	BMR
Trichlorofluoromethane	08	75-69-4	SW8260D	05/27/2022 18:29	05/27/2022 18:29	BLOD		0.80	1.00	1	ug/L	BMR
Vinyl acetate	08	108-05-4	SW8260D	05/27/2022 18:29	05/27/2022 18:29	BLOD		2.00	10.0	1	ug/L	BMR
Vinyl chloride	08	75-01-4	SW8260D	05/27/2022 18:29	05/27/2022 18:29	BLOD		0.50	0.50	1	ug/L	BMR
Xylenes, Total	08	1330-20-7	SW8260D	05/27/2022 18:29	05/27/2022 18:29	BLOD		1.00	3.00	1	ug/L	BMR
<i>Surr: 1,2-Dichloroethane-d4 (Surr)</i>	08	106 %	70-120	05/27/2022 18:29	05/27/2022 18:29							
<i>Surr: 4-Bromofluorobenzene (Surr)</i>	08	96.5 %	75-120	05/27/2022 18:29	05/27/2022 18:29							
<i>Surr: Dibromofluoromethane (Surr)</i>	08	103 %	70-130	05/27/2022 18:29	05/27/2022 18:29							
<i>Surr: Toluene-d8 (Surr)</i>	08	102 %	70-130	05/27/2022 18:29	05/27/2022 18:29							

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Laboratory Sample ID: 22E1388-08

Parameter	Samp ID	CAS	Reference Method	Sample Prep Date/Time	Analyzed Date/Time	Sample Results	Qual	LOD	LOQ	DF	Units	Analyst
Semivolatile Organic Compounds by GCMS												
1,2,4,5-Tetrachlorobenzene	08	95-94-3	SW8270E	05/31/2022 09:00	06/01/2022 00:20	BLOD		1.87	10.0	1	ug/L	MGG
1,3,5-Trinitrobenzene	08	99-35-4	SW8270E	05/31/2022 09:00	06/01/2022 00:20	BLOD		0.93	5.00	1	ug/L	MGG
1,3-Dinitrobenzene	08	99-65-0	SW8270E	05/31/2022 09:00	06/01/2022 00:20	BLOD		2.34	2.50	1	ug/L	MGG
1,4-Naphthoquinone	08	130-15-4	SW8270E	05/31/2022 09:00	06/01/2022 00:20	BLOD		1.87	10.0	1	ug/L	MGG
1-Naphthylamine	08	134-32-7	SW8270E	05/31/2022 09:00	06/01/2022 00:20	BLOD		0.93	10.0	1	ug/L	MGG
2,3,4,6-Tetrachlorophenol	08	58-90-2	SW8270E	05/31/2022 09:00	06/01/2022 00:20	BLOD		0.93	10.0	1	ug/L	MGG
2,4,5-Trichlorophenol	08	95-95-4	SW8270E	05/31/2022 09:00	06/01/2022 00:20	BLOD		0.93	10.0	1	ug/L	MGG
2,4,6-Trichlorophenol	08	88-06-2	SW8270E	05/31/2022 09:00	06/01/2022 00:20	BLOD		7.48	10.0	1	ug/L	MGG
2,4-Dichlorophenol	08	120-83-2	SW8270E	05/31/2022 09:00	06/01/2022 00:20	BLOD		2.80	10.0	1	ug/L	MGG
2,4-Dimethylphenol	08	105-67-9	SW8270E	05/31/2022 09:00	06/01/2022 00:20	BLOD		4.67	4.67	1	ug/L	MGG
2,4-Dinitrophenol	08	51-28-5	SW8270E	05/31/2022 09:00	06/01/2022 00:20	BLOD		7.48	50.0	1	ug/L	MGG
2,4-Dinitrotoluene	08	121-14-2	SW8270E	05/31/2022 09:00	06/01/2022 00:20	BLOD		5.61	10.0	1	ug/L	MGG
2,6-Dichlorophenol	08	87-65-0	SW8270E	05/31/2022 09:00	06/01/2022 00:20	BLOD		0.93	10.0	1	ug/L	MGG
2,6-Dinitrotoluene	08	606-20-2	SW8270E	05/31/2022 09:00	06/01/2022 00:20	BLOD		3.74	10.0	1	ug/L	MGG
2-Acetylaminofluorene	08	53-96-3	SW8270E	05/31/2022 09:00	06/01/2022 00:20	BLOD		2.34	2.50	1	ug/L	MGG
2-Chloronaphthalene	08	91-58-7	SW8270E	05/31/2022 09:00	06/01/2022 00:20	BLOD		4.21	10.0	1	ug/L	MGG
2-Chlorophenol	08	95-57-8	SW8270E	05/31/2022 09:00	06/01/2022 00:20	BLOD		3.27	10.0	1	ug/L	MGG
2-Methylnaphthalene	08	91-57-6	SW8270E	05/31/2022 09:00	06/01/2022 00:20	BLOD		1.87	10.0	1	ug/L	MGG
2-Naphthylamine	08	91-59-8	SW8270E	05/31/2022 09:00	06/01/2022 00:20	BLOD		1.87	10.0	1	ug/L	MGG
2-Nitroaniline	08	88-74-4	SW8270E	05/31/2022 09:00	06/01/2022 00:20	BLOD		1.87	20.0	1	ug/L	MGG
2-Nitrophenol	08	88-75-5	SW8270E	05/31/2022 09:00	06/01/2022 00:20	BLOD		5.61	10.0	1	ug/L	MGG
3,3'-Dichlorobenzidine	08	91-94-1	SW8270E	05/31/2022 09:00	06/01/2022 00:20	BLOD		3.74	10.0	1	ug/L	MGG
3,3'-Dimethylbenzidine	08	119-93-7	SW8270E	05/31/2022 09:00	06/01/2022 00:20	BLOD		2.34	2.50	1	ug/L	MGG
3-Methylcholanthrene	08	56-49-5	SW8270E	05/31/2022 09:00	06/01/2022 00:20	BLOD		0.93	10.0	1	ug/L	MGG

Certificate of Analysis

 Client Name: SCS Engineers-Winchester
 Client Site I.D.: City of Bristol 1st Semi-Annual 2022
 Submitted To: Jennifer Robb

Date Issued: 7/12/2022 2:30:28PM

Client Sample ID: MW-104A

Laboratory Sample ID: 22E1388-08

Parameter	Samp ID	CAS	Reference Method	Sample Prep Date/Time	Analyzed Date/Time	Sample Results	Qual	LOD	LOQ	DF	Units	Analyst
Semivolatile Organic Compounds by GCMS												
3-Nitroaniline	08	99-09-2	SW8270E	05/31/2022 09:00	06/01/2022 00:20	BLOD		1.87	20.0	1	ug/L	MGG
4,6-Dinitro-2-methylphenol	08	534-52-1	SW8270E	05/31/2022 09:00	06/01/2022 00:20	BLOD		7.48	50.0	1	ug/L	MGG
4-Aminobiphenyl	08	92-67-1	SW8270E	05/31/2022 09:00	06/01/2022 00:20	BLOD		1.87	10.0	1	ug/L	MGG
4-Bromophenyl phenyl ether	08	101-55-3	SW8270E	05/31/2022 09:00	06/01/2022 00:20	BLOD		3.27	10.0	1	ug/L	MGG
4-Chloroaniline	08	106-47-8	SW8270E	05/31/2022 09:00	06/01/2022 00:20	BLOD		1.87	10.0	1	ug/L	MGG
4-Chlorophenyl phenyl ether	08	7005-72-3	SW8270E	05/31/2022 09:00	06/01/2022 00:20	BLOD		3.27	10.0	1	ug/L	MGG
4-Nitroaniline	08	100-01-6	SW8270E	05/31/2022 09:00	06/01/2022 00:20	BLOD		1.87	20.0	1	ug/L	MGG
4-Nitrophenol	08	100-02-7	SW8270E	05/31/2022 09:00	06/01/2022 00:20	BLOD		1.87	50.0	1	ug/L	MGG
5-Nitro-o-toluidine	08	99-55-8	SW8270E	05/31/2022 09:00	06/01/2022 00:20	BLOD		1.87	10.0	1	ug/L	MGG
7,12-Dimethylbenz (a) anthracene	08	57-97-6	SW8270E	05/31/2022 09:00	06/01/2022 00:20	BLOD		1.87	10.0	1	ug/L	MGG
Acenaphthene	08	83-32-9	SW8270E	05/31/2022 09:00	06/01/2022 00:20	BLOD		3.74	10.0	1	ug/L	MGG
Acenaphthylene	08	208-96-8	SW8270E	05/31/2022 09:00	06/01/2022 00:20	BLOD		3.74	10.0	1	ug/L	MGG
Acetophenone	08	98-86-2	SW8270E	05/31/2022 09:00	06/01/2022 00:20	BLOD		1.87	20.0	1	ug/L	MGG
Anthracene	08	120-12-7	SW8270E	05/31/2022 09:00	06/01/2022 00:20	BLOD		4.67	10.0	1	ug/L	MGG
Benzo (a) anthracene	08	56-55-3	SW8270E	05/31/2022 09:00	06/01/2022 00:20	BLOD		3.27	9.35	1	ug/L	MGG
Benzo (a) pyrene	08	50-32-8	SW8270E	05/31/2022 09:00	06/01/2022 00:20	BLOD		0.19	0.20	1	ug/L	MGG
Benzo (b) fluoranthene	08	205-99-2	SW8270E	05/31/2022 09:00	06/01/2022 00:20	BLOD		3.74	10.0	1	ug/L	MGG
Benzo (g,h,i) perylene	08	191-24-2	SW8270E	05/31/2022 09:00	06/01/2022 00:20	BLOD		4.67	10.0	1	ug/L	MGG
Benzo (k) fluoranthene	08	207-08-9	SW8270E	05/31/2022 09:00	06/01/2022 00:20	BLOD		5.61	10.0	1	ug/L	MGG
Benzyl alcohol	08	100-51-6	SW8270E	05/31/2022 09:00	06/01/2022 00:20	BLOD		0.93	20.0	1	ug/L	MGG
bis (2-Chloroethoxy) methane	08	111-91-1	SW8270E	05/31/2022 09:00	06/01/2022 00:20	BLOD		3.27	10.0	1	ug/L	MGG
bis (2-Chloroethyl) ether	08	111-44-4	SW8270E	05/31/2022 09:00	06/01/2022 00:20	BLOD		3.27	10.0	1	ug/L	MGG
2,2'-Oxybis (1-chloropropane)	08	108-60-1	SW8270E	05/31/2022 09:00	06/01/2022 00:20	BLOD		2.80	10.0	1	ug/L	MGG
bis (2-Ethylhexyl) phthalate	08	117-81-7	SW8270E	05/31/2022 09:00	06/01/2022 00:20	BLOD		4.67	5.00	1	ug/L	MGG

Certificate of Analysis

Client Name: SCS Engineers-Winchester
 Client Site I.D.: City of Bristol 1st Semi-Annual 2022
 Submitted To: Jennifer Robb

Date Issued: 7/12/2022 2:30:28PM

Client Sample ID: MW-104A

Laboratory Sample ID: 22E1388-08

Parameter	Samp ID	CAS	Reference Method	Sample Prep Date/Time	Analyzed Date/Time	Sample Results	Qual	LOD	LOQ	DF	Units	Analyst
Semivolatile Organic Compounds by GCMS												
Butyl benzyl phthalate	08	85-68-7	SW8270E	05/31/2022 09:00	06/01/2022 00:20	BLOD		6.54	10.0	1	ug/L	MGG
Chlorobenzilate	08	510-15-6	SW8270E	05/31/2022 09:00	06/01/2022 00:20	BLOD		2.34	2.50	1	ug/L	MGG
Chrysene	08	218-01-9	SW8270E	05/31/2022 09:00	06/01/2022 00:20	BLOD		3.74	10.0	1	ug/L	MGG
Diallate	08	2303-16-4	SW8270E	05/31/2022 09:00	06/01/2022 00:20	BLOD		2.34	2.50	1	ug/L	MGG
Dibenz (a,h) anthracene	08	53-70-3	SW8270E	05/31/2022 09:00	06/01/2022 00:20	BLOD		4.67	10.0	1	ug/L	MGG
Dibenzofuran	08	132-64-9	SW8270E	05/31/2022 09:00	06/01/2022 00:20	BLOD		1.87	5.00	1	ug/L	MGG
Diethyl phthalate	08	84-66-2	SW8270E	05/31/2022 09:00	06/01/2022 00:20	BLOD		2.80	10.0	1	ug/L	MGG
Dimethoate	08	60-51-5	SW8270E	05/31/2022 09:00	06/01/2022 00:20	BLOD		2.34	2.50	1	ug/L	MGG
Dimethyl phthalate	08	131-11-3	SW8270E	05/31/2022 09:00	06/01/2022 00:20	BLOD		3.27	10.0	1	ug/L	MGG
Di-n-butyl phthalate	08	84-74-2	SW8270E	05/31/2022 09:00	06/01/2022 00:20	BLOD		3.74	10.0	1	ug/L	MGG
Di-n-octyl phthalate	08	117-84-0	SW8270E	05/31/2022 09:00	06/01/2022 00:20	BLOD		7.48	10.0	1	ug/L	MGG
Diphenylamine	08	122-39-4	SW8270E	05/31/2022 09:00	06/01/2022 00:20	BLOD		1.87	10.0	1	ug/L	MGG
Disulfoton	08	298-04-4	SW8270E	05/31/2022 09:00	06/01/2022 00:20	BLOD		2.34	2.50	1	ug/L	MGG
Ethyl methanesulfonate	08	62-50-0	SW8270E	05/31/2022 09:00	06/01/2022 00:20	BLOD		0.93	20.0	1	ug/L	MGG
Ethyl parathion	08	56-38-2	SW8270E	05/31/2022 09:00	06/01/2022 00:20	BLOD		2.34	2.50	1	ug/L	MGG
Famphur	08	52-85-7	SW8270E	05/31/2022 09:00	06/01/2022 00:20	BLOD		2.34	2.50	1	ug/L	MGG
Fluoranthene	08	206-44-0	SW8270E	05/31/2022 09:00	06/01/2022 00:20	BLOD		4.67	10.0	1	ug/L	MGG
Fluorene	08	86-73-7	SW8270E	05/31/2022 09:00	06/01/2022 00:20	BLOD		3.74	10.0	1	ug/L	MGG
Hexachlorobenzene	08	118-74-1	SW8270E	05/31/2022 09:00	06/01/2022 00:20	BLOD		0.93	0.93	1	ug/L	MGG
Hexachlorobutadiene	08	87-68-3	SW8270E	05/31/2022 09:00	06/01/2022 00:20	BLOD		4.21	10.0	1	ug/L	MGG
Hexachlorocyclopentadiene	08	77-47-4	SW8270E	05/31/2022 09:00	06/01/2022 00:20	BLOD		3.74	10.0	1	ug/L	MGG
Hexachloroethane	08	67-72-1	SW8270E	05/31/2022 09:00	06/01/2022 00:20	BLOD		3.27	10.0	1	ug/L	MGG
Hexachloropropene	08	1888-71-7	SW8270E	05/31/2022 09:00	06/01/2022 00:20	BLOD		1.87	2.50	1	ug/L	MGG
Indeno (1,2,3-cd) pyrene	08	193-39-5	SW8270E	05/31/2022 09:00	06/01/2022 00:20	BLOD		2.80	10.0	1	ug/L	MGG

Certificate of Analysis

 Client Name: SCS Engineers-Winchester
 Client Site I.D.: City of Bristol 1st Semi-Annual 2022
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Date Issued: 7/12/2022 2:30:28PM

Client Sample ID: MW-104A

Laboratory Sample ID: 22E1388-08

Parameter	Samp ID	CAS	Reference Method	Sample Prep Date/Time	Analyzed Date/Time	Sample Results	Qual	LOD	LOQ	DF	Units	Analyst
Semivolatle Organic Compounds by GCMS												
Isodrin	08	465-73-6	SW8270E	05/31/2022 09:00	06/01/2022 00:20	BLOD		0.93	10.0	1	ug/L	MGG
Isophorone	08	78-59-1	SW8270E	05/31/2022 09:00	06/01/2022 00:20	BLOD		4.67	10.0	1	ug/L	MGG
Isosafrole	08	120-58-1	SW8270E	05/31/2022 09:00	06/01/2022 00:20	BLOD		1.87	10.0	1	ug/L	MGG
Kepon	08	143-50-0	SW8270E	05/31/2022 09:00	06/01/2022 00:20	BLOD		1.87	9.35	1	ug/L	MGG
m+p-Cresols	08	1319-77-3	SW8270E	05/31/2022 09:00	06/01/2022 00:20	BLOD		0.93	10.0	1	ug/L	MGG
Methapyrilene	08	91-80-5	SW8270E	05/31/2022 09:00	06/01/2022 00:20	BLOD		0.93	10.0	1	ug/L	MGG
Methyl methanesulfonate	08	66-27-3	SW8270E	05/31/2022 09:00	06/01/2022 00:20	BLOD	C	0.93	10.0	1	ug/L	MGG
Methyl parathion	08	298-00-0	SW8270E	05/31/2022 09:00	06/01/2022 00:20	BLOD		1.87	2.50	1	ug/L	MGG
Nitrobenzene	08	98-95-3	SW8270E	05/31/2022 09:00	06/01/2022 00:20	BLOD		2.80	10.0	1	ug/L	MGG
n-Nitrosodiethylamine	08	55-18-5	SW8270E	05/31/2022 09:00	06/01/2022 00:20	BLOD		2.34	2.50	1	ug/L	MGG
n-Nitrosodimethylamine	08	62-75-9	SW8270E	05/31/2022 09:00	06/01/2022 00:20	BLOD		2.80	10.0	1	ug/L	MGG
n-Nitrosodi-n-butylamine	08	924-16-3	SW8270E	05/31/2022 09:00	06/01/2022 00:20	BLOD		1.87	10.0	1	ug/L	MGG
n-Nitrosodi-n-propylamine	08	621-64-7	SW8270E	05/31/2022 09:00	06/01/2022 00:20	BLOD		3.27	10.0	1	ug/L	MGG
n-Nitrosodiphenylamine	08	86-30-6	SW8270E	05/31/2022 09:00	06/01/2022 00:20	BLOD		2.80	10.0	1	ug/L	MGG
n-Nitrosomethylethylamine	08	10595-95-6	SW8270E	05/31/2022 09:00	06/01/2022 00:20	BLOD		1.87	2.50	1	ug/L	MGG
n-Nitrosopiperidine	08	100-75-4	SW8270E	05/31/2022 09:00	06/01/2022 00:20	BLOD		1.87	10.0	1	ug/L	MGG
n-Nitrosopyrrolidine	08	930-55-2	SW8270E	05/31/2022 09:00	06/01/2022 00:20	BLOD		1.87	2.50	1	ug/L	MGG
o,o,o-Triethyl phosphorothioate	08	126-68-1	SW8270E	05/31/2022 09:00	06/01/2022 00:20	BLOD		1.87	10.0	1	ug/L	MGG
o,o-Diethyl o-2-pyrazinyl phosphorothioate	08	297-97-2	SW8270E	05/31/2022 09:00	06/01/2022 00:20	BLOD		1.87	10.0	1	ug/L	MGG
o+m+p-Cresols	08	1319-77-3	SW8270E	05/31/2022 09:00	06/01/2022 00:20	BLOD		2.80	10.0	1	ug/L	MGG
o-Cresol	08	95-48-7	SW8270E	05/31/2022 09:00	06/01/2022 00:20	BLOD		7.48	10.0	1	ug/L	MGG
o-Toluidine	08	95-53-4	SW8270E	05/31/2022 09:00	06/01/2022 00:20	BLOD		1.87	2.50	1	ug/L	MGG
p-(Dimethylamino) azobenzene	08	60-11-7	SW8270E	05/31/2022 09:00	06/01/2022 00:20	BLOD		0.93	2.50	1	ug/L	MGG

Certificate of Analysis

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Client Sample ID: MW-104A

Laboratory Sample ID: 22E1388-08

Parameter	Samp ID	CAS	Reference Method	Sample Prep Date/Time	Analyzed Date/Time	Sample Results	Qual	LOD	LOQ	DF	Units	Analyst
Semivolatle Organic Compounds by GCMS												
p-Chloro-m-cresol	08	59-50-7	SW8270E	05/31/2022 09:00	06/01/2022 00:20	BLOD		7.48	10.0	1	ug/L	MGG
Pentachlorobenzene	08	608-93-5	SW8270E	05/31/2022 09:00	06/01/2022 00:20	BLOD		1.87	10.0	1	ug/L	MGG
Pentachloronitrobenzene (quintozene)	08	82-68-8	SW8270E	05/31/2022 09:00	06/01/2022 00:20	BLOD		0.93	9.35	1	ug/L	MGG
Phenacetin	08	62-44-2	SW8270E	05/31/2022 09:00	06/01/2022 00:20	BLOD		0.93	10.0	1	ug/L	MGG
Phenanthrene	08	85-01-8	SW8270E	05/31/2022 09:00	06/01/2022 00:20	BLOD		7.48	10.0	1	ug/L	MGG
Phenol	08	108-95-2	SW8270E	05/31/2022 09:00	06/01/2022 00:20	BLOD		2.34	10.0	1	ug/L	MGG
Phorate	08	298-02-2	SW8270E	05/31/2022 09:00	06/01/2022 00:20	BLOD		1.87	2.50	1	ug/L	MGG
p-Phenylenediamine	08	106-50-3	SW8270E	05/31/2022 09:00	06/01/2022 00:20	BLOD	C	1.87	10.0	1	ug/L	MGG
Pronamide	08	23950-58-5	SW8270E	05/31/2022 09:00	06/01/2022 00:20	BLOD		1.87	10.0	1	ug/L	MGG
Pyrene	08	129-00-0	SW8270E	05/31/2022 09:00	06/01/2022 00:20	BLOD		6.54	10.0	1	ug/L	MGG
Safrole	08	94-59-7	SW8270E	05/31/2022 09:00	06/01/2022 00:20	BLOD		1.87	2.50	1	ug/L	MGG
<i>Surr: 2,4,6-Tribromophenol (Surr)</i>	08	62.0 %	10-86	05/31/2022 09:00	06/01/2022 00:20							
<i>Surr: 2-Fluorobiphenyl (Surr)</i>	08	77.6 %	9-87	05/31/2022 09:00	06/01/2022 00:20							
<i>Surr: 2-Fluorophenol (Surr)</i>	08	41.8 %	10-52	05/31/2022 09:00	06/01/2022 00:20							
<i>Surr: Nitrobenzene-d5 (Surr)</i>	08	83.9 %	10-98.5	05/31/2022 09:00	06/01/2022 00:20							
<i>Surr: Phenol-d5 (Surr)</i>	08	27.3 %	5-33	05/31/2022 09:00	06/01/2022 00:20							
<i>Surr: p-Terphenyl-d14 (Surr)</i>	08	80.6 %	27-133	05/31/2022 09:00	06/01/2022 00:20							

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Laboratory Sample ID: 22E1388-08

Parameter	Samp ID	CAS	Reference Method	Sample Prep Date/Time	Analyzed Date/Time	Sample Results	Qual	LOD	LOQ	DF	Units	Analyst
Organochlorine Pesticides and PCBs by GC/ECD												
PCB as Aroclor 1016	08	12674-11-2	SW8082A	05/31/2022 09:00	06/01/2022 13:06	BLOD		0.140	0.200	1	ug/L	LBH2
PCB as Aroclor 1221	08	11104-28-2	SW8082A	05/31/2022 09:00	06/01/2022 13:06	BLOD		0.140	0.200	1	ug/L	LBH2
PCB as Aroclor 1232	08	11141-16-5	SW8082A	05/31/2022 09:00	06/01/2022 13:06	BLOD		0.140	0.200	1	ug/L	LBH2
PCB as Aroclor 1242	08	53469-21-9	SW8082A	05/31/2022 09:00	06/01/2022 13:06	BLOD		0.140	0.200	1	ug/L	LBH2
PCB as Aroclor 1248	08	12672-29-6	SW8082A	05/31/2022 09:00	06/01/2022 13:06	BLOD		0.140	0.200	1	ug/L	LBH2
PCB as Aroclor 1254	08	11097-69-1	SW8082A	05/31/2022 09:00	06/01/2022 13:06	BLOD		0.140	0.200	1	ug/L	LBH2
PCB as Aroclor 1260	08	11096-82-5	SW8082A	05/31/2022 09:00	06/01/2022 13:06	BLOD		0.140	0.200	1	ug/L	LBH2
<i>Surr: DCB</i>	08	45.2 %	30-105	05/31/2022 09:00	06/01/2022 13:06							
<i>Surr: TCMX</i>	08	65.3 %	30-105	05/31/2022 09:00	06/01/2022 13:06							
4,4'-DDD	08	72-54-8	SW8081B	05/31/2022 09:00	06/01/2022 13:06	BLOD		0.005	0.050	1	ug/L	LBH2
4,4'-DDE	08	72-55-9	SW8081B	05/31/2022 09:00	06/01/2022 13:06	BLOD		0.005	0.050	1	ug/L	LBH2
4,4'-DDT	08	50-29-3	SW8081B	05/31/2022 09:00	06/01/2022 13:06	BLOD		0.005	0.050	1	ug/L	LBH2
Aldrin	08	309-00-2	SW8081B	05/31/2022 09:00	06/01/2022 13:06	BLOD		0.005	0.050	1	ug/L	LBH2
alpha-BHC	08	319-84-6	SW8081B	05/31/2022 09:00	06/01/2022 13:06	BLOD		0.005	0.050	1	ug/L	LBH2
alpha-Chlordane	08	5103-71-9	SW8081B	05/31/2022 09:00	06/01/2022 13:06	BLOD		0.005	0.050	1	ug/L	LBH2
beta-BHC	08	319-85-7	SW8081B	05/31/2022 09:00	06/01/2022 13:06	BLOD		0.019	0.050	1	ug/L	LBH2
Chlordane	08	57-74-9	SW8081B	05/31/2022 09:00	06/01/2022 13:06	BLOD		0.187	0.200	1	ug/L	LBH2
delta-BHC	08	319-86-8	SW8081B	05/31/2022 09:00	06/01/2022 13:06	BLOD		0.005	0.050	1	ug/L	LBH2
Dieldrin	08	60-57-1	SW8081B	05/31/2022 09:00	06/01/2022 13:06	BLOD		0.005	0.050	1	ug/L	LBH2
Endosulfan I	08	959-98-8	SW8081B	05/31/2022 09:00	06/01/2022 13:06	BLOD		0.005	0.050	1	ug/L	LBH2
Endosulfan II	08	33213-65-9	SW8081B	05/31/2022 09:00	06/01/2022 13:06	BLOD		0.005	0.050	1	ug/L	LBH2
Endosulfan sulfate	08	1031-07-8	SW8081B	05/31/2022 09:00	06/01/2022 13:06	BLOD		0.005	0.050	1	ug/L	LBH2
Endrin	08	72-20-8	SW8081B	05/31/2022 09:00	06/01/2022 13:06	BLOD		0.005	0.050	1	ug/L	LBH2
Endrin aldehyde	08	7421-93-4	SW8081B	05/31/2022 09:00	06/01/2022 13:06	BLOD		0.005	0.050	1	ug/L	LBH2

Certificate of Analysis

Client Name: SCS Engineers-Winchester
 Client Site I.D.: City of Bristol 1st Semi-Annual 2022
 Submitted To: Jennifer Robb

Date Issued: 7/12/2022 2:30:28PM

Client Sample ID: MW-104A

Laboratory Sample ID: 22E1388-08

Parameter	Samp ID	CAS	Reference Method	Sample Prep Date/Time	Analyzed Date/Time	Sample Results	Qual	LOD	LOQ	DF	Units	Analyst
Organochlorine Pesticides and PCBs by GC/ECD												
gamma-BHC (Lindane)	08	58-89-9	SW8081B	05/31/2022 09:00	06/01/2022 13:06	BLOD		0.005	0.050	1	ug/L	LBH2
gamma-Chlordane	08	5103-74-2	SW8081B	05/31/2022 09:00	06/01/2022 13:06	BLOD		0.005	0.050	1	ug/L	LBH2
Heptachlor	08	76-44-8	SW8081B	05/31/2022 09:00	06/01/2022 13:06	BLOD		0.005	0.050	1	ug/L	LBH2
Heptachlor epoxide	08	1024-57-3	SW8081B	05/31/2022 09:00	06/01/2022 13:06	BLOD		0.005	0.050	1	ug/L	LBH2
Methoxychlor	08	72-43-5	SW8081B	05/31/2022 09:00	06/01/2022 13:06	BLOD		0.005	0.050	1	ug/L	LBH2
Toxaphene	08	8001-35-2	SW8081B	05/31/2022 09:00	06/01/2022 13:06	BLOD		0.187	1.00	1	ug/L	LBH2
Surr: TCMX	08	61.2 %	18-112	05/31/2022 09:00	06/01/2022 13:06							
Surr: DCB	08	43.4 %	27-131	05/31/2022 09:00	06/01/2022 13:06							

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Laboratory Sample ID: 22E1388-08

Parameter	Samp ID	CAS	Reference Method	Sample Prep Date/Time	Analyzed Date/Time	Sample Results	Qual	LOD	LOQ	DF	Units	Analyst
Organochlorine Herbicides by GC/ECD												
2,4,5-T	08	93-76-5	SW8151A	05/31/2022 16:20	06/09/2022 13:32	BLOD		0.200	0.500	1	ug/L	LBH2
2,4,5-TP (Silvex)	08	93-72-1	SW8151A	05/31/2022 16:20	06/09/2022 13:32	BLOD		0.107	0.500	1	ug/L	LBH2
2,4-D	08	94-75-7	SW8151A	05/31/2022 16:20	06/09/2022 13:32	BLOD		0.200	0.500	1	ug/L	LBH2
Dinoseb	08	88-85-7	SW8151A	05/31/2022 16:20	06/09/2022 13:32	BLOD		0.200	0.500	1	ug/L	LBH2
Pentachlorophenol	08	87-86-5	SW8151A	05/31/2022 16:20	06/09/2022 13:32	BLOD		0.200	0.500	1	ug/L	LBH2
<i>Surr: DCAA (Surr)</i>	08		111 % 48.5-134	05/31/2022 16:20	06/09/2022 13:32							

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Laboratory Sample ID: 22E1388-08

Parameter	Samp ID	CAS	Reference Method	Sample Prep Date/Time	Analyzed Date/Time	Sample Results	Qual	LOD	LOQ	DF	Units	Analyst
Micro-extractables by GC/ECD												
1,2-Dibromoethane (EDB)	08	106-93-4	SW8011	06/01/2022 11:30	06/02/2022 09:07	BLOD		0.008	0.010	1	ug/L	LBH2
1,2,3-Trichloropropane	08	96-18-4	SW8011	06/01/2022 11:30	06/02/2022 09:07	BLOD		0.009	0.010	1	ug/L	LBH2
1,2-Dibromo-3-chloropropane (DBCP)	08	96-12-8	SW8011	06/01/2022 11:30	06/02/2022 09:07	BLOD		0.005	0.010	1	ug/L	LBH2

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Laboratory Sample ID: 22E1388-08

Parameter	Samp ID	CAS	Reference Method	Sample Prep Date/Time	Analyzed Date/Time	Sample Results	Qual	LOD	LOQ	DF	Units	Analyst
Wet Chemistry Analysis												
Cyanide	08	57-12-5	SW9012B	06/06/2022 17:26	06/06/2022 17:26	BLOD		0.01	0.01	1	mg/L	Omnion Use
Sulfide	08	18496-25-8	SW9215	05/27/2022 18:30	05/27/2022 18:30	BLOD		0.80	1.00	1	mg/L	MJRL

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Client Sample ID: MW-101

Laboratory Sample ID: 22E1388-09

Parameter	Samp ID	CAS	Reference Method	Sample Prep Date/Time	Analyzed Date/Time	Sample Results	Qual	LOD	LOQ	DF	Units	Analyst
Metals (Total) by EPA 6000/7000 Series Methods												
Silver	09	7440-22-4	SW6020B	05/31/2022 13:00	06/02/2022 15:07	BLOD		0.0600	1.00	1	ug/L	RCV
Arsenic	09	7440-38-2	SW6020B	05/31/2022 13:00	06/02/2022 15:07	1.7		0.50	1.0	1	ug/L	RCV
Barium	09	7440-39-3	SW6020B	05/31/2022 13:00	06/02/2022 15:07	109		1.00	5.00	1	ug/L	RCV
Beryllium	09	7440-41-7	SW6020B	05/31/2022 13:00	06/02/2022 15:07	BLOD		0.200	1.00	1	ug/L	RCV
Cadmium	09	7440-43-9	SW6020B	05/31/2022 13:00	06/02/2022 15:07	0.104	J	0.100	1.00	1	ug/L	RCV
Cobalt	09	7440-48-4	SW6020B	05/31/2022 13:00	06/02/2022 15:07	18.2		0.200	1.00	1	ug/L	RCV
Chromium	09	7440-47-3	SW6020B	05/31/2022 13:00	06/02/2022 15:07	5.38		0.400	1.00	1	ug/L	RCV
Copper	09	7440-50-8	SW6020B	05/31/2022 13:00	06/02/2022 15:07	14.0		0.300	1.00	1	ug/L	RCV
Mercury	09	7439-97-6	SW7470A	06/09/2022 10:29	06/09/2022 15:05	BLOD		0.00020	0.00020	1	mg/L	MWL
Nickel	09	7440-02-0	SW6020B	05/31/2022 13:00	06/02/2022 15:07	18.48		1.000	1.000	1	ug/L	RCV
Lead	09	7439-92-1	SW6020B	05/31/2022 13:00	06/02/2022 15:07	BLOD		1.0	1.0	1	ug/L	RCV
Antimony	09	7440-36-0	SW6020B	05/31/2022 13:00	06/02/2022 15:07	BLOD		1.0	1.0	1	ug/L	RCV
Selenium	09	7782-49-2	SW6020B	05/31/2022 13:00	06/02/2022 15:07	BLOD		0.850	1.00	1	ug/L	RCV
Tin	09	7440-31-5	SW6020B	05/31/2022 13:00	06/02/2022 15:07	BLOD		1.00	1.00	1	ug/L	RCV
Thallium	09	7440-28-0	SW6020B	05/31/2022 13:00	06/02/2022 15:07	BLOD		1.0	1.0	1	ug/L	RCV
Vanadium	09	7440-62-2	SW6020B	05/31/2022 13:00	06/02/2022 15:07	BLOD		2.50	5.00	1	ug/L	RCV
Zinc	09	7440-66-6	SW6020B	05/31/2022 13:00	06/02/2022 15:07	16.0		2.50	5.00	1	ug/L	RCV

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Client Sample ID: MW-101

Laboratory Sample ID: 22E1388-09

Parameter	Samp ID	CAS	Reference Method	Sample Prep Date/Time	Analyzed Date/Time	Sample Results	Qual	LOD	LOQ	DF	Units	Analyst
Volatile Organic Compounds by GCMS												
1,1,1,2-Tetrachloroethane	09	630-20-6	SW8260D	05/27/2022 18:53	05/27/2022 18:53	BLOD		0.40	0.40	1	ug/L	BMR
1,1,1-Trichloroethane	09	71-55-6	SW8260D	05/27/2022 18:53	05/27/2022 18:53	BLOD		0.60	1.00	1	ug/L	BMR
1,1,2,2-Tetrachloroethane	09	79-34-5	SW8260D	05/27/2022 18:53	05/27/2022 18:53	BLOD		0.30	0.40	1	ug/L	BMR
1,1,2-Trichloroethane	09	79-00-5	SW8260D	05/27/2022 18:53	05/27/2022 18:53	BLOD		0.50	1.00	1	ug/L	BMR
1,1-Dichloroethane	09	75-34-3	SW8260D	05/27/2022 18:53	05/27/2022 18:53	BLOD		0.60	1.00	1	ug/L	BMR
1,1-Dichloroethylene	09	75-35-4	SW8260D	05/27/2022 18:53	05/27/2022 18:53	BLOD		0.70	1.00	1	ug/L	BMR
1,1-Dichloropropene	09	563-58-6	SW8260D	05/27/2022 18:53	05/27/2022 18:53	BLOD		0.60	1.00	1	ug/L	BMR
1,2,3-Trichloropropane	09	96-18-4	SW8260D	05/27/2022 18:53	05/27/2022 18:53	BLOD		0.40	1.00	1	ug/L	BMR
1,2,4-Trichlorobenzene	09	120-82-1	SW8260D	05/27/2022 18:53	05/27/2022 18:53	BLOD		0.50	1.00	1	ug/L	BMR
1,2-Dichlorobenzene	09	95-50-1	SW8260D	05/27/2022 18:53	05/27/2022 18:53	BLOD		0.40	1.00	1	ug/L	BMR
1,2-Dichloroethane	09	107-06-2	SW8260D	05/27/2022 18:53	05/27/2022 18:53	BLOD		0.70	1.00	1	ug/L	BMR
1,2-Dichloropropane	09	78-87-5	SW8260D	05/27/2022 18:53	05/27/2022 18:53	BLOD		0.40	1.00	1	ug/L	BMR
1,3-Dichlorobenzene	09	541-73-1	SW8260D	05/27/2022 18:53	05/27/2022 18:53	BLOD		0.30	1.00	1	ug/L	BMR
1,3-Dichloropropane	09	142-28-9	SW8260D	05/27/2022 18:53	05/27/2022 18:53	BLOD		1.00	1.00	1	ug/L	BMR
1,4-Dichlorobenzene	09	106-46-7	SW8260D	05/27/2022 18:53	05/27/2022 18:53	BLOD		0.40	1.00	1	ug/L	BMR
2,2-Dichloropropane	09	594-20-7	SW8260D	05/27/2022 18:53	05/27/2022 18:53	BLOD		0.60	2.00	1	ug/L	BMR
2-Butanone (MEK)	09	78-93-3	SW8260D	05/27/2022 18:53	05/27/2022 18:53	BLOD		3.00	10.0	1	ug/L	BMR
2-Hexanone (MBK)	09	591-78-6	SW8260D	05/27/2022 18:53	05/27/2022 18:53	BLOD		2.20	5.00	1	ug/L	BMR
4-Methyl-2-pentanone (MIBK)	09	108-10-1	SW8260D	05/27/2022 18:53	05/27/2022 18:53	BLOD		1.50	5.00	1	ug/L	BMR
Acetone	09	67-64-1	SW8260D	05/27/2022 18:53	05/27/2022 18:53	BLOD		7.00	10.0	1	ug/L	BMR
Acetonitrile	09	75-05-8	SW8260D	05/27/2022 18:53	05/27/2022 18:53	BLOD		8.00	10.0	1	ug/L	BMR
Acrolein	09	107-02-8	SW8260D	05/27/2022 18:53	05/27/2022 18:53	BLOD		6.00	10.0	1	ug/L	BMR
Acrylonitrile	09	107-13-1	SW8260D	05/27/2022 18:53	05/27/2022 18:53	BLOD		1.70	5.00	1	ug/L	BMR
Allyl chloride	09	107-05-1	SW8260D	05/27/2022 18:53	05/27/2022 18:53	BLOD		0.60	1.00	1	ug/L	BMR

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Client Sample ID: MW-101

Laboratory Sample ID: 22E1388-09

Parameter	Samp ID	CAS	Reference Method	Sample Prep Date/Time	Analyzed Date/Time	Sample Results	Qual	LOD	LOQ	DF	Units	Analyst
Volatile Organic Compounds by GCMS												
Benzene	09	71-43-2	SW8260D	05/27/2022 18:53	05/27/2022 18:53	BLOD		0.40	1.00	1	ug/L	BMR
Bromochloromethane	09	74-97-5	SW8260D	05/27/2022 18:53	05/27/2022 18:53	BLOD		0.50	1.00	1	ug/L	BMR
Bromodichloromethane	09	75-27-4	SW8260D	05/27/2022 18:53	05/27/2022 18:53	BLOD		0.40	0.50	1	ug/L	BMR
Bromoform	09	75-25-2	SW8260D	05/27/2022 18:53	05/27/2022 18:53	BLOD		0.40	1.00	1	ug/L	BMR
Bromomethane	09	74-83-9	SW8260D	05/27/2022 18:53	05/27/2022 18:53	BLOD		0.80	1.00	1	ug/L	BMR
Carbon disulfide	09	75-15-0	SW8260D	05/27/2022 18:53	05/27/2022 18:53	BLOD		5.00	10.0	1	ug/L	BMR
Carbon tetrachloride	09	56-23-5	SW8260D	05/27/2022 18:53	05/27/2022 18:53	BLOD		0.50	1.00	1	ug/L	BMR
Chlorobenzene	09	108-90-7	SW8260D	05/27/2022 18:53	05/27/2022 18:53	BLOD		0.40	1.00	1	ug/L	BMR
Chloroethane	09	75-00-3	SW8260D	05/27/2022 18:53	05/27/2022 18:53	BLOD		0.70	1.00	1	ug/L	BMR
Chloroform	09	67-66-3	SW8260D	05/27/2022 18:53	05/27/2022 18:53	BLOD		0.50	0.50	1	ug/L	BMR
Chloromethane	09	74-87-3	SW8260D	05/27/2022 18:53	05/27/2022 18:53	BLOD		0.95	1.00	1	ug/L	BMR
Chloroprene	09	126-99-8	SW8260D	05/27/2022 18:53	05/27/2022 18:53	BLOD		0.50	5.00	1	ug/L	BMR
cis-1,2-Dichloroethylene	09	156-59-2	SW8260D	05/27/2022 18:53	05/27/2022 18:53	BLOD		0.40	1.00	1	ug/L	BMR
cis-1,3-Dichloropropene	09	10061-01-5	SW8260D	05/27/2022 18:53	05/27/2022 18:53	BLOD		0.30	1.00	1	ug/L	BMR
Dibromochloromethane	09	124-48-1	SW8260D	05/27/2022 18:53	05/27/2022 18:53	BLOD		0.35	0.50	1	ug/L	BMR
Dibromomethane	09	74-95-3	SW8260D	05/27/2022 18:53	05/27/2022 18:53	BLOD		0.40	1.00	1	ug/L	BMR
Dichlorodifluoromethane	09	75-71-8	SW8260D	05/27/2022 18:53	05/27/2022 18:53	BLOD		0.95	1.00	1	ug/L	BMR
Ethyl methacrylate	09	97-63-2	SW8260D	05/27/2022 18:53	05/27/2022 18:53	BLOD		0.70	5.00	1	ug/L	BMR
Ethylbenzene	09	100-41-4	SW8260D	05/27/2022 18:53	05/27/2022 18:53	BLOD		0.40	1.00	1	ug/L	BMR
Iodomethane	09	74-88-4	SW8260D	05/27/2022 18:53	05/27/2022 18:53	BLOD		6.00	10.0	1	ug/L	BMR
Isobutyl Alcohol	09	78-83-1	SW8260D	05/27/2022 18:53	05/27/2022 18:53	BLOD		25.0	40.0	1	ug/L	BMR
m+p-Xylenes	09	179601-23-1	SW8260D	05/27/2022 18:53	05/27/2022 18:53	BLOD		0.60	2.00	1	ug/L	BMR
Methacrylonitrile	09	126-98-7	SW8260D	05/27/2022 18:53	05/27/2022 18:53	BLOD		1.00	1.50	1	ug/L	BMR

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Client Sample ID: MW-101

Laboratory Sample ID: 22E1388-09

Parameter	Samp ID	CAS	Reference Method	Sample Prep Date/Time	Analyzed Date/Time	Sample Results	Qual	LOD	LOQ	DF	Units	Analyst
Volatile Organic Compounds by GCMS												
Methyl methacrylate	09	80-62-6	SW8260D	05/27/2022 18:53	05/27/2022 18:53	BLOD		0.70	2.00	1	ug/L	BMR
Methylene chloride	09	75-09-2	SW8260D	05/27/2022 18:53	05/27/2022 18:53	BLOD		4.00	4.00	1	ug/L	BMR
Naphthalene	09	91-20-3	SW8260D	05/27/2022 18:53	05/27/2022 18:53	BLOD		0.80	1.00	1	ug/L	BMR
o-Xylene	09	95-47-6	SW8260D	05/27/2022 18:53	05/27/2022 18:53	BLOD		0.40	1.00	1	ug/L	BMR
Propionitrile	09	107-12-0	SW8260D	05/27/2022 18:53	05/27/2022 18:53	BLOD		7.50	40.0	1	ug/L	BMR
Styrene	09	100-42-5	SW8260D	05/27/2022 18:53	05/27/2022 18:53	BLOD		0.40	1.00	1	ug/L	BMR
Tetrachloroethylene (PCE)	09	127-18-4	SW8260D	05/27/2022 18:53	05/27/2022 18:53	BLOD		0.40	1.00	1	ug/L	BMR
Toluene	09	108-88-3	SW8260D	05/27/2022 18:53	05/27/2022 18:53	BLOD		0.50	1.00	1	ug/L	BMR
trans-1,2-Dichloroethylene	09	156-60-5	SW8260D	05/27/2022 18:53	05/27/2022 18:53	BLOD		0.60	1.00	1	ug/L	BMR
trans-1,3-Dichloropropene	09	10061-02-6	SW8260D	05/27/2022 18:53	05/27/2022 18:53	BLOD		0.30	1.00	1	ug/L	BMR
trans-1,4-Dichloro-2-butene	09	110-57-6	SW8260D	05/27/2022 18:53	05/27/2022 18:53	BLOD		1.00	4.00	1	ug/L	BMR
Trichloroethylene	09	79-01-6	SW8260D	05/27/2022 18:53	05/27/2022 18:53	BLOD		0.40	1.00	1	ug/L	BMR
Trichlorofluoromethane	09	75-69-4	SW8260D	05/27/2022 18:53	05/27/2022 18:53	BLOD		0.80	1.00	1	ug/L	BMR
Vinyl acetate	09	108-05-4	SW8260D	05/27/2022 18:53	05/27/2022 18:53	BLOD		2.00	10.0	1	ug/L	BMR
Vinyl chloride	09	75-01-4	SW8260D	05/27/2022 18:53	05/27/2022 18:53	BLOD		0.50	0.50	1	ug/L	BMR
Xylenes, Total	09	1330-20-7	SW8260D	05/27/2022 18:53	05/27/2022 18:53	BLOD		1.00	3.00	1	ug/L	BMR
<i>Surr: 1,2-Dichloroethane-d4 (Surr)</i>	09	105 %	70-120	05/27/2022 18:53	05/27/2022 18:53							
<i>Surr: 4-Bromofluorobenzene (Surr)</i>	09	99.1 %	75-120	05/27/2022 18:53	05/27/2022 18:53							
<i>Surr: Dibromofluoromethane (Surr)</i>	09	102 %	70-130	05/27/2022 18:53	05/27/2022 18:53							
<i>Surr: Toluene-d8 (Surr)</i>	09	99.9 %	70-130	05/27/2022 18:53	05/27/2022 18:53							

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Client Sample ID: MW-101

Laboratory Sample ID: 22E1388-09

Parameter	Samp ID	CAS	Reference Method	Sample Prep Date/Time	Analyzed Date/Time	Sample Results	Qual	LOD	LOQ	DF	Units	Analyst
Semivolatle Organic Compounds by GCMS												
1,2,4,5-Tetrachlorobenzene	09	95-94-3	SW8270E	06/01/2022 09:00	06/02/2022 06:03	BLOD		1.87	10.0	1	ug/L	MGG
1,3,5-Trinitrobenzene	09	99-35-4	SW8270E	06/01/2022 09:00	06/02/2022 06:03	BLOD		0.93	5.00	1	ug/L	MGG
1,3-Dinitrobenzene	09	99-65-0	SW8270E	06/01/2022 09:00	06/02/2022 06:03	BLOD		2.34	2.50	1	ug/L	MGG
1,4-Naphthoquinone	09	130-15-4	SW8270E	06/01/2022 09:00	06/02/2022 06:03	BLOD		1.87	10.0	1	ug/L	MGG
1-Naphthylamine	09	134-32-7	SW8270E	06/01/2022 09:00	06/02/2022 06:03	BLOD		0.93	10.0	1	ug/L	MGG
2,3,4,6-Tetrachlorophenol	09	58-90-2	SW8270E	06/01/2022 09:00	06/02/2022 06:03	BLOD		0.93	10.0	1	ug/L	MGG
2,4,5-Trichlorophenol	09	95-95-4	SW8270E	06/01/2022 09:00	06/02/2022 06:03	BLOD		0.93	10.0	1	ug/L	MGG
2,4,6-Trichlorophenol	09	88-06-2	SW8270E	06/01/2022 09:00	06/02/2022 06:03	BLOD		7.48	10.0	1	ug/L	MGG
2,4-Dichlorophenol	09	120-83-2	SW8270E	06/01/2022 09:00	06/02/2022 06:03	BLOD		2.80	10.0	1	ug/L	MGG
2,4-Dimethylphenol	09	105-67-9	SW8270E	06/01/2022 09:00	06/02/2022 06:03	BLOD		4.67	4.67	1	ug/L	MGG
2,4-Dinitrophenol	09	51-28-5	SW8270E	06/01/2022 09:00	06/02/2022 06:03	BLOD		7.48	50.0	1	ug/L	MGG
2,4-Dinitrotoluene	09	121-14-2	SW8270E	06/01/2022 09:00	06/02/2022 06:03	BLOD		5.61	10.0	1	ug/L	MGG
2,6-Dichlorophenol	09	87-65-0	SW8270E	06/01/2022 09:00	06/02/2022 06:03	BLOD		0.93	10.0	1	ug/L	MGG
2,6-Dinitrotoluene	09	606-20-2	SW8270E	06/01/2022 09:00	06/02/2022 06:03	BLOD		3.74	10.0	1	ug/L	MGG
2-Acetylaminofluorene	09	53-96-3	SW8270E	06/01/2022 09:00	06/02/2022 06:03	BLOD		2.34	2.50	1	ug/L	MGG
2-Chloronaphthalene	09	91-58-7	SW8270E	06/01/2022 09:00	06/02/2022 06:03	BLOD		4.21	10.0	1	ug/L	MGG
2-Chlorophenol	09	95-57-8	SW8270E	06/01/2022 09:00	06/02/2022 06:03	BLOD		3.27	10.0	1	ug/L	MGG
2-Methylnaphthalene	09	91-57-6	SW8270E	06/01/2022 09:00	06/02/2022 06:03	BLOD		1.87	10.0	1	ug/L	MGG
2-Naphthylamine	09	91-59-8	SW8270E	06/01/2022 09:00	06/02/2022 06:03	BLOD		1.87	10.0	1	ug/L	MGG
2-Nitroaniline	09	88-74-4	SW8270E	06/01/2022 09:00	06/02/2022 06:03	BLOD		1.87	20.0	1	ug/L	MGG
2-Nitrophenol	09	88-75-5	SW8270E	06/01/2022 09:00	06/02/2022 06:03	BLOD		5.61	10.0	1	ug/L	MGG
3,3'-Dichlorobenzidine	09	91-94-1	SW8270E	06/01/2022 09:00	06/02/2022 06:03	BLOD		3.74	10.0	1	ug/L	MGG
3,3'-Dimethylbenzidine	09	119-93-7	SW8270E	06/01/2022 09:00	06/02/2022 06:03	BLOD		2.34	2.50	1	ug/L	MGG
3-Methylcholanthrene	09	56-49-5	SW8270E	06/01/2022 09:00	06/02/2022 06:03	BLOD		0.93	10.0	1	ug/L	MGG

Certificate of Analysis

Client Name: SCS Engineers-Winchester
 Client Site I.D.: City of Bristol 1st Semi-Annual 2022
 Submitted To: Jennifer Robb

Date Issued: 7/12/2022 2:30:28PM

Client Sample ID: MW-101

Laboratory Sample ID: 22E1388-09

Parameter	Samp ID	CAS	Reference Method	Sample Prep Date/Time	Analyzed Date/Time	Sample Results	Qual	LOD	LOQ	DF	Units	Analyst
Semivolatile Organic Compounds by GCMS												
3-Nitroaniline	09	99-09-2	SW8270E	06/01/2022 09:00	06/02/2022 06:03	BLOD		1.87	20.0	1	ug/L	MGG
4,6-Dinitro-2-methylphenol	09	534-52-1	SW8270E	06/01/2022 09:00	06/02/2022 06:03	BLOD	C	7.48	50.0	1	ug/L	MGG
4-Aminobiphenyl	09	92-67-1	SW8270E	06/01/2022 09:00	06/02/2022 06:03	BLOD		1.87	10.0	1	ug/L	MGG
4-Bromophenyl phenyl ether	09	101-55-3	SW8270E	06/01/2022 09:00	06/02/2022 06:03	BLOD		3.27	10.0	1	ug/L	MGG
4-Chloroaniline	09	106-47-8	SW8270E	06/01/2022 09:00	06/02/2022 06:03	BLOD		1.87	10.0	1	ug/L	MGG
4-Chlorophenyl phenyl ether	09	7005-72-3	SW8270E	06/01/2022 09:00	06/02/2022 06:03	BLOD		3.27	10.0	1	ug/L	MGG
4-Nitroaniline	09	100-01-6	SW8270E	06/01/2022 09:00	06/02/2022 06:03	BLOD		1.87	20.0	1	ug/L	MGG
4-Nitrophenol	09	100-02-7	SW8270E	06/01/2022 09:00	06/02/2022 06:03	BLOD		1.87	50.0	1	ug/L	MGG
5-Nitro-o-toluidine	09	99-55-8	SW8270E	06/01/2022 09:00	06/02/2022 06:03	BLOD		1.87	10.0	1	ug/L	MGG
7,12-Dimethylbenz (a) anthracene	09	57-97-6	SW8270E	06/01/2022 09:00	06/02/2022 06:03	BLOD		1.87	10.0	1	ug/L	MGG
Acenaphthene	09	83-32-9	SW8270E	06/01/2022 09:00	06/02/2022 06:03	BLOD		3.74	10.0	1	ug/L	MGG
Acenaphthylene	09	208-96-8	SW8270E	06/01/2022 09:00	06/02/2022 06:03	BLOD		3.74	10.0	1	ug/L	MGG
Acetophenone	09	98-86-2	SW8270E	06/01/2022 09:00	06/02/2022 06:03	BLOD		1.87	20.0	1	ug/L	MGG
Anthracene	09	120-12-7	SW8270E	06/01/2022 09:00	06/02/2022 06:03	BLOD		4.67	10.0	1	ug/L	MGG
Benzo (a) anthracene	09	56-55-3	SW8270E	06/01/2022 09:00	06/02/2022 06:03	BLOD		3.27	9.35	1	ug/L	MGG
Benzo (a) pyrene	09	50-32-8	SW8270E	06/01/2022 09:00	06/02/2022 06:03	BLOD		0.19	0.20	1	ug/L	MGG
Benzo (b) fluoranthene	09	205-99-2	SW8270E	06/01/2022 09:00	06/02/2022 06:03	BLOD		3.74	10.0	1	ug/L	MGG
Benzo (g,h,i) perylene	09	191-24-2	SW8270E	06/01/2022 09:00	06/02/2022 06:03	BLOD	C	4.67	10.0	1	ug/L	MGG
Benzo (k) fluoranthene	09	207-08-9	SW8270E	06/01/2022 09:00	06/02/2022 06:03	BLOD		5.61	10.0	1	ug/L	MGG
Benzyl alcohol	09	100-51-6	SW8270E	06/01/2022 09:00	06/02/2022 06:03	BLOD		0.93	20.0	1	ug/L	MGG
bis (2-Chloroethoxy) methane	09	111-91-1	SW8270E	06/01/2022 09:00	06/02/2022 06:03	BLOD		3.27	10.0	1	ug/L	MGG
bis (2-Chloroethyl) ether	09	111-44-4	SW8270E	06/01/2022 09:00	06/02/2022 06:03	BLOD		3.27	10.0	1	ug/L	MGG
2,2'-Oxybis (1-chloropropane)	09	108-60-1	SW8270E	06/01/2022 09:00	06/02/2022 06:03	BLOD		2.80	10.0	1	ug/L	MGG
bis (2-Ethylhexyl) phthalate	09	117-81-7	SW8270E	06/01/2022 09:00	06/02/2022 06:03	BLOD		4.67	5.00	1	ug/L	MGG

Certificate of Analysis

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Date Issued: 7/12/2022 2:30:28PM

Client Sample ID: MW-101

Laboratory Sample ID: 22E1388-09

Parameter	Samp ID	CAS	Reference Method	Sample Prep Date/Time	Analyzed Date/Time	Sample Results	Qual	LOD	LOQ	DF	Units	Analyst
Semivolatle Organic Compounds by GCMS												
Butyl benzyl phthalate	09	85-68-7	SW8270E	06/01/2022 09:00	06/02/2022 06:03	BLOD		6.54	10.0	1	ug/L	MGG
Chlorobenzilate	09	510-15-6	SW8270E	06/01/2022 09:00	06/02/2022 06:03	BLOD		2.34	2.50	1	ug/L	MGG
Chrysene	09	218-01-9	SW8270E	06/01/2022 09:00	06/02/2022 06:03	BLOD		3.74	10.0	1	ug/L	MGG
Diallate	09	2303-16-4	SW8270E	06/01/2022 09:00	06/02/2022 06:03	BLOD		2.34	2.50	1	ug/L	MGG
Dibenz (a,h) anthracene	09	53-70-3	SW8270E	06/01/2022 09:00	06/02/2022 06:03	BLOD	C	4.67	10.0	1	ug/L	MGG
Dibenzofuran	09	132-64-9	SW8270E	06/01/2022 09:00	06/02/2022 06:03	BLOD		1.87	5.00	1	ug/L	MGG
Diethyl phthalate	09	84-66-2	SW8270E	06/01/2022 09:00	06/02/2022 06:03	BLOD		2.80	10.0	1	ug/L	MGG
Dimethoate	09	60-51-5	SW8270E	06/01/2022 09:00	06/02/2022 06:03	BLOD		2.34	2.50	1	ug/L	MGG
Dimethyl phthalate	09	131-11-3	SW8270E	06/01/2022 09:00	06/02/2022 06:03	BLOD		3.27	10.0	1	ug/L	MGG
Di-n-butyl phthalate	09	84-74-2	SW8270E	06/01/2022 09:00	06/02/2022 06:03	BLOD		3.74	10.0	1	ug/L	MGG
Di-n-octyl phthalate	09	117-84-0	SW8270E	06/01/2022 09:00	06/02/2022 06:03	BLOD		7.48	10.0	1	ug/L	MGG
Diphenylamine	09	122-39-4	SW8270E	06/01/2022 09:00	06/02/2022 06:03	BLOD		1.87	10.0	1	ug/L	MGG
Disulfoton	09	298-04-4	SW8270E	06/01/2022 09:00	06/02/2022 06:03	BLOD		2.34	2.50	1	ug/L	MGG
Ethyl methanesulfonate	09	62-50-0	SW8270E	06/01/2022 09:00	06/02/2022 06:03	BLOD		0.93	20.0	1	ug/L	MGG
Ethyl parathion	09	56-38-2	SW8270E	06/01/2022 09:00	06/02/2022 06:03	BLOD		2.34	2.50	1	ug/L	MGG
Famphur	09	52-85-7	SW8270E	06/01/2022 09:00	06/02/2022 06:03	BLOD		2.34	2.50	1	ug/L	MGG
Fluoranthene	09	206-44-0	SW8270E	06/01/2022 09:00	06/02/2022 06:03	BLOD		4.67	10.0	1	ug/L	MGG
Fluorene	09	86-73-7	SW8270E	06/01/2022 09:00	06/02/2022 06:03	BLOD		3.74	10.0	1	ug/L	MGG
Hexachlorobenzene	09	118-74-1	SW8270E	06/01/2022 09:00	06/02/2022 06:03	BLOD		0.93	0.93	1	ug/L	MGG
Hexachlorobutadiene	09	87-68-3	SW8270E	06/01/2022 09:00	06/02/2022 06:03	BLOD	C	4.21	10.0	1	ug/L	MGG
Hexachlorocyclopentadiene	09	77-47-4	SW8270E	06/01/2022 09:00	06/02/2022 06:03	BLOD	C	3.74	10.0	1	ug/L	MGG
Hexachloroethane	09	67-72-1	SW8270E	06/01/2022 09:00	06/02/2022 06:03	BLOD		3.27	10.0	1	ug/L	MGG
Hexachloropropene	09	1888-71-7	SW8270E	06/01/2022 09:00	06/02/2022 06:03	BLOD		1.87	2.50	1	ug/L	MGG
Indeno (1,2,3-cd) pyrene	09	193-39-5	SW8270E	06/01/2022 09:00	06/02/2022 06:03	BLOD	C	2.80	10.0	1	ug/L	MGG

Certificate of Analysis

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 Client Site I.D.: City of Bristol 1st Semi-Annual 2022
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Date Issued: 7/12/2022 2:30:28PM

Client Sample ID: MW-101

Laboratory Sample ID: 22E1388-09

Parameter	Samp ID	CAS	Reference Method	Sample Prep Date/Time	Analyzed Date/Time	Sample Results	Qual	LOD	LOQ	DF	Units	Analyst
Semivolatile Organic Compounds by GCMS												
Isodrin	09	465-73-6	SW8270E	06/01/2022 09:00	06/02/2022 06:03	BLOD		0.93	10.0	1	ug/L	MGG
Isophorone	09	78-59-1	SW8270E	06/01/2022 09:00	06/02/2022 06:03	BLOD		4.67	10.0	1	ug/L	MGG
Isosafrole	09	120-58-1	SW8270E	06/01/2022 09:00	06/02/2022 06:03	BLOD		1.87	10.0	1	ug/L	MGG
Kepon	09	143-50-0	SW8270E	06/01/2022 09:00	06/02/2022 06:03	BLOD		1.87	9.35	1	ug/L	MGG
m+p-Cresols	09	1319-77-3	SW8270E	06/01/2022 09:00	06/02/2022 06:03	BLOD		0.93	10.0	1	ug/L	MGG
Methapyrilene	09	91-80-5	SW8270E	06/01/2022 09:00	06/02/2022 06:03	BLOD		0.93	10.0	1	ug/L	MGG
Methyl methanesulfonate	09	66-27-3	SW8270E	06/01/2022 09:00	06/02/2022 06:03	BLOD		0.93	10.0	1	ug/L	MGG
Methyl parathion	09	298-00-0	SW8270E	06/01/2022 09:00	06/02/2022 06:03	BLOD		1.87	2.50	1	ug/L	MGG
Nitrobenzene	09	98-95-3	SW8270E	06/01/2022 09:00	06/02/2022 06:03	BLOD		2.80	10.0	1	ug/L	MGG
n-Nitrosodiethylamine	09	55-18-5	SW8270E	06/01/2022 09:00	06/02/2022 06:03	BLOD		2.34	2.50	1	ug/L	MGG
n-Nitrosodimethylamine	09	62-75-9	SW8270E	06/01/2022 09:00	06/02/2022 06:03	BLOD		2.80	10.0	1	ug/L	MGG
n-Nitrosodi-n-butylamine	09	924-16-3	SW8270E	06/01/2022 09:00	06/02/2022 06:03	BLOD		1.87	10.0	1	ug/L	MGG
n-Nitrosodi-n-propylamine	09	621-64-7	SW8270E	06/01/2022 09:00	06/02/2022 06:03	BLOD		3.27	10.0	1	ug/L	MGG
n-Nitrosodiphenylamine	09	86-30-6	SW8270E	06/01/2022 09:00	06/02/2022 06:03	BLOD		2.80	10.0	1	ug/L	MGG
n-Nitrosomethylethylamine	09	10595-95-6	SW8270E	06/01/2022 09:00	06/02/2022 06:03	BLOD		1.87	2.50	1	ug/L	MGG
n-Nitrosopiperidine	09	100-75-4	SW8270E	06/01/2022 09:00	06/02/2022 06:03	BLOD		1.87	10.0	1	ug/L	MGG
n-Nitrosopyrrolidine	09	930-55-2	SW8270E	06/01/2022 09:00	06/02/2022 06:03	BLOD		1.87	2.50	1	ug/L	MGG
o,o,o-Triethyl phosphorothioate	09	126-68-1	SW8270E	06/01/2022 09:00	06/02/2022 06:03	BLOD		1.87	10.0	1	ug/L	MGG
o,o-Diethyl o-2-pyrazinyl phosphorothioate	09	297-97-2	SW8270E	06/01/2022 09:00	06/02/2022 06:03	BLOD		1.87	10.0	1	ug/L	MGG
o+m+p-Cresols	09	1319-77-3	SW8270E	06/01/2022 09:00	06/02/2022 06:03	BLOD		2.80	10.0	1	ug/L	MGG
o-Cresol	09	95-48-7	SW8270E	06/01/2022 09:00	06/02/2022 06:03	BLOD		7.48	10.0	1	ug/L	MGG
o-Toluidine	09	95-53-4	SW8270E	06/01/2022 09:00	06/02/2022 06:03	BLOD		1.87	2.50	1	ug/L	MGG
p-(Dimethylamino) azobenzene	09	60-11-7	SW8270E	06/01/2022 09:00	06/02/2022 06:03	BLOD		0.93	2.50	1	ug/L	MGG

Certificate of Analysis

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Client Sample ID: MW-101

Laboratory Sample ID: 22E1388-09

Parameter	Samp ID	CAS	Reference Method	Sample Prep Date/Time	Analyzed Date/Time	Sample Results	Qual	LOD	LOQ	DF	Units	Analyst
Semivolatile Organic Compounds by GCMS												
p-Chloro-m-cresol	09	59-50-7	SW8270E	06/01/2022 09:00	06/02/2022 06:03	BLOD		7.48	10.0	1	ug/L	MGG
Pentachlorobenzene	09	608-93-5	SW8270E	06/01/2022 09:00	06/02/2022 06:03	BLOD		1.87	10.0	1	ug/L	MGG
Pentachloronitrobenzene (quintozene)	09	82-68-8	SW8270E	06/01/2022 09:00	06/02/2022 06:03	BLOD		0.93	9.35	1	ug/L	MGG
Phenacetin	09	62-44-2	SW8270E	06/01/2022 09:00	06/02/2022 06:03	BLOD		0.93	10.0	1	ug/L	MGG
Phenanthrene	09	85-01-8	SW8270E	06/01/2022 09:00	06/02/2022 06:03	BLOD		7.48	10.0	1	ug/L	MGG
Phenol	09	108-95-2	SW8270E	06/01/2022 09:00	06/02/2022 06:03	BLOD		2.34	10.0	1	ug/L	MGG
Phorate	09	298-02-2	SW8270E	06/01/2022 09:00	06/02/2022 06:03	BLOD		1.87	2.50	1	ug/L	MGG
p-Phenylenediamine	09	106-50-3	SW8270E	06/01/2022 09:00	06/02/2022 06:03	BLOD	C	1.87	10.0	1	ug/L	MGG
Pronamide	09	23950-58-5	SW8270E	06/01/2022 09:00	06/02/2022 06:03	BLOD		1.87	10.0	1	ug/L	MGG
Pyrene	09	129-00-0	SW8270E	06/01/2022 09:00	06/02/2022 06:03	BLOD		6.54	10.0	1	ug/L	MGG
Safrole	09	94-59-7	SW8270E	06/01/2022 09:00	06/02/2022 06:03	BLOD		1.87	2.50	1	ug/L	MGG
<i>Surr: 2,4,6-Tribromophenol (Surr)</i>	09	45.9 %	10-86	06/01/2022 09:00	06/02/2022 06:03							
<i>Surr: 2-Fluorobiphenyl (Surr)</i>	09	77.9 %	9-87	06/01/2022 09:00	06/02/2022 06:03							
<i>Surr: 2-Fluorophenol (Surr)</i>	09	42.4 %	10-52	06/01/2022 09:00	06/02/2022 06:03							
<i>Surr: Nitrobenzene-d5 (Surr)</i>	09	72.4 %	10-98.5	06/01/2022 09:00	06/02/2022 06:03							
<i>Surr: Phenol-d5 (Surr)</i>	09	29.8 %	5-33	06/01/2022 09:00	06/02/2022 06:03							
<i>Surr: p-Terphenyl-d14 (Surr)</i>	09	82.4 %	27-133	06/01/2022 09:00	06/02/2022 06:03							

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Laboratory Sample ID: 22E1388-09

Parameter	Samp ID	CAS	Reference Method	Sample Prep Date/Time	Analyzed Date/Time	Sample Results	Qual	LOD	LOQ	DF	Units	Analyst
Organochlorine Pesticides and PCBs by GC/ECD												
PCB as Aroclor 1016	09	12674-11-2	SW8082A	05/31/2022 09:00	06/01/2022 13:24	BLOD		0.140	0.200	1	ug/L	LBH2
PCB as Aroclor 1221	09	11104-28-2	SW8082A	05/31/2022 09:00	06/01/2022 13:24	BLOD		0.140	0.200	1	ug/L	LBH2
PCB as Aroclor 1232	09	11141-16-5	SW8082A	05/31/2022 09:00	06/01/2022 13:24	BLOD		0.140	0.200	1	ug/L	LBH2
PCB as Aroclor 1242	09	53469-21-9	SW8082A	05/31/2022 09:00	06/01/2022 13:24	BLOD		0.140	0.200	1	ug/L	LBH2
PCB as Aroclor 1248	09	12672-29-6	SW8082A	05/31/2022 09:00	06/01/2022 13:24	BLOD		0.140	0.200	1	ug/L	LBH2
PCB as Aroclor 1254	09	11097-69-1	SW8082A	05/31/2022 09:00	06/01/2022 13:24	BLOD		0.140	0.200	1	ug/L	LBH2
PCB as Aroclor 1260	09	11096-82-5	SW8082A	05/31/2022 09:00	06/01/2022 13:24	BLOD		0.140	0.200	1	ug/L	LBH2
<i>Surr: DCB</i>	09	98.2 %	30-105	05/31/2022 09:00	06/01/2022 13:24							
<i>Surr: TCMX</i>	09	86.9 %	30-105	05/31/2022 09:00	06/01/2022 13:24							
4,4'-DDD	09	72-54-8	SW8081B	05/31/2022 09:00	06/01/2022 13:24	BLOD		0.005	0.050	1	ug/L	LBH2
4,4'-DDE	09	72-55-9	SW8081B	05/31/2022 09:00	06/01/2022 13:24	BLOD		0.005	0.050	1	ug/L	LBH2
4,4'-DDT	09	50-29-3	SW8081B	05/31/2022 09:00	06/01/2022 13:24	BLOD		0.005	0.050	1	ug/L	LBH2
Aldrin	09	309-00-2	SW8081B	05/31/2022 09:00	06/01/2022 13:24	BLOD		0.005	0.050	1	ug/L	LBH2
alpha-BHC	09	319-84-6	SW8081B	05/31/2022 09:00	06/01/2022 13:24	BLOD		0.005	0.050	1	ug/L	LBH2
alpha-Chlordane	09	5103-71-9	SW8081B	05/31/2022 09:00	06/01/2022 13:24	BLOD		0.005	0.050	1	ug/L	LBH2
beta-BHC	09	319-85-7	SW8081B	05/31/2022 09:00	06/01/2022 13:24	BLOD		0.019	0.050	1	ug/L	LBH2
Chlordane	09	57-74-9	SW8081B	05/31/2022 09:00	06/01/2022 13:24	BLOD		0.187	0.200	1	ug/L	LBH2
delta-BHC	09	319-86-8	SW8081B	05/31/2022 09:00	06/01/2022 13:24	BLOD		0.005	0.050	1	ug/L	LBH2
Dieldrin	09	60-57-1	SW8081B	05/31/2022 09:00	06/01/2022 13:24	BLOD		0.005	0.050	1	ug/L	LBH2
Endosulfan I	09	959-98-8	SW8081B	05/31/2022 09:00	06/01/2022 13:24	BLOD		0.005	0.050	1	ug/L	LBH2
Endosulfan II	09	33213-65-9	SW8081B	05/31/2022 09:00	06/01/2022 13:24	BLOD		0.005	0.050	1	ug/L	LBH2
Endosulfan sulfate	09	1031-07-8	SW8081B	05/31/2022 09:00	06/01/2022 13:24	BLOD		0.005	0.050	1	ug/L	LBH2
Endrin	09	72-20-8	SW8081B	05/31/2022 09:00	06/01/2022 13:24	BLOD		0.005	0.050	1	ug/L	LBH2
Endrin aldehyde	09	7421-93-4	SW8081B	05/31/2022 09:00	06/01/2022 13:24	BLOD		0.005	0.050	1	ug/L	LBH2

Certificate of Analysis

Client Name: SCS Engineers-Winchester
 Client Site I.D.: City of Bristol 1st Semi-Annual 2022
 Submitted To: Jennifer Robb

Date Issued: 7/12/2022 2:30:28PM

Client Sample ID: MW-101

Laboratory Sample ID: 22E1388-09

Parameter	Samp ID	CAS	Reference Method	Sample Prep Date/Time	Analyzed Date/Time	Sample Results	Qual	LOD	LOQ	DF	Units	Analyst
Organochlorine Pesticides and PCBs by GC/ECD												
gamma-BHC (Lindane)	09	58-89-9	SW8081B	05/31/2022 09:00	06/01/2022 13:24	BLOD		0.005	0.050	1	ug/L	LBH2
gamma-Chlordane	09	5103-74-2	SW8081B	05/31/2022 09:00	06/01/2022 13:24	BLOD		0.005	0.050	1	ug/L	LBH2
Heptachlor	09	76-44-8	SW8081B	05/31/2022 09:00	06/01/2022 13:24	BLOD		0.005	0.050	1	ug/L	LBH2
Heptachlor epoxide	09	1024-57-3	SW8081B	05/31/2022 09:00	06/01/2022 13:24	BLOD		0.005	0.050	1	ug/L	LBH2
Methoxychlor	09	72-43-5	SW8081B	05/31/2022 09:00	06/01/2022 13:24	BLOD		0.005	0.050	1	ug/L	LBH2
Toxaphene	09	8001-35-2	SW8081B	05/31/2022 09:00	06/01/2022 13:24	BLOD		0.187	1.00	1	ug/L	LBH2
Surr: TCMX	09	86.9 %	18-112	05/31/2022 09:00	06/01/2022 13:24							
Surr: DCB	09	158 %	27-131	05/31/2022 09:00	06/01/2022 13:24							S

Certificate of Analysis

Client Name: SCS Engineers-Winchester
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 Submitted To: Jennifer Robb

Date Issued: 7/12/2022 2:30:28PM

Client Sample ID: MW-101

Laboratory Sample ID: 22E1388-09

Parameter	Samp ID	CAS	Reference Method	Sample Prep Date/Time	Analyzed Date/Time	Sample Results	Qual	LOD	LOQ	DF	Units	Analyst
Organochlorine Herbicides by GC/ECD												
2,4,5-T	09	93-76-5	SW8151A	05/31/2022 16:20	06/09/2022 14:00	BLOD		0.200	0.500	1	ug/L	LBH2
2,4,5-TP (Silvex)	09	93-72-1	SW8151A	05/31/2022 16:20	06/09/2022 14:00	BLOD		0.107	0.500	1	ug/L	LBH2
2,4-D	09	94-75-7	SW8151A	05/31/2022 16:20	06/09/2022 14:00	BLOD		0.200	0.500	1	ug/L	LBH2
Dinoseb	09	88-85-7	SW8151A	05/31/2022 16:20	06/09/2022 14:00	BLOD		0.200	0.500	1	ug/L	LBH2
Pentachlorophenol	09	87-86-5	SW8151A	05/31/2022 16:20	06/09/2022 14:00	BLOD		0.200	0.500	1	ug/L	LBH2
<i>Surr: DCAA (Surr)</i>	09	97.3 %	48.5-134	05/31/2022 16:20	06/09/2022 14:00							

Certificate of Analysis

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Client Site I.D.: City of Bristol 1st Semi-Annual 2022

Submitted To: Jennifer Robb

Client Sample ID: MW-101

Laboratory Sample ID: 22E1388-09

Parameter	Samp ID	CAS	Reference Method	Sample Prep Date/Time	Analyzed Date/Time	Sample Results	Qual	LOD	LOQ	DF	Units	Analyst
Micro-extractables by GC/ECD												
1,2-Dibromoethane (EDB)	09	106-93-4	SW8011	06/01/2022 11:30	06/02/2022 09:29	BLOD		0.008	0.010	1	ug/L	LBH2
1,2,3-Trichloropropane	09	96-18-4	SW8011	06/01/2022 11:30	06/02/2022 09:29	BLOD		0.009	0.010	1	ug/L	LBH2
1,2-Dibromo-3-chloropropane (DBCP)	09	96-12-8	SW8011	06/01/2022 11:30	06/02/2022 09:29	BLOD		0.005	0.010	1	ug/L	LBH2

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Client Site I.D.: City of Bristol 1st Semi-Annual 2022

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Client Sample ID: MW-101

Laboratory Sample ID: 22E1388-09

Parameter	Samp ID	CAS	Reference Method	Sample Prep Date/Time	Analyzed Date/Time	Sample Results	Qual	LOD	LOQ	DF	Units	Analyst
Wet Chemistry Analysis												
Cyanide	09	57-12-5	SW9012B	06/06/2022 17:28	06/06/2022 17:28	BLOD		0.01	0.01	1	mg/L	Omnion Use
Sulfide	09	18496-25-8	SW9215	05/27/2022 18:30	05/27/2022 18:30	BLOD		0.80	1.00	1	mg/L	MJRL

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Client Name: SCS Engineers-Winchester
 Client Site I.D.: City of Bristol 1st Semi-Annual 2022
 Submitted To: Jennifer Robb

Date Issued: 7/12/2022 2:30:28PM

Client Sample ID: MW-106B

Laboratory Sample ID: 22E1388-10

Parameter	Samp ID	CAS	Reference Method	Sample Prep Date/Time	Analyzed Date/Time	Sample Results	Qual	LOD	LOQ	DF	Units	Analyst
Metals (Total) by EPA 6000/7000 Series Methods												
Silver	10	7440-22-4	SW6020B	05/31/2022 13:00	06/02/2022 15:10	BLOD		0.0600	1.00	1	ug/L	RCV
Arsenic	10	7440-38-2	SW6020B	05/31/2022 13:00	06/02/2022 15:10	1.0		0.50	1.0	1	ug/L	RCV
Barium	10	7440-39-3	SW6020B	05/31/2022 13:00	06/02/2022 15:10	108		1.00	5.00	1	ug/L	RCV
Beryllium	10	7440-41-7	SW6020B	05/31/2022 13:00	06/02/2022 15:10	BLOD		0.200	1.00	1	ug/L	RCV
Cadmium	10	7440-43-9	SW6020B	05/31/2022 13:00	06/02/2022 15:10	BLOD		0.100	1.00	1	ug/L	RCV
Cobalt	10	7440-48-4	SW6020B	05/31/2022 13:00	06/02/2022 15:10	0.472	J	0.200	1.00	1	ug/L	RCV
Chromium	10	7440-47-3	SW6020B	05/31/2022 13:00	06/02/2022 15:10	BLOD		0.400	1.00	1	ug/L	RCV
Copper	10	7440-50-8	SW6020B	05/31/2022 13:00	06/02/2022 15:10	0.725	J	0.300	1.00	1	ug/L	RCV
Nickel	10	7440-02-0	SW6020B	05/31/2022 13:00	06/02/2022 15:10	BLOD		1.000	1.000	1	ug/L	RCV
Lead	10	7439-92-1	SW6020B	05/31/2022 13:00	06/02/2022 15:10	BLOD		1.0	1.0	1	ug/L	RCV
Antimony	10	7440-36-0	SW6020B	05/31/2022 13:00	06/02/2022 15:10	BLOD		1.0	1.0	1	ug/L	RCV
Selenium	10	7782-49-2	SW6020B	05/31/2022 13:00	06/02/2022 15:10	BLOD		0.850	1.00	1	ug/L	RCV
Thallium	10	7440-28-0	SW6020B	05/31/2022 13:00	06/02/2022 15:10	BLOD		1.0	1.0	1	ug/L	RCV
Vanadium	10	7440-62-2	SW6020B	05/31/2022 13:00	06/02/2022 15:10	BLOD		2.50	5.00	1	ug/L	RCV
Zinc	10	7440-66-6	SW6020B	05/31/2022 13:00	06/02/2022 15:10	2.58	J	2.50	5.00	1	ug/L	RCV

Certificate of Analysis

Client Name: SCS Engineers-Winchester
 Client Site I.D.: City of Bristol 1st Semi-Annual 2022
 Submitted To: Jennifer Robb

Date Issued: 7/12/2022 2:30:28PM

Client Sample ID: MW-106B

Laboratory Sample ID: 22E1388-10

Parameter	Samp ID	CAS	Reference Method	Sample Prep Date/Time	Analyzed Date/Time	Sample Results	Qual	LOD	LOQ	DF	Units	Analyst
Volatile Organic Compounds by GCMS												
1,1,1,2-Tetrachloroethane	10	630-20-6	SW8260D	05/27/2022 19:17	05/27/2022 19:17	BLOD		0.40	0.40	1	ug/L	BMR
1,1,1-Trichloroethane	10	71-55-6	SW8260D	05/27/2022 19:17	05/27/2022 19:17	BLOD		0.60	1.00	1	ug/L	BMR
1,1,2,2-Tetrachloroethane	10	79-34-5	SW8260D	05/27/2022 19:17	05/27/2022 19:17	BLOD		0.30	0.40	1	ug/L	BMR
1,1,2-Trichloroethane	10	79-00-5	SW8260D	05/27/2022 19:17	05/27/2022 19:17	BLOD		0.50	1.00	1	ug/L	BMR
1,1-Dichloroethane	10	75-34-3	SW8260D	05/27/2022 19:17	05/27/2022 19:17	1.11		0.60	1.00	1	ug/L	BMR
1,1-Dichloroethylene	10	75-35-4	SW8260D	05/27/2022 19:17	05/27/2022 19:17	BLOD		0.70	1.00	1	ug/L	BMR
1,2,3-Trichloropropane	10	96-18-4	SW8260D	05/27/2022 19:17	05/27/2022 19:17	BLOD		0.40	1.00	1	ug/L	BMR
1,2-Dichlorobenzene	10	95-50-1	SW8260D	05/27/2022 19:17	05/27/2022 19:17	BLOD		0.40	1.00	1	ug/L	BMR
1,2-Dichloroethane	10	107-06-2	SW8260D	05/27/2022 19:17	05/27/2022 19:17	BLOD		0.70	1.00	1	ug/L	BMR
1,2-Dichloropropane	10	78-87-5	SW8260D	05/27/2022 19:17	05/27/2022 19:17	BLOD		0.40	1.00	1	ug/L	BMR
1,4-Dichlorobenzene	10	106-46-7	SW8260D	05/27/2022 19:17	05/27/2022 19:17	BLOD		0.40	1.00	1	ug/L	BMR
2-Butanone (MEK)	10	78-93-3	SW8260D	05/27/2022 19:17	05/27/2022 19:17	BLOD		3.00	10.0	1	ug/L	BMR
2-Hexanone (MBK)	10	591-78-6	SW8260D	05/27/2022 19:17	05/27/2022 19:17	BLOD		2.20	5.00	1	ug/L	BMR
4-Methyl-2-pentanone (MIBK)	10	108-10-1	SW8260D	05/27/2022 19:17	05/27/2022 19:17	BLOD		1.50	5.00	1	ug/L	BMR
Acetone	10	67-64-1	SW8260D	05/27/2022 19:17	05/27/2022 19:17	BLOD		7.00	10.0	1	ug/L	BMR
Acrylonitrile	10	107-13-1	SW8260D	05/27/2022 19:17	05/27/2022 19:17	BLOD		1.70	5.00	1	ug/L	BMR
Benzene	10	71-43-2	SW8260D	05/27/2022 19:17	05/27/2022 19:17	BLOD		0.40	1.00	1	ug/L	BMR
Bromochloromethane	10	74-97-5	SW8260D	05/27/2022 19:17	05/27/2022 19:17	BLOD		0.50	1.00	1	ug/L	BMR
Bromodichloromethane	10	75-27-4	SW8260D	05/27/2022 19:17	05/27/2022 19:17	BLOD		0.40	0.50	1	ug/L	BMR
Bromoform	10	75-25-2	SW8260D	05/27/2022 19:17	05/27/2022 19:17	BLOD		0.40	1.00	1	ug/L	BMR
Bromomethane	10	74-83-9	SW8260D	05/27/2022 19:17	05/27/2022 19:17	BLOD		0.80	1.00	1	ug/L	BMR
Carbon disulfide	10	75-15-0	SW8260D	05/27/2022 19:17	05/27/2022 19:17	BLOD		5.00	10.0	1	ug/L	BMR
Carbon tetrachloride	10	56-23-5	SW8260D	05/27/2022 19:17	05/27/2022 19:17	BLOD		0.50	1.00	1	ug/L	BMR
Chlorobenzene	10	108-90-7	SW8260D	05/27/2022 19:17	05/27/2022 19:17	BLOD		0.40	1.00	1	ug/L	BMR

Certificate of Analysis

Client Name: SCS Engineers-Winchester
 Client Site I.D.: City of Bristol 1st Semi-Annual 2022
 Submitted To: Jennifer Robb

Date Issued: 7/12/2022 2:30:28PM

Client Sample ID: MW-106B

Laboratory Sample ID: 22E1388-10

Parameter	Samp ID	CAS	Reference Method	Sample Prep Date/Time	Analyzed Date/Time	Sample Results	Qual	LOD	LOQ	DF	Units	Analyst
Volatile Organic Compounds by GCMS												
Chloroethane	10	75-00-3	SW8260D	05/27/2022 19:17	05/27/2022 19:17	BLOD		0.70	1.00	1	ug/L	BMR
Chloroform	10	67-66-3	SW8260D	05/27/2022 19:17	05/27/2022 19:17	BLOD		0.50	0.50	1	ug/L	BMR
Chloromethane	10	74-87-3	SW8260D	05/27/2022 19:17	05/27/2022 19:17	BLOD		0.95	1.00	1	ug/L	BMR
cis-1,2-Dichloroethylene	10	156-59-2	SW8260D	05/27/2022 19:17	05/27/2022 19:17	BLOD		0.40	1.00	1	ug/L	BMR
cis-1,3-Dichloropropene	10	10061-01-5	SW8260D	05/27/2022 19:17	05/27/2022 19:17	BLOD		0.30	1.00	1	ug/L	BMR
Dibromochloromethane	10	124-48-1	SW8260D	05/27/2022 19:17	05/27/2022 19:17	BLOD		0.35	0.50	1	ug/L	BMR
Dibromomethane	10	74-95-3	SW8260D	05/27/2022 19:17	05/27/2022 19:17	BLOD		0.40	1.00	1	ug/L	BMR
Ethylbenzene	10	100-41-4	SW8260D	05/27/2022 19:17	05/27/2022 19:17	BLOD		0.40	1.00	1	ug/L	BMR
Iodomethane	10	74-88-4	SW8260D	05/27/2022 19:17	05/27/2022 19:17	BLOD		6.00	10.0	1	ug/L	BMR
m+p-Xylenes	10	179601-23-1	SW8260D	05/27/2022 19:17	05/27/2022 19:17	BLOD		0.60	2.00	1	ug/L	BMR
Methylene chloride	10	75-09-2	SW8260D	05/27/2022 19:17	05/27/2022 19:17	BLOD		4.00	4.00	1	ug/L	BMR
o-Xylene	10	95-47-6	SW8260D	05/27/2022 19:17	05/27/2022 19:17	BLOD		0.40	1.00	1	ug/L	BMR
Styrene	10	100-42-5	SW8260D	05/27/2022 19:17	05/27/2022 19:17	BLOD		0.40	1.00	1	ug/L	BMR
Tetrachloroethylene (PCE)	10	127-18-4	SW8260D	05/27/2022 19:17	05/27/2022 19:17	BLOD		0.40	1.00	1	ug/L	BMR
Toluene	10	108-88-3	SW8260D	05/27/2022 19:17	05/27/2022 19:17	BLOD		0.50	1.00	1	ug/L	BMR
trans-1,2-Dichloroethylene	10	156-60-5	SW8260D	05/27/2022 19:17	05/27/2022 19:17	BLOD		0.60	1.00	1	ug/L	BMR
trans-1,3-Dichloropropene	10	10061-02-6	SW8260D	05/27/2022 19:17	05/27/2022 19:17	BLOD		0.30	1.00	1	ug/L	BMR
trans-1,4-Dichloro-2-butene	10	110-57-6	SW8260D	05/27/2022 19:17	05/27/2022 19:17	BLOD		1.00	4.00	1	ug/L	BMR
Trichloroethylene	10	79-01-6	SW8260D	05/27/2022 19:17	05/27/2022 19:17	BLOD		0.40	1.00	1	ug/L	BMR
Trichlorofluoromethane	10	75-69-4	SW8260D	05/27/2022 19:17	05/27/2022 19:17	BLOD		0.80	1.00	1	ug/L	BMR
Vinyl acetate	10	108-05-4	SW8260D	05/27/2022 19:17	05/27/2022 19:17	BLOD		2.00	10.0	1	ug/L	BMR
Vinyl chloride	10	75-01-4	SW8260D	05/27/2022 19:17	05/27/2022 19:17	BLOD		0.50	0.50	1	ug/L	BMR
Xylenes, Total	10	1330-20-7	SW8260D	05/27/2022 19:17	05/27/2022 19:17	BLOD		1.00	3.00	1	ug/L	BMR

Certificate of Analysis

Client Name: SCS Engineers-Winchester

Date Issued: 7/12/2022 2:30:28PM

Client Site I.D.: City of Bristol 1st Semi-Annual 2022

Submitted To: Jennifer Robb

Client Sample ID: MW-106B

Laboratory Sample ID: 22E1388-10

Parameter	Samp ID	CAS	Reference Method	Sample Prep Date/Time	Analyzed Date/Time	Sample Results	Qual	LOD	LOQ	DF	Units	Analyst
Volatile Organic Compounds by GCMS												
Surr: 1,2-Dichloroethane-d4 (Surr)	10	107 %	70-120	05/27/2022 19:17	05/27/2022 19:17							
Surr: 4-Bromofluorobenzene (Surr)	10	96.9 %	75-120	05/27/2022 19:17	05/27/2022 19:17							
Surr: Dibromofluoromethane (Surr)	10	102 %	70-130	05/27/2022 19:17	05/27/2022 19:17							
Surr: Toluene-d8 (Surr)	10	99.1 %	70-130	05/27/2022 19:17	05/27/2022 19:17							

Certificate of Analysis

Client Name: SCS Engineers-Winchester

Date Issued: 7/12/2022 2:30:28PM

Client Site I.D.: City of Bristol 1st Semi-Annual 2022

Submitted To: Jennifer Robb

Client Sample ID: MW-106B

Laboratory Sample ID: 22E1388-10

Parameter	Samp ID	CAS	Reference Method	Sample Prep Date/Time	Analyzed Date/Time	Sample Results	Qual	LOD	LOQ	DF	Units	Analyst
Micro-extractables by GC/ECD												
1,2-Dibromoethane (EDB)	10	106-93-4	SW8011	06/01/2022 11:30	06/02/2022 09:51	BLOD		0.008	0.010	1	ug/L	LBH2
1,2,3-Trichloropropane	10	96-18-4	SW8011	06/01/2022 11:30	06/02/2022 09:51	BLOD		0.009	0.010	1	ug/L	LBH2
1,2-Dibromo-3-chloropropane (DBCP)	10	96-12-8	SW8011	06/01/2022 11:30	06/02/2022 09:51	BLOD		0.005	0.010	1	ug/L	LBH2

Certificate of Analysis

Client Name: SCS Engineers-Winchester
 Client Site I.D.: City of Bristol 1st Semi-Annual 2022
 Submitted To: Jennifer Robb

Date Issued: 7/12/2022 2:30:28PM

Client Sample ID: MW-106A

Laboratory Sample ID: 22E1388-11

Parameter	Samp ID	CAS	Reference Method	Sample Prep Date/Time	Analyzed Date/Time	Sample Results	Qual	LOD	LOQ	DF	Units	Analyst
Metals (Total) by EPA 6000/7000 Series Methods												
Silver	11	7440-22-4	SW6020B	05/31/2022 13:00	06/02/2022 15:12	BLOD		0.0600	1.00	1	ug/L	RCV
Arsenic	11	7440-38-2	SW6020B	05/31/2022 13:00	06/02/2022 15:12	3.2		0.50	1.0	1	ug/L	RCV
Barium	11RE1	7440-39-3	SW6020B	05/31/2022 13:00	06/08/2022 13:27	290		10.0	50.0	10	ug/L	RCV
Beryllium	11	7440-41-7	SW6020B	05/31/2022 13:00	06/02/2022 15:12	BLOD		0.200	1.00	1	ug/L	RCV
Cadmium	11	7440-43-9	SW6020B	05/31/2022 13:00	06/02/2022 15:12	BLOD		0.100	1.00	1	ug/L	RCV
Cobalt	11	7440-48-4	SW6020B	05/31/2022 13:00	06/02/2022 15:12	5.43		0.200	1.00	1	ug/L	RCV
Chromium	11	7440-47-3	SW6020B	05/31/2022 13:00	06/02/2022 15:12	BLOD		0.400	1.00	1	ug/L	RCV
Copper	11	7440-50-8	SW6020B	05/31/2022 13:00	06/02/2022 15:12	BLOD		0.300	1.00	1	ug/L	RCV
Mercury	11	7439-97-6	SW7470A	06/09/2022 10:29	06/09/2022 15:13	BLOD		0.00020	0.00020	1	mg/L	MWL
Nickel	11	7440-02-0	SW6020B	05/31/2022 13:00	06/02/2022 15:12	7.323		1.000	1.000	1	ug/L	RCV
Lead	11	7439-92-1	SW6020B	05/31/2022 13:00	06/02/2022 15:12	BLOD		1.0	1.0	1	ug/L	RCV
Antimony	11	7440-36-0	SW6020B	05/31/2022 13:00	06/02/2022 15:12	BLOD		1.0	1.0	1	ug/L	RCV
Selenium	11	7782-49-2	SW6020B	05/31/2022 13:00	06/02/2022 15:12	BLOD		0.850	1.00	1	ug/L	RCV
Tin	11	7440-31-5	SW6020B	05/31/2022 13:00	06/02/2022 15:12	BLOD		1.00	1.00	1	ug/L	RCV
Thallium	11	7440-28-0	SW6020B	05/31/2022 13:00	06/02/2022 15:12	BLOD		1.0	1.0	1	ug/L	RCV
Vanadium	11	7440-62-2	SW6020B	05/31/2022 13:00	06/02/2022 15:12	BLOD		2.50	5.00	1	ug/L	RCV
Zinc	11	7440-66-6	SW6020B	05/31/2022 13:00	06/02/2022 15:12	BLOD		2.50	5.00	1	ug/L	RCV

Certificate of Analysis

Client Name: SCS Engineers-Winchester
 Client Site I.D.: City of Bristol 1st Semi-Annual 2022
 Submitted To: Jennifer Robb

Date Issued: 7/12/2022 2:30:28PM

Client Sample ID: MW-106A

Laboratory Sample ID: 22E1388-11

Parameter	Samp ID	CAS	Reference Method	Sample Prep Date/Time	Analyzed Date/Time	Sample Results	Qual	LOD	LOQ	DF	Units	Analyst
Volatile Organic Compounds by GCMS												
1,1,1,2-Tetrachloroethane	11	630-20-6	SW8260D	05/27/2022 19:41	05/27/2022 19:41	BLOD		0.40	0.40	1	ug/L	BMR
1,1,1-Trichloroethane	11	71-55-6	SW8260D	05/27/2022 19:41	05/27/2022 19:41	BLOD		0.60	1.00	1	ug/L	BMR
1,1,2,2-Tetrachloroethane	11	79-34-5	SW8260D	05/27/2022 19:41	05/27/2022 19:41	BLOD		0.30	0.40	1	ug/L	BMR
1,1,2-Trichloroethane	11	79-00-5	SW8260D	05/27/2022 19:41	05/27/2022 19:41	BLOD		0.50	1.00	1	ug/L	BMR
1,1-Dichloroethane	11	75-34-3	SW8260D	05/27/2022 19:41	05/27/2022 19:41	1.02		0.60	1.00	1	ug/L	BMR
1,1-Dichloroethylene	11	75-35-4	SW8260D	05/27/2022 19:41	05/27/2022 19:41	BLOD		0.70	1.00	1	ug/L	BMR
1,1-Dichloropropene	11	563-58-6	SW8260D	05/27/2022 19:41	05/27/2022 19:41	BLOD		0.60	1.00	1	ug/L	BMR
1,2,3-Trichloropropane	11	96-18-4	SW8260D	05/27/2022 19:41	05/27/2022 19:41	BLOD		0.40	1.00	1	ug/L	BMR
1,2,4-Trichlorobenzene	11	120-82-1	SW8260D	05/27/2022 19:41	05/27/2022 19:41	BLOD		0.50	1.00	1	ug/L	BMR
1,2-Dichlorobenzene	11	95-50-1	SW8260D	05/27/2022 19:41	05/27/2022 19:41	BLOD		0.40	1.00	1	ug/L	BMR
1,2-Dichloroethane	11	107-06-2	SW8260D	05/27/2022 19:41	05/27/2022 19:41	BLOD		0.70	1.00	1	ug/L	BMR
1,2-Dichloropropane	11	78-87-5	SW8260D	05/27/2022 19:41	05/27/2022 19:41	BLOD		0.40	1.00	1	ug/L	BMR
1,3-Dichlorobenzene	11	541-73-1	SW8260D	05/27/2022 19:41	05/27/2022 19:41	BLOD		0.30	1.00	1	ug/L	BMR
1,3-Dichloropropane	11	142-28-9	SW8260D	05/27/2022 19:41	05/27/2022 19:41	BLOD		1.00	1.00	1	ug/L	BMR
1,4-Dichlorobenzene	11	106-46-7	SW8260D	05/27/2022 19:41	05/27/2022 19:41	BLOD		0.40	1.00	1	ug/L	BMR
2,2-Dichloropropane	11	594-20-7	SW8260D	05/27/2022 19:41	05/27/2022 19:41	BLOD		0.60	2.00	1	ug/L	BMR
2-Butanone (MEK)	11	78-93-3	SW8260D	05/27/2022 19:41	05/27/2022 19:41	BLOD		3.00	10.0	1	ug/L	BMR
2-Hexanone (MBK)	11	591-78-6	SW8260D	05/27/2022 19:41	05/27/2022 19:41	BLOD		2.20	5.00	1	ug/L	BMR
4-Methyl-2-pentanone (MIBK)	11	108-10-1	SW8260D	05/27/2022 19:41	05/27/2022 19:41	BLOD		1.50	5.00	1	ug/L	BMR
Acetone	11	67-64-1	SW8260D	05/27/2022 19:41	05/27/2022 19:41	BLOD		7.00	10.0	1	ug/L	BMR
Acetonitrile	11	75-05-8	SW8260D	05/27/2022 19:41	05/27/2022 19:41	BLOD		8.00	10.0	1	ug/L	BMR
Acrolein	11	107-02-8	SW8260D	05/27/2022 19:41	05/27/2022 19:41	BLOD		6.00	10.0	1	ug/L	BMR
Acrylonitrile	11	107-13-1	SW8260D	05/27/2022 19:41	05/27/2022 19:41	BLOD		1.70	5.00	1	ug/L	BMR
Allyl chloride	11	107-05-1	SW8260D	05/27/2022 19:41	05/27/2022 19:41	BLOD		0.60	1.00	1	ug/L	BMR

Certificate of Analysis

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Date Issued: 7/12/2022 2:30:28PM

Client Sample ID: MW-106A

Laboratory Sample ID: 22E1388-11

Parameter	Samp ID	CAS	Reference Method	Sample Prep Date/Time	Analyzed Date/Time	Sample Results	Qual	LOD	LOQ	DF	Units	Analyst
Volatile Organic Compounds by GCMS												
Benzene	11	71-43-2	SW8260D	05/27/2022 19:41	05/27/2022 19:41	BLOD		0.40	1.00	1	ug/L	BMR
Bromochloromethane	11	74-97-5	SW8260D	05/27/2022 19:41	05/27/2022 19:41	BLOD		0.50	1.00	1	ug/L	BMR
Bromodichloromethane	11	75-27-4	SW8260D	05/27/2022 19:41	05/27/2022 19:41	BLOD		0.40	0.50	1	ug/L	BMR
Bromoform	11	75-25-2	SW8260D	05/27/2022 19:41	05/27/2022 19:41	BLOD		0.40	1.00	1	ug/L	BMR
Bromomethane	11	74-83-9	SW8260D	05/27/2022 19:41	05/27/2022 19:41	BLOD		0.80	1.00	1	ug/L	BMR
Carbon disulfide	11	75-15-0	SW8260D	05/27/2022 19:41	05/27/2022 19:41	BLOD		5.00	10.0	1	ug/L	BMR
Carbon tetrachloride	11	56-23-5	SW8260D	05/27/2022 19:41	05/27/2022 19:41	BLOD		0.50	1.00	1	ug/L	BMR
Chlorobenzene	11	108-90-7	SW8260D	05/27/2022 19:41	05/27/2022 19:41	BLOD		0.40	1.00	1	ug/L	BMR
Chloroethane	11	75-00-3	SW8260D	05/27/2022 19:41	05/27/2022 19:41	BLOD		0.70	1.00	1	ug/L	BMR
Chloroform	11	67-66-3	SW8260D	05/27/2022 19:41	05/27/2022 19:41	BLOD		0.50	0.50	1	ug/L	BMR
Chloromethane	11	74-87-3	SW8260D	05/27/2022 19:41	05/27/2022 19:41	BLOD		0.95	1.00	1	ug/L	BMR
Chloroprene	11	126-99-8	SW8260D	05/27/2022 19:41	05/27/2022 19:41	BLOD		0.50	5.00	1	ug/L	BMR
cis-1,2-Dichloroethylene	11	156-59-2	SW8260D	05/27/2022 19:41	05/27/2022 19:41	0.56	J	0.40	1.00	1	ug/L	BMR
cis-1,3-Dichloropropene	11	10061-01-5	SW8260D	05/27/2022 19:41	05/27/2022 19:41	BLOD		0.30	1.00	1	ug/L	BMR
Dibromochloromethane	11	124-48-1	SW8260D	05/27/2022 19:41	05/27/2022 19:41	BLOD		0.35	0.50	1	ug/L	BMR
Dibromomethane	11	74-95-3	SW8260D	05/27/2022 19:41	05/27/2022 19:41	BLOD		0.40	1.00	1	ug/L	BMR
Dichlorodifluoromethane	11	75-71-8	SW8260D	05/27/2022 19:41	05/27/2022 19:41	BLOD		0.95	1.00	1	ug/L	BMR
Ethyl methacrylate	11	97-63-2	SW8260D	05/27/2022 19:41	05/27/2022 19:41	BLOD		0.70	5.00	1	ug/L	BMR
Ethylbenzene	11	100-41-4	SW8260D	05/27/2022 19:41	05/27/2022 19:41	BLOD		0.40	1.00	1	ug/L	BMR
Iodomethane	11	74-88-4	SW8260D	05/27/2022 19:41	05/27/2022 19:41	BLOD		6.00	10.0	1	ug/L	BMR
Isobutyl Alcohol	11	78-83-1	SW8260D	05/27/2022 19:41	05/27/2022 19:41	BLOD		25.0	40.0	1	ug/L	BMR
m+p-Xylenes	11	179601-23-1	SW8260D	05/27/2022 19:41	05/27/2022 19:41	BLOD		0.60	2.00	1	ug/L	BMR
Methacrylonitrile	11	126-98-7	SW8260D	05/27/2022 19:41	05/27/2022 19:41	BLOD		1.00	1.50	1	ug/L	BMR

Certificate of Analysis

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Date Issued: 7/12/2022 2:30:28PM

Client Sample ID: MW-106A

Laboratory Sample ID: 22E1388-11

Parameter	Samp ID	CAS	Reference Method	Sample Prep Date/Time	Analyzed Date/Time	Sample Results	Qual	LOD	LOQ	DF	Units	Analyst
Volatile Organic Compounds by GCMS												
Methyl methacrylate	11	80-62-6	SW8260D	05/27/2022 19:41	05/27/2022 19:41	BLOD		0.70	2.00	1	ug/L	BMR
Methylene chloride	11	75-09-2	SW8260D	05/27/2022 19:41	05/27/2022 19:41	BLOD		4.00	4.00	1	ug/L	BMR
Naphthalene	11	91-20-3	SW8260D	05/27/2022 19:41	05/27/2022 19:41	BLOD		0.80	1.00	1	ug/L	BMR
o-Xylene	11	95-47-6	SW8260D	05/27/2022 19:41	05/27/2022 19:41	BLOD		0.40	1.00	1	ug/L	BMR
Propionitrile	11	107-12-0	SW8260D	05/27/2022 19:41	05/27/2022 19:41	BLOD		7.50	40.0	1	ug/L	BMR
Styrene	11	100-42-5	SW8260D	05/27/2022 19:41	05/27/2022 19:41	BLOD		0.40	1.00	1	ug/L	BMR
Tetrachloroethylene (PCE)	11	127-18-4	SW8260D	05/27/2022 19:41	05/27/2022 19:41	BLOD		0.40	1.00	1	ug/L	BMR
Toluene	11	108-88-3	SW8260D	05/27/2022 19:41	05/27/2022 19:41	BLOD		0.50	1.00	1	ug/L	BMR
trans-1,2-Dichloroethylene	11	156-60-5	SW8260D	05/27/2022 19:41	05/27/2022 19:41	BLOD		0.60	1.00	1	ug/L	BMR
trans-1,3-Dichloropropene	11	10061-02-6	SW8260D	05/27/2022 19:41	05/27/2022 19:41	BLOD		0.30	1.00	1	ug/L	BMR
trans-1,4-Dichloro-2-butene	11	110-57-6	SW8260D	05/27/2022 19:41	05/27/2022 19:41	BLOD		1.00	4.00	1	ug/L	BMR
Trichloroethylene	11	79-01-6	SW8260D	05/27/2022 19:41	05/27/2022 19:41	BLOD		0.40	1.00	1	ug/L	BMR
Trichlorofluoromethane	11	75-69-4	SW8260D	05/27/2022 19:41	05/27/2022 19:41	BLOD		0.80	1.00	1	ug/L	BMR
Vinyl acetate	11	108-05-4	SW8260D	05/27/2022 19:41	05/27/2022 19:41	BLOD		2.00	10.0	1	ug/L	BMR
Vinyl chloride	11	75-01-4	SW8260D	05/27/2022 19:41	05/27/2022 19:41	BLOD		0.50	0.50	1	ug/L	BMR
Xylenes, Total	11	1330-20-7	SW8260D	05/27/2022 19:41	05/27/2022 19:41	BLOD		1.00	3.00	1	ug/L	BMR
<i>Surr: 1,2-Dichloroethane-d4 (Surr)</i>	11	105 %	70-120	05/27/2022 19:41	05/27/2022 19:41							
<i>Surr: 4-Bromofluorobenzene (Surr)</i>	11	100 %	75-120	05/27/2022 19:41	05/27/2022 19:41							
<i>Surr: Dibromofluoromethane (Surr)</i>	11	102 %	70-130	05/27/2022 19:41	05/27/2022 19:41							
<i>Surr: Toluene-d8 (Surr)</i>	11	102 %	70-130	05/27/2022 19:41	05/27/2022 19:41							

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Client Sample ID: MW-106A

Laboratory Sample ID: 22E1388-11

Parameter	Samp ID	CAS	Reference Method	Sample Prep Date/Time	Analyzed Date/Time	Sample Results	Qual	LOD	LOQ	DF	Units	Analyst
Semivolatle Organic Compounds by GCMS												
1,2,4,5-Tetrachlorobenzene	11	95-94-3	SW8270E	06/01/2022 09:00	06/02/2022 06:36	BLOD		1.87	10.0	1	ug/L	MGG
1,3,5-Trinitrobenzene	11	99-35-4	SW8270E	06/01/2022 09:00	06/02/2022 06:36	BLOD		0.93	5.00	1	ug/L	MGG
1,3-Dinitrobenzene	11	99-65-0	SW8270E	06/01/2022 09:00	06/02/2022 06:36	BLOD		2.34	2.50	1	ug/L	MGG
1,4-Naphthoquinone	11	130-15-4	SW8270E	06/01/2022 09:00	06/02/2022 06:36	BLOD		1.87	10.0	1	ug/L	MGG
1-Naphthylamine	11	134-32-7	SW8270E	06/01/2022 09:00	06/02/2022 06:36	BLOD		0.93	10.0	1	ug/L	MGG
2,3,4,6-Tetrachlorophenol	11	58-90-2	SW8270E	06/01/2022 09:00	06/02/2022 06:36	BLOD		0.93	10.0	1	ug/L	MGG
2,4,5-Trichlorophenol	11	95-95-4	SW8270E	06/01/2022 09:00	06/02/2022 06:36	BLOD		0.93	10.0	1	ug/L	MGG
2,4,6-Trichlorophenol	11	88-06-2	SW8270E	06/01/2022 09:00	06/02/2022 06:36	BLOD		7.48	10.0	1	ug/L	MGG
2,4-Dichlorophenol	11	120-83-2	SW8270E	06/01/2022 09:00	06/02/2022 06:36	BLOD		2.80	10.0	1	ug/L	MGG
2,4-Dimethylphenol	11	105-67-9	SW8270E	06/01/2022 09:00	06/02/2022 06:36	BLOD		4.67	4.67	1	ug/L	MGG
2,4-Dinitrophenol	11	51-28-5	SW8270E	06/01/2022 09:00	06/02/2022 06:36	BLOD		7.48	50.0	1	ug/L	MGG
2,4-Dinitrotoluene	11	121-14-2	SW8270E	06/01/2022 09:00	06/02/2022 06:36	BLOD		5.61	10.0	1	ug/L	MGG
2,6-Dichlorophenol	11	87-65-0	SW8270E	06/01/2022 09:00	06/02/2022 06:36	BLOD		0.93	10.0	1	ug/L	MGG
2,6-Dinitrotoluene	11	606-20-2	SW8270E	06/01/2022 09:00	06/02/2022 06:36	BLOD		3.74	10.0	1	ug/L	MGG
2-Acetylaminofluorene	11	53-96-3	SW8270E	06/01/2022 09:00	06/02/2022 06:36	BLOD		2.34	2.50	1	ug/L	MGG
2-Chloronaphthalene	11	91-58-7	SW8270E	06/01/2022 09:00	06/02/2022 06:36	BLOD		4.21	10.0	1	ug/L	MGG
2-Chlorophenol	11	95-57-8	SW8270E	06/01/2022 09:00	06/02/2022 06:36	BLOD		3.27	10.0	1	ug/L	MGG
2-Methylnaphthalene	11	91-57-6	SW8270E	06/01/2022 09:00	06/02/2022 06:36	BLOD		1.87	10.0	1	ug/L	MGG
2-Naphthylamine	11	91-59-8	SW8270E	06/01/2022 09:00	06/02/2022 06:36	BLOD		1.87	10.0	1	ug/L	MGG
2-Nitroaniline	11	88-74-4	SW8270E	06/01/2022 09:00	06/02/2022 06:36	BLOD		1.87	20.0	1	ug/L	MGG
2-Nitrophenol	11	88-75-5	SW8270E	06/01/2022 09:00	06/02/2022 06:36	BLOD		5.61	10.0	1	ug/L	MGG
3,3'-Dichlorobenzidine	11	91-94-1	SW8270E	06/01/2022 09:00	06/02/2022 06:36	BLOD		3.74	10.0	1	ug/L	MGG
3,3'-Dimethylbenzidine	11	119-93-7	SW8270E	06/01/2022 09:00	06/02/2022 06:36	BLOD		2.34	2.50	1	ug/L	MGG
3-Methylcholanthrene	11	56-49-5	SW8270E	06/01/2022 09:00	06/02/2022 06:36	BLOD		0.93	10.0	1	ug/L	MGG

Certificate of Analysis

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Client Sample ID: MW-106A

Laboratory Sample ID: 22E1388-11

Parameter	Samp ID	CAS	Reference Method	Sample Prep Date/Time	Analyzed Date/Time	Sample Results	Qual	LOD	LOQ	DF	Units	Analyst
Semivolatile Organic Compounds by GCMS												
3-Nitroaniline	11	99-09-2	SW8270E	06/01/2022 09:00	06/02/2022 06:36	BLOD		1.87	20.0	1	ug/L	MGG
4,6-Dinitro-2-methylphenol	11	534-52-1	SW8270E	06/01/2022 09:00	06/02/2022 06:36	BLOD	C	7.48	50.0	1	ug/L	MGG
4-Aminobiphenyl	11	92-67-1	SW8270E	06/01/2022 09:00	06/02/2022 06:36	BLOD		1.87	10.0	1	ug/L	MGG
4-Bromophenyl phenyl ether	11	101-55-3	SW8270E	06/01/2022 09:00	06/02/2022 06:36	BLOD		3.27	10.0	1	ug/L	MGG
4-Chloroaniline	11	106-47-8	SW8270E	06/01/2022 09:00	06/02/2022 06:36	BLOD		1.87	10.0	1	ug/L	MGG
4-Chlorophenyl phenyl ether	11	7005-72-3	SW8270E	06/01/2022 09:00	06/02/2022 06:36	BLOD		3.27	10.0	1	ug/L	MGG
4-Nitroaniline	11	100-01-6	SW8270E	06/01/2022 09:00	06/02/2022 06:36	BLOD		1.87	20.0	1	ug/L	MGG
4-Nitrophenol	11	100-02-7	SW8270E	06/01/2022 09:00	06/02/2022 06:36	BLOD		1.87	50.0	1	ug/L	MGG
5-Nitro-o-toluidine	11	99-55-8	SW8270E	06/01/2022 09:00	06/02/2022 06:36	BLOD		1.87	10.0	1	ug/L	MGG
7,12-Dimethylbenz (a) anthracene	11	57-97-6	SW8270E	06/01/2022 09:00	06/02/2022 06:36	BLOD		1.87	10.0	1	ug/L	MGG
Acenaphthene	11	83-32-9	SW8270E	06/01/2022 09:00	06/02/2022 06:36	BLOD		3.74	10.0	1	ug/L	MGG
Acenaphthylene	11	208-96-8	SW8270E	06/01/2022 09:00	06/02/2022 06:36	BLOD		3.74	10.0	1	ug/L	MGG
Acetophenone	11	98-86-2	SW8270E	06/01/2022 09:00	06/02/2022 06:36	BLOD		1.87	20.0	1	ug/L	MGG
Anthracene	11	120-12-7	SW8270E	06/01/2022 09:00	06/02/2022 06:36	BLOD		4.67	10.0	1	ug/L	MGG
Benzo (a) anthracene	11	56-55-3	SW8270E	06/01/2022 09:00	06/02/2022 06:36	BLOD		3.27	9.35	1	ug/L	MGG
Benzo (a) pyrene	11	50-32-8	SW8270E	06/01/2022 09:00	06/02/2022 06:36	BLOD		0.19	0.20	1	ug/L	MGG
Benzo (b) fluoranthene	11	205-99-2	SW8270E	06/01/2022 09:00	06/02/2022 06:36	BLOD		3.74	10.0	1	ug/L	MGG
Benzo (g,h,i) perylene	11	191-24-2	SW8270E	06/01/2022 09:00	06/02/2022 06:36	BLOD	C	4.67	10.0	1	ug/L	MGG
Benzo (k) fluoranthene	11	207-08-9	SW8270E	06/01/2022 09:00	06/02/2022 06:36	BLOD		5.61	10.0	1	ug/L	MGG
Benzyl alcohol	11	100-51-6	SW8270E	06/01/2022 09:00	06/02/2022 06:36	BLOD		0.93	20.0	1	ug/L	MGG
bis (2-Chloroethoxy) methane	11	111-91-1	SW8270E	06/01/2022 09:00	06/02/2022 06:36	BLOD		3.27	10.0	1	ug/L	MGG
bis (2-Chloroethyl) ether	11	111-44-4	SW8270E	06/01/2022 09:00	06/02/2022 06:36	BLOD		3.27	10.0	1	ug/L	MGG
2,2'-Oxybis (1-chloropropane)	11	108-60-1	SW8270E	06/01/2022 09:00	06/02/2022 06:36	BLOD		2.80	10.0	1	ug/L	MGG
bis (2-Ethylhexyl) phthalate	11	117-81-7	SW8270E	06/01/2022 09:00	06/02/2022 06:36	BLOD		4.67	5.00	1	ug/L	MGG

Certificate of Analysis

 Client Name: SCS Engineers-Winchester
 Client Site I.D.: City of Bristol 1st Semi-Annual 2022
 Submitted To: Jennifer Robb

Date Issued: 7/12/2022 2:30:28PM

Client Sample ID: MW-106A

Laboratory Sample ID: 22E1388-11

Parameter	Samp ID	CAS	Reference Method	Sample Prep Date/Time	Analyzed Date/Time	Sample Results	Qual	LOD	LOQ	DF	Units	Analyst
Semivolatle Organic Compounds by GCMS												
Butyl benzyl phthalate	11	85-68-7	SW8270E	06/01/2022 09:00	06/02/2022 06:36	BLOD		6.54	10.0	1	ug/L	MGG
Chlorobenzilate	11	510-15-6	SW8270E	06/01/2022 09:00	06/02/2022 06:36	BLOD		2.34	2.50	1	ug/L	MGG
Chrysene	11	218-01-9	SW8270E	06/01/2022 09:00	06/02/2022 06:36	BLOD		3.74	10.0	1	ug/L	MGG
Diallate	11	2303-16-4	SW8270E	06/01/2022 09:00	06/02/2022 06:36	BLOD		2.34	2.50	1	ug/L	MGG
Dibenz (a,h) anthracene	11	53-70-3	SW8270E	06/01/2022 09:00	06/02/2022 06:36	BLOD	C	4.67	10.0	1	ug/L	MGG
Dibenzofuran	11	132-64-9	SW8270E	06/01/2022 09:00	06/02/2022 06:36	BLOD		1.87	5.00	1	ug/L	MGG
Diethyl phthalate	11	84-66-2	SW8270E	06/01/2022 09:00	06/02/2022 06:36	BLOD		2.80	10.0	1	ug/L	MGG
Dimethoate	11	60-51-5	SW8270E	06/01/2022 09:00	06/02/2022 06:36	BLOD		2.34	2.50	1	ug/L	MGG
Dimethyl phthalate	11	131-11-3	SW8270E	06/01/2022 09:00	06/02/2022 06:36	BLOD		3.27	10.0	1	ug/L	MGG
Di-n-butyl phthalate	11	84-74-2	SW8270E	06/01/2022 09:00	06/02/2022 06:36	BLOD		3.74	10.0	1	ug/L	MGG
Di-n-octyl phthalate	11	117-84-0	SW8270E	06/01/2022 09:00	06/02/2022 06:36	BLOD		7.48	10.0	1	ug/L	MGG
Diphenylamine	11	122-39-4	SW8270E	06/01/2022 09:00	06/02/2022 06:36	BLOD		1.87	10.0	1	ug/L	MGG
Disulfoton	11	298-04-4	SW8270E	06/01/2022 09:00	06/02/2022 06:36	BLOD		2.34	2.50	1	ug/L	MGG
Ethyl methanesulfonate	11	62-50-0	SW8270E	06/01/2022 09:00	06/02/2022 06:36	BLOD		0.93	20.0	1	ug/L	MGG
Ethyl parathion	11	56-38-2	SW8270E	06/01/2022 09:00	06/02/2022 06:36	BLOD		2.34	2.50	1	ug/L	MGG
Famphur	11	52-85-7	SW8270E	06/01/2022 09:00	06/02/2022 06:36	BLOD		2.34	2.50	1	ug/L	MGG
Fluoranthene	11	206-44-0	SW8270E	06/01/2022 09:00	06/02/2022 06:36	BLOD		4.67	10.0	1	ug/L	MGG
Fluorene	11	86-73-7	SW8270E	06/01/2022 09:00	06/02/2022 06:36	BLOD		3.74	10.0	1	ug/L	MGG
Hexachlorobenzene	11	118-74-1	SW8270E	06/01/2022 09:00	06/02/2022 06:36	BLOD		0.93	0.93	1	ug/L	MGG
Hexachlorobutadiene	11	87-68-3	SW8270E	06/01/2022 09:00	06/02/2022 06:36	BLOD	C	4.21	10.0	1	ug/L	MGG
Hexachlorocyclopentadiene	11	77-47-4	SW8270E	06/01/2022 09:00	06/02/2022 06:36	BLOD	C	3.74	10.0	1	ug/L	MGG
Hexachloroethane	11	67-72-1	SW8270E	06/01/2022 09:00	06/02/2022 06:36	BLOD		3.27	10.0	1	ug/L	MGG
Hexachloropropene	11	1888-71-7	SW8270E	06/01/2022 09:00	06/02/2022 06:36	BLOD		1.87	2.50	1	ug/L	MGG
Indeno (1,2,3-cd) pyrene	11	193-39-5	SW8270E	06/01/2022 09:00	06/02/2022 06:36	BLOD	C	2.80	10.0	1	ug/L	MGG

Certificate of Analysis

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Date Issued: 7/12/2022 2:30:28PM

Client Sample ID: MW-106A

Laboratory Sample ID: 22E1388-11

Parameter	Samp ID	CAS	Reference Method	Sample Prep Date/Time	Analyzed Date/Time	Sample Results	Qual	LOD	LOQ	DF	Units	Analyst
Semivolatle Organic Compounds by GCMS												
Isodrin	11	465-73-6	SW8270E	06/01/2022 09:00	06/02/2022 06:36	BLOD		0.93	10.0	1	ug/L	MGG
Isophorone	11	78-59-1	SW8270E	06/01/2022 09:00	06/02/2022 06:36	BLOD		4.67	10.0	1	ug/L	MGG
Isosafrole	11	120-58-1	SW8270E	06/01/2022 09:00	06/02/2022 06:36	BLOD		1.87	10.0	1	ug/L	MGG
Kepona	11	143-50-0	SW8270E	06/01/2022 09:00	06/02/2022 06:36	BLOD		1.87	9.35	1	ug/L	MGG
m+p-Cresols	11	1319-77-3	SW8270E	06/01/2022 09:00	06/02/2022 06:36	BLOD		0.93	10.0	1	ug/L	MGG
Methapyrilene	11	91-80-5	SW8270E	06/01/2022 09:00	06/02/2022 06:36	BLOD		0.93	10.0	1	ug/L	MGG
Methyl methanesulfonate	11	66-27-3	SW8270E	06/01/2022 09:00	06/02/2022 06:36	BLOD		0.93	10.0	1	ug/L	MGG
Methyl parathion	11	298-00-0	SW8270E	06/01/2022 09:00	06/02/2022 06:36	BLOD		1.87	2.50	1	ug/L	MGG
Nitrobenzene	11	98-95-3	SW8270E	06/01/2022 09:00	06/02/2022 06:36	BLOD		2.80	10.0	1	ug/L	MGG
n-Nitrosodiethylamine	11	55-18-5	SW8270E	06/01/2022 09:00	06/02/2022 06:36	BLOD		2.34	2.50	1	ug/L	MGG
n-Nitrosodimethylamine	11	62-75-9	SW8270E	06/01/2022 09:00	06/02/2022 06:36	BLOD		2.80	10.0	1	ug/L	MGG
n-Nitrosodi-n-butylamine	11	924-16-3	SW8270E	06/01/2022 09:00	06/02/2022 06:36	BLOD		1.87	10.0	1	ug/L	MGG
n-Nitrosodi-n-propylamine	11	621-64-7	SW8270E	06/01/2022 09:00	06/02/2022 06:36	BLOD		3.27	10.0	1	ug/L	MGG
n-Nitrosodiphenylamine	11	86-30-6	SW8270E	06/01/2022 09:00	06/02/2022 06:36	BLOD		2.80	10.0	1	ug/L	MGG
n-Nitrosomethylethylamine	11	10595-95-6	SW8270E	06/01/2022 09:00	06/02/2022 06:36	BLOD		1.87	2.50	1	ug/L	MGG
n-Nitrosopiperidine	11	100-75-4	SW8270E	06/01/2022 09:00	06/02/2022 06:36	BLOD		1.87	10.0	1	ug/L	MGG
n-Nitrosopyrrolidine	11	930-55-2	SW8270E	06/01/2022 09:00	06/02/2022 06:36	BLOD		1.87	2.50	1	ug/L	MGG
o,o,o-Triethyl phosphorothioate	11	126-68-1	SW8270E	06/01/2022 09:00	06/02/2022 06:36	BLOD		1.87	10.0	1	ug/L	MGG
o,o-Diethyl o-2-pyrazinyl phosphorothioate	11	297-97-2	SW8270E	06/01/2022 09:00	06/02/2022 06:36	BLOD		1.87	10.0	1	ug/L	MGG
o+m+p-Cresols	11	1319-77-3	SW8270E	06/01/2022 09:00	06/02/2022 06:36	BLOD		2.80	10.0	1	ug/L	MGG
o-Cresol	11	95-48-7	SW8270E	06/01/2022 09:00	06/02/2022 06:36	BLOD		7.48	10.0	1	ug/L	MGG
o-Toluidine	11	95-53-4	SW8270E	06/01/2022 09:00	06/02/2022 06:36	BLOD		1.87	2.50	1	ug/L	MGG
p-(Dimethylamino) azobenzene	11	60-11-7	SW8270E	06/01/2022 09:00	06/02/2022 06:36	BLOD		0.93	2.50	1	ug/L	MGG

Certificate of Analysis

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Client Sample ID: MW-106A

Laboratory Sample ID: 22E1388-11

Parameter	Samp ID	CAS	Reference Method	Sample Prep Date/Time	Analyzed Date/Time	Sample Results	Qual	LOD	LOQ	DF	Units	Analyst
Semivolatle Organic Compounds by GCMS												
p-Chloro-m-cresol	11	59-50-7	SW8270E	06/01/2022 09:00	06/02/2022 06:36	BLOD		7.48	10.0	1	ug/L	MGG
Pentachlorobenzene	11	608-93-5	SW8270E	06/01/2022 09:00	06/02/2022 06:36	BLOD		1.87	10.0	1	ug/L	MGG
Pentachloronitrobenzene (quintozene)	11	82-68-8	SW8270E	06/01/2022 09:00	06/02/2022 06:36	BLOD		0.93	9.35	1	ug/L	MGG
Phenacetin	11	62-44-2	SW8270E	06/01/2022 09:00	06/02/2022 06:36	BLOD		0.93	10.0	1	ug/L	MGG
Phenanthrene	11	85-01-8	SW8270E	06/01/2022 09:00	06/02/2022 06:36	BLOD		7.48	10.0	1	ug/L	MGG
Phenol	11	108-95-2	SW8270E	06/01/2022 09:00	06/02/2022 06:36	BLOD		2.34	10.0	1	ug/L	MGG
Phorate	11	298-02-2	SW8270E	06/01/2022 09:00	06/02/2022 06:36	BLOD		1.87	2.50	1	ug/L	MGG
p-Phenylenediamine	11	106-50-3	SW8270E	06/01/2022 09:00	06/02/2022 06:36	BLOD	C	1.87	10.0	1	ug/L	MGG
Pronamide	11	23950-58-5	SW8270E	06/01/2022 09:00	06/02/2022 06:36	BLOD		1.87	10.0	1	ug/L	MGG
Pyrene	11	129-00-0	SW8270E	06/01/2022 09:00	06/02/2022 06:36	BLOD		6.54	10.0	1	ug/L	MGG
Safrole	11	94-59-7	SW8270E	06/01/2022 09:00	06/02/2022 06:36	BLOD		1.87	2.50	1	ug/L	MGG
<i>Surr: 2,4,6-Tribromophenol (Surr)</i>	11	55.4 %	10-86	06/01/2022 09:00	06/02/2022 06:36							
<i>Surr: 2-Fluorobiphenyl (Surr)</i>	11	70.8 %	9-87	06/01/2022 09:00	06/02/2022 06:36							
<i>Surr: 2-Fluorophenol (Surr)</i>	11	39.0 %	10-52	06/01/2022 09:00	06/02/2022 06:36							
<i>Surr: Nitrobenzene-d5 (Surr)</i>	11	62.8 %	10-98.5	06/01/2022 09:00	06/02/2022 06:36							
<i>Surr: Phenol-d5 (Surr)</i>	11	26.2 %	5-33	06/01/2022 09:00	06/02/2022 06:36							
<i>Surr: p-Terphenyl-d14 (Surr)</i>	11	83.7 %	27-133	06/01/2022 09:00	06/02/2022 06:36							

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Laboratory Sample ID: 22E1388-11

Parameter	Samp ID	CAS	Reference Method	Sample Prep Date/Time	Analyzed Date/Time	Sample Results	Qual	LOD	LOQ	DF	Units	Analyst
Organochlorine Pesticides and PCBs by GC/ECD												
PCB as Aroclor 1016	11	12674-11-2	SW8082A	05/31/2022 09:00	06/01/2022 13:43	BLOD		0.140	0.200	1	ug/L	LBH2
PCB as Aroclor 1221	11	11104-28-2	SW8082A	05/31/2022 09:00	06/01/2022 13:43	BLOD		0.140	0.200	1	ug/L	LBH2
PCB as Aroclor 1232	11	11141-16-5	SW8082A	05/31/2022 09:00	06/01/2022 13:43	BLOD		0.140	0.200	1	ug/L	LBH2
PCB as Aroclor 1242	11	53469-21-9	SW8082A	05/31/2022 09:00	06/01/2022 13:43	BLOD		0.140	0.200	1	ug/L	LBH2
PCB as Aroclor 1248	11	12672-29-6	SW8082A	05/31/2022 09:00	06/01/2022 13:43	BLOD		0.140	0.200	1	ug/L	LBH2
PCB as Aroclor 1254	11	11097-69-1	SW8082A	05/31/2022 09:00	06/01/2022 13:43	BLOD		0.140	0.200	1	ug/L	LBH2
PCB as Aroclor 1260	11	11096-82-5	SW8082A	05/31/2022 09:00	06/01/2022 13:43	BLOD		0.140	0.200	1	ug/L	LBH2
<i>Surr: DCB</i>	<i>11</i>	<i>99.0 %</i>	<i>30-105</i>	<i>05/31/2022 09:00</i>	<i>06/01/2022 13:43</i>							
<i>Surr: TCMX</i>	<i>11</i>	<i>62.0 %</i>	<i>30-105</i>	<i>05/31/2022 09:00</i>	<i>06/01/2022 13:43</i>							
4,4'-DDD	11	72-54-8	SW8081B	05/31/2022 09:00	06/01/2022 13:43	BLOD		0.005	0.050	1	ug/L	LBH2
4,4'-DDE	11	72-55-9	SW8081B	05/31/2022 09:00	06/01/2022 13:43	BLOD		0.005	0.050	1	ug/L	LBH2
4,4'-DDT	11	50-29-3	SW8081B	05/31/2022 09:00	06/01/2022 13:43	BLOD		0.005	0.050	1	ug/L	LBH2
Aldrin	11	309-00-2	SW8081B	05/31/2022 09:00	06/01/2022 13:43	BLOD		0.005	0.050	1	ug/L	LBH2
alpha-BHC	11	319-84-6	SW8081B	05/31/2022 09:00	06/01/2022 13:43	BLOD		0.005	0.050	1	ug/L	LBH2
alpha-Chlordane	11	5103-71-9	SW8081B	05/31/2022 09:00	06/01/2022 13:43	BLOD		0.005	0.050	1	ug/L	LBH2
beta-BHC	11	319-85-7	SW8081B	05/31/2022 09:00	06/01/2022 13:43	BLOD		0.019	0.050	1	ug/L	LBH2
Chlordane	11	57-74-9	SW8081B	05/31/2022 09:00	06/01/2022 13:43	BLOD		0.187	0.200	1	ug/L	LBH2
delta-BHC	11	319-86-8	SW8081B	05/31/2022 09:00	06/01/2022 13:43	BLOD		0.005	0.050	1	ug/L	LBH2
Dieldrin	11	60-57-1	SW8081B	05/31/2022 09:00	06/01/2022 13:43	BLOD		0.005	0.050	1	ug/L	LBH2
Endosulfan I	11	959-98-8	SW8081B	05/31/2022 09:00	06/01/2022 13:43	BLOD		0.005	0.050	1	ug/L	LBH2
Endosulfan II	11	33213-65-9	SW8081B	05/31/2022 09:00	06/01/2022 13:43	BLOD		0.005	0.050	1	ug/L	LBH2
Endosulfan sulfate	11	1031-07-8	SW8081B	05/31/2022 09:00	06/01/2022 13:43	BLOD		0.005	0.050	1	ug/L	LBH2
Endrin	11	72-20-8	SW8081B	05/31/2022 09:00	06/01/2022 13:43	BLOD		0.005	0.050	1	ug/L	LBH2
Endrin aldehyde	11	7421-93-4	SW8081B	05/31/2022 09:00	06/01/2022 13:43	BLOD		0.005	0.050	1	ug/L	LBH2

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Client Sample ID: MW-106A

Laboratory Sample ID: 22E1388-11

Parameter	Samp ID	CAS	Reference Method	Sample Prep Date/Time	Analyzed Date/Time	Sample Results	Qual	LOD	LOQ	DF	Units	Analyst
Organochlorine Pesticides and PCBs by GC/ECD												
gamma-BHC (Lindane)	11	58-89-9	SW8081B	05/31/2022 09:00	06/01/2022 13:43	BLOD		0.005	0.050	1	ug/L	LBH2
gamma-Chlordane	11	5103-74-2	SW8081B	05/31/2022 09:00	06/01/2022 13:43	BLOD		0.005	0.050	1	ug/L	LBH2
Heptachlor	11	76-44-8	SW8081B	05/31/2022 09:00	06/01/2022 13:43	BLOD		0.005	0.050	1	ug/L	LBH2
Heptachlor epoxide	11	1024-57-3	SW8081B	05/31/2022 09:00	06/01/2022 13:43	BLOD		0.005	0.050	1	ug/L	LBH2
Methoxychlor	11	72-43-5	SW8081B	05/31/2022 09:00	06/01/2022 13:43	BLOD		0.005	0.050	1	ug/L	LBH2
Toxaphene	11	8001-35-2	SW8081B	05/31/2022 09:00	06/01/2022 13:43	BLOD		0.187	1.00	1	ug/L	LBH2
Surr: TCMX	11	62.6 %	18-112	05/31/2022 09:00	06/01/2022 13:43							
Surr: DCB	11	82.0 %	27-131	05/31/2022 09:00	06/01/2022 13:43							

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Parameter	Samp ID	CAS	Reference Method	Sample Prep Date/Time	Analyzed Date/Time	Sample Results	Qual	LOD	LOQ	DF	Units	Analyst
Organochlorine Herbicides by GC/ECD												
2,4,5-T	11	93-76-5	SW8151A	05/31/2022 16:20	06/09/2022 13:59	BLOD		0.200	0.500	1	ug/L	LBH2
2,4,5-TP (Silvex)	11	93-72-1	SW8151A	05/31/2022 16:20	06/09/2022 13:59	BLOD		0.107	0.500	1	ug/L	LBH2
2,4-D	11	94-75-7	SW8151A	05/31/2022 16:20	06/09/2022 13:59	BLOD		0.200	0.500	1	ug/L	LBH2
Dinoseb	11	88-85-7	SW8151A	05/31/2022 16:20	06/09/2022 13:59	BLOD		0.200	0.500	1	ug/L	LBH2
Pentachlorophenol	11	87-86-5	SW8151A	05/31/2022 16:20	06/09/2022 13:59	BLOD		0.200	0.500	1	ug/L	LBH2
<i>Surr: DCAA (Surr)</i>	11	98.8 %	48.5-134	05/31/2022 16:20	06/09/2022 13:59							

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Parameter	Samp ID	CAS	Reference Method	Sample Prep Date/Time	Analyzed Date/Time	Sample Results	Qual	LOD	LOQ	DF	Units	Analyst
Micro-extractables by GC/ECD												
1,2-Dibromoethane (EDB)	11	106-93-4	SW8011	06/01/2022 11:30	06/02/2022 10:12	BLOD		0.008	0.010	1	ug/L	LBH2
1,2,3-Trichloropropane	11	96-18-4	SW8011	06/01/2022 11:30	06/02/2022 10:12	BLOD		0.009	0.010	1	ug/L	LBH2
1,2-Dibromo-3-chloropropane (DBCP)	11	96-12-8	SW8011	06/01/2022 11:30	06/02/2022 10:12	BLOD		0.005	0.010	1	ug/L	LBH2

Certificate of Analysis

Client Name: SCS Engineers-Winchester

Date Issued: 7/12/2022 2:30:28PM

Client Site I.D.: City of Bristol 1st Semi-Annual 2022

Submitted To: Jennifer Robb

Client Sample ID: MW-106A

Laboratory Sample ID: 22E1388-11

Parameter	Samp ID	CAS	Reference Method	Sample Prep Date/Time	Analyzed Date/Time	Sample Results	Qual	LOD	LOQ	DF	Units	Analyst
Wet Chemistry Analysis												
Cyanide	11	57-12-5	SW9012B	06/06/2022 17:29	06/06/2022 17:29	BLOD		0.01	0.01	1	mg/L	Omnion Use
Sulfide	11	18496-25-8	SW9215	05/27/2022 18:30	05/27/2022 18:30	BLOD		0.80	1.00	1	mg/L	MJRL

Certificate of Analysis

Client Name: SCS Engineers-Winchester
 Client Site I.D.: City of Bristol 1st Semi-Annual 2022
 Submitted To: Jennifer Robb

Date Issued: 7/12/2022 2:30:28PM

Client Sample ID: Trip Blank

Laboratory Sample ID: 22E1388-12

Parameter	Samp ID	CAS	Reference Method	Sample Prep Date/Time	Analyzed Date/Time	Sample Results	Qual	LOD	LOQ	DF	Units	Analyst
Volatile Organic Compounds by GCMS												
1,1,1,2-Tetrachloroethane	12	630-20-6	SW8260D	05/27/2022 16:04	05/27/2022 16:04	BLOD		0.40	0.40	1	ug/L	BMR
1,1,1-Trichloroethane	12	71-55-6	SW8260D	05/27/2022 16:04	05/27/2022 16:04	BLOD		0.60	1.00	1	ug/L	BMR
1,1,2,2-Tetrachloroethane	12	79-34-5	SW8260D	05/27/2022 16:04	05/27/2022 16:04	BLOD		0.30	0.40	1	ug/L	BMR
1,1,2-Trichloroethane	12	79-00-5	SW8260D	05/27/2022 16:04	05/27/2022 16:04	BLOD		0.50	1.00	1	ug/L	BMR
1,1-Dichloroethane	12	75-34-3	SW8260D	05/27/2022 16:04	05/27/2022 16:04	BLOD		0.60	1.00	1	ug/L	BMR
1,1-Dichloroethylene	12	75-35-4	SW8260D	05/27/2022 16:04	05/27/2022 16:04	BLOD		0.70	1.00	1	ug/L	BMR
1,1-Dichloropropene	12	563-58-6	SW8260D	05/27/2022 16:04	05/27/2022 16:04	BLOD		0.60	1.00	1	ug/L	BMR
1,2,3-Trichloropropane	12	96-18-4	SW8260D	05/27/2022 16:04	05/27/2022 16:04	BLOD		0.40	1.00	1	ug/L	BMR
1,2,4-Trichlorobenzene	12	120-82-1	SW8260D	05/27/2022 16:04	05/27/2022 16:04	BLOD		0.50	1.00	1	ug/L	BMR
1,2-Dichlorobenzene	12	95-50-1	SW8260D	05/27/2022 16:04	05/27/2022 16:04	BLOD		0.40	1.00	1	ug/L	BMR
1,2-Dichloroethane	12	107-06-2	SW8260D	05/27/2022 16:04	05/27/2022 16:04	BLOD		0.70	1.00	1	ug/L	BMR
1,2-Dichloropropane	12	78-87-5	SW8260D	05/27/2022 16:04	05/27/2022 16:04	BLOD		0.40	1.00	1	ug/L	BMR
1,3-Dichlorobenzene	12	541-73-1	SW8260D	05/27/2022 16:04	05/27/2022 16:04	BLOD		0.30	1.00	1	ug/L	BMR
1,3-Dichloropropane	12	142-28-9	SW8260D	05/27/2022 16:04	05/27/2022 16:04	BLOD		1.00	1.00	1	ug/L	BMR
1,4-Dichlorobenzene	12	106-46-7	SW8260D	05/27/2022 16:04	05/27/2022 16:04	BLOD		0.40	1.00	1	ug/L	BMR
2,2-Dichloropropane	12	594-20-7	SW8260D	05/27/2022 16:04	05/27/2022 16:04	BLOD		0.60	2.00	1	ug/L	BMR
2-Butanone (MEK)	12	78-93-3	SW8260D	05/27/2022 16:04	05/27/2022 16:04	BLOD		3.00	10.0	1	ug/L	BMR
2-Hexanone (MBK)	12	591-78-6	SW8260D	05/27/2022 16:04	05/27/2022 16:04	BLOD		2.20	5.00	1	ug/L	BMR
4-Methyl-2-pentanone (MIBK)	12	108-10-1	SW8260D	05/27/2022 16:04	05/27/2022 16:04	BLOD		1.50	5.00	1	ug/L	BMR
Acetone	12RE1	67-64-1	SW8260D	05/31/2022 13:00	05/31/2022 13:00	7.21	J	7.00	10.0	1	ug/L	BMR
Acetonitrile	12	75-05-8	SW8260D	05/27/2022 16:04	05/27/2022 16:04	BLOD		8.00	10.0	1	ug/L	BMR
Acrolein	12	107-02-8	SW8260D	05/27/2022 16:04	05/27/2022 16:04	BLOD		6.00	10.0	1	ug/L	BMR
Acrylonitrile	12	107-13-1	SW8260D	05/27/2022 16:04	05/27/2022 16:04	BLOD		1.70	5.00	1	ug/L	BMR
Allyl chloride	12	107-05-1	SW8260D	05/27/2022 16:04	05/27/2022 16:04	BLOD		0.60	1.00	1	ug/L	BMR

Certificate of Analysis

Client Name: SCS Engineers-Winchester
 Client Site I.D.: City of Bristol 1st Semi-Annual 2022
 Submitted To: Jennifer Robb

Date Issued: 7/12/2022 2:30:28PM

Client Sample ID: Trip Blank

Laboratory Sample ID: 22E1388-12

Parameter	Samp ID	CAS	Reference Method	Sample Prep Date/Time	Analyzed Date/Time	Sample Results	Qual	LOD	LOQ	DF	Units	Analyst
Volatile Organic Compounds by GCMS												
Benzene	12	71-43-2	SW8260D	05/27/2022 16:04	05/27/2022 16:04	BLOD		0.40	1.00	1	ug/L	BMR
Bromochloromethane	12	74-97-5	SW8260D	05/27/2022 16:04	05/27/2022 16:04	BLOD		0.50	1.00	1	ug/L	BMR
Bromodichloromethane	12	75-27-4	SW8260D	05/27/2022 16:04	05/27/2022 16:04	BLOD		0.40	0.50	1	ug/L	BMR
Bromoform	12	75-25-2	SW8260D	05/27/2022 16:04	05/27/2022 16:04	BLOD		0.40	1.00	1	ug/L	BMR
Bromomethane	12	74-83-9	SW8260D	05/27/2022 16:04	05/27/2022 16:04	BLOD		0.80	1.00	1	ug/L	BMR
Carbon disulfide	12	75-15-0	SW8260D	05/27/2022 16:04	05/27/2022 16:04	BLOD		5.00	10.0	1	ug/L	BMR
Carbon tetrachloride	12	56-23-5	SW8260D	05/27/2022 16:04	05/27/2022 16:04	BLOD		0.50	1.00	1	ug/L	BMR
Chlorobenzene	12	108-90-7	SW8260D	05/27/2022 16:04	05/27/2022 16:04	BLOD		0.40	1.00	1	ug/L	BMR
Chloroethane	12	75-00-3	SW8260D	05/27/2022 16:04	05/27/2022 16:04	BLOD		0.70	1.00	1	ug/L	BMR
Chloroform	12	67-66-3	SW8260D	05/27/2022 16:04	05/27/2022 16:04	BLOD		0.50	0.50	1	ug/L	BMR
Chloromethane	12	74-87-3	SW8260D	05/27/2022 16:04	05/27/2022 16:04	BLOD		0.95	1.00	1	ug/L	BMR
Chloroprene	12	126-99-8	SW8260D	05/27/2022 16:04	05/27/2022 16:04	BLOD		0.50	5.00	1	ug/L	BMR
cis-1,2-Dichloroethylene	12	156-59-2	SW8260D	05/27/2022 16:04	05/27/2022 16:04	BLOD		0.40	1.00	1	ug/L	BMR
cis-1,3-Dichloropropene	12	10061-01-5	SW8260D	05/27/2022 16:04	05/27/2022 16:04	BLOD		0.30	1.00	1	ug/L	BMR
Dibromochloromethane	12	124-48-1	SW8260D	05/27/2022 16:04	05/27/2022 16:04	BLOD		0.35	0.50	1	ug/L	BMR
Dibromomethane	12	74-95-3	SW8260D	05/27/2022 16:04	05/27/2022 16:04	BLOD		0.40	1.00	1	ug/L	BMR
Dichlorodifluoromethane	12	75-71-8	SW8260D	05/27/2022 16:04	05/27/2022 16:04	BLOD		0.95	1.00	1	ug/L	BMR
Ethyl methacrylate	12	97-63-2	SW8260D	05/27/2022 16:04	05/27/2022 16:04	BLOD		0.70	5.00	1	ug/L	BMR
Ethylbenzene	12	100-41-4	SW8260D	05/27/2022 16:04	05/27/2022 16:04	BLOD		0.40	1.00	1	ug/L	BMR
Iodomethane	12	74-88-4	SW8260D	05/27/2022 16:04	05/27/2022 16:04	BLOD		6.00	10.0	1	ug/L	BMR
Isobutyl Alcohol	12	78-83-1	SW8260D	05/27/2022 16:04	05/27/2022 16:04	BLOD		25.0	40.0	1	ug/L	BMR
m+p-Xylenes	12	179601-23-1	SW8260D	05/27/2022 16:04	05/27/2022 16:04	BLOD		0.60	2.00	1	ug/L	BMR
Methacrylonitrile	12	126-98-7	SW8260D	05/27/2022 16:04	05/27/2022 16:04	BLOD		1.00	1.50	1	ug/L	BMR

Certificate of Analysis

 Client Name: SCS Engineers-Winchester
 Client Site I.D.: City of Bristol 1st Semi-Annual 2022
 Submitted To: Jennifer Robb

Date Issued: 7/12/2022 2:30:28PM

Client Sample ID: Trip Blank

Laboratory Sample ID: 22E1388-12

Parameter	Samp ID	CAS	Reference Method	Sample Prep Date/Time	Analyzed Date/Time	Sample Results	Qual	LOD	LOQ	DF	Units	Analyst
Volatile Organic Compounds by GCMS												
Methyl methacrylate	12	80-62-6	SW8260D	05/27/2022 16:04	05/27/2022 16:04	BLOD		0.70	2.00	1	ug/L	BMR
Methylene chloride	12	75-09-2	SW8260D	05/27/2022 16:04	05/27/2022 16:04	BLOD		4.00	4.00	1	ug/L	BMR
Naphthalene	12	91-20-3	SW8260D	05/27/2022 16:04	05/27/2022 16:04	BLOD		0.80	1.00	1	ug/L	BMR
o-Xylene	12	95-47-6	SW8260D	05/27/2022 16:04	05/27/2022 16:04	BLOD		0.40	1.00	1	ug/L	BMR
Propionitrile	12	107-12-0	SW8260D	05/27/2022 16:04	05/27/2022 16:04	BLOD		7.50	40.0	1	ug/L	BMR
Styrene	12	100-42-5	SW8260D	05/27/2022 16:04	05/27/2022 16:04	BLOD		0.40	1.00	1	ug/L	BMR
Tetrachloroethylene (PCE)	12	127-18-4	SW8260D	05/27/2022 16:04	05/27/2022 16:04	BLOD		0.40	1.00	1	ug/L	BMR
Toluene	12	108-88-3	SW8260D	05/27/2022 16:04	05/27/2022 16:04	BLOD		0.50	1.00	1	ug/L	BMR
trans-1,2-Dichloroethylene	12	156-60-5	SW8260D	05/27/2022 16:04	05/27/2022 16:04	BLOD		0.60	1.00	1	ug/L	BMR
trans-1,3-Dichloropropene	12	10061-02-6	SW8260D	05/27/2022 16:04	05/27/2022 16:04	BLOD		0.30	1.00	1	ug/L	BMR
trans-1,4-Dichloro-2-butene	12	110-57-6	SW8260D	05/27/2022 16:04	05/27/2022 16:04	BLOD		1.00	4.00	1	ug/L	BMR
Trichloroethylene	12	79-01-6	SW8260D	05/27/2022 16:04	05/27/2022 16:04	BLOD		0.40	1.00	1	ug/L	BMR
Trichlorofluoromethane	12	75-69-4	SW8260D	05/27/2022 16:04	05/27/2022 16:04	BLOD		0.80	1.00	1	ug/L	BMR
Vinyl acetate	12	108-05-4	SW8260D	05/27/2022 16:04	05/27/2022 16:04	BLOD		2.00	10.0	1	ug/L	BMR
Vinyl chloride	12	75-01-4	SW8260D	05/27/2022 16:04	05/27/2022 16:04	BLOD		0.50	0.50	1	ug/L	BMR
Xylenes, Total	12	1330-20-7	SW8260D	05/27/2022 16:04	05/27/2022 16:04	BLOD		1.00	3.00	1	ug/L	BMR
Surr: 1,2-Dichloroethane-d4 (Surr)	12	106 %	70-120	05/27/2022 16:04	05/27/2022 16:04							
Surr: 4-Bromofluorobenzene (Surr)	12	98.8 %	75-120	05/27/2022 16:04	05/27/2022 16:04							
Surr: Dibromofluoromethane (Surr)	12	98.6 %	70-130	05/27/2022 16:04	05/27/2022 16:04							
Surr: Toluene-d8 (Surr)	12	101 %	70-130	05/27/2022 16:04	05/27/2022 16:04							
Surr: 1,2-Dichloroethane-d4 (Surr)	12RE1	103 %	70-120	05/31/2022 13:00	05/31/2022 13:00							
Surr: 4-Bromofluorobenzene (Surr)	12RE1	99.1 %	75-120	05/31/2022 13:00	05/31/2022 13:00							
Surr: Dibromofluoromethane (Surr)	12RE1	103 %	70-130	05/31/2022 13:00	05/31/2022 13:00							
Surr: Toluene-d8 (Surr)	12RE1	101 %	70-130	05/31/2022 13:00	05/31/2022 13:00							

Certificate of Analysis

Client Name: SCS Engineers-Winchester
 Client Site I.D.: City of Bristol 1st Semi-Annual 2022
 Submitted To: Jennifer Robb

Date Issued: 7/12/2022 2:30:28PM

Client Sample ID: Trip Blank

Laboratory Sample ID: 22E1388-12

Parameter	Samp ID	CAS	Reference Method	Sample Prep Date/Time	Analyzed Date/Time	Sample Results	Qual	LOD	LOQ	DF	Units	Analyst
Micro-extractables by GC/ECD												
1,2-Dibromoethane (EDB)	12	106-93-4	SW8011	06/01/2022 11:30	06/02/2022 10:34	BLOD		0.008	0.010	1	ug/L	LBH2
1,2,3-Trichloropropane	12	96-18-4	SW8011	06/01/2022 11:30	06/02/2022 10:34	BLOD		0.009	0.010	1	ug/L	LBH2
1,2-Dibromo-3-chloropropane (DBCP)	12	96-12-8	SW8011	06/01/2022 11:30	06/02/2022 10:34	BLOD		0.005	0.010	1	ug/L	LBH2

Certificate of Analysis

Client Name: SCS Engineers-Winchester

Date Issued: 7/12/2022 2:30:28PM

Client Site I.D.: City of Bristol 1st Semi-Annual 2022

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Laboratory Sample ID: 22E1388-12

Parameter	Samp ID	CAS	Reference Method	Sample Prep Date/Time	Analyzed Date/Time	Sample Results	Qual	LOD	LOQ	DF	Units	Analyst
Head Space Analysis by GC												
Ethane	12	74-84-0	RSK175M	06/02/2022 10:35	06/02/2022 10:35	BLOD		1.50	5.00	1	ug/L	BMR
Ethene	12	74-85-1	RSK175M	06/02/2022 10:35	06/02/2022 10:35	BLOD		1.50	5.00	1	ug/L	BMR
Methane	12	74-82-8	RSK175M	06/02/2022 10:35	06/02/2022 10:35	BLOD		1.50	5.00	1	ug/L	BMR
<i>Surr: Acetylene (Surr)</i>	12	120 %	70-130	06/02/2022 10:35	06/02/2022 10:35							

Certificate of Analysis

Client Name: SCS Engineers-Winchester
 Client Site I.D.: City of Bristol 1st Semi-Annual 2022
 Submitted To: Jennifer Robb

Date Issued: 7/12/2022 2:30:28PM

Metals (Total) by EPA 6000/7000 Series Methods - Quality Control

Enthalpy Analytical

Analyte	Result	LOQ	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Qual
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Batch BFE1163 - EPA200.8 R5.4

Blank (BFE1163-BLK1)

Prepared: 05/31/2022 Analyzed: 06/02/2022

Antimony	ND	1.0	ug/L							
Arsenic	ND	1.0	ug/L							
Barium	ND	5.00	ug/L							
Beryllium	ND	1.00	ug/L							
Cadmium	ND	1.00	ug/L							
Chromium	ND	1.00	ug/L							
Cobalt	ND	1.00	ug/L							
Copper	ND	1.00	ug/L							
Lead	ND	1.0	ug/L							
Nickel	ND	1.000	ug/L							
Selenium	ND	1.00	ug/L							
Silver	ND	1.00	ug/L							
Thallium	ND	1.0	ug/L							
Tin	ND	1.00	ug/L							
Vanadium	ND	5.00	ug/L							
Zinc	ND	5.00	ug/L							

LCS (BFE1163-BS1)

Prepared: 05/31/2022 Analyzed: 06/02/2022

Antimony	53	1.0	ug/L	50.0	106	80-120
Arsenic	53	1.0	ug/L	50.0	107	80-120
Barium	49.8	5.00	ug/L	50.0	99.6	80-120
Beryllium	49.6	1.00	ug/L	50.0	99.2	80-120
Cadmium	52.5	1.00	ug/L	50.0	105	80-120
Chromium	50.8	1.00	ug/L	50.0	102	80-120
Cobalt	51.0	1.00	ug/L	50.0	102	80-120

Certificate of Analysis

Client Name: SCS Engineers-Winchester
 Client Site I.D.: City of Bristol 1st Semi-Annual 2022
 Submitted To: Jennifer Robb

Date Issued: 7/12/2022 2:30:28PM

Metals (Total) by EPA 6000/7000 Series Methods - Quality Control

Enthalpy Analytical

Analyte	Result	LOQ	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Qual
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Batch BFE1163 - EPA200.8 R5.4

LCS (BFE1163-BS1)

Prepared: 05/31/2022 Analyzed: 06/02/2022

Copper	52.6	1.00	ug/L	50.0		105	80-120			
Lead	52	1.0	ug/L	50.0		104	80-120			
Nickel	51.22	1.000	ug/L	50.0		102	80-120			
Selenium	55.8	1.00	ug/L	50.0		112	80-120			
Silver	9.85	1.00	ug/L	10.0		98.5	80-120			
Thallium	53	1.0	ug/L	50.0		105	80-120			
Tin	50.4	1.00	ug/L	50.0		101	80-120			
Vanadium	50.6	5.00	ug/L	50.0		101	80-120			
Zinc	55.0	5.00	ug/L	50.0		110	80-120			

Matrix Spike (BFE1163-MS1)

Source: 22E1388-11

Prepared: 05/31/2022 Analyzed: 06/02/2022

Antimony	54	1.0	ug/L	50.0	BLOD	109	75-125			
Arsenic	56	1.0	ug/L	50.0	3.2	106	75-125			
Beryllium	53.2	1.00	ug/L	50.0	BLOD	106	75-125			
Cadmium	50.3	1.00	ug/L	50.0	BLOD	101	75-125			
Chromium	52.5	1.00	ug/L	50.0	BLOD	105	75-125			
Cobalt	56.0	1.00	ug/L	50.0	5.43	101	75-125			
Copper	49.2	1.00	ug/L	50.0	BLOD	98.5	75-125			
Lead	51	1.0	ug/L	50.0	BLOD	102	75-125			
Nickel	56.90	1.000	ug/L	50.0	7.323	99.1	75-125			
Selenium	51.7	1.00	ug/L	50.0	BLOD	103	75-125			
Silver	9.50	1.00	ug/L	10.0	BLOD	95.0	75-125			
Thallium	53	1.0	ug/L	50.0	BLOD	105	75-125			
Tin	53.4	1.00	ug/L	50.0	BLOD	107	75-125			
Vanadium	54.2	5.00	ug/L	50.0	BLOD	108	75-125			

Certificate of Analysis

Client Name: SCS Engineers-Winchester
 Client Site I.D.: City of Bristol 1st Semi-Annual 2022
 Submitted To: Jennifer Robb

Date Issued: 7/12/2022 2:30:28PM

Metals (Total) by EPA 6000/7000 Series Methods - Quality Control

Enthalpy Analytical

Analyte	Result	LOQ	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Qual
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Batch BFE1163 - EPA200.8 R5.4

Matrix Spike (BFE1163-MS1)		Source: 22E1388-11			Prepared: 05/31/2022 Analyzed: 06/02/2022					
Zinc	49.1	5.00	ug/L	50.0	BLOD	98.1	75-125			
Matrix Spike (BFE1163-MS2)		Source: 22E1454-09			Prepared: 05/31/2022 Analyzed: 06/02/2022					
Antimony	53	1.0	ug/L	50.0	BLOD	106	75-125			
Arsenic	53	1.0	ug/L	50.0	BLOD	107	75-125			
Barium	50.6	5.00	ug/L	50.0	BLOD	101	75-125			
Beryllium	53.0	1.00	ug/L	50.0	BLOD	106	75-125			
Cadmium	52.8	1.00	ug/L	50.0	BLOD	106	75-125			
Chromium	52.1	1.00	ug/L	50.0	BLOD	104	75-125			
Cobalt	52.4	1.00	ug/L	50.0	BLOD	105	75-125			
Copper	53.3	1.00	ug/L	50.0	BLOD	107	75-125			
Lead	52	1.0	ug/L	50.0	BLOD	104	75-125			
Nickel	52.59	1.000	ug/L	50.0	BLOD	105	75-125			
Selenium	54.1	1.00	ug/L	50.0	BLOD	108	75-125			
Silver	10.0	1.00	ug/L	10.0	BLOD	100	75-125			
Thallium	53	1.0	ug/L	50.0	BLOD	105	75-125			
Tin	51.3	1.00	ug/L	50.0	BLOD	103	75-125			
Vanadium	52.0	5.00	ug/L	50.0	BLOD	104	75-125			
Zinc	53.3	5.00	ug/L	50.0	14.6	77.6	75-125			
Matrix Spike (BFE1163-MS3)		Source: 22E1388-11RE1			Prepared: 05/31/2022 Analyzed: 06/08/2022					
Antimony	54	10	ug/L	50.0	BLOD	107	75-125			
Arsenic	56	10	ug/L	50.0	BLOD	112	75-125			
Barium	351	50.0	ug/L	50.0	290	121	75-125			
Cobalt	56.3	10.0	ug/L	50.0	5.43	102	75-125			
Copper	51.8	10.0	ug/L	50.0	BLOD	104	75-125			

Certificate of Analysis

Client Name: SCS Engineers-Winchester
 Client Site I.D.: City of Bristol 1st Semi-Annual 2022
 Submitted To: Jennifer Robb

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Metals (Total) by EPA 6000/7000 Series Methods - Quality Control

Enthalpy Analytical

Analyte	Result	LOQ	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Qual
Batch BFE1163 - EPA200.8 R5.4										
Matrix Spike (BFE1163-MS3)										
			Source: 22E1388-11RE1		Prepared: 05/31/2022 Analyzed: 06/08/2022					
Selenium	53.2	10.0	ug/L	50.0	BLOD	106	75-125			
Silver	9.76	10.0	ug/L	10.0	BLOD	97.6	75-125			
Thallium	53	10	ug/L	50.0	BLOD	106	75-125			
Matrix Spike Dup (BFE1163-MSD1)										
			Source: 22E1388-11		Prepared: 05/31/2022 Analyzed: 06/02/2022					
Antimony	51	1.0	ug/L	50.0	BLOD	103	75-125	5.44	20	
Arsenic	54	1.0	ug/L	50.0	3.2	101	75-125	4.55	20	
Beryllium	49.6	1.00	ug/L	50.0	BLOD	99.2	75-125	7.00	20	
Cadmium	48.2	1.00	ug/L	50.0	BLOD	96.3	75-125	4.23	20	
Chromium	49.6	1.00	ug/L	50.0	BLOD	99.3	75-125	5.66	20	
Cobalt	53.8	1.00	ug/L	50.0	5.43	96.8	75-125	4.03	20	
Copper	47.6	1.00	ug/L	50.0	BLOD	95.1	75-125	3.46	20	
Lead	48	1.0	ug/L	50.0	BLOD	96.9	75-125	4.94	20	
Nickel	54.82	1.000	ug/L	50.0	7.323	95.0	75-125	3.71	20	
Selenium	48.2	1.00	ug/L	50.0	BLOD	96.4	75-125	7.03	20	
Silver	9.46	1.00	ug/L	10.0	BLOD	94.6	75-125	0.335	20	
Thallium	50	1.0	ug/L	50.0	BLOD	99.3	75-125	5.83	20	
Tin	52.0	1.00	ug/L	50.0	BLOD	104	75-125	2.63	20	
Vanadium	51.3	5.00	ug/L	50.0	BLOD	103	75-125	5.51	20	
Zinc	46.7	5.00	ug/L	50.0	BLOD	93.4	75-125	4.98	20	
Matrix Spike Dup (BFE1163-MSD2)										
			Source: 22E1454-09		Prepared: 05/31/2022 Analyzed: 06/02/2022					
Antimony	52	1.0	ug/L	50.0	BLOD	104	75-125	2.16	20	
Arsenic	52	1.0	ug/L	50.0	BLOD	104	75-125	2.77	20	
Barium	49.6	5.00	ug/L	50.0	BLOD	99.1	75-125	2.10	20	
Beryllium	50.3	1.00	ug/L	50.0	BLOD	101	75-125	5.08	20	

Certificate of Analysis

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Metals (Total) by EPA 6000/7000 Series Methods - Quality Control

Enthalpy Analytical

Analyte	Result	LOQ	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Qual
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Batch BFE1163 - EPA200.8 R5.4

Matrix Spike Dup (BFE1163-MSD2)	Source: 22E1454-09		Prepared: 05/31/2022 Analyzed: 06/02/2022							
Cadmium	51.6	1.00	ug/L	50.0	BLOD	103	75-125	2.21	20	
Chromium	50.5	1.00	ug/L	50.0	BLOD	101	75-125	3.17	20	
Cobalt	50.7	1.00	ug/L	50.0	BLOD	101	75-125	3.37	20	
Copper	51.9	1.00	ug/L	50.0	BLOD	104	75-125	2.67	20	
Lead	51	1.0	ug/L	50.0	BLOD	102	75-125	2.03	20	
Nickel	51.97	1.000	ug/L	50.0	BLOD	104	75-125	1.17	20	
Selenium	52.9	1.00	ug/L	50.0	BLOD	106	75-125	2.38	20	
Silver	9.79	1.00	ug/L	10.0	BLOD	97.9	75-125	2.29	20	
Thallium	51	1.0	ug/L	50.0	BLOD	103	75-125	2.62	20	
Tin	50.2	1.00	ug/L	50.0	BLOD	100	75-125	2.17	20	
Vanadium	50.2	5.00	ug/L	50.0	BLOD	100	75-125	3.66	20	
Zinc	53.0	5.00	ug/L	50.0	14.6	76.9	75-125	0.592	20	

Matrix Spike Dup (BFE1163-MSD3)	Source: 22E1388-11RE1		Prepared: 05/31/2022 Analyzed: 06/08/2022							
Antimony	53	10	ug/L	50.0	BLOD	105	75-125	1.78	20	
Arsenic	54	10	ug/L	50.0	BLOD	108	75-125	3.84	20	
Barium	347	50.0	ug/L	50.0	290	114	75-125	1.03	20	
Cobalt	56.1	10.0	ug/L	50.0	5.43	101	75-125	0.204	20	
Copper	49.6	10.0	ug/L	50.0	BLOD	99.2	75-125	4.26	20	
Selenium	51.8	10.0	ug/L	50.0	BLOD	104	75-125	2.68	20	
Silver	9.97	10.0	ug/L	10.0	BLOD	99.7	75-125	2.14	20	
Thallium	53	10	ug/L	50.0	BLOD	107	75-125	0.660	20	

Batch BFF0266 - SW7470A

Blank (BFF0266-BLK1)	Prepared & Analyzed: 06/07/2022											
Mercury	ND	0.00020	mg/L									

Certificate of Analysis

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Metals (Total) by EPA 6000/7000 Series Methods - Quality Control

Enthalpy Analytical

Analyte	Result	LOQ	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Qual
Batch BFF0266 - SW7470A										
Blank (BFF0266-BLK1)				Prepared & Analyzed: 06/07/2022						
LCS (BFF0266-BS1)				Prepared & Analyzed: 06/07/2022						
Mercury	0.00265	0.00020	mg/L	0.00250		106	80-120			
Matrix Spike (BFF0266-MS1)				Source: 22E1280-07		Prepared & Analyzed: 06/07/2022				
Mercury	0.00270	0.00020	mg/L	0.00250	BLOD	108	80-120			
Matrix Spike (BFF0266-MS2)				Source: 22E1388-01		Prepared & Analyzed: 06/07/2022				
Mercury	0.00275	0.00020	mg/L	0.00250	BLOD	110	80-120			
Matrix Spike Dup (BFF0266-MSD1)				Source: 22E1280-07		Prepared & Analyzed: 06/07/2022				
Mercury	0.00262	0.00020	mg/L	0.00250	BLOD	105	80-120	3.04	20	
Matrix Spike Dup (BFF0266-MSD2)				Source: 22E1388-01		Prepared & Analyzed: 06/07/2022				
Mercury	0.00266	0.00020	mg/L	0.00250	BLOD	107	80-120	3.16	20	
Batch BFF0393 - SW7470A										
Blank (BFF0393-BLK1)				Prepared & Analyzed: 06/09/2022						
Mercury	ND	0.00020	mg/L							
LCS (BFF0393-BS1)				Prepared & Analyzed: 06/09/2022						
Mercury	0.00251	0.00020	mg/L	0.00250		100	80-120			
Matrix Spike (BFF0393-MS1)				Source: 22E1463-02		Prepared & Analyzed: 06/09/2022				
Mercury	0.00274	0.00020	mg/L	0.00250	BLOD	110	80-120			

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Enthalpy Analytical

Analyte	Result	LOQ	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Qual
Batch BFF0393 - SW7470A										
Matrix Spike (BFF0393-MS2)										
					Source: 22E1463-03		Prepared & Analyzed: 06/09/2022			
Mercury	0.00244	0.00020	mg/L	0.00250	BLOD	97.7	80-120			
Matrix Spike Dup (BFF0393-MSD1)										
					Source: 22E1463-02		Prepared & Analyzed: 06/09/2022			
Mercury	0.00263	0.00020	mg/L	0.00250	BLOD	105	80-120	3.98	20	
Matrix Spike Dup (BFF0393-MSD2)										
					Source: 22E1463-03		Prepared & Analyzed: 06/09/2022			
Mercury	0.00259	0.00020	mg/L	0.00250	BLOD	104	80-120	5.84	20	

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Volatile Organic Compounds by GCMS - Quality Control

Enthalpy Analytical

Analyte	Result	LOQ	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Qual
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Batch BFE1119 - SW5030B-MS

Blank (BFE1119-BLK1)

Prepared & Analyzed: 05/27/2022

1,1,1,2-Tetrachloroethane	ND	0.40	ug/L
1,1,1-Trichloroethane	ND	1.00	ug/L
1,1,2,2-Tetrachloroethane	ND	0.40	ug/L
1,1,2-Trichloroethane	ND	1.00	ug/L
1,1-Dichloroethane	ND	1.00	ug/L
1,1-Dichloroethylene	ND	1.00	ug/L
1,2,3-Trichloropropane	ND	1.00	ug/L
1,2-Dichlorobenzene	ND	1.00	ug/L
1,2-Dichloroethane	ND	1.00	ug/L
1,2-Dichloropropane	ND	1.00	ug/L
1,4-Dichlorobenzene	ND	1.00	ug/L
2-Butanone (MEK)	ND	10.0	ug/L
2-Hexanone (MBK)	ND	5.00	ug/L
4-Methyl-2-pentanone (MIBK)	ND	5.00	ug/L
Acetone	ND	10.0	ug/L
Acrylonitrile	ND	5.00	ug/L
Benzene	ND	1.00	ug/L
Bromochloromethane	ND	1.00	ug/L
Bromodichloromethane	ND	0.50	ug/L
Bromoform	ND	1.00	ug/L
Bromomethane	ND	1.00	ug/L
Carbon disulfide	ND	10.0	ug/L
Carbon tetrachloride	ND	1.00	ug/L
Chlorobenzene	ND	1.00	ug/L
Chloroethane	ND	1.00	ug/L

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Volatile Organic Compounds by GCMS - Quality Control

Enthalpy Analytical

Analyte	Result	LOQ	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Qual
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Batch BFE1119 - SW5030B-MS

Blank (BFE1119-BLK1)

Prepared & Analyzed: 05/27/2022

Chloroform	ND	0.50	ug/L							
Chloromethane	ND	1.00	ug/L							
cis-1,2-Dichloroethylene	ND	1.00	ug/L							
cis-1,3-Dichloropropene	ND	1.00	ug/L							
Dibromochloromethane	ND	0.50	ug/L							
Dibromomethane	ND	1.00	ug/L							
Ethylbenzene	ND	1.00	ug/L							
Iodomethane	ND	10.0	ug/L							
m+p-Xylenes	ND	2.00	ug/L							
Methylene chloride	ND	4.00	ug/L							
o-Xylene	ND	1.00	ug/L							
Styrene	ND	1.00	ug/L							
Tetrachloroethylene (PCE)	ND	1.00	ug/L							
Toluene	ND	1.00	ug/L							
trans-1,2-Dichloroethylene	ND	1.00	ug/L							
trans-1,3-Dichloropropene	ND	1.00	ug/L							
trans-1,4-Dichloro-2-butene	ND	4.00	ug/L							
Trichloroethylene	ND	1.00	ug/L							
Trichlorofluoromethane	ND	1.00	ug/L							
Vinyl acetate	ND	10.0	ug/L							
Vinyl chloride	ND	0.50	ug/L							
Xylenes, Total	ND	3.00	ug/L							
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<i>Surr: 1,2-Dichloroethane-d4 (Surr)</i>	<i>48.0</i>		ug/L	<i>50.0</i>		<i>96.0</i>	<i>70-120</i>			
<i>Surr: 4-Bromofluorobenzene (Surr)</i>	<i>46.9</i>		ug/L	<i>50.0</i>		<i>93.8</i>	<i>75-120</i>			
<i>Surr: Dibromofluoromethane (Surr)</i>	<i>48.1</i>		ug/L	<i>50.0</i>		<i>96.2</i>	<i>70-130</i>			

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Volatile Organic Compounds by GCMS - Quality Control

Enthalpy Analytical

Analyte	Result	LOQ	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Qual
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Batch BFE1119 - SW5030B-MS

Blank (BFE1119-BLK1)

Prepared & Analyzed: 05/27/2022

<i>Surr: Toluene-d8 (Surr)</i>	49.9		ug/L	50.0		99.8	70-130
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LCS (BFE1119-BS1)

Prepared & Analyzed: 05/27/2022

1,1,1,2-Tetrachloroethane	55.0	0.4	ug/L	50.0		110	80-130
1,1,1-Trichloroethane	52.0	1	ug/L	50.0		104	65-130
1,1,2,2-Tetrachloroethane	51.1	0.4	ug/L	50.0		102	65-130
1,1,2-Trichloroethane	55.2	1	ug/L	50.0		110	75-125
1,1-Dichloroethane	51.5	1	ug/L	50.0		103	70-135
1,1-Dichloroethylene	45.5	1	ug/L	50.0		91.0	70-130
1,2,3-Trichloropropane	51.1	1	ug/L	50.0		102	75-125
1,2-Dichlorobenzene	53.0	0.5	ug/L	50.0		106	70-120
1,2-Dichloroethane	49.2	1	ug/L	50.0		98.5	70-130
1,2-Dichloropropane	53.6	0.5	ug/L	50.0		107	75-125
1,4-Dichlorobenzene	53.8	1	ug/L	50.0		108	75-125
2-Butanone (MEK)	42.8	10	ug/L	50.0		85.7	30-150
2-Hexanone (MBK)	45.3	5	ug/L	50.0		90.6	55-130
4-Methyl-2-pentanone (MIBK)	44.5	5	ug/L	50.0		88.9	60-135
Acetone	64.8	10	ug/L	50.0		130	40-140
Acrylonitrile	0.00	5	ug/L	250			70-130
Benzene	53.1	1	ug/L	50.0		106	80-120
Bromochloromethane	52.8	1	ug/L	50.0		106	65-130
Bromodichloromethane	57.6	0.5	ug/L	50.0		115	75-120
Bromoform	54.5	1	ug/L	50.0		109	70-130
Bromomethane	34.8	1	ug/L	50.0		69.6	30-145
Carbon disulfide	38.8	10	ug/L	50.0		77.6	35-160

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Volatile Organic Compounds by GCMS - Quality Control

Enthalpy Analytical

Analyte	Result	LOQ	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Qual
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Batch BFE1119 - SW5030B-MS

LCS (BFE1119-BS1)

Prepared & Analyzed: 05/27/2022

Carbon tetrachloride	52.6	1	ug/L	50.0		105	65-140			
Chlorobenzene	54.1	1	ug/L	50.0		108	80-120			
Chloroethane	47.1	1	ug/L	50.0		94.2	60-135			
Chloroform	49.4	0.5	ug/L	50.0		98.8	65-135			
Chloromethane	38.8	1	ug/L	50.0		77.6	40-125			
cis-1,2-Dichloroethylene	51.3	1	ug/L	50.0		103	70-125			
cis-1,3-Dichloropropene	46.2	1	ug/L	50.0		92.5	70-130			
Dibromochloromethane	54.2	0.5	ug/L	50.0		108	60-135			
Dibromomethane	52.7	1	ug/L	50.0		105	75-125			
Ethylbenzene	55.0	1	ug/L	50.0		110	75-125			
m+p-Xylenes	104	2	ug/L	100		104	75-130			
Methylene chloride	55.7	4	ug/L	50.0		111	55-140			
o-Xylene	53.6	1	ug/L	50.0		107	80-120			
Styrene	51.7	1	ug/L	50.0		103	65-135			
Tetrachloroethylene (PCE)	81.4	1	ug/L	50.0		163	45-150			L
Toluene	53.9	1	ug/L	50.0		108	75-120			
trans-1,2-Dichloroethylene	51.2	1	ug/L	50.0		102	60-140			
trans-1,3-Dichloropropene	46.2	1	ug/L	50.0		92.5	55-140			
Trichloroethylene	52.5	1	ug/L	50.0		105	70-125			
Trichlorofluoromethane	47.6	1	ug/L	50.0		95.2	60-145			
Vinyl chloride	47.7	0.5	ug/L	50.0		95.3	50-145			
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<i>Surr: 1,2-Dichloroethane-d4 (Surr)</i>	<i>48.2</i>		<i>ug/L</i>	<i>50.0</i>		<i>96.4</i>	<i>70-120</i>			
<i>Surr: 4-Bromofluorobenzene (Surr)</i>	<i>49.4</i>		<i>ug/L</i>	<i>50.0</i>		<i>98.9</i>	<i>75-120</i>			
<i>Surr: Dibromofluoromethane (Surr)</i>	<i>48.6</i>		<i>ug/L</i>	<i>50.0</i>		<i>97.2</i>	<i>70-130</i>			
<i>Surr: Toluene-d8 (Surr)</i>	<i>49.8</i>		<i>ug/L</i>	<i>50.0</i>		<i>99.7</i>	<i>70-130</i>			

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Volatile Organic Compounds by GCMS - Quality Control

Enthalpy Analytical

Analyte	Result	LOQ	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Qual
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Batch BFE1119 - SW5030B-MS

LCS (BFE1119-BS1)

Prepared & Analyzed: 05/27/2022

Matrix Spike (BFE1119-MS1)

Source: 22E1293-02

Prepared & Analyzed: 05/27/2022

1,1,1,2-Tetrachloroethane	49.7	0.4	ug/L	50.0	BLOD	99.4	80-130			
1,1,1-Trichloroethane	44.0	1	ug/L	50.0	BLOD	88.0	65-130			
1,1,2,2-Tetrachloroethane	47.7	0.4	ug/L	50.0	BLOD	95.4	65-130			
1,1,2-Trichloroethane	51.9	1	ug/L	50.0	BLOD	104	75-125			
1,1-Dichloroethane	44.2	1	ug/L	50.0	BLOD	88.3	70-135			
1,1-Dichloroethylene	36.3	1	ug/L	50.0	BLOD	72.5	70-130			
1,2,3-Trichloropropane	48.9	1	ug/L	50.0	BLOD	97.9	75-125			
1,2-Dichlorobenzene	49.2	0.5	ug/L	50.0	BLOD	98.3	70-120			
1,2-Dichloroethane	45.4	1	ug/L	50.0	BLOD	90.9	70-130			
1,2-Dichloropropane	48.2	0.5	ug/L	50.0	BLOD	96.4	75-125			
1,4-Dichlorobenzene	49.4	1	ug/L	50.0	BLOD	98.8	75-125			
2-Butanone (MEK)	40.2	10	ug/L	50.0	BLOD	80.4	30-150			
2-Hexanone (MBK)	41.4	5	ug/L	50.0	BLOD	82.8	55-130			
4-Methyl-2-pentanone (MIBK)	40.5	5	ug/L	50.0	BLOD	81.1	60-135			
Acetone	55.1	10	ug/L	50.0	BLOD	97.3	40-140			
Acrylonitrile	0.00	5	ug/L	250	BLOD		70-130			M
Benzene	46.8	1	ug/L	50.0	BLOD	93.5	80-120			
Bromochloromethane	48.3	1	ug/L	50.0	BLOD	96.6	65-130			
Bromodichloromethane	52.3	0.5	ug/L	50.0	BLOD	105	75-120			
Bromoform	51.5	1	ug/L	50.0	BLOD	103	70-130			
Bromomethane	28.5	1	ug/L	50.0	BLOD	57.1	30-145			
Carbon disulfide	33.7	10	ug/L	50.0	BLOD	67.4	35-160			
Carbon tetrachloride	45.1	1	ug/L	50.0	BLOD	90.2	65-140			

Certificate of Analysis

 Client Name: SCS Engineers-Winchester
 Client Site I.D.: City of Bristol 1st Semi-Annual 2022
 Submitted To: Jennifer Robb

Date Issued: 7/12/2022 2:30:28PM

Volatile Organic Compounds by GCMS - Quality Control

Enthalpy Analytical

Analyte	Result	LOQ	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Qual
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Batch BFE1119 - SW5030B-MS

Matrix Spike (BFE1119-MS1)	Source: 22E1293-02			Prepared & Analyzed: 05/27/2022						
Chlorobenzene	48.7	1	ug/L	50.0	BLOD	97.4	80-120			
Chloroethane	35.8	1	ug/L	50.0	BLOD	71.6	60-135			
Chloroform	42.7	0.5	ug/L	50.0	BLOD	85.5	65-135			
Chloromethane	26.2	1	ug/L	50.0	BLOD	52.4	40-125			
cis-1,2-Dichloroethylene	44.9	1	ug/L	50.0	BLOD	89.7	70-125			
cis-1,3-Dichloropropene	41.9	1	ug/L	50.0	BLOD	83.9	70-130			
Dibromochloromethane	49.1	0.5	ug/L	50.0	BLOD	98.2	60-135			
Dibromomethane	50.0	1	ug/L	50.0	BLOD	100	75-125			
Ethylbenzene	47.7	1	ug/L	50.0	BLOD	95.4	75-125			
m+p-Xylenes	92.2	2	ug/L	100	BLOD	92.2	75-130			
Methylene chloride	47.5	4	ug/L	50.0	27.4	40.2	55-140			M
o-Xylene	47.5	1	ug/L	50.0	BLOD	95.1	80-120			
Styrene	46.5	1	ug/L	50.0	BLOD	93.0	65-135			
Tetrachloroethylene (PCE)	74.0	1	ug/L	50.0	BLOD	148	45-150			
Toluene	47.5	1	ug/L	50.0	BLOD	95.0	75-120			
trans-1,2-Dichloroethylene	44.2	1	ug/L	50.0	BLOD	88.3	60-140			
trans-1,3-Dichloropropene	41.9	1	ug/L	50.0	BLOD	83.9	55-140			
Trichloroethylene	45.4	1	ug/L	50.0	BLOD	90.9	70-125			
Trichlorofluoromethane	36.0	1	ug/L	50.0	BLOD	72.1	60-145			
Vinyl chloride	18.7	0.5	ug/L	50.0	BLOD	37.5	50-145			M
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<i>Surr: 1,2-Dichloroethane-d4 (Surr)</i>	<i>47.6</i>		<i>ug/L</i>	<i>50.0</i>		<i>95.2</i>	<i>70-120</i>			
<i>Surr: 4-Bromofluorobenzene (Surr)</i>	<i>47.6</i>		<i>ug/L</i>	<i>50.0</i>		<i>95.2</i>	<i>75-120</i>			
<i>Surr: Dibromofluoromethane (Surr)</i>	<i>48.3</i>		<i>ug/L</i>	<i>50.0</i>		<i>96.6</i>	<i>70-130</i>			
<i>Surr: Toluene-d8 (Surr)</i>	<i>49.7</i>		<i>ug/L</i>	<i>50.0</i>		<i>99.4</i>	<i>70-130</i>			

Certificate of Analysis

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Volatile Organic Compounds by GCMS - Quality Control

Enthalpy Analytical

Analyte	Result	LOQ	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Qual
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Batch BFE1119 - SW5030B-MS

Matrix Spike Dup (BFE1119-MSD1)	Source: 22E1293-02		Prepared & Analyzed: 05/27/2022							
1,1,1,2-Tetrachloroethane	46.3	0.4	ug/L	50.0	BLOD	92.6	80-130	7.06	30	
1,1,1-Trichloroethane	41.9	1	ug/L	50.0	BLOD	83.8	65-130	4.94	30	
1,1,2,2-Tetrachloroethane	44.9	0.4	ug/L	50.0	BLOD	89.9	65-130	6.02	30	
1,1,2-Trichloroethane	47.8	1	ug/L	50.0	BLOD	95.7	75-125	8.18	30	
1,1-Dichloroethane	41.0	1	ug/L	50.0	BLOD	82.1	70-135	7.33	30	
1,1-Dichloroethylene	34.7	1	ug/L	50.0	BLOD	69.5	70-130	4.28	30	M
1,2,3-Trichloropropane	45.6	1	ug/L	50.0	BLOD	91.2	75-125	7.09	30	
1,2-Dichlorobenzene	45.1	0.5	ug/L	50.0	BLOD	90.2	70-120	8.59	30	
1,2-Dichloroethane	42.1	1	ug/L	50.0	BLOD	84.2	70-130	7.61	30	
1,2-Dichloropropane	44.2	0.5	ug/L	50.0	BLOD	88.4	75-125	8.72	30	
1,4-Dichlorobenzene	45.1	1	ug/L	50.0	BLOD	90.2	75-125	9.12	30	
2-Butanone (MEK)	39.3	10	ug/L	50.0	BLOD	78.6	30-150		30	
2-Hexanone (MBK)	40.5	5	ug/L	50.0	BLOD	80.9	55-130		30	
4-Methyl-2-pentanone (MIBK)	38.8	5	ug/L	50.0	BLOD	77.6	60-135	4.41	30	
Acetone	52.8	10	ug/L	50.0	BLOD	92.8	40-140		30	
Acrylonitrile	0.00	5	ug/L	250	BLOD		70-130		30	M
Benzene	43.3	1	ug/L	50.0	BLOD	86.5	80-120	7.75	30	
Bromochloromethane	44.0	1	ug/L	50.0	BLOD	87.9	65-130	9.39	30	
Bromodichloromethane	47.4	0.5	ug/L	50.0	BLOD	94.8	75-120	9.89	30	
Bromoform	48.3	1	ug/L	50.0	BLOD	96.6	70-130	6.41	30	
Bromomethane	29.1	1	ug/L	50.0	BLOD	58.2	30-145	1.94	30	
Carbon disulfide	33.4	10	ug/L	50.0	BLOD	66.8	35-160		30	
Carbon tetrachloride	42.1	1	ug/L	50.0	BLOD	84.2	65-140	6.88	30	
Chlorobenzene	44.8	1	ug/L	50.0	BLOD	89.5	80-120	8.41	30	
Chloroethane	34.2	1	ug/L	50.0	BLOD	68.5	60-135	4.51	30	

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Volatile Organic Compounds by GCMS - Quality Control

Enthalpy Analytical

Analyte	Result	LOQ	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Qual
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Batch BFE1119 - SW5030B-MS

Matrix Spike Dup (BFE1119-MSD1)	Source: 22E1293-02		Prepared & Analyzed: 05/27/2022							
Chloroform	39.7	0.5	ug/L	50.0	BLOD	79.3	65-135	7.45	30	
Chloromethane	24.4	1	ug/L	50.0	BLOD	48.9	40-125	6.99	30	
cis-1,2-Dichloroethylene	41.0	1	ug/L	50.0	BLOD	82.1	70-125	8.92	30	
cis-1,3-Dichloropropene	39.0	1	ug/L	50.0	BLOD	78.0	70-130	7.32	30	
Dibromochloromethane	45.8	0.5	ug/L	50.0	BLOD	91.7	60-135	6.91	30	
Dibromomethane	45.8	1	ug/L	50.0	BLOD	91.7	75-125	8.68	30	
Ethylbenzene	45.1	1	ug/L	50.0	BLOD	90.3	75-125	5.52	30	
m+p-Xylenes	86.7	2	ug/L	100	BLOD	86.7	75-130	6.08	30	
Methylene chloride	42.6	4	ug/L	50.0	27.4	30.4	55-140		30	M
o-Xylene	44.3	1	ug/L	50.0	BLOD	88.5	80-120	7.12	30	
Styrene	43.6	1	ug/L	50.0	BLOD	87.1	65-135	6.53	30	
Tetrachloroethylene (PCE)	70.0	1	ug/L	50.0	BLOD	140	45-150	5.56	30	
Toluene	44.3	1	ug/L	50.0	BLOD	88.6	75-120	6.97	30	
trans-1,2-Dichloroethylene	40.7	1	ug/L	50.0	BLOD	81.3	60-140	8.25	30	
trans-1,3-Dichloropropene	39.0	1	ug/L	50.0	BLOD	78.0	55-140	7.32	30	
Trichloroethylene	42.3	1	ug/L	50.0	BLOD	84.6	70-125	7.16	30	
Trichlorofluoromethane	34.2	1	ug/L	50.0	BLOD	68.4	60-145	5.15	30	
Vinyl chloride	29.3	0.5	ug/L	50.0	BLOD	58.5	50-145	43.9	30	M
<i>Surr: 1,2-Dichloroethane-d4 (Surr)</i>	<i>47.0</i>		ug/L	<i>50.0</i>		<i>94.1</i>	<i>70-120</i>			
<i>Surr: 4-Bromofluorobenzene (Surr)</i>	<i>48.7</i>		ug/L	<i>50.0</i>		<i>97.4</i>	<i>75-120</i>			
<i>Surr: Dibromofluoromethane (Surr)</i>	<i>48.1</i>		ug/L	<i>50.0</i>		<i>96.3</i>	<i>70-130</i>			
<i>Surr: Toluene-d8 (Surr)</i>	<i>50.0</i>		ug/L	<i>50.0</i>		<i>100</i>	<i>70-130</i>			

Batch BFE1120 - SW5030B-MS

Blank (BFE1120-BLK1)	Prepared & Analyzed: 05/27/2022									
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Certificate of Analysis

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Volatile Organic Compounds by GCMS - Quality Control

Enthalpy Analytical

Analyte	Result	LOQ	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Qual
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Batch BFE1120 - SW5030B-MS

Blank (BFE1120-BLK1)

Prepared & Analyzed: 05/27/2022

1,1,1,2-Tetrachloroethane	ND	0.40	ug/L
1,1,1-Trichloroethane	ND	1.00	ug/L
1,1,2,2-Tetrachloroethane	ND	0.40	ug/L
1,1,2-Trichloroethane	ND	1.00	ug/L
1,1-Dichloroethane	ND	1.00	ug/L
1,1-Dichloroethylene	ND	1.00	ug/L
1,1-Dichloropropene	ND	1.00	ug/L
1,2,3-Trichloropropane	ND	1.00	ug/L
1,2,4-Trichlorobenzene	ND	1.00	ug/L
1,2-Dichlorobenzene	ND	1.00	ug/L
1,2-Dichloroethane	ND	1.00	ug/L
1,2-Dichloropropane	ND	1.00	ug/L
1,3-Dichlorobenzene	ND	1.00	ug/L
1,3-Dichloropropane	ND	1.00	ug/L
1,4-Dichlorobenzene	ND	1.00	ug/L
2,2-Dichloropropane	ND	2.00	ug/L
2-Butanone (MEK)	ND	10.0	ug/L
2-Hexanone (MBK)	ND	5.00	ug/L
4-Methyl-2-pentanone (MIBK)	ND	5.00	ug/L
Acetone	ND	10.0	ug/L
Acetonitrile	ND	10.0	ug/L
Acrolein	ND	10.0	ug/L
Acrylonitrile	ND	5.00	ug/L
Allyl chloride	ND	1.00	ug/L
Benzene	ND	1.00	ug/L

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Volatile Organic Compounds by GCMS - Quality Control

Enthalpy Analytical

Analyte	Result	LOQ	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Qual
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Batch BFE1120 - SW5030B-MS

Blank (BFE1120-BLK1)

Prepared & Analyzed: 05/27/2022

Bromochloromethane	ND	1.00	ug/L
Bromodichloromethane	ND	0.50	ug/L
Bromoform	ND	1.00	ug/L
Bromomethane	ND	1.00	ug/L
Carbon disulfide	ND	10.0	ug/L
Carbon tetrachloride	ND	1.00	ug/L
Chlorobenzene	ND	1.00	ug/L
Chloroethane	ND	1.00	ug/L
Chloroform	ND	0.50	ug/L
Chloromethane	ND	1.00	ug/L
Chloroprene	ND	5.00	ug/L
cis-1,2-Dichloroethylene	ND	1.00	ug/L
cis-1,3-Dichloropropene	ND	1.00	ug/L
Dibromochloromethane	ND	0.50	ug/L
Dibromomethane	ND	1.00	ug/L
Dichlorodifluoromethane	ND	1.00	ug/L
Ethyl methacrylate	ND	5.00	ug/L
Ethylbenzene	ND	1.00	ug/L
Iodomethane	ND	10.0	ug/L
Isobutyl Alcohol	ND	40.0	ug/L
m+p-Xylenes	ND	2.00	ug/L
Methacrylonitrile	ND	1.50	ug/L
Methyl methacrylate	ND	2.00	ug/L
Methylene chloride	ND	4.00	ug/L
Naphthalene	ND	1.00	ug/L

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Enthalpy Analytical

Analyte	Result	LOQ	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Qual
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Batch BFE1120 - SW5030B-MS

Blank (BFE1120-BLK1)

Prepared & Analyzed: 05/27/2022

o-Xylene	ND	1.00	ug/L							
Propionitrile	ND	40.0	ug/L							
Styrene	ND	1.00	ug/L							
Tetrachloroethylene (PCE)	ND	1.00	ug/L							
Toluene	ND	1.00	ug/L							
trans-1,2-Dichloroethylene	ND	1.00	ug/L							
trans-1,3-Dichloropropene	ND	1.00	ug/L							
trans-1,4-Dichloro-2-butene	ND	4.00	ug/L							
Trichloroethylene	ND	1.00	ug/L							
Trichlorofluoromethane	ND	1.00	ug/L							
Vinyl acetate	ND	10.0	ug/L							
Vinyl chloride	ND	0.50	ug/L							
Xylenes, Total	ND	3.00	ug/L							
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<i>Surr: 1,2-Dichloroethane-d4 (Surr)</i>	51.7		ug/L	50.0		103	70-120			
<i>Surr: 4-Bromofluorobenzene (Surr)</i>	49.3		ug/L	50.0		98.6	75-120			
<i>Surr: Dibromofluoromethane (Surr)</i>	49.8		ug/L	50.0		99.6	70-130			
<i>Surr: Toluene-d8 (Surr)</i>	50.1		ug/L	50.0		100	70-130			

LCS (BFE1120-BS1)

Prepared & Analyzed: 05/27/2022

1,1,1,2-Tetrachloroethane	53.9	0.4	ug/L	50.0		108	80-130			
1,1,1-Trichloroethane	54.5	1	ug/L	50.0		109	65-130			
1,1,2,2-Tetrachloroethane	50.2	0.4	ug/L	50.0		100	65-130			
1,1,2-Trichloroethane	49.2	1	ug/L	50.0		98.3	75-125			
1,1-Dichloroethane	50.1	1	ug/L	50.0		100	70-135			
1,1-Dichloroethylene	42.7	1	ug/L	50.0		85.3	70-130			

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Batch BFE1120 - SW5030B-MS

LCS (BFE1120-BS1)

Prepared & Analyzed: 05/27/2022

1,1-Dichloropropene	52.4	1	ug/L	50.0		105	75-135			
1,2,3-Trichloropropane	51.4	1	ug/L	50.0		103	75-125			
1,2,4-Trichlorobenzene	50.9	1	ug/L	50.0		102	65-135			
1,2-Dichlorobenzene	54.8	0.5	ug/L	50.0		110	70-120			
1,2-Dichloroethane	50.8	1	ug/L	50.0		102	70-130			
1,2-Dichloropropane	49.2	0.5	ug/L	50.0		98.5	75-125			
1,3-Dichlorobenzene	55.8	1	ug/L	50.0		112	75-125			
1,3-Dichloropropane	50.8	1	ug/L	50.0		102	75-125			
1,4-Dichlorobenzene	55.2	1	ug/L	50.0		110	75-125			
2,2-Dichloropropane	45.7	1	ug/L	50.0		91.4	70-135			
2-Butanone (MEK)	43.3	10	ug/L	50.0		86.5	30-150			
2-Hexanone (MBK)	53.6	5	ug/L	50.0		107	55-130			
4-Methyl-2-pentanone (MIBK)	49.6	5	ug/L	50.0		99.2	60-135			
Acetone	50.2	10	ug/L	50.0		100	40-140			
Acrylonitrile	301	5	ug/L	250		120	70-130			
Benzene	51.1	1	ug/L	50.0		102	80-120			
Bromochloromethane	48.0	1	ug/L	50.0		96.0	65-130			
Bromodichloromethane	55.5	0.5	ug/L	50.0		111	75-120			
Bromoform	49.7	1	ug/L	50.0		99.4	70-130			
Bromomethane	40.4	1	ug/L	50.0		80.9	30-145			
Carbon disulfide	55.4	10	ug/L	50.0		111	35-160			
Carbon tetrachloride	53.9	1	ug/L	50.0		108	65-140			
Chlorobenzene	52.6	1	ug/L	50.0		105	80-120			
Chloroethane	42.9	1	ug/L	50.0		85.9	60-135			
Chloroform	47.2	0.5	ug/L	50.0		94.5	65-135			

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Volatile Organic Compounds by GCMS - Quality Control

Enthalpy Analytical

Analyte	Result	LOQ	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Qual
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Batch BFE1120 - SW5030B-MS

LCS (BFE1120-BS1)

Prepared & Analyzed: 05/27/2022

Chloromethane	36.6	1	ug/L	50.0		73.2	40-125			
cis-1,2-Dichloroethylene	47.5	1	ug/L	50.0		95.0	70-125			
cis-1,3-Dichloropropene	38.8	1	ug/L	50.0		77.7	70-130			
Dibromochloromethane	49.3	0.5	ug/L	50.0		98.6	60-135			
Dibromomethane	46.3	1	ug/L	50.0		92.5	75-125			
Dichlorodifluoromethane	15.0	1	ug/L	50.0		30.0	30-155			
Ethylbenzene	56.9	1	ug/L	50.0		114	75-125			
m+p-Xylenes	105	2	ug/L	100		105	75-130			
Methylene chloride	47.3	4	ug/L	50.0		94.7	55-140			
Naphthalene	48.7	1	ug/L	50.0		97.4	55-140			
o-Xylene	54.6	1	ug/L	50.0		109	80-120			
Styrene	52.2	1	ug/L	50.0		104	65-135			
Tetrachloroethylene (PCE)	88.2	1	ug/L	50.0		176	45-150			L
Toluene	53.0	1	ug/L	50.0		106	75-120			
trans-1,2-Dichloroethylene	48.5	1	ug/L	50.0		97.0	60-140			
trans-1,3-Dichloropropene	42.6	1	ug/L	50.0		85.2	55-140			
Trichloroethylene	52.1	1	ug/L	50.0		104	70-125			
Trichlorofluoromethane	49.9	1	ug/L	50.0		99.7	60-145			
Vinyl chloride	39.6	0.5	ug/L	50.0		79.2	50-145			
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<i>Surr: 1,2-Dichloroethane-d4 (Surr)</i>	<i>50.2</i>		<i>ug/L</i>	<i>50.0</i>		<i>100</i>	<i>70-120</i>			
<i>Surr: 4-Bromofluorobenzene (Surr)</i>	<i>50.4</i>		<i>ug/L</i>	<i>50.0</i>		<i>101</i>	<i>75-120</i>			
<i>Surr: Dibromofluoromethane (Surr)</i>	<i>51.0</i>		<i>ug/L</i>	<i>50.0</i>		<i>102</i>	<i>70-130</i>			
<i>Surr: Toluene-d8 (Surr)</i>	<i>50.4</i>		<i>ug/L</i>	<i>50.0</i>		<i>101</i>	<i>70-130</i>			

Matrix Spike (BFE1120-MS1)

Source: 22E1388-02

Prepared & Analyzed: 05/27/2022

Certificate of Analysis

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Volatile Organic Compounds by GCMS - Quality Control

Enthalpy Analytical

Analyte	Result	LOQ	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Qual
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Batch BFE1120 - SW5030B-MS

Matrix Spike (BFE1120-MS1)

Source: 22E1388-02

Prepared & Analyzed: 05/27/2022

1,1,1,2-Tetrachloroethane	52.8	0.4	ug/L	50.0	BLOD	106	80-130			
1,1,1-Trichloroethane	52.7	1	ug/L	50.0	BLOD	105	65-130			
1,1,2,2-Tetrachloroethane	52.0	0.4	ug/L	50.0	BLOD	104	65-130			
1,1,2-Trichloroethane	51.0	1	ug/L	50.0	BLOD	102	75-125			
1,1-Dichloroethane	49.1	1	ug/L	50.0	BLOD	98.1	70-135			
1,1-Dichloroethylene	42.6	1	ug/L	50.0	BLOD	85.1	70-130			
1,1-Dichloropropene	48.5	1	ug/L	50.0	BLOD	97.0	75-135			
1,2,3-Trichloropropane	52.4	1	ug/L	50.0	BLOD	105	75-125			
1,2,4-Trichlorobenzene	52.3	1	ug/L	50.0	BLOD	105	65-135			
1,2-Dichlorobenzene	54.7	0.5	ug/L	50.0	BLOD	109	70-120			
1,2-Dichloroethane	51.0	1	ug/L	50.0	BLOD	102	70-130			
1,2-Dichloropropane	48.4	0.5	ug/L	50.0	BLOD	96.8	75-125			
1,3-Dichlorobenzene	55.1	1	ug/L	50.0	BLOD	110	75-125			
1,3-Dichloropropane	51.0	1	ug/L	50.0	BLOD	102	75-125			
1,4-Dichlorobenzene	54.9	1	ug/L	50.0	BLOD	110	75-125			
2,2-Dichloropropane	44.5	1	ug/L	50.0	BLOD	89.1	70-135			
2-Butanone (MEK)	44.0	10	ug/L	50.0	BLOD	87.9	30-150			
2-Hexanone (MBK)	53.8	5	ug/L	50.0	BLOD	108	55-130			
4-Methyl-2-pentanone (MIBK)	51.4	5	ug/L	50.0	BLOD	103	60-135			
Acetone	51.7	10	ug/L	50.0	BLOD	92.3	40-140			
Acrylonitrile	318	5	ug/L	250	BLOD	127	70-130			
Benzene	50.1	1	ug/L	50.0	BLOD	100	80-120			
Bromochloromethane	46.2	1	ug/L	50.0	BLOD	92.4	65-130			
Bromodichloromethane	54.7	0.5	ug/L	50.0	BLOD	109	75-120			
Bromoform	50.2	1	ug/L	50.0	BLOD	100	70-130			

Certificate of Analysis

Client Name: SCS Engineers-Winchester
 Client Site I.D.: City of Bristol 1st Semi-Annual 2022
 Submitted To: Jennifer Robb

Date Issued: 7/12/2022 2:30:28PM

Volatile Organic Compounds by GCMS - Quality Control

Enthalpy Analytical

Analyte	Result	LOQ	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Qual
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Batch BFE1120 - SW5030B-MS

Matrix Spike (BFE1120-MS1)

Source: 22E1388-02

Prepared & Analyzed: 05/27/2022

Bromomethane	38.6	1	ug/L	50.0	BLOD	77.1	30-145			
Carbon disulfide	51.8	10	ug/L	50.0	BLOD	104	35-160			
Carbon tetrachloride	52.0	1	ug/L	50.0	BLOD	104	65-140			
Chlorobenzene	51.9	1	ug/L	50.0	BLOD	104	80-120			
Chloroethane	43.0	1	ug/L	50.0	BLOD	86.0	60-135			
Chloroform	46.2	0.5	ug/L	50.0	BLOD	92.5	65-135			
Chloromethane	35.9	1	ug/L	50.0	BLOD	71.8	40-125			
cis-1,2-Dichloroethylene	46.9	1	ug/L	50.0	BLOD	93.8	70-125			
cis-1,3-Dichloropropene	37.7	1	ug/L	50.0	BLOD	75.5	70-130			
Dibromochloromethane	49.2	0.5	ug/L	50.0	BLOD	98.4	60-135			
Dibromomethane	46.7	1	ug/L	50.0	BLOD	93.5	75-125			
Dichlorodifluoromethane	14.5	1	ug/L	50.0	BLOD	28.9	30-155			M
Ethylbenzene	55.8	1	ug/L	50.0	BLOD	112	75-125			
m+p-Xylenes	103	2	ug/L	100	BLOD	103	75-130			
Methylene chloride	45.5	4	ug/L	50.0	BLOD	91.0	55-140			
Naphthalene	53.2	1	ug/L	50.0	BLOD	106	55-140			
o-Xylene	52.8	1	ug/L	50.0	BLOD	106	80-120			
Styrene	51.6	1	ug/L	50.0	BLOD	103	65-135			
Tetrachloroethylene (PCE)	87.1	1	ug/L	50.0	BLOD	174	45-150			M
Toluene	51.2	1	ug/L	50.0	BLOD	102	75-120			
trans-1,2-Dichloroethylene	47.3	1	ug/L	50.0	BLOD	94.6	60-140			
trans-1,3-Dichloropropene	41.5	1	ug/L	50.0	BLOD	82.9	55-140			
Trichloroethylene	51.4	1	ug/L	50.0	BLOD	103	70-125			
Trichlorofluoromethane	47.7	1	ug/L	50.0	BLOD	95.3	60-145			
Vinyl chloride	37.8	0.5	ug/L	50.0	BLOD	75.5	50-145			

Certificate of Analysis

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 Client Site I.D.: City of Bristol 1st Semi-Annual 2022
 Submitted To: Jennifer Robb

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Volatile Organic Compounds by GCMS - Quality Control

Enthalpy Analytical

Analyte	Result	LOQ	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Qual
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Batch BFE1120 - SW5030B-MS

Matrix Spike (BFE1120-MS1)

Source: 22E1388-02

Prepared & Analyzed: 05/27/2022

<i>Surr: 1,2-Dichloroethane-d4 (Surr)</i>	53.5		ug/L	50.0		107	70-120		
<i>Surr: 4-Bromofluorobenzene (Surr)</i>	49.4		ug/L	50.0		98.8	75-120		
<i>Surr: Dibromofluoromethane (Surr)</i>	51.5		ug/L	50.0		103	70-130		
<i>Surr: Toluene-d8 (Surr)</i>	50.5		ug/L	50.0		101	70-130		

Matrix Spike Dup (BFE1120-MSD1)

Source: 22E1388-02

Prepared & Analyzed: 05/27/2022

1,1,1,2-Tetrachloroethane	49.4	0.4	ug/L	50.0	BLOD	98.8	80-130	6.69	30
1,1,1-Trichloroethane	49.2	1	ug/L	50.0	BLOD	98.3	65-130	6.97	30
1,1,2,2-Tetrachloroethane	49.2	0.4	ug/L	50.0	BLOD	98.3	65-130	5.60	30
1,1,2-Trichloroethane	46.5	1	ug/L	50.0	BLOD	93.0	75-125	9.17	30
1,1-Dichloroethane	44.7	1	ug/L	50.0	BLOD	89.4	70-135	9.37	30
1,1-Dichloroethylene	38.8	1	ug/L	50.0	BLOD	77.6	70-130	9.29	30
1,1-Dichloropropene	47.0	1	ug/L	50.0	BLOD	93.9	75-135	3.21	30
1,2,3-Trichloropropane	50.2	1	ug/L	50.0	BLOD	100	75-125	4.27	30
1,2,4-Trichlorobenzene	48.0	1	ug/L	50.0	BLOD	96.1	65-135	8.45	30
1,2-Dichlorobenzene	50.6	0.5	ug/L	50.0	BLOD	101	70-120	7.65	30
1,2-Dichloroethane	46.5	1	ug/L	50.0	BLOD	93.1	70-130	9.17	30
1,2-Dichloropropane	44.1	0.5	ug/L	50.0	BLOD	88.2	75-125	9.32	30
1,3-Dichlorobenzene	51.9	1	ug/L	50.0	BLOD	104	75-125	6.04	30
1,3-Dichloropropane	45.5	1	ug/L	50.0	BLOD	90.9	75-125	11.4	30
1,4-Dichlorobenzene	51.0	1	ug/L	50.0	BLOD	102	75-125	7.50	30
2,2-Dichloropropane	40.0	1	ug/L	50.0	BLOD	80.1	70-135	10.6	30
2-Butanone (MEK)	40.3	10	ug/L	50.0	BLOD	80.6	30-150	8.74	30
2-Hexanone (MBK)	52.7	5	ug/L	50.0	BLOD	105	55-130	1.97	30
4-Methyl-2-pentanone (MIBK)	46.7	5	ug/L	50.0	BLOD	93.3	60-135	9.57	30

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Enthalpy Analytical

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Batch BFE1120 - SW5030B-MS

Matrix Spike Dup (BFE1120-MSD1)	Source: 22E1388-02			Prepared & Analyzed: 05/27/2022						
Acetone	51.2	10	ug/L	50.0	BLOD	91.3	40-140	0.914	30	
Acrylonitrile	299	5	ug/L	250	BLOD	120	70-130	6.04	30	
Benzene	45.5	1	ug/L	50.0	BLOD	91.0	80-120	9.60	30	
Bromochloromethane	42.1	1	ug/L	50.0	BLOD	84.1	65-130	9.36	30	
Bromodichloromethane	47.2	0.5	ug/L	50.0	BLOD	94.5	75-120	14.7	30	
Bromoform	46.5	1	ug/L	50.0	BLOD	93.1	70-130	7.57	30	
Bromomethane	35.3	1	ug/L	50.0	BLOD	70.7	30-145	8.69	30	
Carbon disulfide	47.2	10	ug/L	50.0	BLOD	94.3	35-160	9.44	30	
Carbon tetrachloride	49.7	1	ug/L	50.0	BLOD	99.4	65-140	4.48	30	
Chlorobenzene	47.8	1	ug/L	50.0	BLOD	95.5	80-120	8.25	30	
Chloroethane	38.8	1	ug/L	50.0	BLOD	77.6	60-135	10.3	30	
Chloroform	42.2	0.5	ug/L	50.0	BLOD	84.3	65-135	9.21	30	
Chloromethane	32.6	1	ug/L	50.0	BLOD	65.2	40-125	9.64	30	
cis-1,2-Dichloroethylene	42.1	1	ug/L	50.0	BLOD	84.1	70-125	10.9	30	
cis-1,3-Dichloropropene	33.5	1	ug/L	50.0	BLOD	67.0	70-130	11.9	30	M
Dibromochloromethane	45.8	0.5	ug/L	50.0	BLOD	91.5	60-135	7.20	30	
Dibromomethane	40.6	1	ug/L	50.0	BLOD	81.3	75-125	13.9	30	
Dichlorodifluoromethane	14.6	1	ug/L	50.0	BLOD	29.2	30-155	0.826	30	M
Ethylbenzene	51.2	1	ug/L	50.0	BLOD	102	75-125	8.62	30	
m+p-Xylenes	94.1	2	ug/L	100	BLOD	94.1	75-130	9.15	30	
Methylene chloride	40.7	4	ug/L	50.0	BLOD	81.4	55-140	11.1	30	
Naphthalene	50.5	1	ug/L	50.0	BLOD	101	55-140	5.15	30	
o-Xylene	49.6	1	ug/L	50.0	BLOD	99.2	80-120	6.36	30	
Styrene	47.0	1	ug/L	50.0	BLOD	94.1	65-135	9.19	30	
Tetrachloroethylene (PCE)	79.4	1	ug/L	50.0	BLOD	159	45-150	9.22	30	M

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Analyte	Result	LOQ	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Qual
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Batch BFE1120 - SW5030B-MS

Matrix Spike Dup (BFE1120-MSD1)

Source: 22E1388-02

Prepared & Analyzed: 05/27/2022

Toluene	46.6	1	ug/L	50.0	BLOD	93.1	75-120	9.40	30	
trans-1,2-Dichloroethylene	42.8	1	ug/L	50.0	BLOD	85.5	60-140	10.1	30	
trans-1,3-Dichloropropene	37.1	1	ug/L	50.0	BLOD	74.3	55-140	11.0	30	
Trichloroethylene	46.4	1	ug/L	50.0	BLOD	92.8	70-125	10.2	30	
Trichlorofluoromethane	46.4	1	ug/L	50.0	BLOD	92.9	60-145	2.64	30	
Vinyl chloride	34.9	0.5	ug/L	50.0	BLOD	69.8	50-145	7.96	30	
<i>Surr: 1,2-Dichloroethane-d4 (Surr)</i>	<i>51.5</i>		<i>ug/L</i>	<i>50.0</i>		<i>103</i>	<i>70-120</i>			
<i>Surr: 4-Bromofluorobenzene (Surr)</i>	<i>50.6</i>		<i>ug/L</i>	<i>50.0</i>		<i>101</i>	<i>75-120</i>			
<i>Surr: Dibromofluoromethane (Surr)</i>	<i>51.1</i>		<i>ug/L</i>	<i>50.0</i>		<i>102</i>	<i>70-130</i>			
<i>Surr: Toluene-d8 (Surr)</i>	<i>49.5</i>		<i>ug/L</i>	<i>50.0</i>		<i>99.1</i>	<i>70-130</i>			

Batch BFE1173 - SW5030B-MS

Blank (BFE1173-BLK1)

Prepared & Analyzed: 05/31/2022

1,1,1,2-Tetrachloroethane	ND	0.40	ug/L							
1,1,1-Trichloroethane	ND	1.00	ug/L							
1,1,2,2-Tetrachloroethane	ND	0.40	ug/L							
1,1,2-Trichloroethane	ND	1.00	ug/L							
1,1-Dichloroethane	ND	1.00	ug/L							
1,1-Dichloroethylene	ND	1.00	ug/L							
1,1-Dichloropropene	ND	1.00	ug/L							
1,2,3-Trichloropropane	ND	1.00	ug/L							
1,2,4-Trichlorobenzene	ND	1.00	ug/L							
1,2-Dichlorobenzene	ND	1.00	ug/L							
1,2-Dichloroethane	ND	1.00	ug/L							
1,2-Dichloropropane	ND	1.00	ug/L							

Certificate of Analysis

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Enthalpy Analytical

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Batch BFE1173 - SW5030B-MS

Blank (BFE1173-BLK1)

Prepared & Analyzed: 05/31/2022

1,3-Dichlorobenzene	ND	1.00	ug/L
1,3-Dichloropropane	ND	1.00	ug/L
1,4-Dichlorobenzene	ND	1.00	ug/L
2,2-Dichloropropane	ND	2.00	ug/L
2-Butanone (MEK)	ND	10.0	ug/L
2-Hexanone (MBK)	ND	5.00	ug/L
4-Methyl-2-pentanone (MIBK)	ND	5.00	ug/L
Acetone	ND	10.0	ug/L
Acetonitrile	ND	10.0	ug/L
Acrolein	ND	10.0	ug/L
Acrylonitrile	ND	5.00	ug/L
Allyl chloride	ND	1.00	ug/L
Benzene	ND	1.00	ug/L
Bromochloromethane	ND	1.00	ug/L
Bromodichloromethane	ND	0.50	ug/L
Bromoform	ND	1.00	ug/L
Bromomethane	ND	1.00	ug/L
Carbon disulfide	ND	10.0	ug/L
Carbon tetrachloride	ND	1.00	ug/L
Chlorobenzene	ND	1.00	ug/L
Chloroethane	ND	1.00	ug/L
Chloroform	ND	0.50	ug/L
Chloromethane	ND	1.00	ug/L
Chloroprene	ND	5.00	ug/L
cis-1,2-Dichloroethylene	ND	1.00	ug/L

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Batch BFE1173 - SW5030B-MS

Blank (BFE1173-BLK1)

Prepared & Analyzed: 05/31/2022

cis-1,3-Dichloropropene	ND	1.00	ug/L
Dibromochloromethane	ND	0.50	ug/L
Dibromomethane	ND	1.00	ug/L
Dichlorodifluoromethane	ND	1.00	ug/L
Ethyl methacrylate	ND	5.00	ug/L
Ethylbenzene	ND	1.00	ug/L
Iodomethane	ND	10.0	ug/L
Isobutyl Alcohol	ND	40.0	ug/L
m+p-Xylenes	ND	2.00	ug/L
Methacrylonitrile	ND	1.50	ug/L
Methyl methacrylate	ND	2.00	ug/L
Methylene chloride	ND	4.00	ug/L
Naphthalene	ND	1.00	ug/L
o-Xylene	ND	1.00	ug/L
Propionitrile	ND	40.0	ug/L
Styrene	ND	1.00	ug/L
Tetrachloroethylene (PCE)	ND	1.00	ug/L
Toluene	ND	1.00	ug/L
trans-1,2-Dichloroethylene	ND	1.00	ug/L
trans-1,3-Dichloropropene	ND	1.00	ug/L
trans-1,4-Dichloro-2-butene	ND	4.00	ug/L
Trichloroethylene	ND	1.00	ug/L
Trichlorofluoromethane	ND	1.00	ug/L
Vinyl acetate	ND	10.0	ug/L
Vinyl chloride	ND	0.50	ug/L

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Batch BFE1173 - SW5030B-MS										
Blank (BFE1173-BLK1)			Prepared & Analyzed: 05/31/2022							
Xylenes, Total	ND	3.00	ug/L							
<i>Surr: 1,2-Dichloroethane-d4 (Surr)</i>	49.8		ug/L	50.0		99.5	70-120			
<i>Surr: 4-Bromofluorobenzene (Surr)</i>	50.1		ug/L	50.0		100	75-120			
<i>Surr: Dibromofluoromethane (Surr)</i>	50.1		ug/L	50.0		100	70-130			
<i>Surr: Toluene-d8 (Surr)</i>	50.5		ug/L	50.0		101	70-130			
LCS (BFE1173-BS1)			Prepared & Analyzed: 05/31/2022							
1,1,1,2-Tetrachloroethane	55.1	0.4	ug/L	50.0		110	80-130			
1,1,1-Trichloroethane	58.2	1	ug/L	50.0		116	65-130			
1,1,2,2-Tetrachloroethane	51.4	0.4	ug/L	50.0		103	65-130			
1,1,2-Trichloroethane	49.9	1	ug/L	50.0		99.7	75-125			
1,1-Dichloroethane	53.0	1	ug/L	50.0		106	70-135			
1,1-Dichloroethylene	53.3	1	ug/L	50.0		107	70-130			
1,1-Dichloropropene	53.7	1	ug/L	50.0		107	75-135			
1,2,3-Trichloropropane	52.9	1	ug/L	50.0		106	75-125			
1,2,4-Trichlorobenzene	51.3	1	ug/L	50.0		103	65-135			
1,2-Dichlorobenzene	53.4	0.5	ug/L	50.0		107	70-120			
1,2-Dichloroethane	51.4	1	ug/L	50.0		103	70-130			
1,2-Dichloropropane	50.1	0.5	ug/L	50.0		100	75-125			
1,3-Dichlorobenzene	53.8	1	ug/L	50.0		108	75-125			
1,3-Dichloropropane	51.2	1	ug/L	50.0		102	75-125			
1,4-Dichlorobenzene	54.4	1	ug/L	50.0		109	75-125			
2,2-Dichloropropane	52.1	1	ug/L	50.0		104	70-135			
2-Butanone (MEK)	46.9	10	ug/L	50.0		93.8	30-150			
2-Hexanone (MBK)	59.9	5	ug/L	50.0		120	55-130			

Certificate of Analysis

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Batch BFE1173 - SW5030B-MS

LCS (BFE1173-BS1)

Prepared & Analyzed: 05/31/2022

4-Methyl-2-pentanone (MIBK)	53.5	5	ug/L	50.0		107	60-135			
Acetone	53.1	10	ug/L	50.0		106	40-140			
Acrylonitrile	116	5	ug/L	250		46.4	70-130			L
Benzene	52.0	1	ug/L	50.0		104	80-120			
Bromochloromethane	48.8	1	ug/L	50.0		97.6	65-130			
Bromodichloromethane	52.9	0.5	ug/L	50.0		106	75-120			
Bromoform	48.9	1	ug/L	50.0		97.8	70-130			
Bromomethane	40.3	1	ug/L	50.0		80.6	30-145			
Carbon disulfide	66.6	10	ug/L	50.0		133	35-160			
Carbon tetrachloride	59.6	1	ug/L	50.0		119	65-140			
Chlorobenzene	52.5	1	ug/L	50.0		105	80-120			
Chloroethane	50.6	1	ug/L	50.0		101	60-135			
Chloroform	48.5	0.5	ug/L	50.0		97.0	65-135			
Chloromethane	44.0	1	ug/L	50.0		88.1	40-125			
cis-1,2-Dichloroethylene	50.5	1	ug/L	50.0		101	70-125			
cis-1,3-Dichloropropene	53.4	1	ug/L	50.0		107	70-130			
Dibromochloromethane	52.4	0.5	ug/L	50.0		105	60-135			
Dibromomethane	47.3	1	ug/L	50.0		94.6	75-125			
Dichlorodifluoromethane	47.1	1	ug/L	50.0		94.1	30-155			
Ethylbenzene	56.4	1	ug/L	50.0		113	75-125			
m+p-Xylenes	108	2	ug/L	100		108	75-130			
Methylene chloride	47.8	4	ug/L	50.0		95.6	55-140			
Naphthalene	49.5	1	ug/L	50.0		99.1	55-140			
o-Xylene	53.7	1	ug/L	50.0		107	80-120			
Styrene	55.9	1	ug/L	50.0		112	65-135			

Certificate of Analysis

 Client Name: SCS Engineers-Winchester
 Client Site I.D.: City of Bristol 1st Semi-Annual 2022
 Submitted To: Jennifer Robb

Date Issued: 7/12/2022 2:30:28PM

Volatile Organic Compounds by GCMS - Quality Control

Enthalpy Analytical

Analyte	Result	LOQ	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Qual
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Batch BFE1173 - SW5030B-MS

LCS (BFE1173-BS1)

Prepared & Analyzed: 05/31/2022

Tetrachloroethylene (PCE)	55.7	1	ug/L	50.0		111	45-150			
Toluene	52.2	1	ug/L	50.0		104	75-120			
trans-1,2-Dichloroethylene	51.4	1	ug/L	50.0		103	60-140			
trans-1,3-Dichloropropene	54.4	1	ug/L	50.0		109	55-140			
Trichloroethylene	53.1	1	ug/L	50.0		106	70-125			
Trichlorofluoromethane	62.7	1	ug/L	50.0		125	60-145			
Vinyl chloride	53.0	0.5	ug/L	50.0		106	50-145			
<i>Surr: 1,2-Dichloroethane-d4 (Surr)</i>	48.7		ug/L	50.0		97.4	70-120			
<i>Surr: 4-Bromofluorobenzene (Surr)</i>	51.6		ug/L	50.0		103	75-120			
<i>Surr: Dibromofluoromethane (Surr)</i>	50.9		ug/L	50.0		102	70-130			
<i>Surr: Toluene-d8 (Surr)</i>	50.8		ug/L	50.0		102	70-130			

Matrix Spike (BFE1173-MS1)

Source: 22E1478-03

Prepared & Analyzed: 05/31/2022

1,1,1,2-Tetrachloroethane	53.6	0.4	ug/L	50.0	BLOD	107	80-130			
1,1,1-Trichloroethane	57.2	1	ug/L	50.0	BLOD	114	65-130			
1,1,2,2-Tetrachloroethane	50.0	0.4	ug/L	50.0	BLOD	99.9	65-130			
1,1,2-Trichloroethane	49.5	1	ug/L	50.0	BLOD	99.0	75-125			
1,1-Dichloroethane	51.8	1	ug/L	50.0	BLOD	104	70-135			
1,1-Dichloroethylene	51.4	1	ug/L	50.0	BLOD	103	70-130			
1,1-Dichloropropene	53.6	1	ug/L	50.0	BLOD	107	75-135			
1,2,3-Trichloropropane	51.1	1	ug/L	50.0	BLOD	102	75-125			
1,2,4-Trichlorobenzene	51.3	1	ug/L	50.0	BLOD	103	65-135			
1,2-Dichlorobenzene	52.9	0.5	ug/L	50.0	BLOD	106	70-120			
1,2-Dichloroethane	51.3	1	ug/L	50.0	BLOD	103	70-130			
1,2-Dichloropropane	48.6	0.5	ug/L	50.0	BLOD	97.1	75-125			

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Volatile Organic Compounds by GCMS - Quality Control

Enthalpy Analytical

Analyte	Result	LOQ	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Qual
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Batch BFE1173 - SW5030B-MS

Matrix Spike (BFE1173-MS1)

Source: 22E1478-03

Prepared & Analyzed: 05/31/2022

1,3-Dichlorobenzene	53.1	1	ug/L	50.0	BLOD	106	75-125			
1,3-Dichloropropane	51.1	1	ug/L	50.0	BLOD	102	75-125			
1,4-Dichlorobenzene	53.0	1	ug/L	50.0	BLOD	106	75-125			
2,2-Dichloropropane	50.2	1	ug/L	50.0	BLOD	100	70-135			
2-Butanone (MEK)	46.2	10	ug/L	50.0	BLOD	92.3	30-150			
2-Hexanone (MBK)	56.2	5	ug/L	50.0	BLOD	112	55-130			
4-Methyl-2-pentanone (MIBK)	54.7	5	ug/L	50.0	BLOD	109	60-135			
Acetone	47.4	10	ug/L	50.0	8.35	78.2	40-140			
Acrylonitrile	281	5	ug/L	250	BLOD	112	70-130			
Benzene	51.0	1	ug/L	50.0	BLOD	102	80-120			
Bromochloromethane	48.1	1	ug/L	50.0	BLOD	96.3	65-130			
Bromodichloromethane	50.7	0.5	ug/L	50.0	BLOD	101	75-120			
Bromoform	48.3	1	ug/L	50.0	BLOD	96.6	70-130			
Bromomethane	41.3	1	ug/L	50.0	BLOD	82.7	30-145			
Carbon disulfide	64.3	10	ug/L	50.0	BLOD	129	35-160			
Carbon tetrachloride	57.0	1	ug/L	50.0	BLOD	114	65-140			
Chlorobenzene	50.9	1	ug/L	50.0	BLOD	102	80-120			
Chloroethane	51.1	1	ug/L	50.0	BLOD	102	60-135			
Chloroform	47.5	0.5	ug/L	50.0	BLOD	95.0	65-135			
Chloromethane	45.5	1	ug/L	50.0	BLOD	89.4	40-125			
cis-1,2-Dichloroethylene	49.2	1	ug/L	50.0	BLOD	98.5	70-125			
cis-1,3-Dichloropropene	51.5	1	ug/L	50.0	BLOD	103	70-130			
Dibromochloromethane	51.0	0.5	ug/L	50.0	BLOD	102	60-135			
Dibromomethane	46.5	1	ug/L	50.0	BLOD	93.0	75-125			
Dichlorodifluoromethane	44.1	1	ug/L	50.0	BLOD	88.2	30-155			

Certificate of Analysis

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Volatile Organic Compounds by GCMS - Quality Control

Enthalpy Analytical

Analyte	Result	LOQ	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Qual
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Batch BFE1173 - SW5030B-MS

Matrix Spike (BFE1173-MS1)

Source: 22E1478-03

Prepared & Analyzed: 05/31/2022

Ethylbenzene	54.6	1	ug/L	50.0	BLOD	109	75-125			
m+p-Xylenes	105	2	ug/L	100	BLOD	105	75-130			
Methylene chloride	46.8	4	ug/L	50.0	BLOD	93.7	55-140			
Naphthalene	52.7	1	ug/L	50.0	BLOD	105	55-140			
o-Xylene	53.1	1	ug/L	50.0	BLOD	106	80-120			
Styrene	53.5	1	ug/L	50.0	BLOD	107	65-135			
Tetrachloroethylene (PCE)	52.3	1	ug/L	50.0	BLOD	105	45-150			
Toluene	51.5	1	ug/L	50.0	BLOD	103	75-120			
trans-1,2-Dichloroethylene	50.6	1	ug/L	50.0	BLOD	101	60-140			
trans-1,3-Dichloropropene	51.3	1	ug/L	50.0	BLOD	103	55-140			
Trichloroethylene	51.3	1	ug/L	50.0	BLOD	103	70-125			
Trichlorofluoromethane	59.5	1	ug/L	50.0	BLOD	119	60-145			
Vinyl chloride	50.6	0.5	ug/L	50.0	BLOD	101	50-145			
<i>Surr: 1,2-Dichloroethane-d4 (Surr)</i>	48.6		ug/L	50.0		97.1	70-120			
<i>Surr: 4-Bromofluorobenzene (Surr)</i>	51.1		ug/L	50.0		102	75-120			
<i>Surr: Dibromofluoromethane (Surr)</i>	51.4		ug/L	50.0		103	70-130			
<i>Surr: Toluene-d8 (Surr)</i>	50.4		ug/L	50.0		101	70-130			

Matrix Spike Dup (BFE1173-MSD1)

Source: 22E1478-03

Prepared & Analyzed: 05/31/2022

1,1,1,2-Tetrachloroethane	53.6	0.4	ug/L	50.0	BLOD	107	80-130	0.0186	30	
1,1,1-Trichloroethane	55.8	1	ug/L	50.0	BLOD	112	65-130	2.48	30	
1,1,2,2-Tetrachloroethane	51.0	0.4	ug/L	50.0	BLOD	102	65-130	2.14	30	
1,1,2-Trichloroethane	48.7	1	ug/L	50.0	BLOD	97.4	75-125	1.63	30	
1,1-Dichloroethane	51.8	1	ug/L	50.0	BLOD	104	70-135	0.154	30	
1,1-Dichloroethylene	49.9	1	ug/L	50.0	BLOD	99.8	70-130	2.88	30	

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Volatile Organic Compounds by GCMS - Quality Control

Enthalpy Analytical

Analyte	Result	LOQ	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Qual
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Batch BFE1173 - SW5030B-MS

Matrix Spike Dup (BFE1173-MSD1)	Source: 22E1478-03			Prepared & Analyzed: 05/31/2022						
1,1-Dichloropropene	52.3	1	ug/L	50.0	BLOD	105	75-135	2.51	30	
1,2,3-Trichloropropane	51.8	1	ug/L	50.0	BLOD	104	75-125	1.19	30	
1,2,4-Trichlorobenzene	49.8	1	ug/L	50.0	BLOD	99.7	65-135	2.89	30	
1,2-Dichlorobenzene	53.2	0.5	ug/L	50.0	BLOD	106	70-120	0.509	30	
1,2-Dichloroethane	51.2	1	ug/L	50.0	BLOD	102	70-130	0.117	30	
1,2-Dichloropropane	49.4	0.5	ug/L	50.0	BLOD	98.7	75-125	1.63	30	
1,3-Dichlorobenzene	53.5	1	ug/L	50.0	BLOD	107	75-125	0.882	30	
1,3-Dichloropropane	50.5	1	ug/L	50.0	BLOD	101	75-125	1.14	30	
1,4-Dichlorobenzene	54.5	1	ug/L	50.0	BLOD	109	75-125	2.68	30	
2,2-Dichloropropane	49.9	1	ug/L	50.0	BLOD	99.9	70-135	0.440	30	
2-Butanone (MEK)	46.4	10	ug/L	50.0	BLOD	92.9	30-150	0.626	30	
2-Hexanone (MBK)	54.4	5	ug/L	50.0	BLOD	109	55-130	3.18	30	
4-Methyl-2-pentanone (MIBK)	55.0	5	ug/L	50.0	BLOD	110	60-135	0.419	30	
Acetone	46.1	10	ug/L	50.0	8.35	75.5	40-140	2.89	30	
Acrylonitrile	281	5	ug/L	250	BLOD	112	70-130	0.0213	30	
Benzene	51.2	1	ug/L	50.0	BLOD	102	80-120	0.587	30	
Bromochloromethane	47.9	1	ug/L	50.0	BLOD	95.9	65-130	0.416	30	
Bromodichloromethane	52.2	0.5	ug/L	50.0	BLOD	104	75-120	2.84	30	
Bromoform	48.1	1	ug/L	50.0	BLOD	96.2	70-130	0.436	30	
Bromomethane	42.4	1	ug/L	50.0	BLOD	84.8	30-145	2.53	30	
Carbon disulfide	62.5	10	ug/L	50.0	BLOD	125	35-160	2.74	30	
Carbon tetrachloride	55.8	1	ug/L	50.0	BLOD	112	65-140	1.97	30	
Chlorobenzene	50.9	1	ug/L	50.0	BLOD	102	80-120	0.118	30	
Chloroethane	49.8	1	ug/L	50.0	BLOD	99.6	60-135	2.60	30	
Chloroform	47.8	0.5	ug/L	50.0	BLOD	95.5	65-135	0.546	30	

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Volatile Organic Compounds by GCMS - Quality Control

Enthalpy Analytical

Analyte	Result	LOQ	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Qual
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Batch BFE1173 - SW5030B-MS

Matrix Spike Dup (BFE1173-MSD1)	Source: 22E1478-03			Prepared & Analyzed: 05/31/2022						
Chloromethane	46.8	1	ug/L	50.0	BLOD	92.0	40-125	2.88	30	
cis-1,2-Dichloroethylene	49.6	1	ug/L	50.0	BLOD	99.1	70-125	0.648	30	
cis-1,3-Dichloropropene	52.4	1	ug/L	50.0	BLOD	105	70-130	1.67	30	
Dibromochloromethane	51.0	0.5	ug/L	50.0	BLOD	102	60-135	0.0196	30	
Dibromomethane	47.6	1	ug/L	50.0	BLOD	95.3	75-125	2.42	30	
Dichlorodifluoromethane	44.0	1	ug/L	50.0	BLOD	88.1	30-155	0.0681	30	
Ethylbenzene	54.2	1	ug/L	50.0	BLOD	108	75-125	0.827	30	
m+p-Xylenes	105	2	ug/L	100	BLOD	105	75-130	0.438	30	
Methylene chloride	46.1	4	ug/L	50.0	BLOD	92.2	55-140	1.55	30	
Naphthalene	52.7	1	ug/L	50.0	BLOD	105	55-140	0.0380	30	
o-Xylene	52.6	1	ug/L	50.0	BLOD	105	80-120	0.870	30	
Styrene	53.6	1	ug/L	50.0	BLOD	107	65-135	0.261	30	
Tetrachloroethylene (PCE)	51.9	1	ug/L	50.0	BLOD	104	45-150	0.787	30	
Toluene	51.2	1	ug/L	50.0	BLOD	102	75-120	0.565	30	
trans-1,2-Dichloroethylene	50.1	1	ug/L	50.0	BLOD	100	60-140	0.913	30	
trans-1,3-Dichloropropene	53.5	1	ug/L	50.0	BLOD	107	55-140	4.24	30	
Trichloroethylene	50.0	1	ug/L	50.0	BLOD	99.9	70-125	2.55	30	
Trichlorofluoromethane	56.6	1	ug/L	50.0	BLOD	113	60-145	5.07	30	
Vinyl chloride	49.4	0.5	ug/L	50.0	BLOD	98.9	50-145	2.36	30	
<i>Surr: 1,2-Dichloroethane-d4 (Surr)</i>	<i>47.7</i>		<i>ug/L</i>	<i>50.0</i>		<i>95.4</i>	<i>70-120</i>			
<i>Surr: 4-Bromofluorobenzene (Surr)</i>	<i>50.6</i>		<i>ug/L</i>	<i>50.0</i>		<i>101</i>	<i>75-120</i>			
<i>Surr: Dibromofluoromethane (Surr)</i>	<i>50.5</i>		<i>ug/L</i>	<i>50.0</i>		<i>101</i>	<i>70-130</i>			
<i>Surr: Toluene-d8 (Surr)</i>	<i>49.7</i>		<i>ug/L</i>	<i>50.0</i>		<i>99.3</i>	<i>70-130</i>			

Certificate of Analysis

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Semivolatile Organic Compounds by GCMS - Quality Control

Enthalpy Analytical

Analyte	Result	LOQ	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Qual
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Batch BFE1145 - SW3580A-MS

Blank (BFE1145-BLK1)

Prepared & Analyzed: 05/31/2022

1,2,4,5-Tetrachlorobenzene	ND	10.0	ug/L
1,3,5-Trinitrobenzene	ND	5.00	ug/L
1,3-Dinitrobenzene	ND	2.50	ug/L
1,4-Naphthoquinone	ND	10.0	ug/L
1-Naphthylamine	ND	10.0	ug/L
2,3,4,6-Tetrachlorophenol	ND	10.0	ug/L
2,4,5-Trichlorophenol	ND	10.0	ug/L
2,4,6-Trichlorophenol	ND	10.0	ug/L
2,4-Dichlorophenol	ND	10.0	ug/L
2,4-Dimethylphenol	ND	5.00	ug/L
2,4-Dinitrophenol	ND	50.0	ug/L
2,4-Dinitrotoluene	ND	10.0	ug/L
2,6-Dichlorophenol	ND	10.0	ug/L
2,6-Dinitrotoluene	ND	10.0	ug/L
2-Acetylaminofluorene	ND	2.50	ug/L
2-Chloronaphthalene	ND	10.0	ug/L
2-Chlorophenol	ND	10.0	ug/L
2-Methylnaphthalene	ND	10.0	ug/L
2-Naphthylamine	ND	10.0	ug/L
2-Nitroaniline	ND	20.0	ug/L
2-Nitrophenol	ND	10.0	ug/L
3,3'-Dichlorobenzidine	ND	10.0	ug/L
3,3'-Dimethylbenzidine	ND	2.50	ug/L
3-Methylcholanthrene	ND	10.0	ug/L
3-Nitroaniline	ND	20.0	ug/L

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Semivolatile Organic Compounds by GCMS - Quality Control

Enthalpy Analytical

Analyte	Result	LOQ	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Qual
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Batch BFE1145 - SW3580A-MS

Blank (BFE1145-BLK1)

Prepared & Analyzed: 05/31/2022

4,6-Dinitro-2-methylphenol	ND	50.0	ug/L
4-Aminobiphenyl	ND	10.0	ug/L
4-Bromophenyl phenyl ether	ND	10.0	ug/L
4-Chloroaniline	ND	10.0	ug/L
4-Chlorophenyl phenyl ether	ND	10.0	ug/L
4-Nitroaniline	ND	20.0	ug/L
4-Nitrophenol	ND	50.0	ug/L
5-Nitro-o-toluidine	ND	10.0	ug/L
7,12-Dimethylbenz (a) anthracene	ND	10.0	ug/L
Acenaphthene	ND	10.0	ug/L
Acenaphthylene	ND	10.0	ug/L
Acetophenone	ND	20.0	ug/L
Anthracene	ND	10.0	ug/L
Benzo (a) anthracene	ND	10.0	ug/L
Benzo (a) pyrene	ND	10.0	ug/L
Benzo (b) fluoranthene	ND	10.0	ug/L
Benzo (g,h,i) perylene	ND	10.0	ug/L
Benzo (k) fluoranthene	ND	10.0	ug/L
Benzyl alcohol	ND	20.0	ug/L
bis (2-Chloroethoxy) methane	ND	10.0	ug/L
bis (2-Chloroethyl) ether	ND	10.0	ug/L
2,2'-Oxybis (1-chloropropane)	ND	10.0	ug/L
bis (2-Ethylhexyl) phthalate	ND	5.00	ug/L
Butyl benzyl phthalate	ND	10.0	ug/L
Chlorobenzilate	ND	2.50	ug/L

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Semivolatile Organic Compounds by GCMS - Quality Control

Enthalpy Analytical

Analyte	Result	LOQ	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Qual
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Batch BFE1145 - SW3580A-MS

Blank (BFE1145-BLK1)

Prepared & Analyzed: 05/31/2022

Chrysene	ND	10.0	ug/L
Diallate	ND	2.50	ug/L
Dibenz (a,h) anthracene	ND	10.0	ug/L
Dibenzofuran	ND	5.00	ug/L
Diethyl phthalate	ND	10.0	ug/L
Dimethoate	ND	2.50	ug/L
Dimethyl phthalate	ND	10.0	ug/L
Di-n-butyl phthalate	ND	10.0	ug/L
Di-n-octyl phthalate	ND	10.0	ug/L
Diphenylamine	ND	10.0	ug/L
Disulfoton	ND	2.50	ug/L
Ethyl methanesulfonate	ND	20.0	ug/L
Ethyl parathion	ND	2.50	ug/L
Famphur	ND	2.50	ug/L
Fluoranthene	ND	10.0	ug/L
Fluorene	ND	10.0	ug/L
Hexachlorobenzene	ND	1.00	ug/L
Hexachlorobutadiene	ND	10.0	ug/L
Hexachlorocyclopentadiene	ND	10.0	ug/L
Hexachloroethane	ND	10.0	ug/L
Hexachloropropene	ND	2.50	ug/L
Indeno (1,2,3-cd) pyrene	ND	10.0	ug/L
Isodrin	ND	10.0	ug/L
Isophorone	ND	10.0	ug/L
Isosafrole	ND	10.0	ug/L

Certificate of Analysis

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 Client Site I.D.: City of Bristol 1st Semi-Annual 2022
 Submitted To: Jennifer Robb

Date Issued: 7/12/2022 2:30:28PM

Semivolatile Organic Compounds by GCMS - Quality Control

Enthalpy Analytical

Analyte	Result	LOQ	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Qual
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Batch BFE1145 - SW3580A-MS

Blank (BFE1145-BLK1)

Prepared & Analyzed: 05/31/2022

Kepone	ND	10.0	ug/L							
m+p-Cresols	ND	10.0	ug/L							
Methapyrilene	ND	10.0	ug/L							
Methyl methanesulfonate	ND	10.0	ug/L							
Methyl parathion	ND	2.50	ug/L							
Naphthalene	0.38	0.10	ug/L							B
Nitrobenzene	ND	10.0	ug/L							
n-Nitrosodiethylamine	ND	2.50	ug/L							
n-Nitrosodimethylamine	ND	10.0	ug/L							
n-Nitrosodi-n-butylamine	ND	10.0	ug/L							
n-Nitrosodi-n-propylamine	ND	10.0	ug/L							
n-Nitrosodiphenylamine	ND	10.0	ug/L							
n-Nitrosomethylethylamine	ND	2.50	ug/L							
n-Nitrosopiperidine	ND	10.0	ug/L							
n-Nitrosopyrrolidine	ND	2.50	ug/L							
o,o,o-Triethyl phosphorothioate	ND	10.0	ug/L							
o,o-Diethyl o-2-pyrazinyl phosphorothioate	ND	10.0	ug/L							
o+m+p-Cresols	ND	10.0	ug/L							
o-Cresol	ND	10.0	ug/L							
o-Toluidine	ND	2.50	ug/L							
p-(Dimethylamino) azobenzene	ND	2.50	ug/L							
p-Chloro-m-cresol	ND	10.0	ug/L							
Pentachlorobenzene	ND	10.0	ug/L							
Pentachloronitrobenzene (quintozene)	ND	10.0	ug/L							
Phenacetin	ND	10.0	ug/L							

Certificate of Analysis

 Client Name: SCS Engineers-Winchester
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Enthalpy Analytical

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Batch BFE1145 - SW3580A-MS

Blank (BFE1145-BLK1)

Prepared & Analyzed: 05/31/2022

Phenanthrene	ND	10.0	ug/L							
Phenol	ND	10.0	ug/L							
Phorate	ND	2.50	ug/L							
p-Phenylenediamine	ND	10.0	ug/L							
Pronamide	ND	10.0	ug/L							
Pyrene	ND	10.0	ug/L							
Safrole	ND	2.50	ug/L							

<i>Surr: 2,4,6-Tribromophenol (Surr)</i>	58.1		ug/L	100		58.1	10-86			
<i>Surr: 2-Fluorobiphenyl (Surr)</i>	37.6		ug/L	50.0		75.3	9-87			
<i>Surr: 2-Fluorophenol (Surr)</i>	44.8		ug/L	100		44.8	10-52			
<i>Surr: Nitrobenzene-d5 (Surr)</i>	41.5		ug/L	50.0		83.0	10-98.5			
<i>Surr: Phenol-d5 (Surr)</i>	30.6		ug/L	100		30.6	5-33			
<i>Surr: p-Terphenyl-d14 (Surr)</i>	41.1		ug/L	50.0		82.3	27-133			

LCS (BFE1145-BS1)

Prepared & Analyzed: 05/31/2022

1,2,4-Trichlorobenzene	33.3	10.0	ug/L	50.0		66.6	22-135			
1,2-Dichlorobenzene	21.2	10.0	ug/L	50.0		42.4	22-115			
1,3-Dichlorobenzene	18.3	10.0	ug/L	50.0		36.6	22-112			
1,4-Dichlorobenzene	19.1	10.0	ug/L	50.0		38.1	13-112			
2,4,6-Trichlorophenol	33.0	10.0	ug/L	50.0		66.0	11-145			
2,4-Dichlorophenol	41.5	10.0	ug/L	50.0		83.0	11-75			L
2,4-Dimethylphenol	35.7	5.00	ug/L	50.0		71.4	11-121			
2,4-Dinitrophenol	68.9	50.0	ug/L	50.0		138	11-165			
2,4-Dinitrotoluene	45.8	10.0	ug/L	50.0		91.5	17-155			
2,6-Dinitrotoluene	35.4	10.0	ug/L	50.0		70.7	15-125			

Certificate of Analysis

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Enthalpy Analytical

Analyte	Result	LOQ	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Qual
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Batch BFE1145 - SW3580A-MS

LCS (BFE1145-BS1)

Prepared & Analyzed: 05/31/2022

2-Chloronaphthalene	29.8	10.0	ug/L	50.0		59.6	27-89			
2-Chlorophenol	26.2	10.0	ug/L	50.0		52.4	15-110			
2-Nitrophenol	35.9	10.0	ug/L	50.0		71.8	11-115			
3,3'-Dichlorobenzidine	24.1	10.0	ug/L	50.0		48.3	25-95			
4,6-Dinitro-2-methylphenol	59.9	50.0	ug/L	50.0		120	25-130			
4-Bromophenyl phenyl ether	31.9	10.0	ug/L	50.0		63.8	15-110			
4-Chlorophenyl phenyl ether	34.8	10.0	ug/L	50.0		69.6	15-110			
4-Nitrophenol	20.6	50.0	ug/L	50.0		41.3	12-70			
Acenaphthene	29.7	10.0	ug/L	50.0		59.5	18-85			
Acenaphthylene	28.3	10.0	ug/L	50.0		56.6	20-75			
Acetophenone	29.4	20.0	ug/L	50.0		58.8	0-200			
alpha-Terpineol	25.1	2.50	ug/L	50.0		50.3	0-200			
Anthracene	30.4	10.0	ug/L	50.0		60.8	35-95			
Benzo (a) anthracene	36.6	10.0	ug/L	50.0		73.2	25-95			
Benzo (a) pyrene	37.8	10.0	ug/L	50.0		75.7	37-110			
Benzo (b) fluoranthene	42.1	10.0	ug/L	50.0		84.3	25-75			L
Benzo (g,h,i) perylene	35.7	10.0	ug/L	50.0		71.4	25-90			
Benzo (k) fluoranthene	37.9	10.0	ug/L	50.0		75.8	25-95			
bis (2-Chloroethoxy) methane	35.2	10.0	ug/L	50.0		70.4	25-110			
bis (2-Chloroethyl) ether	26.8	10.0	ug/L	50.0		53.6	25-85			
2,2'-Oxybis (1-chloropropane)	27.1	10.0	ug/L	50.0		54.1	25-95			
bis (2-Ethylhexyl) phthalate	38.8	5.00	ug/L	50.0		77.7	30-125			
Butyl benzyl phthalate	37.9	10.0	ug/L	50.0		75.7	30-115			
Carbazole	36.4	2.50	ug/L	50.0		72.8	0-200			
Chrysene	38.3	10.0	ug/L	50.0		76.6	20-90			

Certificate of Analysis

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Semivolatile Organic Compounds by GCMS - Quality Control

Enthalpy Analytical

Analyte	Result	LOQ	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Qual
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Batch BFE1145 - SW3580A-MS

LCS (BFE1145-BS1)

Prepared & Analyzed: 05/31/2022

Dibenz (a,h) anthracene	41.9	10.0	ug/L	50.0		83.8	27-125			
Diethyl phthalate	33.2	10.0	ug/L	50.0		66.3	25-120			
Dimethyl phthalate	33.4	10.0	ug/L	50.0		66.8	25-125			
Di-n-butyl phthalate	33.1	10.0	ug/L	50.0		66.1	35-115			
Di-n-octyl phthalate	37.9	10.0	ug/L	50.0		75.7	25-105			
Fluoranthene	42.0	10.0	ug/L	50.0		84.0	33-95			
Fluorene	31.7	10.0	ug/L	50.0		63.4	15-97			
Hexachlorobenzene	32.9	1.00	ug/L	50.0		65.8	25-125			
Hexachlorobutadiene	39.8	10.0	ug/L	50.0		79.5	25-125			
Hexachlorocyclopentadiene	29.0	10.0	ug/L	50.0		57.9	25-125			
Hexachloroethane	25.6	10.0	ug/L	50.0		51.1	25-125			
Indeno (1,2,3-cd) pyrene	40.6	10.0	ug/L	50.0		81.1	25-125			
Isophorone	25.5	10.0	ug/L	50.0		51.0	10-110			
Naphthalene	27.6	0.10	ug/L	50.0		55.1	12-100			
Nitrobenzene	38.4	10.0	ug/L	50.0		76.9	30-97			
n-Nitrosodimethylamine	18.2	10.0	ug/L	50.0		36.4	10-85			
n-Nitrosodi-n-propylamine	30.3	10.0	ug/L	50.0		60.5	12-97			
n-Nitrosodiphenylamine	27.4	10.0	ug/L	50.0		54.8	12-97			
p-Chloro-m-cresol	47.9	10.0	ug/L	50.0		95.7	10-91			L
Pentachlorophenol	33.3	20.0	ug/L	50.0		66.5	30-109			
Phenanthrene	33.6	10.0	ug/L	50.0		67.1	30-88			
Phenol	14.0	10.0	ug/L	50.5		27.8	10-70			
Pyrene	36.9	10.0	ug/L	50.0		73.8	27-110			
Pyridine	28.6	10.0	ug/L	50.0		57.3	0-200			
<i>Surr: 2,4,6-Tribromophenol (Surr)</i>	<i>58.5</i>		ug/L	<i>100</i>		<i>58.5</i>	<i>10-86</i>			

Certificate of Analysis

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Semivolatile Organic Compounds by GCMS - Quality Control

Enthalpy Analytical

Analyte	Result	LOQ	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Qual
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Batch BFE1145 - SW3580A-MS

LCS (BFE1145-BS1)

Prepared & Analyzed: 05/31/2022

<i>Surr: 2-Fluorobiphenyl (Surr)</i>	32.2		ug/L	50.0		64.4	9-87			
<i>Surr: 2-Fluorophenol (Surr)</i>	33.6		ug/L	100		33.6	10-52			
<i>Surr: Nitrobenzene-d5 (Surr)</i>	33.5		ug/L	50.0		67.0	10-98.5			
<i>Surr: Phenol-d5 (Surr)</i>	25.7		ug/L	100		25.7	5-33			
<i>Surr: p-Terphenyl-d14 (Surr)</i>	41.8		ug/L	50.0		83.7	27-133			

Matrix Spike (BFE1145-MS1)

Source: 22E1478-02

Prepared: 05/31/2022 Analyzed: 06/01/2022

1,2,4-Trichlorobenzene	33.4	10.0	ug/L	52.6	BLOD	63.4	22-65			
1,2-Dichlorobenzene	24.3	10.0	ug/L	52.6	BLOD	46.2	22-60			
1,3-Dichlorobenzene	22.6	10.0	ug/L	52.6	BLOD	43.0	22-60			
1,4-Dichlorobenzene	23.7	10.0	ug/L	52.6	BLOD	45.1	13-60			
2,4,6-Trichlorophenol	32.2	10.0	ug/L	52.6	BLOD	61.2	11-75			
2,4-Dichlorophenol	37.7	10.0	ug/L	52.6	BLOD	71.6	11-75			
2,4-Dimethylphenol	30.2	2.63	ug/L	52.6	BLOD	57.5	11-65			
2,4-Dinitrophenol	61.2	50.0	ug/L	52.6	BLOD	116	11-110			M
2,4-Dinitrotoluene	41.0	10.0	ug/L	52.6	BLOD	78.0	17-95			
2,6-Dinitrotoluene	31.9	10.0	ug/L	52.6	BLOD	60.6	15-125			
2-Chloronaphthalene	28.8	10.0	ug/L	52.6	BLOD	54.7	27-89			
2-Chlorophenol	27.0	10.0	ug/L	52.6	BLOD	51.2	19-64			
2-Nitrophenol	32.3	10.0	ug/L	52.6	BLOD	61.4	11-75			
3,3'-Dichlorobenzidine	14.3	10.0	ug/L	52.6	BLOD	27.2	10-85			
4,6-Dinitro-2-methylphenol	59.3	50.0	ug/L	52.6	BLOD	113	40-130			
4-Bromophenyl phenyl ether	33.4	10.0	ug/L	52.6	BLOD	63.5	15-110			
4-Chlorophenyl phenyl ether	33.8	10.0	ug/L	52.6	BLOD	64.2	15-110			
4-Nitrophenol	27.7	50.0	ug/L	52.6	BLOD	52.7	12-70			

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Semivolatile Organic Compounds by GCMS - Quality Control

Enthalpy Analytical

Analyte	Result	LOQ	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Qual
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Batch BFE1145 - SW3580A-MS

Matrix Spike (BFE1145-MS1)

Source: 22E1478-02

Prepared: 05/31/2022 Analyzed: 06/01/2022

Acenaphthene	30.2	10.0	ug/L	52.6	BLOD	57.4	15-90			
Acenaphthylene	26.9	10.0	ug/L	52.6	BLOD	51.2	15-99			
Acetophenone	29.6	20.0	ug/L	52.6	BLOD	56.2	0-200			
alpha-Terpineol	21.4	2.50	ug/L	52.6	BLOD	40.7	0-200			
Anthracene	32.0	10.0	ug/L	52.6	BLOD	60.7	20-95			
Benzo (a) anthracene	34.1	5.26	ug/L	52.6	BLOD	64.7	25-95			
Benzo (a) pyrene	35.8	5.26	ug/L	52.6	BLOD	68.0	25-82			
Benzo (b) fluoranthene	42.0	10.0	ug/L	52.6	BLOD	79.8	25-75			M
Benzo (g,h,i) perylene	24.0	10.0	ug/L	52.6	BLOD	45.5	25-90			
Benzo (k) fluoranthene	39.2	10.0	ug/L	52.6	BLOD	74.4	25-95			
bis (2-Chloroethoxy) methane	31.1	10.0	ug/L	52.6	BLOD	59.1	25-85			
bis (2-Chloroethyl) ether	26.4	10.0	ug/L	52.6	BLOD	50.2	25-85			
2,2'-Oxybis (1-chloropropane)	28.2	10.0	ug/L	52.6	BLOD	53.6	25-87			
bis (2-Ethylhexyl) phthalate	32.7	5.00	ug/L	52.6	BLOD	62.2	30-125			
Butyl benzyl phthalate	33.4	10.0	ug/L	52.6	BLOD	63.5	30-115			
Carbazole	35.9	2.50	ug/L	52.6	BLOD	68.3	0-200			
Chrysene	30.3	10.0	ug/L	52.6	BLOD	57.7	20-90			
Dibenz (a,h) anthracene	32.2	10.0	ug/L	52.6	BLOD	61.2	27-125			
Diethyl phthalate	30.6	10.0	ug/L	52.6	BLOD	58.0	25-120			
Dimethyl phthalate	31.8	10.0	ug/L	52.6	BLOD	60.4	25-125			
Di-n-butyl phthalate	33.2	10.0	ug/L	52.6	BLOD	63.2	25-115			
Di-n-octyl phthalate	33.8	10.0	ug/L	52.6	BLOD	64.2	22-105			
Fluoranthene	37.6	10.0	ug/L	52.6	BLOD	71.5	25-96			
Fluorene	31.6	10.0	ug/L	52.6	BLOD	60.0	15-97			
Hexachlorobenzene	33.9	0.53	ug/L	52.6	BLOD	64.5	25-125			

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Batch BFE1145 - SW3580A-MS

Matrix Spike (BFE1145-MS1)

Source: 22E1478-02

Prepared: 05/31/2022 Analyzed: 06/01/2022

Hexachlorobutadiene	43.6	10.0	ug/L	52.6	BLOD	82.8	25-125			
Hexachlorocyclopentadiene	31.4	10.0	ug/L	52.6	BLOD	59.6	10-90			
Hexachloroethane	30.6	10.0	ug/L	52.6	BLOD	58.2	25-125			
Indeno (1,2,3-cd) pyrene	29.9	10.0	ug/L	52.6	BLOD	56.8	25-125			
Isophorone	23.4	10.0	ug/L	52.6	BLOD	44.4	10-110			
Naphthalene	30.0	0.10	ug/L	52.6	0.32	56.4	12-100			
Nitrobenzene	39.1	10.0	ug/L	52.6	BLOD	74.3	27-77			
n-Nitrosodimethylamine	18.2	10.0	ug/L	52.6	BLOD	34.7	10-85			
n-Nitrosodi-n-propylamine	29.0	10.0	ug/L	52.6	BLOD	55.1	12-97			
n-Nitrosodiphenylamine	25.8	10.0	ug/L	52.6	BLOD	48.9	12-97			
p-Chloro-m-cresol	41.1	10.0	ug/L	52.6	BLOD	78.1	10-91			
Pentachlorophenol	39.3	20.0	ug/L	52.6	BLOD	74.6	27-109			
Phenanthrene	36.8	10.0	ug/L	52.6	BLOD	70.0	35-115			
Phenol	13.3	10.0	ug/L	53.2	BLOD	25.0	10-70			
Pyrene	30.8	10.0	ug/L	52.6	BLOD	58.5	23-110			
Pyridine	29.8	10.0	ug/L	52.6	BLOD	56.6	0-200			
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<i>Surr: 2,4,6-Tribromophenol (Surr)</i>	75.7		ug/L	105		72.0	10-86			
<i>Surr: 2-Fluorobiphenyl (Surr)</i>	30.7		ug/L	52.6		58.3	9-87			
<i>Surr: 2-Fluorophenol (Surr)</i>	33.0		ug/L	105		31.3	10-52			
<i>Surr: Nitrobenzene-d5 (Surr)</i>	34.8		ug/L	52.6		66.1	10-98.5			
<i>Surr: Phenol-d5 (Surr)</i>	25.0		ug/L	105		23.8	5-33			
<i>Surr: p-Terphenyl-d14 (Surr)</i>	34.7		ug/L	52.6		65.9	27-133			

Matrix Spike Dup (BFE1145-MSD1)

Source: 22E1478-02

Prepared: 05/31/2022 Analyzed: 06/01/2022

1,2,4-Trichlorobenzene	31.9	10.0	ug/L	51.5	BLOD	61.8	22-65	4.51	20	
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Analyte	Result	LOQ	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Qual
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Batch BFE1145 - SW3580A-MS

Matrix Spike Dup (BFE1145-MSD1)	Source: 22E1478-02		Prepared: 05/31/2022 Analyzed: 06/01/2022							
1,2-Dichlorobenzene	21.7	10.0	ug/L	51.5	BLOD	42.2	22-60	11.1	20	
1,3-Dichlorobenzene	20.8	10.0	ug/L	51.5	BLOD	40.4	22-60	8.46	20	
1,4-Dichlorobenzene	21.8	10.0	ug/L	51.5	BLOD	42.3	13-60	8.58	20	
2,4,6-Trichlorophenol	31.3	10.0	ug/L	51.5	BLOD	60.7	11-75	2.94	20	
2,4-Dichlorophenol	36.0	10.0	ug/L	51.5	BLOD	69.9	11-75	4.58	20	
2,4-Dimethylphenol	27.7	2.58	ug/L	51.5	BLOD	53.6	11-65	8.94	20	
2,4-Dinitrophenol	57.0	50.0	ug/L	51.5	BLOD	111	11-110	7.09	20	M
2,4-Dinitrotoluene	37.8	10.0	ug/L	51.5	BLOD	73.3	17-95	8.32	20	
2,6-Dinitrotoluene	30.9	10.0	ug/L	51.5	BLOD	60.0	15-125	3.11	20	
2-Chloronaphthalene	27.4	10.0	ug/L	51.5	BLOD	53.1	27-89	5.11	20	
2-Chlorophenol	24.8	10.0	ug/L	51.5	BLOD	48.1	19-64	8.48	20	
2-Nitrophenol	30.8	10.0	ug/L	51.5	BLOD	59.7	11-75	4.87	20	
3,3'-Dichlorobenzidine	12.5	10.0	ug/L	51.5	BLOD	24.2	10-85	13.6	20	
4,6-Dinitro-2-methylphenol	54.3	50.0	ug/L	51.5	BLOD	105	40-130	8.74	20	
4-Bromophenyl phenyl ether	32.0	10.0	ug/L	51.5	BLOD	62.0	15-110	4.47	20	
4-Chlorophenyl phenyl ether	32.9	10.0	ug/L	51.5	BLOD	63.8	15-110	2.65	20	
4-Nitrophenol	24.0	50.0	ug/L	51.5	BLOD	46.6	12-70	14.3	20	
Acenaphthene	28.4	10.0	ug/L	51.5	BLOD	55.0	15-90	6.35	20	
Acenaphthylene	25.9	10.0	ug/L	51.5	BLOD	50.2	15-99	4.04	20	
Acetophenone	27.6	20.0	ug/L	51.5	BLOD	53.6	0-200	6.74	20	
alpha-Terpineol	20.6	2.50	ug/L	51.5	BLOD	40.0	0-200	3.72	20	
Anthracene	30.7	10.0	ug/L	51.5	BLOD	59.5	20-95	4.21	20	
Benzo (a) anthracene	30.5	5.15	ug/L	51.5	BLOD	59.2	25-95	10.9	20	
Benzo (a) pyrene	32.6	5.15	ug/L	51.5	BLOD	63.3	25-82	9.23	20	
Benzo (b) fluoranthene	37.0	10.0	ug/L	51.5	BLOD	71.7	25-75	12.8	20	

Certificate of Analysis

Client Name: SCS Engineers-Winchester
 Client Site I.D.: City of Bristol 1st Semi-Annual 2022
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Semivolatile Organic Compounds by GCMS - Quality Control

Enthalpy Analytical

Analyte	Result	LOQ	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Qual
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Batch BFE1145 - SW3580A-MS

Matrix Spike Dup (BFE1145-MSD1)	Source: 22E1478-02		Prepared: 05/31/2022 Analyzed: 06/01/2022							
Benzo (g,h,i) perylene	19.6	10.0	ug/L	51.5	BLOD	38.1	25-90	19.8	20	
Benzo (k) fluoranthene	36.3	10.0	ug/L	51.5	BLOD	70.5	25-95	7.49	20	
bis (2-Chloroethoxy) methane	29.9	10.0	ug/L	51.5	BLOD	57.9	25-85	4.05	20	
bis (2-Chloroethyl) ether	23.6	10.0	ug/L	51.5	BLOD	45.8	25-85	11.1	20	
2,2'-Oxybis (1-chloropropane)	24.8	10.0	ug/L	51.5	BLOD	48.0	25-87	13.1	20	
bis (2-Ethylhexyl) phthalate	28.8	5.00	ug/L	51.5	BLOD	55.9	30-125	12.7	20	
Butyl benzyl phthalate	28.5	10.0	ug/L	51.5	BLOD	55.3	30-115	15.9	20	
Carbazole	33.0	2.50	ug/L	51.5	BLOD	64.0	0-200	8.54	20	
Chrysene	27.0	10.0	ug/L	51.5	BLOD	52.3	20-90	11.8	20	
Dibenz (a,h) anthracene	27.6	10.0	ug/L	51.5	BLOD	53.6	27-125	15.4	20	
Diethyl phthalate	29.9	10.0	ug/L	51.5	BLOD	58.0	25-120	2.12	20	
Dimethyl phthalate	30.1	10.0	ug/L	51.5	BLOD	58.4	25-125	5.47	20	
Di-n-butyl phthalate	31.1	10.0	ug/L	51.5	BLOD	60.4	25-115	6.65	20	
Di-n-octyl phthalate	29.0	10.0	ug/L	51.5	BLOD	56.2	22-105	15.5	20	
Fluoranthene	36.1	10.0	ug/L	51.5	BLOD	70.0	25-96	4.16	20	
Fluorene	30.9	10.0	ug/L	51.5	BLOD	59.9	15-97	2.22	20	
Hexachlorobenzene	32.3	0.52	ug/L	51.5	BLOD	62.7	25-125	4.82	20	
Hexachlorobutadiene	41.8	10.0	ug/L	51.5	BLOD	81.0	25-125	4.22	20	
Hexachlorocyclopentadiene	30.6	10.0	ug/L	51.5	BLOD	59.3	10-90	2.57	20	
Hexachloroethane	28.6	10.0	ug/L	51.5	BLOD	55.5	25-125	6.82	20	
Indeno (1,2,3-cd) pyrene	25.2	10.0	ug/L	51.5	BLOD	48.9	25-125	17.0	20	
Isophorone	22.6	10.0	ug/L	51.5	BLOD	43.8	10-110	3.56	20	
Naphthalene	28.4	0.10	ug/L	51.5	0.32	54.5	12-100	5.37	20	
Nitrobenzene	36.4	10.0	ug/L	51.5	BLOD	70.6	27-77	7.19	20	
n-Nitrosodimethylamine	16.9	10.0	ug/L	51.5	BLOD	32.8	10-85	7.57	20	

Certificate of Analysis

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Semivolatile Organic Compounds by GCMS - Quality Control

Enthalpy Analytical

Analyte	Result	LOQ	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Qual
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Batch BFE1145 - SW3580A-MS

Matrix Spike Dup (BFE1145-MSD1)

Source: 22E1478-02

Prepared: 05/31/2022 Analyzed: 06/01/2022

n-Nitrosodi-n-propylamine	26.7	10.0	ug/L	51.5	BLOD	51.7	12-97	8.46	20	
n-Nitrosodiphenylamine	22.5	10.0	ug/L	51.5	BLOD	43.6	12-97	13.5	20	
p-Chloro-m-cresol	40.2	10.0	ug/L	51.5	BLOD	78.0	10-91	2.17	20	
Pentachlorophenol	35.7	20.0	ug/L	51.5	BLOD	69.3	27-109	9.40	20	
Phenanthrene	35.1	10.0	ug/L	51.5	BLOD	68.2	35-115	4.72	20	
Phenol	12.5	10.0	ug/L	52.1	BLOD	24.0	10-70	6.12	20	
Pyrene	26.4	10.0	ug/L	51.5	BLOD	51.3	23-110	15.3	20	
Pyridine	24.7	10.0	ug/L	51.5	BLOD	47.8	0-200	18.9	20	
<i>Surr: 2,4,6-Tribromophenol (Surr)</i>	71.7		ug/L	103		69.5	10-86			
<i>Surr: 2-Fluorobiphenyl (Surr)</i>	29.1		ug/L	51.5		56.5	9-87			
<i>Surr: 2-Fluorophenol (Surr)</i>	30.5		ug/L	103		29.6	10-52			
<i>Surr: Nitrobenzene-d5 (Surr)</i>	32.0		ug/L	51.5		62.1	10-98.5			
<i>Surr: Phenol-d5 (Surr)</i>	23.7		ug/L	103		23.0	5-33			
<i>Surr: p-Terphenyl-d14 (Surr)</i>	29.4		ug/L	51.5		57.1	27-133			

Batch BFF0013 - SW3580A-MS

Blank (BFF0013-BLK1)

Prepared & Analyzed: 06/01/2022

1,2,4,5-Tetrachlorobenzene	ND	10.0	ug/L							
1,3,5-Trinitrobenzene	ND	5.00	ug/L							
1,3-Dinitrobenzene	ND	2.50	ug/L							
1,4-Naphthoquinone	ND	10.0	ug/L							
1-Naphthylamine	ND	10.0	ug/L							
2,3,4,6-Tetrachlorophenol	ND	10.0	ug/L							
2,4,5-Trichlorophenol	ND	10.0	ug/L							
2,4,6-Trichlorophenol	ND	10.0	ug/L							

Certificate of Analysis

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Semivolatile Organic Compounds by GCMS - Quality Control

Enthalpy Analytical

Analyte	Result	LOQ	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Qual
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Batch BFF0013 - SW3580A-MS

Blank (BFF0013-BLK1)

Prepared & Analyzed: 06/01/2022

2,4-Dichlorophenol	ND	10.0	ug/L
2,4-Dimethylphenol	ND	5.00	ug/L
2,4-Dinitrophenol	ND	50.0	ug/L
2,4-Dinitrotoluene	ND	10.0	ug/L
2,6-Dichlorophenol	ND	10.0	ug/L
2,6-Dinitrotoluene	ND	10.0	ug/L
2-Acetylaminofluorene	ND	2.50	ug/L
2-Chloronaphthalene	ND	10.0	ug/L
2-Chlorophenol	ND	10.0	ug/L
2-Methylnaphthalene	ND	10.0	ug/L
2-Naphthylamine	ND	10.0	ug/L
2-Nitroaniline	ND	20.0	ug/L
2-Nitrophenol	ND	10.0	ug/L
3,3'-Dichlorobenzidine	ND	10.0	ug/L
3,3'-Dimethylbenzidine	ND	2.50	ug/L
3-Methylcholanthrene	ND	10.0	ug/L
3-Nitroaniline	ND	20.0	ug/L
4,6-Dinitro-2-methylphenol	ND	50.0	ug/L
4-Aminobiphenyl	ND	10.0	ug/L
4-Bromophenyl phenyl ether	ND	10.0	ug/L
4-Chloroaniline	ND	10.0	ug/L
4-Chlorophenyl phenyl ether	ND	10.0	ug/L
4-Nitroaniline	ND	20.0	ug/L
4-Nitrophenol	ND	50.0	ug/L
5-Nitro-o-toluidine	ND	10.0	ug/L

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Enthalpy Analytical

Analyte	Result	LOQ	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Qual
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Batch BFF0013 - SW3580A-MS

Blank (BFF0013-BLK1)

Prepared & Analyzed: 06/01/2022

7,12-Dimethylbenz (a) anthracene	ND	10.0	ug/L
Acenaphthene	ND	10.0	ug/L
Acenaphthylene	ND	10.0	ug/L
Acetophenone	ND	20.0	ug/L
Anthracene	ND	10.0	ug/L
Benzo (a) anthracene	ND	10.0	ug/L
Benzo (a) pyrene	ND	10.0	ug/L
Benzo (b) fluoranthene	ND	10.0	ug/L
Benzo (g,h,i) perylene	ND	10.0	ug/L
Benzo (k) fluoranthene	ND	10.0	ug/L
Benzyl alcohol	ND	20.0	ug/L
bis (2-Chloroethoxy) methane	ND	10.0	ug/L
bis (2-Chloroethyl) ether	ND	10.0	ug/L
2,2'-Oxybis (1-chloropropane)	ND	10.0	ug/L
bis (2-Ethylhexyl) phthalate	ND	5.00	ug/L
Butyl benzyl phthalate	ND	10.0	ug/L
Chlorobenzilate	ND	2.50	ug/L
Chrysene	ND	10.0	ug/L
Diallate	ND	2.50	ug/L
Dibenz (a,h) anthracene	ND	10.0	ug/L
Dibenzofuran	ND	5.00	ug/L
Diethyl phthalate	ND	10.0	ug/L
Dimethoate	ND	2.50	ug/L
Dimethyl phthalate	ND	10.0	ug/L
Di-n-butyl phthalate	ND	10.0	ug/L

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Semivolatile Organic Compounds by GCMS - Quality Control

Enthalpy Analytical

Analyte	Result	LOQ	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Qual
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Batch BFF0013 - SW3580A-MS

Blank (BFF0013-BLK1)

Prepared & Analyzed: 06/01/2022

Di-n-octyl phthalate	ND	10.0	ug/L							
Diphenylamine	ND	10.0	ug/L							
Disulfoton	ND	2.50	ug/L							
Ethyl methanesulfonate	ND	20.0	ug/L							
Ethyl parathion	ND	2.50	ug/L							
Famphur	ND	2.50	ug/L							
Fluoranthene	ND	10.0	ug/L							
Fluorene	ND	10.0	ug/L							
Hexachlorobenzene	ND	1.00	ug/L							
Hexachlorobutadiene	ND	10.0	ug/L							
Hexachlorocyclopentadiene	ND	10.0	ug/L							
Hexachloroethane	ND	10.0	ug/L							
Hexachloropropene	ND	2.50	ug/L							
Indeno (1,2,3-cd) pyrene	ND	10.0	ug/L							
Isodrin	ND	10.0	ug/L							
Isophorone	ND	10.0	ug/L							
Isosafrole	ND	10.0	ug/L							
Kepone	ND	10.0	ug/L							
m+p-Cresols	ND	10.0	ug/L							
Methapyrilene	ND	10.0	ug/L							
Methyl methanesulfonate	ND	10.0	ug/L							
Methyl parathion	ND	2.50	ug/L							
Naphthalene	0.26	0.10	ug/L							B
Nitrobenzene	ND	10.0	ug/L							
n-Nitrosodiethylamine	ND	2.50	ug/L							

Certificate of Analysis

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Semivolatile Organic Compounds by GCMS - Quality Control

Enthalpy Analytical

Analyte	Result	LOQ	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Qual
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Batch BFF0013 - SW3580A-MS

Blank (BFF0013-BLK1)

Prepared & Analyzed: 06/01/2022

n-Nitrosodimethylamine	ND	10.0	ug/L							
n-Nitrosodi-n-butylamine	ND	10.0	ug/L							
n-Nitrosodi-n-propylamine	ND	10.0	ug/L							
n-Nitrosodiphenylamine	ND	10.0	ug/L							
n-Nitrosomethylethylamine	ND	2.50	ug/L							
n-Nitrosopiperidine	ND	10.0	ug/L							
n-Nitrosopyrrolidine	ND	2.50	ug/L							
o,o,o-Triethyl phosphorothioate	ND	10.0	ug/L							
o,o-Diethyl o-2-pyrazinyl phosphorothioate	ND	10.0	ug/L							
o+m+p-Cresols	ND	10.0	ug/L							
o-Cresol	ND	10.0	ug/L							
o-Toluidine	ND	2.50	ug/L							
p-(Dimethylamino) azobenzene	ND	2.50	ug/L							
p-Chloro-m-cresol	ND	10.0	ug/L							
Pentachlorobenzene	ND	10.0	ug/L							
Pentachloronitrobenzene (quintozene)	ND	10.0	ug/L							
Phenacetin	ND	10.0	ug/L							
Phenanthrene	ND	10.0	ug/L							
Phenol	ND	10.0	ug/L							
Phorate	ND	2.50	ug/L							
p-Phenylenediamine	ND	10.0	ug/L							
Pronamide	ND	10.0	ug/L							
Pyrene	ND	10.0	ug/L							
Safrole	ND	2.50	ug/L							
<i>Surr: 2,4,6-Tribromophenol (Surr)</i>	55.4		ug/L	100		55.4	10-86			

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Enthalpy Analytical

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Batch BFF0013 - SW3580A-MS

Blank (BFF0013-BLK1)

Prepared & Analyzed: 06/01/2022

<i>Surr: 2-Fluorobiphenyl (Surr)</i>	33.8		ug/L	50.0		67.5	9-87		
<i>Surr: 2-Fluorophenol (Surr)</i>	45.2		ug/L	100		45.2	10-52		
<i>Surr: Nitrobenzene-d5 (Surr)</i>	34.4		ug/L	50.0		68.9	10-98.5		
<i>Surr: Phenol-d5 (Surr)</i>	31.6		ug/L	100		31.6	5-33		
<i>Surr: p-Terphenyl-d14 (Surr)</i>	40.5		ug/L	50.0		81.0	27-133		

LCS (BFF0013-BS1)

Prepared & Analyzed: 06/01/2022

1,2,4-Trichlorobenzene	17.2	10.0	ug/L	50.0		34.5	22-135		
1,2-Dichlorobenzene	12.3	10.0	ug/L	50.0		24.7	22-115		
1,3-Dichlorobenzene	10.7	10.0	ug/L	50.0		21.5	22-112		L
1,4-Dichlorobenzene	11.7	10.0	ug/L	50.0		23.3	13-112		
2,4,6-Trichlorophenol	26.0	10.0	ug/L	50.0		51.9	11-145		
2,4-Dichlorophenol	28.3	10.0	ug/L	50.0		56.7	11-75		
2,4-Dimethylphenol	23.8	5.00	ug/L	50.0		47.5	11-121		
2,4-Dinitrophenol	31.7	50.0	ug/L	50.0		63.4	11-165		
2,4-Dinitrotoluene	35.6	10.0	ug/L	50.0		71.1	17-155		
2,6-Dinitrotoluene	26.7	10.0	ug/L	50.0		53.4	15-125		
2-Chloronaphthalene	25.8	10.0	ug/L	50.0		51.5	27-89		
2-Chlorophenol	20.5	10.0	ug/L	50.0		41.1	15-110		
2-Nitrophenol	22.9	10.0	ug/L	50.0		45.8	11-115		
3,3'-Dichlorobenzidine	19.7	10.0	ug/L	50.0		39.4	25-95		
4,6-Dinitro-2-methylphenol	36.0	50.0	ug/L	50.0		72.1	25-130		
4-Bromophenyl phenyl ether	23.7	10.0	ug/L	50.0		47.4	15-110		
4-Chlorophenyl phenyl ether	25.2	10.0	ug/L	50.0		50.4	15-110		
4-Nitrophenol	13.7	50.0	ug/L	50.0		27.4	12-70		

Certificate of Analysis

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Batch BFF0013 - SW3580A-MS

LCS (BFF0013-BS1)

Prepared & Analyzed: 06/01/2022

Acenaphthene	27.2	10.0	ug/L	50.0		54.5	18-85			
Acenaphthylene	30.0	10.0	ug/L	50.0		60.1	20-75			
Acetophenone	20.9	20.0	ug/L	50.0		41.8	0-200			
alpha-Terpineol	19.8	2.50	ug/L	50.0		39.6	0-200			
Anthracene	33.3	10.0	ug/L	50.0		66.6	35-95			
Benzo (a) anthracene	40.2	10.0	ug/L	50.0		80.3	25-95			
Benzo (a) pyrene	46.3	10.0	ug/L	50.0		92.7	37-110			
Benzo (b) fluoranthene	49.3	10.0	ug/L	50.0		98.5	25-75			L
Benzo (g,h,i) perylene	16.2	10.0	ug/L	50.0		32.4	25-90			
Benzo (k) fluoranthene	42.8	10.0	ug/L	50.0		85.6	25-95			
bis (2-Chloroethoxy) methane	23.6	10.0	ug/L	50.0		47.1	25-110			
bis (2-Chloroethyl) ether	19.4	10.0	ug/L	50.0		38.8	25-85			
2,2'-Oxybis (1-chloropropane)	20.4	10.0	ug/L	50.0		40.9	25-95			
bis (2-Ethylhexyl) phthalate	46.0	5.00	ug/L	50.0		91.9	30-125			
Butyl benzyl phthalate	45.3	10.0	ug/L	50.0		90.6	30-115			
Carbazole	42.8	2.50	ug/L	50.0		85.5	0-200			
Chrysene	42.6	10.0	ug/L	50.0		85.2	20-90			
Dibenz (a,h) anthracene	21.5	10.0	ug/L	50.0		43.1	27-125			
Diethyl phthalate	32.9	10.0	ug/L	50.0		65.8	25-120			
Dimethyl phthalate	32.1	10.0	ug/L	50.0		64.3	25-125			
Di-n-butyl phthalate	44.7	10.0	ug/L	50.0		89.4	35-115			
Di-n-octyl phthalate	73.4	10.0	ug/L	50.0		147	25-105			L
Fluoranthene	42.7	10.0	ug/L	50.0		85.3	33-95			
Fluorene	30.3	10.0	ug/L	50.0		60.5	15-97			
Hexachlorobenzene	26.3	1.00	ug/L	50.0		52.6	25-125			

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Enthalpy Analytical

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Batch BFF0013 - SW3580A-MS

LCS (BFF0013-BS1)

Prepared & Analyzed: 06/01/2022

Hexachlorobutadiene	15.4	10.0	ug/L	50.0		30.8	25-125			
Hexachlorocyclopentadiene	10.3	10.0	ug/L	50.0		20.6	25-125			L
Hexachloroethane	9.46	10.0	ug/L	50.0		18.9	25-125			L
Indeno (1,2,3-cd) pyrene	21.8	10.0	ug/L	50.0		43.6	25-125			
Isophorone	16.4	10.0	ug/L	50.0		32.9	10-110			
Naphthalene	19.0	0.10	ug/L	50.0		38.0	12-100			
Nitrobenzene	21.8	10.0	ug/L	50.0		43.5	30-97			
n-Nitrosodimethylamine	11.6	10.0	ug/L	50.0		23.2	10-85			
n-Nitrosodi-n-propylamine	24.8	10.0	ug/L	50.0		49.6	12-97			
n-Nitrosodiphenylamine	23.0	10.0	ug/L	50.0		46.0	12-97			
p-Chloro-m-cresol	28.5	10.0	ug/L	50.0		57.0	10-91			
Pentachlorophenol	28.8	20.0	ug/L	50.0		57.6	30-109			
Phenanthrene	35.8	10.0	ug/L	50.0		71.7	30-88			
Phenol	9.42	10.0	ug/L	50.5		18.7	10-70			
Pyrene	44.5	10.0	ug/L	50.0		89.0	27-110			
Pyridine	18.9	10.0	ug/L	50.0		37.8	0-200			
<i>Surr: 2,4,6-Tribromophenol (Surr)</i>	55.7		ug/L	100		55.7	10-86			
<i>Surr: 2-Fluorobiphenyl (Surr)</i>	28.0		ug/L	50.0		56.0	9-87			
<i>Surr: 2-Fluorophenol (Surr)</i>	26.7		ug/L	100		26.7	10-52			
<i>Surr: Nitrobenzene-d5 (Surr)</i>	24.7		ug/L	50.0		49.4	10-98.5			
<i>Surr: Phenol-d5 (Surr)</i>	22.5		ug/L	100		22.5	5-33			
<i>Surr: p-Terphenyl-d14 (Surr)</i>	46.9		ug/L	50.0		93.8	27-133			

Matrix Spike (BFF0013-MS1)

Source: 22E1463-02

Prepared: 06/01/2022 Analyzed: 06/02/2022

1,2,4-Trichlorobenzene	20.1	10.0	ug/L	46.7	BLOD	43.0	22-65			
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Certificate of Analysis

Client Name: SCS Engineers-Winchester
 Client Site I.D.: City of Bristol 1st Semi-Annual 2022
 Submitted To: Jennifer Robb

Date Issued: 7/12/2022 2:30:28PM

Semivolatile Organic Compounds by GCMS - Quality Control

Enthalpy Analytical

Analyte	Result	LOQ	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Qual
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Batch BFF0013 - SW3580A-MS

Matrix Spike (BFF0013-MS1)

Source: 22E1463-02

Prepared: 06/01/2022 Analyzed: 06/02/2022

1,2-Dichlorobenzene	18.0	10.0	ug/L	46.7	BLOD	38.6	22-60			
1,3-Dichlorobenzene	16.8	10.0	ug/L	46.7	BLOD	36.0	22-60			
1,4-Dichlorobenzene	18.1	10.0	ug/L	46.7	BLOD	38.7	13-60			
2,4,6-Trichlorophenol	23.1	10.0	ug/L	46.7	BLOD	49.4	11-75			
2,4-Dichlorophenol	25.3	10.0	ug/L	46.7	BLOD	54.1	11-75			
2,4-Dimethylphenol	22.0	4.67	ug/L	46.7	BLOD	47.1	11-65			
2,4-Dinitrophenol	31.6	50.0	ug/L	46.7	BLOD	67.7	11-110			
2,4-Dinitrotoluene	35.6	10.0	ug/L	46.7	BLOD	76.3	17-95			
2,6-Dinitrotoluene	28.1	10.0	ug/L	46.7	BLOD	60.2	15-125			
2-Chloronaphthalene	25.3	10.0	ug/L	46.7	BLOD	54.1	27-89			
2-Chlorophenol	22.8	10.0	ug/L	46.7	BLOD	48.9	19-64			
2-Nitrophenol	23.1	10.0	ug/L	46.7	BLOD	49.4	11-75			
3,3'-Dichlorobenzidine	14.1	10.0	ug/L	46.7	BLOD	30.2	10-85			
4,6-Dinitro-2-methylphenol	32.2	50.0	ug/L	46.7	BLOD	69.0	40-130			
4-Bromophenyl phenyl ether	24.5	10.0	ug/L	46.7	BLOD	52.4	15-110			
4-Chlorophenyl phenyl ether	26.4	10.0	ug/L	46.7	BLOD	56.5	15-110			
4-Nitrophenol	11.8	50.0	ug/L	46.7	BLOD	25.3	12-70			
Acenaphthene	27.4	10.0	ug/L	46.7	BLOD	58.6	15-90			
Acenaphthylene	29.9	10.0	ug/L	46.7	BLOD	63.9	15-99			
Acetophenone	20.5	20.0	ug/L	46.7	BLOD	43.9	0-200			
alpha-Terpineol	16.7	2.50	ug/L	46.7	BLOD	35.8	0-200			
Anthracene	34.4	10.0	ug/L	46.7	BLOD	73.7	20-95			
Benzo (a) anthracene	36.4	9.35	ug/L	46.7	BLOD	77.9	25-95			
Benzo (a) pyrene	43.9	9.35	ug/L	46.7	BLOD	94.0	25-82			M
Benzo (b) fluoranthene	44.4	10.0	ug/L	46.7	BLOD	95.0	25-75			M

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Semivolatile Organic Compounds by GCMS - Quality Control

Enthalpy Analytical

Analyte	Result	LOQ	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Qual
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Batch BFF0013 - SW3580A-MS

Matrix Spike (BFF0013-MS1)	Source: 22E1463-02		Prepared: 06/01/2022 Analyzed: 06/02/2022							
Benzo (g,h,i) perylene	14.2	10.0	ug/L	46.7	BLOD	30.4	25-90			
Benzo (k) fluoranthene	47.9	10.0	ug/L	46.7	BLOD	102	25-95			M
bis (2-Chloroethoxy) methane	22.1	10.0	ug/L	46.7	BLOD	47.3	25-85			
bis (2-Chloroethyl) ether	22.1	10.0	ug/L	46.7	BLOD	47.3	25-85			
2,2'-Oxybis (1-chloropropane)	21.8	10.0	ug/L	46.7	BLOD	46.7	25-87			
bis (2-Ethylhexyl) phthalate	42.8	5.00	ug/L	46.7	BLOD	91.6	30-125			
Butyl benzyl phthalate	42.3	10.0	ug/L	46.7	BLOD	90.6	30-115			
Carbazole	38.9	2.50	ug/L	46.7	BLOD	83.1	0-200			
Chrysene	38.8	10.0	ug/L	46.7	BLOD	83.0	20-90			
Dibenz (a,h) anthracene	18.9	10.0	ug/L	46.7	BLOD	40.5	27-125			
Diethyl phthalate	33.6	10.0	ug/L	46.7	BLOD	71.9	25-120			
Dimethyl phthalate	33.3	10.0	ug/L	46.7	BLOD	71.3	25-125			
Di-n-butyl phthalate	40.6	10.0	ug/L	46.7	BLOD	87.0	25-115			
Di-n-octyl phthalate	84.0	10.0	ug/L	46.7	BLOD	180	22-105			M
Fluoranthene	38.7	10.0	ug/L	46.7	BLOD	82.9	25-96			
Fluorene	32.6	10.0	ug/L	46.7	BLOD	69.8	15-97			
Hexachlorobenzene	26.0	0.93	ug/L	46.7	BLOD	55.6	25-125			
Hexachlorobutadiene	19.2	10.0	ug/L	46.7	BLOD	41.0	25-125			
Hexachlorocyclopentadiene	8.53	10.0	ug/L	46.7	BLOD	18.3	10-90			
Hexachloroethane	16.5	10.0	ug/L	46.7	BLOD	35.4	25-125			
Indeno (1,2,3-cd) pyrene	19.1	10.0	ug/L	46.7	BLOD	40.9	25-125			
Isophorone	14.3	10.0	ug/L	46.7	BLOD	30.7	10-110			
Naphthalene	21.3	0.10	ug/L	46.7	0.20	45.1	12-100			
Nitrobenzene	22.5	10.0	ug/L	46.7	BLOD	48.1	27-77			
n-Nitrosodimethylamine	13.9	10.0	ug/L	46.7	BLOD	29.8	10-85			

Certificate of Analysis

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Semivolatile Organic Compounds by GCMS - Quality Control

Enthalpy Analytical

Analyte	Result	LOQ	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Qual
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Batch BFF0013 - SW3580A-MS

Matrix Spike (BFF0013-MS1)

Source: 22E1463-02

Prepared: 06/01/2022 Analyzed: 06/02/2022

n-Nitrosodi-n-propylamine	21.8	10.0	ug/L	46.7	BLOD	46.6	12-97			
n-Nitrosodiphenylamine	24.1	10.0	ug/L	46.7	BLOD	51.6	12-97			
p-Chloro-m-cresol	25.6	10.0	ug/L	46.7	BLOD	54.8	10-91			
Pentachlorophenol	25.4	20.0	ug/L	46.7	BLOD	54.4	27-109			
Phenanthrene	38.2	10.0	ug/L	46.7	BLOD	81.8	35-115			
Phenol	8.69	10.0	ug/L	47.2	BLOD	18.4	10-70			
Pyrene	43.1	10.0	ug/L	46.7	BLOD	92.2	23-110			
Pyridine	5.50	10.0	ug/L	46.7	BLOD	11.8	0-200			
<i>Surr: 2,4,6-Tribromophenol (Surr)</i>	55.4		ug/L	93.5		59.3	10-86			
<i>Surr: 2-Fluorobiphenyl (Surr)</i>	27.7		ug/L	46.7		59.3	9-87			
<i>Surr: 2-Fluorophenol (Surr)</i>	33.1		ug/L	93.5		35.4	10-52			
<i>Surr: Nitrobenzene-d5 (Surr)</i>	26.7		ug/L	46.7		57.1	10-98.5			
<i>Surr: Phenol-d5 (Surr)</i>	22.0		ug/L	93.5		23.5	5-33			
<i>Surr: p-Terphenyl-d14 (Surr)</i>	44.7		ug/L	46.7		95.6	27-133			

Matrix Spike Dup (BFF0013-MSD1)

Source: 22E1463-02

Prepared: 06/01/2022 Analyzed: 06/02/2022

1,2,4-Trichlorobenzene	28.4	10.0	ug/L	46.7	BLOD	60.7	22-65	34.2	20	P
1,2-Dichlorobenzene	27.2	10.0	ug/L	46.7	BLOD	58.2	22-60	40.5	20	P
1,3-Dichlorobenzene	25.6	10.0	ug/L	46.7	BLOD	54.8	22-60	41.4	20	P
1,4-Dichlorobenzene	27.3	10.0	ug/L	46.7	BLOD	58.4	13-60	40.6	20	P
2,4,6-Trichlorophenol	31.5	10.0	ug/L	46.7	BLOD	67.3	11-75	30.7	20	P
2,4-Dichlorophenol	36.4	10.0	ug/L	46.7	BLOD	77.9	11-75	36.1	20	M, P
2,4-Dimethylphenol	30.1	4.67	ug/L	46.7	BLOD	64.5	11-65	31.2	20	P
2,4-Dinitrophenol	51.7	50.0	ug/L	46.7	BLOD	111	11-110	48.2	20	M, P
2,4-Dinitrotoluene	47.6	10.0	ug/L	46.7	BLOD	102	17-95	28.8	20	M, P

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Semivolatile Organic Compounds by GCMS - Quality Control

Enthalpy Analytical

Analyte	Result	LOQ	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Qual
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Batch BFF0013 - SW3580A-MS

Matrix Spike Dup (BFF0013-MSD1)	Source: 22E1463-02		Prepared: 06/01/2022 Analyzed: 06/02/2022							
2,6-Dinitrotoluene	36.4	10.0	ug/L	46.7	BLOD	77.9	15-125	25.6	20	P
2-Chloronaphthalene	37.7	10.0	ug/L	46.7	BLOD	80.6	27-89	39.4	20	P
2-Chlorophenol	33.9	10.0	ug/L	46.7	BLOD	72.4	19-64	38.8	20	M, P
2-Nitrophenol	32.2	10.0	ug/L	46.7	BLOD	68.8	11-75	33.0	20	P
3,3'-Dichlorobenzidine	20.7	10.0	ug/L	46.7	BLOD	44.4	10-85	37.9	20	P
4,6-Dinitro-2-methylphenol	47.4	50.0	ug/L	46.7	BLOD	102	40-130	38.2	20	P
4-Bromophenyl phenyl ether	29.5	10.0	ug/L	46.7	BLOD	63.2	15-110	18.7	20	
4-Chlorophenyl phenyl ether	36.6	10.0	ug/L	46.7	BLOD	78.2	15-110	32.3	20	P
4-Nitrophenol	16.9	50.0	ug/L	46.7	BLOD	36.1	12-70	35.1	20	P
Acenaphthene	38.7	10.0	ug/L	46.7	BLOD	82.9	15-90	34.4	20	P
Acenaphthylene	43.8	10.0	ug/L	46.7	BLOD	93.8	15-99	37.8	20	P
Acetophenone	29.1	20.0	ug/L	46.7	BLOD	62.2	0-200	34.6	20	P
alpha-Terpineol	22.6	2.50	ug/L	46.7	BLOD	48.4	0-200	30.0	20	P
Anthracene	44.9	10.0	ug/L	46.7	BLOD	96.1	20-95	26.4	20	M, P
Benzo (a) anthracene	48.0	9.35	ug/L	46.7	BLOD	103	25-95	27.5	20	M, P
Benzo (a) pyrene	57.3	9.35	ug/L	46.7	BLOD	123	25-82	26.4	20	M, P
Benzo (b) fluoranthene	55.7	10.0	ug/L	46.7	BLOD	119	25-75	22.6	20	M, P
Benzo (g,h,i) perylene	20.7	10.0	ug/L	46.7	BLOD	44.2	25-90	37.2	20	P
Benzo (k) fluoranthene	71.2	10.0	ug/L	46.7	BLOD	152	25-95	39.3	20	M, P
bis (2-Chloroethoxy) methane	32.4	10.0	ug/L	46.7	BLOD	69.2	25-85	37.7	20	P
bis (2-Chloroethyl) ether	32.8	10.0	ug/L	46.7	BLOD	70.3	25-85	39.2	20	P
2,2'-Oxybis (1-chloropropane)	33.5	10.0	ug/L	46.7	BLOD	71.7	25-87	42.2	20	P
bis (2-Ethylhexyl) phthalate	51.1	5.00	ug/L	46.7	BLOD	109	30-125	17.7	20	
Butyl benzyl phthalate	51.7	10.0	ug/L	46.7	BLOD	111	30-115	19.9	20	
Carbazole	52.1	2.50	ug/L	46.7	BLOD	112	0-200	29.2	20	P

Certificate of Analysis

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Semivolatile Organic Compounds by GCMS - Quality Control

Enthalpy Analytical

Analyte	Result	LOQ	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Qual
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Batch BFF0013 - SW3580A-MS

Matrix Spike Dup (BFF0013-MSD1)	Source: 22E1463-02			Prepared: 06/01/2022 Analyzed: 06/02/2022						
Chrysene	51.6	10.0	ug/L	46.7	BLOD	110	20-90	28.4	20	M, P
Dibenz (a,h) anthracene	27.6	10.0	ug/L	46.7	BLOD	59.0	27-125	37.3	20	P
Diethyl phthalate	44.1	10.0	ug/L	46.7	BLOD	94.3	25-120	26.9	20	P
Dimethyl phthalate	45.5	10.0	ug/L	46.7	BLOD	97.3	25-125	30.9	20	P
Di-n-butyl phthalate	55.3	10.0	ug/L	46.7	BLOD	118	25-115	30.5	20	M, P
Di-n-octyl phthalate	69.6	10.0	ug/L	46.7	BLOD	149	22-105	18.8	20	M
Fluoranthene	52.7	10.0	ug/L	46.7	BLOD	113	25-96	30.6	20	M, P
Fluorene	44.8	10.0	ug/L	46.7	BLOD	95.9	15-97	31.5	20	P
Hexachlorobenzene	32.1	0.93	ug/L	46.7	BLOD	68.7	25-125	21.2	20	P
Hexachlorobutadiene	27.3	10.0	ug/L	46.7	BLOD	58.4	25-125	35.0	20	P
Hexachlorocyclopentadiene	14.2	10.0	ug/L	46.7	BLOD	30.5	10-90	50.1	20	P
Hexachloroethane	26.0	10.0	ug/L	46.7	BLOD	55.5	25-125	44.4	20	P
Indeno (1,2,3-cd) pyrene	28.0	10.0	ug/L	46.7	BLOD	59.9	25-125	37.7	20	P
Isophorone	22.1	10.0	ug/L	46.7	BLOD	47.3	10-110	42.7	20	P
Naphthalene	31.0	0.10	ug/L	46.7	0.20	66.0	12-100	37.4	20	P
Nitrobenzene	34.1	10.0	ug/L	46.7	BLOD	73.1	27-77	41.3	20	P
n-Nitrosodimethylamine	18.5	10.0	ug/L	46.7	BLOD	39.6	10-85	28.1	20	P
n-Nitrosodi-n-propylamine	31.0	10.0	ug/L	46.7	BLOD	66.4	12-97	35.0	20	P
n-Nitrosodiphenylamine	30.0	10.0	ug/L	46.7	BLOD	64.3	12-97	21.9	20	P
p-Chloro-m-cresol	35.9	10.0	ug/L	46.7	BLOD	76.9	10-91	33.6	20	P
Pentachlorophenol	36.1	20.0	ug/L	46.7	BLOD	77.3	27-109	34.8	20	P
Phenanthrene	50.0	10.0	ug/L	46.7	BLOD	107	35-115	26.7	20	P
Phenol	14.5	10.0	ug/L	47.2	BLOD	30.6	10-70	49.8	20	P
Pyrene	51.4	10.0	ug/L	46.7	BLOD	110	23-110	17.5	20	
Pyridine	27.2	10.0	ug/L	46.7	BLOD	58.2	0-200	133	20	P

Certificate of Analysis

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Semivolatile Organic Compounds by GCMS - Quality Control

Enthalpy Analytical

Analyte	Result	LOQ	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Qual
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Batch BFF0013 - SW3580A-MS

Matrix Spike Dup (BFF0013-MSD1) **Source: 22E1463-02** Prepared: 06/01/2022 Analyzed: 06/02/2022

<i>Surr: 2,4,6-Tribromophenol (Surr)</i>	67.0		ug/L	93.5		71.7	10-86			
<i>Surr: 2-Fluorobiphenyl (Surr)</i>	38.8		ug/L	46.7		82.9	9-87			
<i>Surr: 2-Fluorophenol (Surr)</i>	45.7		ug/L	93.5		48.9	10-52			
<i>Surr: Nitrobenzene-d5 (Surr)</i>	36.8		ug/L	46.7		78.8	10-98.5			
<i>Surr: Phenol-d5 (Surr)</i>	31.7		ug/L	93.5		33.9	5-33			S
<i>Surr: p-Terphenyl-d14 (Surr)</i>	51.6		ug/L	46.7		110	27-133			

Certificate of Analysis

Client Name: SCS Engineers-Winchester
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Organochlorine Pesticides and PCBs by GC/ECD - Quality Control

Enthalpy Analytical

Analyte	Result	LOQ	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Qual
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Batch BFE1147 - SW3510C/EPA600-ECD

Blank (BFE1147-BLK1)

Prepared: 05/31/2022 Analyzed: 06/01/2022

PCB as Aroclor 1016	ND	0.200	ug/L
4,4'-DDD	ND	0.050	ug/L
PCB as Aroclor 1221	ND	0.200	ug/L
PCB as Aroclor 1232	ND	0.200	ug/L
4,4'-DDE	ND	0.050	ug/L
PCB as Aroclor 1242	ND	0.200	ug/L
PCB as Aroclor 1248	ND	0.200	ug/L
4,4'-DDT	ND	0.050	ug/L
PCB as Aroclor 1254	ND	0.200	ug/L
PCB as Aroclor 1260	ND	0.200	ug/L
Aldrin	ND	0.050	ug/L
alpha-BHC	ND	0.050	ug/L
alpha-Chlordane	ND	0.050	ug/L
beta-BHC	ND	0.050	ug/L
Chlordane	ND	0.200	ug/L
delta-BHC	ND	0.050	ug/L
Dieldrin	ND	0.050	ug/L
Endosulfan I	ND	0.050	ug/L
Endosulfan II	ND	0.050	ug/L
Endosulfan sulfate	ND	0.050	ug/L
Endrin	ND	0.050	ug/L
Endrin aldehyde	ND	0.050	ug/L
Endrin ketone	ND	0.050	ug/L
gamma-BHC (Lindane)	ND	0.050	ug/L
gamma-Chlordane	ND	0.050	ug/L

Certificate of Analysis

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Organochlorine Pesticides and PCBs by GC/ECD - Quality Control

Enthalpy Analytical

Analyte	Result	LOQ	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Qual
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Batch BFE1147 - SW3510C/EPA600-ECD

Blank (BFE1147-BLK1)

Prepared: 05/31/2022 Analyzed: 06/01/2022

Heptachlor	ND	0.050	ug/L							
Heptachlor epoxide	ND	0.050	ug/L							
Methoxychlor	ND	0.050	ug/L							
Toxaphene	ND	1.00	ug/L							
<i>Surr: DCB</i>	<i>0.158</i>		ug/L	<i>0.200</i>		<i>79.2</i>	<i>30-105</i>			
<i>Surr: TCMX</i>	<i>0.126</i>		ug/L	<i>0.200</i>		<i>63.2</i>	<i>30-105</i>			
<i>Surr: TCMX</i>	<i>0.117</i>		ug/L	<i>0.200</i>		<i>58.5</i>	<i>18-112</i>			
<i>Surr: DCB</i>	<i>0.154</i>		ug/L	<i>0.200</i>		<i>76.9</i>	<i>27-131</i>			

LCS (BFE1147-BS1)

Prepared: 05/31/2022 Analyzed: 06/01/2022

4,4'-DDD	0.108	0.050	ug/L	0.100		108	23-134			
4,4'-DDE	0.096	0.050	ug/L	0.100		96.5	23-134			
4,4'-DDT	0.101	0.050	ug/L	0.100		101	23-134			
Aldrin	0.061	0.050	ug/L	0.100		61.4	23-134			
alpha-BHC	0.070	0.050	ug/L	0.100		69.8	23-134			
beta-BHC	0.068	0.050	ug/L	0.100		68.2	23-134			
delta-BHC	0.080	0.050	ug/L	0.100		79.9	23-134			
Dieldrin	0.091	0.050	ug/L	0.100		90.7	23-134			
Endosulfan I	0.085	0.050	ug/L	0.100		85.0	23-134			
Endosulfan II	0.097	0.050	ug/L	0.100		96.9	23-134			
Endosulfan sulfate	0.103	0.050	ug/L	0.100		103	23-134			
Endrin	0.100	0.050	ug/L	0.100		100	23-134			
Endrin aldehyde	0.107	0.050	ug/L	0.100		107	23-134			
gamma-BHC (Lindane)	0.069	0.050	ug/L	0.100		69.5	23-134			
Heptachlor	0.071	0.050	ug/L	0.100		71.3	23-134			

Certificate of Analysis

 Client Name: SCS Engineers-Winchester
 Client Site I.D.: City of Bristol 1st Semi-Annual 2022
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Organochlorine Pesticides and PCBs by GC/ECD - Quality Control

Enthalpy Analytical

Analyte	Result	LOQ	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Qual
Batch BFE1147 - SW3510C/EPA600-ECD										
LCS (BFE1147-BS1)										
				Prepared: 05/31/2022 Analyzed: 06/01/2022						
Heptachlor epoxide	0.090	0.050	ug/L	0.100		90.4	23-134			
Methoxychlor	0.111	0.050	ug/L	0.100		111	23-134			
Mirex	0.104	0.050	ug/L	0.100		104	23-134			
<i>Surr: TCMX</i>	<i>0.0998</i>		ug/L	<i>0.200</i>		<i>49.9</i>	<i>18-112</i>			
<i>Surr: DCB</i>	<i>0.222</i>		ug/L	<i>0.200</i>		<i>111</i>	<i>27-131</i>			
LCS (BFE1147-BS2)										
				Prepared: 05/31/2022 Analyzed: 06/01/2022						
PCB as Aroclor 1016	0.831	0.200	ug/L	1.00		83.1	70-130			
PCB as Aroclor 1260	0.780	0.200	ug/L	1.00		78.0	70-130			
<i>Surr: DCB</i>	<i>0.170</i>		ug/L	<i>0.200</i>		<i>84.9</i>	<i>30-105</i>			
<i>Surr: TCMX</i>	<i>0.123</i>		ug/L	<i>0.200</i>		<i>61.3</i>	<i>30-105</i>			
LCS (BFE1147-BS3)										
				Prepared: 05/31/2022 Analyzed: 06/01/2022						
Toxaphene	1.94	1.00	ug/L	2.50		77.5	23-134			
<i>Surr: TCMX</i>	<i>0.136</i>		ug/L	<i>0.200</i>		<i>68.2</i>	<i>18-112</i>			
<i>Surr: DCB</i>	<i>0.174</i>		ug/L	<i>0.200</i>		<i>86.9</i>	<i>27-131</i>			
LCS (BFE1147-BS4)										
				Prepared: 05/31/2022 Analyzed: 06/01/2022						
Chlordane	1.80	0.200	ug/L	2.50		71.9	23-134			
<i>Surr: TCMX</i>	<i>0.136</i>		ug/L	<i>0.200</i>		<i>68.2</i>	<i>18-112</i>			
<i>Surr: DCB</i>	<i>0.152</i>		ug/L	<i>0.200</i>		<i>76.2</i>	<i>27-131</i>			
Matrix Spike (BFE1147-MS1)										
		Source: 22E1463-02		Prepared & Analyzed: 06/01/2022						
4,4'-DDD	0.125	0.050	ug/L	0.0935	BLOD	133	23-134			
4,4'-DDE	0.116	0.050	ug/L	0.0935	BLOD	124	23-134			
4,4'-DDT	0.119	0.050	ug/L	0.0935	BLOD	127	23-134			

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Organochlorine Pesticides and PCBs by GC/ECD - Quality Control

Enthalpy Analytical

Analyte	Result	LOQ	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Qual
Batch BFE1147 - SW3510C/EPA600-ECD										
Matrix Spike (BFE1147-MS1)		Source: 22E1463-02			Prepared & Analyzed: 06/01/2022					
Aldrin	0.083	0.050	ug/L	0.0935	BLOD	89.3	23-134			
alpha-BHC	0.095	0.050	ug/L	0.0935	BLOD	102	23-134			
beta-BHC	0.085	0.050	ug/L	0.0935	BLOD	91.3	23-134			
delta-BHC	0.116	0.050	ug/L	0.0935	BLOD	125	23-134			
Dieldrin	0.110	0.050	ug/L	0.0935	BLOD	118	23-134			
Endosulfan I	0.101	0.050	ug/L	0.0935	BLOD	108	23-134			
Endosulfan II	0.118	0.050	ug/L	0.0935	BLOD	126	23-134			
Endosulfan sulfate	0.121	0.050	ug/L	0.0935	BLOD	129	23-134			
Endrin	0.120	0.050	ug/L	0.0935	BLOD	129	23-134			
Endrin aldehyde	0.117	0.050	ug/L	0.0935	BLOD	126	23-134			
gamma-BHC (Lindane)	0.094	0.050	ug/L	0.0935	BLOD	101	23-134			
Heptachlor	0.097	0.050	ug/L	0.0935	BLOD	104	23-134			
Heptachlor epoxide	0.111	0.050	ug/L	0.0935	BLOD	118	23-134			
Methoxychlor	0.125	0.050	ug/L	0.0935	BLOD	134	23-134			
Mirex	0.078	0.050	ug/L	0.0935	BLOD	83.5	23-134			
<i>Surr: TCMX</i>	<i>0.0951</i>		ug/L	<i>0.187</i>		<i>50.9</i>	<i>18-112</i>			
<i>Surr: DCB</i>	<i>0.125</i>		ug/L	<i>0.187</i>		<i>67.0</i>	<i>27-131</i>			
Matrix Spike (BFE1147-MS2)		Source: 22E1463-02			Prepared & Analyzed: 06/01/2022					
PCB as Aroclor 1016	1.27	0.200	ug/L	0.935	BLOD	135	70-130			M
PCB as Aroclor 1260	0.990	0.200	ug/L	0.935	BLOD	106	70-130			
<i>Surr: DCB</i>	<i>0.202</i>		ug/L	<i>0.187</i>		<i>108</i>	<i>30-105</i>			S
<i>Surr: TCMX</i>	<i>0.102</i>		ug/L	<i>0.187</i>		<i>54.6</i>	<i>30-105</i>			
Matrix Spike Dup (BFE1147-MSD1)		Source: 22E1463-02			Prepared & Analyzed: 06/01/2022					
4,4'-DDD	0.140	0.050	ug/L	0.0935	BLOD	150	23-134	11.5	20	M

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Organochlorine Pesticides and PCBs by GC/ECD - Quality Control

Enthalpy Analytical

Analyte	Result	LOQ	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Qual
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Batch BFE1147 - SW3510C/EPA600-ECD

Matrix Spike Dup (BFE1147-MSD1)		Source: 22E1463-02			Prepared & Analyzed: 06/01/2022					
4,4'-DDE	0.125	0.050	ug/L	0.0935	BLOD	134	23-134	7.64	20	M
4,4'-DDT	0.137	0.050	ug/L	0.0935	BLOD	147	23-134	14.3	20	M
Aldrin	0.094	0.050	ug/L	0.0935	BLOD	101	23-134	12.2	20	
alpha-BHC	0.104	0.050	ug/L	0.0935	BLOD	111	23-134	8.82	20	
beta-BHC	0.102	0.050	ug/L	0.0935	BLOD	109	23-134	17.7	20	
delta-BHC	0.116	0.050	ug/L	0.0935	BLOD	125	23-134	0.0401	20	
Dieldrin	0.119	0.050	ug/L	0.0935	BLOD	127	23-134	7.17	20	
Endosulfan I	0.110	0.050	ug/L	0.0935	BLOD	117	23-134	8.63	20	
Endosulfan II	0.132	0.050	ug/L	0.0935	BLOD	142	23-134	11.8	20	M
Endosulfan sulfate	0.139	0.050	ug/L	0.0935	BLOD	148	23-134	13.7	20	M
Endrin	0.129	0.050	ug/L	0.0935	BLOD	138	23-134	6.84	20	M
Endrin aldehyde	0.130	0.050	ug/L	0.0935	BLOD	139	23-134	10.0	20	M
gamma-BHC (Lindane)	0.103	0.050	ug/L	0.0935	BLOD	110	23-134	8.44	20	
Heptachlor	0.097	0.050	ug/L	0.0935	BLOD	104	23-134	0.154	20	
Heptachlor epoxide	0.108	0.050	ug/L	0.0935	BLOD	115	23-134	2.53	20	
Methoxychlor	0.145	0.050	ug/L	0.0935	BLOD	155	23-134	14.7	20	M
Mirex	0.094	0.050	ug/L	0.0935	BLOD	101	23-134	18.6	20	
<i>Surr: TCMX</i>	<i>0.102</i>		ug/L	<i>0.187</i>		<i>54.7</i>	<i>18-112</i>			
<i>Surr: DCB</i>	<i>0.140</i>		ug/L	<i>0.187</i>		<i>74.7</i>	<i>27-131</i>			
Matrix Spike Dup (BFE1147-MSD2)		Source: 22E1463-02			Prepared & Analyzed: 06/01/2022					
PCB as Aroclor 1016	0.839	0.200	ug/L	0.935	BLOD	89.8	70-130	40.5	20	P
PCB as Aroclor 1260	0.760	0.200	ug/L	0.935	BLOD	81.3	70-130	26.3	20	P
<i>Surr: DCB</i>	<i>0.163</i>		ug/L	<i>0.187</i>		<i>87.0</i>	<i>30-105</i>			
<i>Surr: TCMX</i>	<i>0.130</i>		ug/L	<i>0.187</i>		<i>69.6</i>	<i>30-105</i>			

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Organochlorine Herbicides by GC/ECD - Quality Control

Enthalpy Analytical

Analyte	Result	LOQ	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Qual
Batch BFE1204 - SW8151A/EPA600										
Blank (BFE1204-BLK1)										
				Prepared: 05/31/2022 Analyzed: 06/09/2022						
2,4,5-T	ND	0.500	ug/L							
2,4,5-TP (Silvex)	ND	0.500	ug/L							
2,4-D	ND	0.500	ug/L							
Dinoseb	ND	0.500	ug/L							
Pentachlorophenol	ND	0.500	ug/L							
<i>Surr: DCAA (Surr)</i>	<i>1.01</i>		ug/L	<i>1.11</i>		<i>90.5</i>	<i>48.5-134</i>			
LCS (BFE1204-BS1)										
				Prepared: 05/31/2022 Analyzed: 06/09/2022						
2,4,5-T	0.548	0.500	ug/L	0.556		98.7	62-145			
2,4,5-TP (Silvex)	0.601	0.500	ug/L	0.556		108	62-132			
2,4-D	0.652	0.500	ug/L	0.556		117	74-139			
Dinoseb	0.467	0.500	ug/L	0.556		84.0	59-136			
Pentachlorophenol	0.523	0.500	ug/L	0.556		94.1	62-118			
<i>Surr: DCAA (Surr)</i>	<i>1.00</i>		ug/L	<i>1.11</i>		<i>90.4</i>	<i>70-130</i>			
Matrix Spike (BFE1204-MS1)										
		Source: 22E1463-02		Prepared: 06/01/2022 Analyzed: 06/09/2022						
2,4,5-T	0.530	0.500	ug/L	0.556	BLOD	95.3	53-144			
2,4,5-TP (Silvex)	0.576	0.500	ug/L	0.556	BLOD	104	52-129			
2,4-D	0.502	0.500	ug/L	0.556	BLOD	90.3	53-126			
Dinoseb	0.446	0.500	ug/L	0.556	BLOD	80.3	60-137			
Pentachlorophenol	0.602	0.500	ug/L	0.556	BLOD	108	52-124			
<i>Surr: DCAA (Surr)</i>	<i>1.08</i>		ug/L	<i>1.11</i>		<i>97.5</i>	<i>70-130</i>			
Matrix Spike Dup (BFE1204-MSD1)										
		Source: 22E1463-02		Prepared: 06/01/2022 Analyzed: 06/09/2022						
2,4,5-T	0.511	0.500	ug/L	0.556	BLOD	91.9	53-144	3.63	20	
2,4,5-TP (Silvex)	0.528	0.500	ug/L	0.556	BLOD	94.9	52-129	8.76	20	

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Organochlorine Herbicides by GC/ECD - Quality Control

Enthalpy Analytical

Analyte	Result	LOQ	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Qual
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Batch BFE1204 - SW8151A/EPA600

Matrix Spike Dup (BFE1204-MSD1)	Source: 22E1463-02		Prepared: 06/01/2022 Analyzed: 06/09/2022							
2,4-D	0.411	0.500	ug/L	0.556	BLOD	74.0	53-126	19.8	20	
Dinoseb	0.423	0.500	ug/L	0.556	BLOD	76.2	60-137	5.20	20	
Pentachlorophenol	0.521	0.500	ug/L	0.556	BLOD	93.7	52-124	14.4	20	
<i>Surr: DCAA (Surr)</i>	<i>1.06</i>		ug/L	<i>1.11</i>		<i>95.7</i>	<i>70-130</i>			

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Micro-extractables by GC/ECD - Quality Control

Enthalpy Analytical

Analyte	Result	LOQ	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Qual
Batch BFF0016 - SW8011										
Blank (BFF0016-BLK1)				Prepared: 06/01/2022 Analyzed: 06/02/2022						
1,2-Dibromoethane (EDB)	ND	0.010	ug/L							
1,2,3-Trichloropropane	ND	0.010	ug/L							
1,2-Dibromo-3-chloropropane (DBCP)	ND	0.010	ug/L							
LCS (BFF0016-BS1)				Prepared: 06/01/2022 Analyzed: 06/02/2022						
1,2-Dibromoethane (EDB)	0.300	0.010	ug/L	0.250		120	65-135			
1,2,3-Trichloropropane	0.265	0.010	ug/L	0.250		106	65-135			
1,2-Dibromo-3-chloropropane (DBCP)	0.318	0.010	ug/L	0.250		127	65-135			
Matrix Spike (BFF0016-MS1)				Source: 22E1280-03		Prepared: 06/01/2022 Analyzed: 06/02/2022				
1,2-Dibromoethane (EDB)	0.312	0.010	ug/L	0.250	BLOD	125	65-135			
1,2,3-Trichloropropane	0.271	0.010	ug/L	0.250	BLOD	108	65-135			
1,2-Dibromo-3-chloropropane (DBCP)	0.319	0.010	ug/L	0.250	BLOD	127	65-135			
Matrix Spike Dup (BFF0016-MSD1)				Source: 22E1280-03		Prepared: 06/01/2022 Analyzed: 06/02/2022				
1,2-Dibromoethane (EDB)	0.303	0.010	ug/L	0.250	BLOD	121	65-135	2.75	20	
1,2,3-Trichloropropane	0.253	0.010	ug/L	0.250	BLOD	101	65-135	6.97	20	
1,2-Dibromo-3-chloropropane (DBCP)	0.316	0.010	ug/L	0.250	BLOD	126	65-135	0.870	20	

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Head Space Analysis by GC - Quality Control

Enthalpy Analytical

Analyte	Result	LOQ	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Qual
Batch BFF0087 - No Prep VOC										
Blank (BFF0087-BLK1)										
				Prepared & Analyzed: 06/02/2022						
Ethane	ND	5.00	ug/L							
Ethene	ND	5.00	ug/L							
Methane	ND	5.00	ug/L							
<i>Surr: Acetylene (Surr)</i>	449		ug/L	432		104	70-130			
LCS (BFF0087-BS1)										
				Prepared & Analyzed: 06/02/2022						
Ethane	540	5.00	ug/L	500		108	70-130			
Ethene	488	5.00	ug/L	464		105	70-130			
Methane	276	5.00	ug/L	266		104	70-130			
<i>Surr: Acetylene (Surr)</i>	496		ug/L	432		115	70-130			
Duplicate (BFF0087-DUP1)										
				Source: 22E1463-02			Prepared & Analyzed: 06/02/2022			
Ethane	ND	5.00	ug/L		BLOD			NA	20	
Ethene	ND	5.00	ug/L		BLOD			NA	20	
Methane	379	5.00	ug/L		378			0.346	20	
<i>Surr: Acetylene (Surr)</i>	510		ug/L	432		118	70-130			
Matrix Spike (BFF0087-MS1)										
				Source: 22E1463-02			Prepared & Analyzed: 06/02/2022			
Ethane	612	5.00	ug/L	500	BLOD	122	70-130			
Ethene	544	5.00	ug/L	464	BLOD	117	70-130			
Methane	547	5.00	ug/L	266	378	63.7	70-130			M
<i>Surr: Acetylene (Surr)</i>	489		ug/L	432		113	70-130			
Matrix Spike Dup (BFF0087-MSD1)										
				Source: 22E1463-02			Prepared & Analyzed: 06/02/2022			
Ethane	716	5.00	ug/L	500	BLOD	143	70-130	15.7	20	M
Ethene	635	5.00	ug/L	464	BLOD	137	70-130	15.4	20	M

Certificate of Analysis

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Head Space Analysis by GC - Quality Control

Enthalpy Analytical

Analyte	Result	LOQ	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Qual
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Batch BFF0087 - No Prep VOC

Matrix Spike Dup (BFF0087-MSD1)	Source: 22E1463-02		Prepared & Analyzed: 06/02/2022							
Methane	597	5.00	ug/L	266	378	82.5	70-130	8.74	20	
<i>Surr: Acetylene (Surr)</i>	591		ug/L	432		137	70-130			S

Certificate of Analysis

Client Name: SCS Engineers-Winchester
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Wet Chemistry Analysis - Quality Control

Enthalpy Analytical

Analyte	Result	LOQ	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Qual
Batch BFE1123 - No Prep IC										
Blank (BFE1123-BLK1)				Prepared & Analyzed: 05/27/2022						
Chloride	ND	1.0	mg/L							
LCS (BFE1123-BS1)				Prepared & Analyzed: 05/27/2022						
Chloride	18.6	1	mg/L	20.0		92.8	90-110			
LCS Dup (BFE1123-BSD1)				Prepared & Analyzed: 05/27/2022						
Chloride	18.8	1	mg/L	20.0		93.8	90-110	1.06	15	
Matrix Spike (BFE1123-MS1)				Source: 22E1388-01 Prepared & Analyzed: 05/27/2022						
Chloride	33.3	1.0	mg/L	11.1	21.7	104	90-110			
Matrix Spike (BFE1123-MS2)				Source: 22E1388-05 Prepared & Analyzed: 05/28/2022						
Chloride	14.1	1.0	mg/L	11.1	4.0	90.9	90-110			
Matrix Spike Dup (BFE1123-MSD1)				Source: 22E1388-01 Prepared & Analyzed: 05/27/2022						
Chloride	32.0	1.0	mg/L	11.1	21.7	92.5	90-110	4.03	15	
Matrix Spike Dup (BFE1123-MSD2)				Source: 22E1388-05 Prepared & Analyzed: 05/28/2022						
Chloride	15.1	1.0	mg/L	11.1	4.0	100	90-110	6.89	15	
Batch BFE1151 - No Prep Wet Chem										
Blank (BFE1151-BLK1)				Prepared & Analyzed: 05/27/2022						
Sulfide	ND	1.00	mg/L							
LCS (BFE1151-BS1)				Prepared & Analyzed: 05/27/2022						
Sulfide	4.89	1	mg/L	5.00		97.8	80-120			

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Wet Chemistry Analysis - Quality Control
 Enthalpy Analytical

Analyte	Result	LOQ	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Qual
Batch BFE1151 - No Prep Wet Chem										
Matrix Spike (BFE1151-MS1)		Source: 22E1249-01			Prepared & Analyzed: 05/27/2022					
Sulfide	5.21	1.00	mg/L	5.00	BLOD	104	75-125			
Matrix Spike Dup (BFE1151-MSD1)		Source: 22E1249-01			Prepared & Analyzed: 05/27/2022					
Sulfide	5.29	1.00	mg/L	5.00	BLOD	106	75-125	1.52	20	
Batch BFF0256 - No Prep Wet Chem										
LCS (BFF0256-BS1)		Prepared & Analyzed: 06/06/2022								
Cyanide	0.27	0.01	mg/L	0.250		109	80-120			
Matrix Spike (BFF0256-MS1)		Source: 22E1249-12			Prepared & Analyzed: 06/06/2022					
Cyanide	0.25	0.01	mg/L	0.250	BLOD	98.4	80-120			
Matrix Spike (BFF0256-MS2)		Source: 22E1463-02			Prepared & Analyzed: 06/06/2022					
Cyanide	0.23	0.01	mg/L	0.250	BLOD	90.0	80-120			
Matrix Spike Dup (BFF0256-MSD1)		Source: 22E1249-12			Prepared & Analyzed: 06/06/2022					
Cyanide	0.25	0.01	mg/L	0.250	BLOD	101	80-120	2.93	20	
Matrix Spike Dup (BFF0256-MSD2)		Source: 22E1463-02			Prepared & Analyzed: 06/06/2022					
Cyanide	0.23	0.01	mg/L	0.250	BLOD	92.4	80-120	2.54	20	
Batch BFF0313 - No Prep Wet Chem										
Blank (BFF0313-BLK1)		Prepared & Analyzed: 06/07/2022								
Alkalinity	ND	5.0	mg/L							

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Wet Chemistry Analysis - Quality Control
 Enthalpy Analytical

Analyte	Result	LOQ	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Qual
Batch BFF0313 - No Prep Wet Chem										
LCS (BFF0313-BS1)				Prepared & Analyzed: 06/07/2022						
Alkalinity	51.0	5.0	mg/L	50.0		102	80-120			
Duplicate (BFF0313-DUP1)				Source: 22E1303-03 Prepared & Analyzed: 06/07/2022						
Alkalinity	33.0	5.0	mg/L		34.0			2.99	20	
Batch BFF0367 - No Prep Wet Chem										
Blank (BFF0367-BLK1)				Prepared & Analyzed: 06/08/2022						
Alkalinity	ND	5.0	mg/L							
LCS (BFF0367-BS1)				Prepared & Analyzed: 06/08/2022						
Alkalinity	47.0	5.0	mg/L	50.0		94.0	80-120			
Duplicate (BFF0367-DUP1)				Source: 22E1388-05 Prepared & Analyzed: 06/08/2022						
Alkalinity	144	5.0	mg/L		148			2.74	20	
Duplicate (BFF0367-DUP2)				Source: 22E1463-02 Prepared & Analyzed: 06/08/2022						
Alkalinity	313	5.0	mg/L		309			1.29	20	

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Analytical Summary

Sample ID	Preparation Factors Initial / Final	Method	Batch ID	Sequence ID	Calibration ID
Metals (Total) by EPA 6000/7000 Series Methods			Preparation Method:	EPA200.8 R5.4	
22E1388-01	50.0 mL / 50.0 mL	SW6020B	BFE1163	SFF0106	AF20015
22E1388-02	50.0 mL / 50.0 mL	SW6020B	BFE1163	SFF0106	AF20015
22E1388-03	50.0 mL / 50.0 mL	SW6020B	BFE1163	SFF0106	AF20015
22E1388-04	50.0 mL / 50.0 mL	SW6020B	BFE1163	SFF0106	AF20015
22E1388-05	50.0 mL / 50.0 mL	SW6020B	BFE1163	SFF0106	AF20015
22E1388-06	50.0 mL / 50.0 mL	SW6020B	BFE1163	SFF0106	AF20015
22E1388-07	50.0 mL / 50.0 mL	SW6020B	BFE1163	SFF0106	AF20015
22E1388-08	50.0 mL / 50.0 mL	SW6020B	BFE1163	SFF0106	AF20015
22E1388-09	50.0 mL / 50.0 mL	SW6020B	BFE1163	SFF0106	AF20015
22E1388-10	50.0 mL / 50.0 mL	SW6020B	BFE1163	SFF0106	AF20015
22E1388-11	50.0 mL / 50.0 mL	SW6020B	BFE1163	SFF0106	AF20015
22E1388-11RE1	50.0 mL / 50.0 mL	SW6020B	BFE1163	SFF0327	AF20045

Sample ID	Preparation Factors Initial / Final	Method	Batch ID	Sequence ID	Calibration ID
Wet Chemistry Analysis			Preparation Method:	No Prep IC	
22E1388-01	1.00 mL / 1.00 mL	SW9056A	BFE1123	SFF0018	AB20130
22E1388-02	1.00 mL / 1.00 mL	SW9056A	BFE1123	SFF0018	AB20130
22E1388-03	1.00 mL / 1.00 mL	SW9056A	BFE1123	SFF0018	AB20130
22E1388-04	1.00 mL / 1.00 mL	SW9056A	BFE1123	SFF0018	AB20130
22E1388-05	1.00 mL / 1.00 mL	SW9056A	BFE1123	SFF0018	AB20130

Sample ID	Preparation Factors Initial / Final	Method	Batch ID	Sequence ID	Calibration ID
Head Space Analysis by GC			Preparation Method:	No Prep VOC	
22E1388-01	5.00 mL / 5.00 mL	RSK175M	BFF0087	SFF0075	AB20185
22E1388-02	5.00 mL / 5.00 mL	RSK175M	BFF0087	SFF0075	AB20185

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Sample ID	Preparation Factors Initial / Final	Method	Batch ID	Sequence ID	Calibration ID
Head Space Analysis by GC			Preparation Method:	No Prep VOC	
22E1388-03	5.00 mL / 5.00 mL	RSK175M	BFF0087	SFF0075	AB20185
22E1388-04	5.00 mL / 5.00 mL	RSK175M	BFF0087	SFF0075	AB20185
22E1388-05	5.00 mL / 5.00 mL	RSK175M	BFF0087	SFF0075	AB20185
22E1388-12	5.00 mL / 5.00 mL	RSK175M	BFF0087	SFF0075	AB20185

Sample ID	Preparation Factors Initial / Final	Method	Batch ID	Sequence ID	Calibration ID
Wet Chemistry Analysis			Preparation Method:	No Prep Wet Chem	
22E1388-07	6.00 mL / 6.00 mL	SW9215	BFE1151	SFE1072	
22E1388-08	6.00 mL / 6.00 mL	SW9215	BFE1151	SFE1072	
22E1388-09	6.00 mL / 6.00 mL	SW9215	BFE1151	SFE1072	
22E1388-11	6.00 mL / 6.00 mL	SW9215	BFE1151	SFE1072	
22E1388-07	6.00 mL / 6.00 mL	SW9012B	BFF0256	SFF0305	AF20043
22E1388-08	6.00 mL / 6.00 mL	SW9012B	BFF0256	SFF0305	AF20043
22E1388-09	6.00 mL / 6.00 mL	SW9012B	BFF0256	SFF0305	AF20043
22E1388-11	6.00 mL / 6.00 mL	SW9012B	BFF0256	SFF0305	AF20043
22E1388-01	50.0 mL / 50.0 mL	SM22 2320B-2011	BFF0313	SFF0270	
22E1388-02	50.0 mL / 50.0 mL	SM22 2320B-2011	BFF0313	SFF0270	
22E1388-03	50.0 mL / 50.0 mL	SM22 2320B-2011	BFF0313	SFF0270	
22E1388-04	50.0 mL / 50.0 mL	SM22 2320B-2011	BFF0313	SFF0270	
22E1388-05	50.0 mL / 50.0 mL	SM22 2320B-2011	BFF0367	SFF0426	

Sample ID	Preparation Factors Initial / Final	Method	Batch ID	Sequence ID	Calibration ID
Organochlorine Pesticides and PCBs by GC/ECD			Preparation Method:	SW3510C/EPA600-ECD	
22E1388-07	1070 mL / 1.00 mL	SW8081B	BFE1147	SFF0056	AE20143
22E1388-08	1070 mL / 1.00 mL	SW8081B	BFE1147	SFF0056	AE20143
22E1388-09	1070 mL / 1.00 mL	SW8081B	BFE1147	SFF0056	AE20143
22E1388-11	1070 mL / 1.00 mL	SW8081B	BFE1147	SFF0056	AE20143

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Sample ID	Preparation Factors Initial / Final	Method	Batch ID	Sequence ID	Calibration ID
Organochlorine Pesticides and PCBs by GC/ECD			Preparation Method: SW3510C/EPA600-ECD		
22E1388-07	1070 mL / 1.00 mL	SW8082A	BFE1147	SFF0059	AC20077
22E1388-08	1070 mL / 1.00 mL	SW8082A	BFE1147	SFF0059	AC20077
22E1388-09	1070 mL / 1.00 mL	SW8082A	BFE1147	SFF0059	AC20077
22E1388-11	1070 mL / 1.00 mL	SW8082A	BFE1147	SFF0059	AC20077

Sample ID	Preparation Factors Initial / Final	Method	Batch ID	Sequence ID	Calibration ID
Semivolatile Organic Compounds by GCMS			Preparation Method: SW3580A-MS		
22E1388-01	1070 mL / 1.00 mL	SW8270E	BFE1098	SFF0213	AE20006
22E1388-02	1070 mL / 1.00 mL	SW8270E	BFE1098	SFF0213	AE20006
22E1388-03	1070 mL / 1.00 mL	SW8270E	BFE1098	SFF0213	AE20006
22E1388-04	1070 mL / 1.00 mL	SW8270E	BFE1098	SFF0213	AE20006
22E1388-05	1070 mL / 1.00 mL	SW8270E	BFE1098	SFF0213	AE20006
22E1388-07	1070 mL / 1.00 mL	SW8270E	BFE1145	SFF0004	AC20134
22E1388-08	1070 mL / 1.00 mL	SW8270E	BFE1145	SFF0004	AC20134
22E1388-09	1070 mL / 1.00 mL	SW8270E	BFF0013	SFF0089	AE20006
22E1388-11	1070 mL / 1.00 mL	SW8270E	BFF0013	SFF0089	AE20006

Sample ID	Preparation Factors Initial / Final	Method	Batch ID	Sequence ID	Calibration ID
Volatile Organic Compounds by GCMS			Preparation Method: SW5030B-MS		
22E1388-01	5.00 mL / 5.00 mL	SW8260D	BFE1119	SFE1046	AE20123
22E1388-04	5.00 mL / 5.00 mL	SW8260D	BFE1119	SFE1046	AE20123
22E1388-05	5.00 mL / 5.00 mL	SW8260D	BFE1119	SFE1046	AE20123
22E1388-02	5.00 mL / 5.00 mL	SW8260D	BFE1120	SFE1047	AE20066
22E1388-03	5.00 mL / 5.00 mL	SW8260D	BFE1120	SFE1047	AE20066
22E1388-06	5.00 mL / 5.00 mL	SW8260D	BFE1120	SFE1047	AE20066
22E1388-07	5.00 mL / 5.00 mL	SW8260D	BFE1120	SFE1047	AE20066
22E1388-08	5.00 mL / 5.00 mL	SW8260D	BFE1120	SFE1047	AE20066

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Sample ID	Preparation Factors Initial / Final	Method	Batch ID	Sequence ID	Calibration ID
Volatile Organic Compounds by GCMS			Preparation Method: SW5030B-MS		
22E1388-09	5.00 mL / 5.00 mL	SW8260D	BFE1120	SFE1047	AE20066
22E1388-10	5.00 mL / 5.00 mL	SW8260D	BFE1120	SFE1047	AE20066
22E1388-11	5.00 mL / 5.00 mL	SW8260D	BFE1120	SFE1047	AE20066
22E1388-12	5.00 mL / 5.00 mL	SW8260D	BFE1120	SFE1047	AE20066
22E1388-12RE1	5.00 mL / 5.00 mL	SW8260D	BFE1173	SFE1103	AE20066

Sample ID	Preparation Factors Initial / Final	Method	Batch ID	Sequence ID	Calibration ID
Metals (Total) by EPA 6000/7000 Series Methods			Preparation Method: SW7470A		
22E1388-01	20.0 mL / 20.0 mL	SW7470A	BFF0266	SFF0265	AF20037
22E1388-02	20.0 mL / 20.0 mL	SW7470A	BFF0393	SFF0385	AF20056
22E1388-03	20.0 mL / 20.0 mL	SW7470A	BFF0393	SFF0385	AF20056
22E1388-04	20.0 mL / 20.0 mL	SW7470A	BFF0393	SFF0385	AF20056
22E1388-05	20.0 mL / 20.0 mL	SW7470A	BFF0393	SFF0385	AF20056
22E1388-07	20.0 mL / 20.0 mL	SW7470A	BFF0393	SFF0385	AF20056
22E1388-08	20.0 mL / 20.0 mL	SW7470A	BFF0393	SFF0385	AF20056
22E1388-09	20.0 mL / 20.0 mL	SW7470A	BFF0393	SFF0385	AF20056
22E1388-11	20.0 mL / 20.0 mL	SW7470A	BFF0393	SFF0385	AF20056

Sample ID	Preparation Factors Initial / Final	Method	Batch ID	Sequence ID	Calibration ID
Micro-extractables by GC/ECD			Preparation Method: SW8011		
22E1388-02	60.0 mL / 2.00 mL	SW8011	BFF0016	SFF0088	AE20047
22E1388-03	60.0 mL / 2.00 mL	SW8011	BFF0016	SFF0088	AE20047
22E1388-06	60.0 mL / 2.00 mL	SW8011	BFF0016	SFF0088	AE20047
22E1388-07	60.0 mL / 2.00 mL	SW8011	BFF0016	SFF0088	AE20047
22E1388-08	60.0 mL / 2.00 mL	SW8011	BFF0016	SFF0088	AE20047
22E1388-09	60.0 mL / 2.00 mL	SW8011	BFF0016	SFF0088	AE20047
22E1388-10	60.0 mL / 2.00 mL	SW8011	BFF0016	SFF0088	AE20047

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Sample ID	Preparation Factors Initial / Final	Method	Batch ID	Sequence ID	Calibration ID
Micro-extractables by GC/ECD			Preparation Method: SW8011		
22E1388-11	60.0 mL / 2.00 mL	SW8011	BFF0016	SFF0088	AE20047
22E1388-12	60.0 mL / 2.00 mL	SW8011	BFF0016	SFF0088	AE20047
Sample ID	Preparation Factors Initial / Final	Method	Batch ID	Sequence ID	Calibration ID
Organochlorine Herbicides by GC/ECD			Preparation Method: SW8151A/EPA600		
22E1388-07	900 mL / 5.00 mL	SW8151A	BFE1204	SFF0393	AD20156
22E1388-08	900 mL / 5.00 mL	SW8151A	BFE1204	SFF0393	AD20156
22E1388-09	900 mL / 5.00 mL	SW8151A	BFE1204	SFF0393	AD20156
22E1388-11	900 mL / 5.00 mL	SW8151A	BFE1204	SFF0386	AE20149

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QC Analytical Summary

Sample ID	Preparation Factors Initial / Final	Method	Batch ID	Sequence ID	Calibration ID
Metals (Total) by EPA 6000/7000 Series Methods			Preparation Method: EPA200.8 R5.4		
BFE1163-BLK1	50.0 mL / 50.0 mL	SW6020B	BFE1163	SFF0106	AF20015
BFE1163-BS1	50.0 mL / 50.0 mL	SW6020B	BFE1163	SFF0106	AF20015
BFE1163-MS1	50.0 mL / 50.0 mL	SW6020B	BFE1163	SFF0106	AF20015
BFE1163-MS2	50.0 mL / 50.0 mL	SW6020B	BFE1163	SFF0106	AF20015
BFE1163-MS3		SW6020B	BFE1163	SFF0327	AF20045
BFE1163-MS3	50.0 mL / 50.0 mL	SW6020B	BFE1163	SFF0327	AF20045
BFE1163-MSD1	50.0 mL / 50.0 mL	SW6020B	BFE1163	SFF0106	AF20015
BFE1163-MSD2	50.0 mL / 50.0 mL	SW6020B	BFE1163	SFF0106	AF20015
BFE1163-MSD3		SW6020B	BFE1163	SFF0327	AF20045
BFE1163-MSD3	50.0 mL / 50.0 mL	SW6020B	BFE1163	SFF0327	AF20045

Sample ID	Preparation Factors Initial / Final	Method	Batch ID	Sequence ID	Calibration ID
Wet Chemistry Analysis			Preparation Method: No Prep IC		
BFE1123-BLK1	1.00 mL / 1.00 mL	SW9056A	BFE1123	SFF0018	AB20130
BFE1123-BS1	1.00 mL / 1.00 mL	SW9056A	BFE1123	SFF0018	AB20130
BFE1123-BSD1	1.00 mL / 1.00 mL	SW9056A	BFE1123	SFF0018	AB20130
BFE1123-MS1	4.50 mL / 5.00 mL	SW9056A	BFE1123	SFF0018	AB20130
BFE1123-MS2	4.50 mL / 5.00 mL	SW9056A	BFE1123	SFF0018	AB20130
BFE1123-MSD1	4.50 mL / 5.00 mL	SW9056A	BFE1123	SFF0018	AB20130
BFE1123-MSD2	4.50 mL / 5.00 mL	SW9056A	BFE1123	SFF0018	AB20130

Sample ID	Preparation Factors Initial / Final	Method	Batch ID	Sequence ID	Calibration ID
Head Space Analysis by GC			Preparation Method: No Prep VOC		

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Sample ID	Preparation Factors Initial / Final	Method	Batch ID	Sequence ID	Calibration ID
Head Space Analysis by GC			Preparation Method:	No Prep VOC	
BFF0087-BLK1	5.00 mL / 5.00 mL	RSK175M	BFF0087	SFF0075	AB20185
BFF0087-BS1	5.00 mL / 5.00 mL	RSK175M	BFF0087	SFF0075	AB20185
BFF0087-DUP1	5.00 mL / 5.00 mL	RSK175M	BFF0087	SFF0075	AB20185
BFF0087-MRL1	5.00 mL / 5.00 mL	RSK175M	BFF0087	SFF0075	AB20185
BFF0087-MS1	5.00 mL / 5.00 mL	RSK175M	BFF0087	SFF0075	AB20185
BFF0087-MSD1	5.00 mL / 5.00 mL	RSK175M	BFF0087	SFF0075	AB20185

Sample ID	Preparation Factors Initial / Final	Method	Batch ID	Sequence ID	Calibration ID
Wet Chemistry Analysis			Preparation Method:	No Prep Wet Chem	
BFE1151-BLK1	6.00 mL / 6.00 mL	SW9215	BFE1151	SFE1072	
BFE1151-BS1	6.00 mL / 6.00 mL	SW9215	BFE1151	SFE1072	
BFE1151-MRL1	6.00 mL / 6.00 mL	SW9215	BFE1151	SFE1072	
BFE1151-MS1	6.00 mL / 6.00 mL	SW9215	BFE1151	SFE1072	
BFE1151-MSD1	6.00 mL / 6.00 mL	SW9215	BFE1151	SFE1072	
BFF0256-BLK1		SW9012B	BFF0256	SFF0305	AF20043
BFF0256-BS1	6.00 mL / 6.00 mL	SW9012B	BFF0256	SFF0305	AF20043
BFF0256-MS1	6.00 mL / 6.00 mL	SW9012B	BFF0256	SFF0305	AF20043
BFF0256-MS2	6.00 mL / 6.00 mL	SW9012B	BFF0256	SFF0305	AF20043
BFF0256-MSD1	6.00 mL / 6.00 mL	SW9012B	BFF0256	SFF0305	AF20043
BFF0256-MSD2	6.00 mL / 6.00 mL	SW9012B	BFF0256	SFF0305	AF20043
BFF0313-BLK1	200 mL / 200 mL	SM22 2320B-2011	BFF0313	SFF0270	
BFF0313-BS1	50.0 mL / 50.0 mL	SM22 2320B-2011	BFF0313	SFF0270	
BFF0313-DUP1	50.0 mL / 50.0 mL	SM22 2320B-2011	BFF0313	SFF0270	
BFF0367-BLK1	50.0 mL / 50.0 mL	SM22 2320B-2011	BFF0367	SFF0426	
BFF0367-BS1	50.0 mL / 50.0 mL	SM22 2320B-2011	BFF0367	SFF0426	
BFF0367-DUP1	50.0 mL / 50.0 mL	SM22 2320B-2011	BFF0367	SFF0426	
BFF0367-DUP2	50.0 mL / 50.0 mL	SM22 2320B-2011	BFF0367	SFF0426	

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Sample ID	Preparation Factors Initial / Final	Method	Batch ID	Sequence ID	Calibration ID
Organochlorine Pesticides and PCBs by GC/ECD			Preparation Method:	SW3510C/EPA600-ECD	
BFE1147-BLK1	1000 mL / 1.00 mL	SW8081B	BFE1147	SFF0056	AE20143
BFE1147-BS1	1000 mL / 1.00 mL	SW8081B	BFE1147	SFF0056	AE20143
BFE1147-BS2		SW8081B	BFE1147	SFF0059	AC20077
BFE1147-BS3	1000 mL / 1.00 mL	SW8081B	BFE1147	SFF0056	AE20143
BFE1147-BS4	1000 mL / 1.00 mL	SW8081B	BFE1147	SFF0056	AE20143
BFE1147-MS1	1070 mL / 1.00 mL	SW8081B	BFE1147	SFF0056	AE20143
BFE1147-MS2		SW8081B	BFE1147	SFF0059	AC20077
BFE1147-MSD1	1070 mL / 1.00 mL	SW8081B	BFE1147	SFF0056	AE20143
BFE1147-MSD2		SW8081B	BFE1147	SFF0059	AC20077
BFE1147-BLK1	1000 mL / 1.00 mL	SW8082A	BFE1147	SFF0056	AE20143
BFE1147-BS1		SW8082A	BFE1147	SFF0056	AE20143
BFE1147-BS2	1000 mL / 1.00 mL	SW8082A	BFE1147	SFF0059	AC20077
BFE1147-BS3		SW8082A	BFE1147	SFF0056	AE20143
BFE1147-BS4		SW8082A	BFE1147	SFF0056	AE20143
BFE1147-MS1		SW8082A	BFE1147	SFF0056	AE20143
BFE1147-MS2	1070 mL / 1.00 mL	SW8082A	BFE1147	SFF0059	AC20077
BFE1147-MSD1		SW8082A	BFE1147	SFF0056	AE20143
BFE1147-MSD2	1070 mL / 1.00 mL	SW8082A	BFE1147	SFF0059	AC20077

Sample ID	Preparation Factors Initial / Final	Method	Batch ID	Sequence ID	Calibration ID
Semivolatile Organic Compounds by GCMS			Preparation Method:	SW3580A-MS	
BFE1098-BLK1		SW8270E	BFE1098	SFF0012	AE20006
BFE1098-BS1		SW8270E	BFE1098	SFF0012	AE20006
BFE1098-BS2		SW8270E	BFE1098	SFF0013	AE20034
BFE1145-BLK1	1000 mL / 1.00 mL	SW8270E	BFE1145	SFF0004	AC20134
BFE1145-BS1	1000 mL / 1.00 mL	SW8270E	BFE1145	SFF0004	AC20134
BFE1145-MS1	950 mL / 0.500 mL	SW8270E	BFE1145	SFF0004	AC20134
BFE1145-MSD1	970 mL / 0.500 mL	SW8270E	BFE1145	SFF0004	AC20134

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Sample ID	Preparation Factors Initial / Final	Method	Batch ID	Sequence ID	Calibration ID
Semivolatile Organic Compounds by GCMS			Preparation Method:	SW3580A-MS	
BFF0013-BLK1	1000 mL / 1.00 mL	SW8270E	BFF0013	SFF0089	AE20006
BFF0013-BS1	1000 mL / 1.00 mL	SW8270E	BFF0013	SFF0089	AE20006
BFF0013-MS1	1070 mL / 1.00 mL	SW8270E	BFF0013	SFF0089	AE20006
BFF0013-MSD1	1070 mL / 1.00 mL	SW8270E	BFF0013	SFF0089	AE20006

Sample ID	Preparation Factors Initial / Final	Method	Batch ID	Sequence ID	Calibration ID
Volatile Organic Compounds by GCMS			Preparation Method:	SW5030B-MS	
BFE1119-BLK1	5.00 mL / 5.00 mL	SW8260D	BFE1119	SFE1046	AE20123
BFE1119-BLK2		SW8260D	BFE1119	SFE1046	AE20123
BFE1119-BS1	5.00 mL / 5.00 mL	SW8260D	BFE1119	SFE1046	AE20123
BFE1119-BS2	5.00 mL / 5.00 mL	SW8260D	BFE1119	SFE1046	AE20123
BFE1119-MS1	5.00 mL / 5.00 mL	SW8260D	BFE1119	SFE1046	AE20123
BFE1119-MSD1	5.00 mL / 5.00 mL	SW8260D	BFE1119	SFE1046	AE20123
BFE1120-BLK1	5.00 mL / 5.00 mL	SW8260D	BFE1120	SFE1047	AE20066
BFE1120-BS1	5.00 mL / 5.00 mL	SW8260D	BFE1120	SFE1047	AE20066
BFE1120-MS1	5.00 mL / 5.00 mL	SW8260D	BFE1120	SFE1047	AE20066
BFE1120-MSD1	5.00 mL / 5.00 mL	SW8260D	BFE1120	SFE1047	AE20066
BFE1173-BLK1	5.00 mL / 5.00 mL	SW8260D	BFE1173	SFE1103	AE20066
BFE1173-BS1	5.00 mL / 5.00 mL	SW8260D	BFE1173	SFE1103	AE20066
BFE1173-MS1	5.00 mL / 5.00 mL	SW8260D	BFE1173	SFE1103	AE20066
BFE1173-MSD1	5.00 mL / 5.00 mL	SW8260D	BFE1173	SFE1103	AE20066

Sample ID	Preparation Factors Initial / Final	Method	Batch ID	Sequence ID	Calibration ID
Metals (Total) by EPA 6000/7000 Series Methods			Preparation Method:	SW7470A	
BFF0266-BLK1	20.0 mL / 20.0 mL	SW7470A	BFF0266	SFF0265	AF20037
BFF0266-BS1	20.0 mL / 20.0 mL	SW7470A	BFF0266	SFF0265	AF20037
BFF0266-MS1	20.0 mL / 20.0 mL	SW7470A	BFF0266	SFF0265	AF20037

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Sample ID	Preparation Factors Initial / Final	Method	Batch ID	Sequence ID	Calibration ID
Metals (Total) by EPA 6000/7000 Series Methods			Preparation Method:	SW7470A	
BFF0266-MS2	20.0 mL / 20.0 mL	SW7470A	BFF0266	SFF0265	AF20037
BFF0266-MSD1	20.0 mL / 20.0 mL	SW7470A	BFF0266	SFF0265	AF20037
BFF0266-MSD2	20.0 mL / 20.0 mL	SW7470A	BFF0266	SFF0265	AF20037
BFF0393-BLK1	20.0 mL / 20.0 mL	SW7470A	BFF0393	SFF0385	AF20056
BFF0393-BS1	20.0 mL / 20.0 mL	SW7470A	BFF0393	SFF0385	AF20056
BFF0393-MS1	20.0 mL / 20.0 mL	SW7470A	BFF0393	SFF0385	AF20056
BFF0393-MS2	20.0 mL / 20.0 mL	SW7470A	BFF0393	SFF0385	AF20056
BFF0393-MSD1	20.0 mL / 20.0 mL	SW7470A	BFF0393	SFF0385	AF20056
BFF0393-MSD2	20.0 mL / 20.0 mL	SW7470A	BFF0393	SFF0385	AF20056

Sample ID	Preparation Factors Initial / Final	Method	Batch ID	Sequence ID	Calibration ID
Micro-extractables by GC/ECD			Preparation Method:	SW8011	
BFF0016-BLK1	60.0 mL / 2.00 mL	SW8011	BFF0016	SFF0088	AE20047
BFF0016-BS1	60.0 mL / 2.00 mL	SW8011	BFF0016	SFF0088	AE20047
BFF0016-MS1	60.0 mL / 2.00 mL	SW8011	BFF0016	SFF0088	AE20047
BFF0016-MSD1	60.0 mL / 2.00 mL	SW8011	BFF0016	SFF0088	AE20047

Sample ID	Preparation Factors Initial / Final	Method	Batch ID	Sequence ID	Calibration ID
Organochlorine Herbicides by GC/ECD			Preparation Method:	SW8151A/EPA600	
BFE1204-BLK1	900 mL / 5.00 mL	SW8151A	BFE1204	SFF0393	AD20156
BFE1204-BS1	900 mL / 5.00 mL	SW8151A	BFE1204	SFF0393	AD20156
BFE1204-MS1	900 mL / 5.00 mL	SW8151A	BFE1204	SFF0393	AD20156
BFE1204-MSD1	900 mL / 5.00 mL	SW8151A	BFE1204	SFF0393	AD20156

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Analyte	Certifications
<i>RSK175M in Non-Potable Water</i>	
Ethane	VELAP
Ethene	VELAP
Methane	VELAP
<i>SM22 2320B-2011 in Non-Potable Water</i>	
Alkalinity	VELAP,PADEP,WVDEP,NHDES,MADEP
<i>SW6020B in Non-Potable Water</i>	
Antimony	VELAP,NCDEQ,WVDEP,NHDES
Arsenic	VELAP,WVDEP,NHDES
Barium	VELAP,WVDEP,NHDES
Beryllium	VELAP,WVDEP,NHDES
Cadmium	VELAP,WVDEP,NHDES
Chromium	VELAP,WVDEP,NHDES
Cobalt	VELAP,WVDEP,NHDES
Copper	VELAP,WVDEP,NHDES
Lead	VELAP,WVDEP,NHDES
Nickel	VELAP,WVDEP
Selenium	VELAP,WVDEP,NHDES
Silver	VELAP,WVDEP,NHDES
Thallium	VELAP,WVDEP,NHDES
Tin	VELAP,WVDEP
Vanadium	VELAP,WVDEP,NHDES
Zinc	VELAP,WVDEP,NHDES
<i>SW7470A in Non-Potable Water</i>	
Mercury	VELAP,NCDEQ,WVDEP,NHDES
<i>SW8011 in Non-Potable Water</i>	

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Analyte	Certifications
1,2-Dibromoethane (EDB)	VELAP,NCDEQ
1,2,3-Trichloropropane	VELAP,NCDEQ
1,2-Dibromo-3-chloropropane (DBCP)	VELAP,NCDEQ
SW8081B in Non-Potable Water	
4,4'-DDD	NCDEQ,VELAP,WVDEP,PADEP,NHDES
4,4'-DDE	NCDEQ,VELAP,WVDEP,PADEP,NHDES
4,4'-DDT	NCDEQ,VELAP,WVDEP,PADEP,NHDES
Aldrin	NCDEQ,VELAP,WVDEP,PADEP,NHDES
alpha-BHC	NCDEQ,VELAP,WVDEP,PADEP,NHDES
alpha-Chlordane	NCDEQ,VELAP,WVDEP,PADEP,NHDES
beta-BHC	NCDEQ,VELAP,WVDEP,PADEP,NHDES
Chlordane	NCDEQ,VELAP,WVDEP,PADEP,NHDES
delta-BHC	NCDEQ,VELAP,WVDEP,PADEP,NHDES
Dieldrin	NCDEQ,VELAP,WVDEP,PADEP,NHDES
Endosulfan I	NCDEQ,VELAP,WVDEP,PADEP,NHDES
Endosulfan II	NCDEQ,VELAP,WVDEP,PADEP,NHDES
Endosulfan sulfate	NCDEQ,VELAP,WVDEP,PADEP,NHDES
Endrin	NCDEQ,VELAP,WVDEP,PADEP,NHDES
Endrin aldehyde	NCDEQ,VELAP,WVDEP,PADEP,NHDES
gamma-BHC (Lindane)	NCDEQ,VELAP,WVDEP,PADEP,NHDES
gamma-Chlordane	NCDEQ,VELAP,WVDEP,PADEP,NHDES
Heptachlor	NCDEQ,VELAP,WVDEP,PADEP,NHDES
Heptachlor epoxide	NCDEQ,VELAP,WVDEP,PADEP,NHDES
Methoxychlor	NCDEQ,VELAP,WVDEP,PADEP,NHDES
Toxaphene	NCDEQ,VELAP,WVDEP,PADEP,NHDES
SW8082A in Non-Potable Water	
PCB as Aroclor 1016	VELAP,PADEP,NCDEQ,WVDEP,NHDES
PCB as Aroclor 1221	VELAP,PADEP,NCDEQ,WVDEP,NHDES

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Analyte	Certifications
PCB as Aroclor 1232	VELAP,PADEP,NCDEQ,WVDEP,NHDES
PCB as Aroclor 1242	VELAP,PADEP,NCDEQ,WVDEP,NHDES
PCB as Aroclor 1248	VELAP,PADEP,NCDEQ,WVDEP,NHDES
PCB as Aroclor 1254	VELAP,PADEP,NCDEQ,WVDEP,NHDES
PCB as Aroclor 1260	VELAP,PADEP,NCDEQ,WVDEP,NHDES
SW8151A in Non-Potable Water	
2,4,5-T	VELAP,PADEP,NCDEQ,WVDEP
2,4,5-TP (Silvex)	VELAP,PADEP,NCDEQ,WVDEP
2,4-D	VELAP,PADEP,NCDEQ,WVDEP
Dinoseb	VELAP,PADEP,NCDEQ,WVDEP
Pentachlorophenol	VELAP,PADEP,NCDEQ,WVDEP
SW8260D in Non-Potable Water	
1,1,1,2-Tetrachloroethane	NCDEQ,WVDEP,VELAP
1,1,1-Trichloroethane	NCDEQ,WVDEP,VELAP
1,1,2,2-Tetrachloroethane	NCDEQ,WVDEP,VELAP
1,1,2-Trichloroethane	NCDEQ,WVDEP,VELAP
1,1-Dichloroethane	NCDEQ,WVDEP,VELAP
1,1-Dichloroethylene	NCDEQ,WVDEP,VELAP
1,1-Dichloropropene	NCDEQ,WVDEP,VELAP
1,2,3-Trichloropropane	NCDEQ,WVDEP,VELAP
1,2,4-Trichlorobenzene	NCDEQ,WVDEP,VELAP
1,2-Dichlorobenzene	NCDEQ,WVDEP,VELAP
1,2-Dichloroethane	NCDEQ,WVDEP,VELAP
1,2-Dichloropropane	NCDEQ,WVDEP,VELAP
1,3-Dichlorobenzene	NCDEQ,WVDEP,VELAP
1,3-Dichloropropane	NCDEQ,WVDEP,VELAP
1,4-Dichlorobenzene	NCDEQ,WVDEP,VELAP
2,2-Dichloropropane	NCDEQ,WVDEP,VELAP

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Analyte	Certifications
2-Butanone (MEK)	NCDEQ, WVDEP, VELAP
2-Hexanone (MBK)	NCDEQ, WVDEP, VELAP
4-Methyl-2-pentanone (MIBK)	NCDEQ, WVDEP, VELAP
Acetone	NCDEQ, WVDEP, VELAP
Acetonitrile	NCDEQ, WVDEP, VELAP
Acrolein	NCDEQ, WVDEP, VELAP
Acrylonitrile	NCDEQ, WVDEP, VELAP
Allyl chloride	NCDEQ, WVDEP, VELAP
Benzene	NCDEQ, WVDEP, VELAP
Bromochloromethane	NCDEQ, WVDEP, VELAP
Bromodichloromethane	NCDEQ, WVDEP, VELAP
Bromoform	NCDEQ, WVDEP, VELAP
Bromomethane	NCDEQ, WVDEP, VELAP
Carbon disulfide	NCDEQ, WVDEP, VELAP
Carbon tetrachloride	NCDEQ, WVDEP, VELAP
Chlorobenzene	NCDEQ, WVDEP, VELAP
Chloroethane	NCDEQ, WVDEP, VELAP
Chloroform	NCDEQ, WVDEP, VELAP
Chloromethane	NCDEQ, WVDEP, VELAP
Chloroprene	NCDEQ, WVDEP, VELAP
cis-1,2-Dichloroethylene	NCDEQ, WVDEP, VELAP
cis-1,3-Dichloropropene	NCDEQ, WVDEP, VELAP
Dibromochloromethane	NCDEQ, WVDEP, VELAP
Dibromomethane	NCDEQ, WVDEP, VELAP
Dichlorodifluoromethane	NCDEQ, WVDEP, VELAP
Ethyl methacrylate	NCDEQ, WVDEP, VELAP
Ethylbenzene	NCDEQ, WVDEP, VELAP
Iodomethane	NCDEQ, WVDEP, VELAP

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Analyte	Certifications
Isobutyl Alcohol	NCDEQ, WVDEP, VELAP
m+p-Xylenes	NCDEQ, WVDEP, VELAP
Methacrylonitrile	NCDEQ, WVDEP, VELAP
Methyl methacrylate	NCDEQ, WVDEP, VELAP
Methylene chloride	NCDEQ, WVDEP, VELAP
Naphthalene	NCDEQ, WVDEP, VELAP
o-Xylene	NCDEQ, WVDEP, VELAP
Propionitrile	NCDEQ, WVDEP, VELAP
Styrene	NCDEQ, WVDEP, VELAP
Tetrachloroethylene (PCE)	NCDEQ, WVDEP, VELAP
Toluene	NCDEQ, WVDEP, VELAP
trans-1,2-Dichloroethylene	NCDEQ, WVDEP, VELAP
trans-1,3-Dichloropropene	NCDEQ, WVDEP, VELAP
trans-1,4-Dichloro-2-butene	NCDEQ, WVDEP, VELAP
Trichloroethylene	NCDEQ, WVDEP, VELAP
Trichlorofluoromethane	NCDEQ, WVDEP, VELAP
Vinyl acetate	NCDEQ, WVDEP, VELAP
Vinyl chloride	NCDEQ, WVDEP, VELAP
Xylenes, Total	NCDEQ, WVDEP, VELAP

SW8270E in Non-Potable Water

1,2,4,5-Tetrachlorobenzene	VELAP, NCDEQ, WVDEP
1,3,5-Trinitrobenzene	VELAP, NCDEQ, WVDEP
1,3-Dinitrobenzene	VELAP, NCDEQ, WVDEP
1,4-Naphthoquinone	VELAP, NCDEQ, WVDEP
1-Naphthylamine	VELAP, NCDEQ, WVDEP
2,3,4,6-Tetrachlorophenol	VELAP, NCDEQ, WVDEP
2,4,5-Trichlorophenol	VELAP, NCDEQ, WVDEP
2,4,6-Trichlorophenol	VELAP, NCDEQ, WVDEP

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Analyte	Certifications
2,4-Dichlorophenol	VELAP,NCDEQ,WVDEP
2,4-Dimethylphenol	VELAP,NCDEQ,WVDEP
2,4-Dinitrophenol	VELAP,NCDEQ,WVDEP
2,4-Dinitrotoluene	VELAP,NCDEQ,WVDEP
2,6-Dichlorophenol	VELAP,NCDEQ,WVDEP
2,6-Dinitrotoluene	VELAP,NCDEQ,WVDEP
2-Acetylaminofluorene	VELAP,NCDEQ,WVDEP
2-Chloronaphthalene	VELAP,NCDEQ,WVDEP
2-Chlorophenol	VELAP,NCDEQ,WVDEP
2-Methylnaphthalene	VELAP,NCDEQ,WVDEP
2-Naphthylamine	VELAP,NCDEQ,WVDEP
2-Nitroaniline	VELAP,NCDEQ,WVDEP
2-Nitrophenol	VELAP,NCDEQ,WVDEP
3,3'-Dichlorobenzidine	VELAP,NCDEQ,WVDEP
3,3'-Dimethylbenzidine	VELAP,NCDEQ,WVDEP
3-Methylcholanthrene	VELAP,NCDEQ,WVDEP
3-Nitroaniline	VELAP,NCDEQ,WVDEP
4,6-Dinitro-2-methylphenol	VELAP,NCDEQ,WVDEP
4-Aminobiphenyl	VELAP,NCDEQ,WVDEP
4-Bromophenyl phenyl ether	VELAP,NCDEQ,WVDEP
4-Chloroaniline	VELAP,NCDEQ,WVDEP
4-Chlorophenyl phenyl ether	VELAP,NCDEQ,WVDEP
4-Nitroaniline	VELAP,NCDEQ,WVDEP
4-Nitrophenol	VELAP,NCDEQ,WVDEP
5-Nitro-o-toluidine	VELAP,NCDEQ,WVDEP
7,12-Dimethylbenz (a) anthracene	VELAP,NCDEQ,WVDEP
Acenaphthene	VELAP,NCDEQ,WVDEP
Acenaphthylene	VELAP,NCDEQ,WVDEP

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Analyte	Certifications
Acetophenone	VELAP,NCDEQ,WVDEP
Anthracene	VELAP,NCDEQ,WVDEP
Benzo (a) anthracene	VELAP,NCDEQ,WVDEP
Benzo (a) pyrene	VELAP,NCDEQ,WVDEP
Benzo (b) fluoranthene	VELAP,NCDEQ,WVDEP
Benzo (g,h,i) perylene	VELAP,NCDEQ,WVDEP
Benzo (k) fluoranthene	VELAP,NCDEQ,WVDEP
Benzyl alcohol	VELAP,NCDEQ,WVDEP
bis (2-Chloroethoxy) methane	VELAP,NCDEQ,WVDEP
bis (2-Chloroethyl) ether	VELAP,NCDEQ,WVDEP
2,2'-Oxybis (1-chloropropane)	VELAP,NCDEQ,WVDEP
bis (2-Ethylhexyl) phthalate	VELAP,NCDEQ,WVDEP
Butyl benzyl phthalate	VELAP,NCDEQ,WVDEP
Chlorobenzilate	VELAP,NCDEQ,WVDEP
Chrysene	VELAP,NCDEQ,WVDEP
Diallate	VELAP,NCDEQ,WVDEP
Dibenz (a,h) anthracene	VELAP,NCDEQ,WVDEP
Dibenzofuran	VELAP,NCDEQ,WVDEP
Diethyl phthalate	VELAP,NCDEQ,WVDEP
Dimethoate	VELAP,NCDEQ,WVDEP
Dimethyl phthalate	VELAP,NCDEQ,WVDEP
Di-n-butyl phthalate	VELAP,NCDEQ,WVDEP
Di-n-octyl phthalate	VELAP,NCDEQ,WVDEP
Diphenylamine	VELAP,NCDEQ,WVDEP
Disulfoton	VELAP,NCDEQ,WVDEP
Ethyl methanesulfonate	VELAP,NCDEQ,WVDEP
Ethyl parathion	VELAP,NCDEQ,WVDEP
Famphur	VELAP,NCDEQ,WVDEP

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Analyte	Certifications
Fluoranthene	VELAP,NCDEQ,WVDEP
Fluorene	VELAP,NCDEQ,WVDEP
Hexachlorobenzene	VELAP,NCDEQ,WVDEP
Hexachlorobutadiene	VELAP,NCDEQ,WVDEP
Hexachlorocyclopentadiene	VELAP,NCDEQ,WVDEP
Hexachloroethane	VELAP,NCDEQ,WVDEP
Hexachloropropene	VELAP,NCDEQ,WVDEP
Indeno (1,2,3-cd) pyrene	VELAP,NCDEQ,WVDEP
Isodrin	VELAP,NCDEQ,WVDEP
Isophorone	VELAP,NCDEQ,WVDEP
Isosafrole	VELAP,NCDEQ,WVDEP
Kepone	VELAP,NCDEQ,WVDEP
m+p-Cresols	VELAP,NCDEQ,WVDEP
Methapyrilene	VELAP,NCDEQ,WVDEP
Methyl methanesulfonate	VELAP,NCDEQ,WVDEP
Methyl parathion	VELAP,NCDEQ,WVDEP
Nitrobenzene	VELAP,NCDEQ,WVDEP
n-Nitrosodiethylamine	VELAP,NCDEQ,WVDEP
n-Nitrosodimethylamine	VELAP,NCDEQ,WVDEP
n-Nitrosodi-n-butylamine	VELAP,NCDEQ,WVDEP
n-Nitrosodi-n-propylamine	VELAP,NCDEQ,WVDEP
n-Nitrosodiphenylamine	VELAP,NCDEQ,WVDEP
n-Nitrosomethylethylamine	VELAP,NCDEQ,WVDEP
n-Nitrosopiperidine	VELAP,NCDEQ,WVDEP
n-Nitrosopyrrolidine	VELAP,NCDEQ,WVDEP
o,o,o-Triethyl phosphorothioate	VELAP,NCDEQ,WVDEP
o,o-Diethyl o-2-pyrazinyl phosphorothioate	VELAP,NCDEQ,WVDEP
o+m+p-Cresols	VELAP,WVDEP

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Analyte	Certifications
o-Cresol	VELAP,NCDEQ,WVDEP
o-Toluidine	VELAP,NCDEQ,WVDEP
p-(Dimethylamino) azobenzene	VELAP,NCDEQ,WVDEP
p-Chloro-m-cresol	VELAP,NCDEQ,WVDEP
Pentachlorobenzene	VELAP,NCDEQ,WVDEP
Pentachloronitrobenzene (quintozene)	VELAP,NCDEQ,WVDEP
Phenacetin	VELAP,NCDEQ,WVDEP
Phenanthrene	VELAP,NCDEQ,WVDEP
Phenol	VELAP,NCDEQ,WVDEP
Phorate	VELAP,NCDEQ,WVDEP
p-Phenylenediamine	VELAP,NCDEQ,WVDEP
Pronamide	VELAP,NCDEQ,WVDEP
Pyrene	VELAP,NCDEQ,WVDEP
Safrole	VELAP,NCDEQ,WVDEP
SW9012B in Non-Potable Water	
Cyanide	VELAP,WVDEP
SW9056A in Non-Potable Water	
Chloride	VELAP
SW9215 in Non-Potable Water	
Sulfide	VELAP

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Code	Description	Laboratory ID	Expires
MADEP	Massachusetts DEP	M-VA913	06/30/2022
MdDOE	Maryland DE Drinking Water	341	12/31/2022
NC	North Carolina DENR	495	07/31/2022
NCDEQ	North Carolina DEQ	495	12/31/2022
NCDOH	North Carolina Department of Health	51714	07/31/2022
NJDEP	NELAP-New Jersey DEP	VA015	06/30/2022
NYDOH	New York DOH Drinking Water	12096	04/01/2023
PADEP	NELAP-Pennsylvania Certificate #007	68-03503	10/31/2022
VELAP	NELAP-Virginia Certificate #11900	460021	06/14/2023
WVDEP	West Virginia DEP	350	11/30/2022

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Date Issued: 7/12/2022 2:30:28PM

Qualifiers and Definitions

B	Blank contamination. The recorded result is associated with a contaminated blank.
C	Continuing calibration verification response for this analyte is outside specifications.
Cl	Residual Chlorine or other oxidizing agent was detected in the container used to analyze this sample.
J	The reported result is an estimated value.
L	LCS recovery is outside of established acceptance limits
M	Matrix spike recovery is outside established acceptance limits
P	Duplicate analysis does not meet the acceptance criteria for precision
S	Surrogate recovery was outside acceptance criteria
RPD	Relative Percent Difference
Qual	Qualifiers
-RE	Denotes sample was re-analyzed
LOD	Limit of Detection
BLOD	Below Limit of Detection
LOQ	Limit of Quantitation
DF	Dilution Factor
TIC	Tentatively Identified Compounds are compounds that are identified by comparing the analyte mass spectral pattern with the NIST spectral library. A TIC spectral match is reported when the pattern is at least 75% consistent with the published pattern. Compound concentrations are estimated and are calculated using an internal standard response factor of 1.
PCBs, Total	Total PCBs are defined as the sum of detected Aroclors 1016, 1221, 1232, 1248, 1254, 1260, 1262, and 1268.

CHAIN OF CUSTODY

COMPANY NAME: SCS Engineers	INVOICE TO: SCS Reston	Project Name: City of Bristol 1st Semi-Annual
CONTACT: Jennifer Robb	INVOICE CONTACT: Jennifer Robb	Site Name:
ADDRESS: 296 Victory Road, Winchester, VA 22602	INVOICE ADDRESS:	PROJECT NUMBER: 022182768.07 TI
PHONE #: (703) 471-6150	INVOICE PHONE #:	P.O. #:
FAX #: (703) 471-6676	EMAIL: jrobb@scsengineers.com	Pretreatment Program:

Is sample for compliance reporting? **YES** Va Is sample from a chlorinated supply? YES **NO** PWS I.D. #:

SAMPLER NAME (PRINT): **L. HOWARD**
M. NGUYEN SAMPLER SIGNATURE: *[Signature]* Turn Around Time: 10 Day(s)

Matrix Codes: WW=Waste Water GW=Ground Water DW=Drinking Water S=Soil/Solids OR=Organic A=Air WP=Wipe OT=Other

CLIENT SAMPLE I.D.	Grab	Composite	Field Filtered (Dissolved Metals)	Composite Start Date	Composite Start Time	Grab Date or Composite Stop Date	Grab Time or Composite Stop Time	Time Preserved	Matrix (See Codes)	Number of Containers	ANALYSIS / (PRESERVATIVE)						COMMENTS	
											VSWMR Table 3.1 B	VOC Table 3.1 B /EDB 8011	MEE	Chloride	Alkalinity	VSWMR TABLE 3.1 A		
1) MW-206 A	X					052422	1305		GW	6								
2) MW-104 B	X					↓	1505		GW	12	X							
3) MW-104 A	X					↓	1649		GW	12	X							
4) MW-101	X					052522	841		GW	12	X							
5) MW-106 B	X					↓	1141		GW	6								5.2°C
6) MW-106 A	X					↓	1116		GW	12	X							271
7)																		on ice
8)																		sealed
9)																		
10) TRIP BLANK	X					051922	1220		DI	6	X	X						

RECEIVED: <i>[Signature]</i> DATE / TIME: 1335	RECEIVED: <i>[Signature]</i> DATE / TIME: LCN	QC Data Package	LAB USE ONLY	COOLER TEMP _____ °C
RECEIVED: <i>[Signature]</i> DATE / TIME: 052522 1202	RECEIVED: <i>[Signature]</i> DATE / TIME: 5/26/22 0800	Level I <input type="checkbox"/>	SCS-W	22E1388
RECEIVED: <i>[Signature]</i> DATE / TIME: LCN		Level II <input checked="" type="checkbox"/>	1st Semi-Annual 2022	
		Level III <input type="checkbox"/>	Recd: 05/26/2022 Due: 06/10/2022	
		Level IV <input type="checkbox"/>		

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CHAIN OF CUSTODY

COMPANY NAME: SCS Engineers	INVOICE TO: SCS Reston	Project Name: City of Bristol 1st Semi-Annual
CONTACT: Jennifer Robb	INVOICE CONTACT: Jennifer Robb	Site Name:
ADDRESS: 296 Victory Road, Winchester, VA 22602	INVOICE ADDRESS:	PROJECT NUMBER: 02218208.07T1
PHONE #: (703) 471-6150	INVOICE PHONE #:	P.O. #:
FAX #: (703) 471-6676	EMAIL: jrobb@scsengineers.com	Pretreatment Program:

Is sample for compliance reporting? YES Va	Is sample from a chlorinated supply? YES NO	PWS I.D. #:
SAMPLER NAME (PRINT): L. HOWARD M. NGUYEN	SAMPLER SIGNATURE: <i>[Signature]</i>	Turn Around Time: 10 Day(s)

Matrix Codes: WW=Waste Water GW=Ground Water DW=Drinking Water S=Soil/Solids OR=Organic A=Air WP=Wipe OT=Other

CLIENT SAMPLE I.D.	Grab	Composite	Field Filtered (Dissolved Metals)	Composite Start Date	Composite Start Time	Grab Date or Composite Stop Date	Grab Time or Composite Stop Time	Time Preserved	Matrix (See Codes)	Number of Containers	ANALYSIS / (PRESERVATIVE)							COMMENTS
											As and Co 6020	Hg	Bis (2-ethylhexyl) phthalate 1,1-Dichloroethane, Benzene, and Vinyl Chloride	MEE	Chloride	Alkalinity	VSWNR TABLE 3.1A	
1) MW-105 A	X				052422	1432		GW	10	X	X	X	X	X	X			
2) MW-210 A	X				↓	1706		GW	12		X	X		X	X			
3) MW-210 B	X				↓	1833		GW	12		X	X		X	X			
4) MW-109 109	X				↓	1845		GW	10	X	X	X	X	X	X			
5) MW-105 B	X				052522	853		GW	10	X	X	X	X	X	X			
6)																		
7)																	5.2°C	
8)																	271	
9)																	once sealed	

QC Data Package	LAB USE ONLY	COOLER TEMP
Level I <input type="checkbox"/>	SCS-W	22E1388
Level II <input checked="" type="checkbox"/>	1st Semi-Annual 2022	
Level III <input type="checkbox"/>	Recd: 05/26/2022 Due: 06/10/2022	
Level IV <input type="checkbox"/>		v130325002

DELIVERED:	DATE / TIME	RECEIVED:	DATE / TIME
<i>[Signature]</i>	052522 @ 1200	LCN	
DELIVERED:	DATE / TIME	RECEIVED:	DATE / TIME
LCN		<i>[Signature]</i>	5/26/22 0800
DELIVERED:	DATE / TIME	RECEIVED:	DATE / TIME

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Sample Preservation Log

mas for
DLJ

Order ID: **22E1388**

Date Performed: **5/27/22**

Analyst Performing Check: **DLJ**

Sample ID	Container ID	Metals		Cyanide		Sulfide		Ammonia		TKN		Phos, Total		NO3+NO2		DRO		Pesticide (8081/808/808) PCB DW only		SVOC (220/227/0/222)			CrVI * **		Pss/PCB (808) / SVOC(828)					
		pH as Received	Fixed pH	pH as Received	Fixed pH	pH as Received	Fixed pH	pH as Received	Fixed pH	pH as Received	Fixed pH	pH as Received	Fixed pH	pH as Received	Fixed pH	pH as Received	Fixed pH	Received Res. Cl	Final + Dr.	Received Res. Cl	Final + Dr.	Received pH	Fixed pH	pH as Received	Fixed pH	pH as Received	Fixed pH	pH as Received	Fixed pH	
		< 2 Other		> 12 Other		> 8 Other		< 2 Other		< 2 Other		< 2 Other		< 2 Other		< 2 Other		+	.	+	.			< 2 Other		Other		Other		
01	BX																													
	G																													
02	FX																				X									
	I																				X									
03	EX																				X									
	F																				X									
04	BX																													
	H																				X									
05	BX																													
	G																				X									
06	CX																													
07	A																													
	D																													
	E																													
	H																													

NaOH ID: _____ HNO₃ ID: **2E01121**
 H₂SO₄ ID: _____ Na₂S₂O₃ ID: _____
 HCL ID: _____ Na₂SO₃ ID: _____
 CrVI preserved date/time: _____
 * pH must be adjusted between 8.3 - 9.7
 Buffer Sol'n ID: _____
 1N NaOH ID: _____

Metals were received with pH = 3. HNO₃ was added at 1105 on 27 May 2022 by DLJ in the Log-In room to bring pH = < 2.

**W.Va only certifies DISS CrVI and not T CrVI as an approved analyte under 40CFR138 for waste water.

Sample Preservation Log

Order ID: 22E1388

Date Performed: 5/27/22

Analyst Performing Check: Mrs An DLJ

Sample ID	Container ID	Metals		Cyanide		Sulfide		Ammonia		TKN		Phos, Tot		NO3+NO2		DRO		Pesticide (8081/804/808) PCB DW only		BYOG (323/270/825)		CrVI * **		Pest/PCB (808)/BYOG(825)									
		pH as Received	Final pH	pH as Received	Final pH	pH as Received	Final pH	pH as Received	Final pH	pH as Received	Final pH	pH as Received	Final pH	pH as Received	Final pH	pH as Received	Final pH	Received Res. Cl	Final + Dr.	Received Res. Cl	Final + Dr.	Received pH	Final pH	pH as Received	Final pH	pH as Received	Final pH	pH as Received	Final pH				
		< 2	Other	> 12	Other	> 8	Other	< 1	Other	< 2	Other	< 2	Other	< 2	Other	< 2	Other	+	.	+	.			< 1	Other		Other		Other				
08	A			✓																													
08	F	✓																															
08	F																																
08	H					✓																											
09	A			✓																													
09	E	✓																															
09	F																																
09	H			✓																													
10	C	✓																															
11	A			✓																													
11	E	✓																															
11	F																																
11	H			✓																													

NaOH ID: _____ HNO₃ ID: 2E01121
 H₂SO₄ ID: _____ Na₂S₂O₃ ID: _____
 HCL ID: _____ Na₂SO₃ ID: _____

CrVI preserved date/time: _____
 * pH must be adjusted between 9.3 - 9.7
 Buffer Soft ID: _____
 1N NaOH ID: _____

Metals were received with pH = 3. HNO₃ was added at 1105 on 27 May 2022 by DLJ in the Log-In room to bring pH = <2.

**W.Va only certifies DISS CrVI and not T CrVI as an approved analyte under 40CFR138 for waste water.

Certificate of Analysis

Client Name: SCS Engineers-Winchester
Client Site I.D.: City of Bristol 1st Semi-Annual 2022
Submitted To: Jennifer Robb

Date Issued: 7/12/2022 2:30:28PM

Certificate of Analysis

Client Name: SCS Engineers-Winchester
Client Site I.D.: City of Bristol 1st Semi-Annual 2022
Submitted To: Jennifer Robb

Date Issued: 7/12/2022 2:30:28PM

Laboratory Order ID: 22E1388

Sample Conditions Checklist

Samples Received at:	5.20°C
How were samples received?	Logistics Courier
Were Custody Seals used? If so, were they received intact?	Yes
Are the custody papers filled out completely and correctly?	Yes
Do all bottle labels agree with custody papers?	Yes
Is the temperature blank or representative sample within acceptable limits or received on ice, and recently taken?	Yes
Are all samples within holding time for requested laboratory tests?	Yes
Is a sufficient amount of sample provided to perform the tests included?	Yes
Are all samples in appropriate containers for the analyses requested?	Yes
Were volatile organic containers received?	Yes
Are all volatile organic and TOX containers free of headspace?	Yes
Is a trip blank provided for each VOC sample set? VOC sample sets include EPA8011, EPA504, EPA8260, EPA624, EPA8015 GRO, EPA8021, EPA524, and RSK-175.	Yes
Are all samples received appropriately preserved? Note that metals containers do not require field preservation but lab preservation may delay analysis.	Yes



TNI Accredited
VELAP ID 460021



1941 Reymet Road • Richmond, Virginia 23237 • Tel: (804)-358-8295 Fax: (804)-358-8297

Certificate of Analysis

Final Report

Laboratory Order ID 22E1463

Client Name: SCS Engineers-Winchester
296 Victory Road
Winchester, VA 22602

Date Received: May 27, 2022 16:30
Date Issued: July 12, 2022 14:25
Project Number: 022180208.07 T1
Purchase Order:

Submitted To: Jennifer Robb

Client Site I.D.: City of Bristol 1st Semi-Annual 2022

Enclosed are the results of analyses for samples received by the laboratory on 05/27/2022 16:30. If you have any questions concerning this report, please feel free to contact the laboratory.

Sincerely,

Ted Soyars
Technical Director

End Notes:

The test results listed in this report relate only to the samples submitted to the laboratory and as received by the Laboratory.

Unless otherwise noted, the test results for solid materials are calculated on a wet weight basis. Analyses for pH, dissolved oxygen, temperature, residual chlorine and sulfite that are performed in the laboratory do not meet NELAC requirements due to extremely short holding times. These analyses should be performed in the field. The results of field analyses performed by the Sampler included in the Certificate of Analysis are done so at the client's request and are not included in the laboratory's fields of certification nor have they been audited for adherence to a reference method or procedure.

The signature on the final report certifies that these results conform to all applicable NELAC standards unless otherwise specified. For a complete list of the Laboratory's NELAC certified parameters please contact customer service.

This report shall not be reproduced except in full without the expressed and written approval of an authorized representative of Enthalpy Analytical.

Analysis Detects Report

Client Name: SCS Engineers-Winchester
 Client Site ID: City of Bristol 1st Semi-Annual 2022
 Submitted To: Jennifer Robb

Date Issued: 7/12/2022 2:25:23PM

Laboratory Sample ID: 22E1463-02

Client Sample ID: MW-205B

Parameter	Samp ID	Reference Method	Sample Results	Qual	LOD	LOQ	Dil. Factor	Units
Arsenic	02	SW6020B	0.56	J	0.50	1.0	1	ug/L
Barium	02	SW6020B	93.3		1.00	5.00	1	ug/L
Zinc	02	SW6020B	3.43	J	2.50	5.00	1	ug/L
Methane	02	RSK175M	378		1.50	5.00	1	ug/L
Alkalinity	02	SM22 2320B-2011	309		5.0	5.0	1	mg/L
Chloride	02	SW9056A	8.3		0.5	1.0	1	mg/L

Laboratory Sample ID: 22E1463-03

Client Sample ID: Field Blank

Parameter	Samp ID	Reference Method	Sample Results	Qual	LOD	LOQ	Dil. Factor	Units
Acetone	03	SW8260D	12.1		7.00	10.0	1	ug/L

Laboratory Sample ID: 22E1463-04

Client Sample ID: MW-211A

Parameter	Samp ID	Reference Method	Sample Results	Qual	LOD	LOQ	Dil. Factor	Units
Barium	04	SW6020B	47.5		1.00	5.00	1	ug/L
Cobalt	04	SW6020B	0.316	J	0.200	1.00	1	ug/L
Methane	04	RSK175M	27.0		1.50	5.00	1	ug/L
Alkalinity	04	SM22 2320B-2011	297		5.0	5.0	1	mg/L
Chloride	04	SW9056A	1.0	J	0.5	1.0	1	mg/L

Analysis Detects Report

Client Name: SCS Engineers-Winchester
 Client Site ID: City of Bristol 1st Semi-Annual 2022
 Submitted To: Jennifer Robb

Date Issued: 7/12/2022 2:25:23PM

Laboratory Sample ID: **22E1463-05** Client Sample ID: **MW-206B**

Parameter	Samp ID	Reference Method	Sample Results	Qual	LOD	LOQ	Dil. Factor	Units
Arsenic	05	SW6020B	0.61	J	0.50	1.0	1	ug/L
Barium	05	SW6020B	136		1.00	5.00	1	ug/L
Chromium	05	SW6020B	0.961	J	0.400	1.00	1	ug/L
Cobalt	05	SW6020B	1.43		0.200	1.00	1	ug/L
Copper	05	SW6020B	1.31		0.300	1.00	1	ug/L
Nickel	05	SW6020B	18.90		1.000	1.000	1	ug/L
Silver	05	SW6020B	0.136	J	0.0600	1.00	1	ug/L
Zinc	05	SW6020B	15.7		2.50	5.00	1	ug/L
Methane	05	RSK175M	3.48	J	1.50	5.00	1	ug/L
Alkalinity	05	SM22 2320B-2011	333		5.0	5.0	1	mg/L
Chloride	05	SW9056A	7.5		0.5	1.0	1	mg/L

Laboratory Sample ID: **22E1463-06** Client Sample ID: **MW-211B**

Parameter	Samp ID	Reference Method	Sample Results	Qual	LOD	LOQ	Dil. Factor	Units
Barium	06	SW6020B	88.8		1.00	5.00	1	ug/L
Chromium	06	SW6020B	0.459	J	0.400	1.00	1	ug/L
Silver	06	SW6020B	0.0632	J	0.0600	1.00	1	ug/L
Zinc	06	SW6020B	3.52	J	2.50	5.00	1	ug/L
Alkalinity	06	SM22 2320B-2011	345		5.0	5.0	1	mg/L
Chloride	06	SW9056A	2.2		0.5	1.0	1	mg/L

Analysis Detects Report

Client Name: SCS Engineers-Winchester
 Client Site ID: City of Bristol 1st Semi-Annual 2022
 Submitted To: Jennifer Robb

Date Issued: 7/12/2022 2:25:23PM

Laboratory Sample ID: 22E1463-07 Client Sample ID: MW-108

Parameter	Samp ID	Reference Method	Sample Results	Qual	LOD	LOQ	Dil. Factor	Units
Arsenic	07	SW6020B	13		0.50	1.0	1	ug/L
Barium	07RE1	SW6020B	757		10.0	50.0	10	ug/L
Cadmium	07	SW6020B	0.203	J	0.100	1.00	1	ug/L
Chromium	07	SW6020B	1.15		0.400	1.00	1	ug/L
Cobalt	07	SW6020B	42.8		0.200	1.00	1	ug/L
Copper	07	SW6020B	2.50		0.300	1.00	1	ug/L
Mercury	07	SW7470A	0.00057		0.00020	0.00020	1	mg/L
Nickel	07	SW6020B	35.69		1.000	1.000	1	ug/L
Zinc	07	SW6020B	54.4		2.50	5.00	1	ug/L
1,1-Dichloroethane	07	SW8260D	5.81		0.60	1.00	1	ug/L
1,4-Dichlorobenzene	07	SW8260D	1.75		0.40	1.00	1	ug/L
Benzene	07	SW8260D	9.46		0.40	1.00	1	ug/L
Chlorobenzene	07	SW8260D	1.30		0.40	1.00	1	ug/L
Chloroethane	07	SW8260D	1.22		0.70	1.00	1	ug/L
cis-1,2-Dichloroethylene	07	SW8260D	54.7		0.40	1.00	1	ug/L
Toluene	07	SW8260D	17.4		0.50	1.00	1	ug/L
Vinyl chloride	07	SW8260D	8.13		0.50	0.50	1	ug/L
Phenol	07	SW8270E	3.37	J	2.34	10.0	1	ug/L
Methane	07RE1	RSK175M	2440		7.50	25.0	5	ug/L
Alkalinity	07	SM22 2320B-2011	680		5.0	5.0	1	mg/L
Chloride	07	SW9056A	34.7		0.5	1.0	1	mg/L

Analysis Detects Report

 Client Name: SCS Engineers-Winchester
 Client Site ID: City of Bristol 1st Semi-Annual 2022
 Submitted To: Jennifer Robb

Date Issued: 7/12/2022 2:25:23PM

Laboratory Sample ID: 22E1463-08 Client Sample ID: MW-108 Duplicate

Parameter	Samp ID	Reference Method	Sample Results	Qual	LOD	LOQ	Dil. Factor	Units
Arsenic	08	SW6020B	13		0.50	1.0	1	ug/L
Barium	08RE1	SW6020B	733		10.0	50.0	10	ug/L
Chromium	08	SW6020B	0.473	J	0.400	1.00	1	ug/L
Cobalt	08	SW6020B	41.7		0.200	1.00	1	ug/L
Copper	08	SW6020B	0.716	J	0.300	1.00	1	ug/L
Nickel	08	SW6020B	34.63		1.000	1.000	1	ug/L
Zinc	08	SW6020B	27.6		2.50	5.00	1	ug/L
1,1-Dichloroethane	08	SW8260D	6.28		0.60	1.00	1	ug/L
Benzene	08	SW8260D	7.30		0.40	1.00	1	ug/L
Chlorobenzene	08	SW8260D	1.31		0.40	1.00	1	ug/L
Chloroethane	08	SW8260D	1.07		0.70	1.00	1	ug/L
cis-1,2-Dichloroethylene	08	SW8260D	61.3		0.40	1.00	1	ug/L
Toluene	08	SW8260D	10.9		0.50	1.00	1	ug/L
Vinyl chloride	08	SW8260D	7.98		0.50	0.50	1	ug/L
Phenol	08	SW8270E	2.75	J	2.34	10.0	1	ug/L
Methane	08RE1	RSK175M	3430		7.50	25.0	5	ug/L
Alkalinity	08	SM22 2320B-2011	639		5.0	5.0	1	mg/L
Chloride	08	SW9056A	35.7		0.5	1.0	1	mg/L

Note that this report is not the "Certificate of Analysis". This report only lists the target analytes that displayed concentrations that exceeded the detection limit specified for that analyte. For a complete listing of all analytes requested and the results of the analysis see the "Certificate of Analysis".

Certificate of Analysis

Client Name: SCS Engineers-Winchester
 Client Site I.D.: City of Bristol 1st Semi-Annual 2022
 Submitted To: Jennifer Robb

Date Issued: 7/12/2022 2:25:23PM

ANALYTICAL REPORT FOR SAMPLES

Sample ID	Laboratory ID	Matrix	Date Sampled	Date Received
Trip Blank	22E1463-01	Ground Water	05/19/2022 12:20	05/27/2022 16:30
MW-205B	22E1463-02	Ground Water	05/25/2022 14:24	05/27/2022 16:30
Field Blank	22E1463-03	Ground Water	05/25/2022 15:00	05/27/2022 16:30
MW-211A	22E1463-04	Ground Water	05/25/2022 18:09	05/27/2022 16:30
MW-206B	22E1463-05	Ground Water	05/26/2022 12:25	05/27/2022 16:30
MW-211B	22E1463-06	Ground Water	05/26/2022 13:55	05/27/2022 16:30
MW-108	22E1463-07	Ground Water	05/26/2022 18:10	05/27/2022 16:30
MW-108 Duplicate	22E1463-08	Ground Water	05/26/2022 19:10	05/27/2022 16:30

Final COA reissued on 6/27 to update reportinglist and limits per COC.

Certificate of Analysis

Client Name: SCS Engineers-Winchester
 Client Site I.D.: City of Bristol 1st Semi-Annual 2022
 Submitted To: Jennifer Robb

Date Issued: 7/12/2022 2:25:23PM

Client Sample ID: Trip Blank

Laboratory Sample ID: 22E1463-01

Parameter	Samp ID	CAS	Reference Method	Sample Prep Date/Time	Analyzed Date/Time	Sample Results	Qual	LOD	LOQ	DF	Units	Analyst
Volatile Organic Compounds by GCMS												
1,1,1,2-Tetrachloroethane	01	630-20-6	SW8260D	06/02/2022 13:38	06/02/2022 13:38	BLOD		0.40	0.40	1	ug/L	RJB
1,1,1-Trichloroethane	01	71-55-6	SW8260D	06/02/2022 13:38	06/02/2022 13:38	BLOD		0.60	1.00	1	ug/L	RJB
1,1,1,2-Tetrachloroethane	01	79-34-5	SW8260D	06/02/2022 13:38	06/02/2022 13:38	BLOD		0.30	0.40	1	ug/L	RJB
1,1,2-Trichloroethane	01	79-00-5	SW8260D	06/02/2022 13:38	06/02/2022 13:38	BLOD		0.50	1.00	1	ug/L	RJB
1,1-Dichloroethane	01	75-34-3	SW8260D	06/02/2022 13:38	06/02/2022 13:38	BLOD		0.60	1.00	1	ug/L	RJB
1,1-Dichloroethylene	01	75-35-4	SW8260D	06/02/2022 13:38	06/02/2022 13:38	BLOD		0.70	1.00	1	ug/L	RJB
1,1-Dichloropropene	01	563-58-6	SW8260D	06/02/2022 13:38	06/02/2022 13:38	BLOD		0.60	1.00	1	ug/L	RJB
1,2,3-Trichloropropane	01	96-18-4	SW8260D	06/02/2022 13:38	06/02/2022 13:38	BLOD		0.40	1.00	1	ug/L	RJB
1,2,4-Trichlorobenzene	01	120-82-1	SW8260D	06/02/2022 13:38	06/02/2022 13:38	BLOD		0.50	1.00	1	ug/L	RJB
1,2-Dichlorobenzene	01	95-50-1	SW8260D	06/02/2022 13:38	06/02/2022 13:38	BLOD		0.40	1.00	1	ug/L	RJB
1,2-Dichloroethane	01	107-06-2	SW8260D	06/02/2022 13:38	06/02/2022 13:38	BLOD		0.70	1.00	1	ug/L	RJB
1,2-Dichloropropane	01	78-87-5	SW8260D	06/02/2022 13:38	06/02/2022 13:38	BLOD		0.40	1.00	1	ug/L	RJB
1,3-Dichlorobenzene	01	541-73-1	SW8260D	06/02/2022 13:38	06/02/2022 13:38	BLOD		0.30	1.00	1	ug/L	RJB
1,3-Dichloropropane	01	142-28-9	SW8260D	06/02/2022 13:38	06/02/2022 13:38	BLOD		1.00	1.00	1	ug/L	RJB
1,4-Dichlorobenzene	01	106-46-7	SW8260D	06/02/2022 13:38	06/02/2022 13:38	BLOD		0.40	1.00	1	ug/L	RJB
2,2-Dichloropropane	01	594-20-7	SW8260D	06/02/2022 13:38	06/02/2022 13:38	BLOD		0.60	2.00	1	ug/L	RJB
2-Butanone (MEK)	01	78-93-3	SW8260D	06/02/2022 13:38	06/02/2022 13:38	BLOD		3.00	10.0	1	ug/L	RJB
2-Hexanone (MBK)	01	591-78-6	SW8260D	06/02/2022 13:38	06/02/2022 13:38	BLOD		2.20	5.00	1	ug/L	RJB
4-Methyl-2-pentanone (MIBK)	01	108-10-1	SW8260D	06/02/2022 13:38	06/02/2022 13:38	BLOD		1.50	5.00	1	ug/L	RJB
Acetone	01	67-64-1	SW8260D	06/02/2022 13:38	06/02/2022 13:38	BLOD		7.00	10.0	1	ug/L	RJB
Acetonitrile	01	75-05-8	SW8260D	06/02/2022 13:38	06/02/2022 13:38	BLOD		8.00	10.0	1	ug/L	RJB
Acrolein	01	107-02-8	SW8260D	06/02/2022 13:38	06/02/2022 13:38	BLOD		6.00	10.0	1	ug/L	RJB
Acrylonitrile	01	107-13-1	SW8260D	06/02/2022 13:38	06/02/2022 13:38	BLOD		1.70	5.00	1	ug/L	RJB
Allyl chloride	01	107-05-1	SW8260D	06/02/2022 13:38	06/02/2022 13:38	BLOD		0.60	1.00	1	ug/L	RJB

Certificate of Analysis

Client Name: SCS Engineers-Winchester
 Client Site I.D.: City of Bristol 1st Semi-Annual 2022
 Submitted To: Jennifer Robb

Date Issued: 7/12/2022 2:25:23PM

Client Sample ID: Trip Blank

Laboratory Sample ID: 22E1463-01

Parameter	Samp ID	CAS	Reference Method	Sample Prep Date/Time	Analyzed Date/Time	Sample Results	Qual	LOD	LOQ	DF	Units	Analyst
Volatile Organic Compounds by GCMS												
Benzene	01	71-43-2	SW8260D	06/02/2022 13:38	06/02/2022 13:38	BLOD		0.40	1.00	1	ug/L	RJB
Bromochloromethane	01	74-97-5	SW8260D	06/02/2022 13:38	06/02/2022 13:38	BLOD		0.50	1.00	1	ug/L	RJB
Bromodichloromethane	01	75-27-4	SW8260D	06/02/2022 13:38	06/02/2022 13:38	BLOD		0.40	0.50	1	ug/L	RJB
Bromoform	01	75-25-2	SW8260D	06/02/2022 13:38	06/02/2022 13:38	BLOD		0.40	1.00	1	ug/L	RJB
Bromomethane	01	74-83-9	SW8260D	06/02/2022 13:38	06/02/2022 13:38	BLOD		0.80	1.00	1	ug/L	RJB
Carbon disulfide	01	75-15-0	SW8260D	06/02/2022 13:38	06/02/2022 13:38	BLOD		5.00	10.0	1	ug/L	RJB
Carbon tetrachloride	01	56-23-5	SW8260D	06/02/2022 13:38	06/02/2022 13:38	BLOD		0.50	1.00	1	ug/L	RJB
Chlorobenzene	01	108-90-7	SW8260D	06/02/2022 13:38	06/02/2022 13:38	BLOD		0.40	1.00	1	ug/L	RJB
Chloroethane	01	75-00-3	SW8260D	06/02/2022 13:38	06/02/2022 13:38	BLOD		0.70	1.00	1	ug/L	RJB
Chloroform	01	67-66-3	SW8260D	06/02/2022 13:38	06/02/2022 13:38	BLOD		0.50	0.50	1	ug/L	RJB
Chloromethane	01	74-87-3	SW8260D	06/02/2022 13:38	06/02/2022 13:38	BLOD		0.95	1.00	1	ug/L	RJB
Chloroprene	01	126-99-8	SW8260D	06/02/2022 13:38	06/02/2022 13:38	BLOD		0.50	5.00	1	ug/L	RJB
cis-1,2-Dichloroethylene	01	156-59-2	SW8260D	06/02/2022 13:38	06/02/2022 13:38	BLOD		0.40	1.00	1	ug/L	RJB
cis-1,3-Dichloropropene	01	10061-01-5	SW8260D	06/02/2022 13:38	06/02/2022 13:38	BLOD		0.30	1.00	1	ug/L	RJB
Dibromochloromethane	01	124-48-1	SW8260D	06/02/2022 13:38	06/02/2022 13:38	BLOD		0.35	0.50	1	ug/L	RJB
Dibromomethane	01	74-95-3	SW8260D	06/02/2022 13:38	06/02/2022 13:38	BLOD		0.40	1.00	1	ug/L	RJB
Dichlorodifluoromethane	01	75-71-8	SW8260D	06/02/2022 13:38	06/02/2022 13:38	BLOD		0.95	1.00	1	ug/L	RJB
Ethyl methacrylate	01	97-63-2	SW8260D	06/02/2022 13:38	06/02/2022 13:38	BLOD		0.70	5.00	1	ug/L	RJB
Ethylbenzene	01	100-41-4	SW8260D	06/02/2022 13:38	06/02/2022 13:38	BLOD		0.40	1.00	1	ug/L	RJB
Iodomethane	01	74-88-4	SW8260D	06/02/2022 13:38	06/02/2022 13:38	BLOD		6.00	10.0	1	ug/L	RJB
Isobutyl Alcohol	01	78-83-1	SW8260D	06/02/2022 13:38	06/02/2022 13:38	BLOD		25.0	40.0	1	ug/L	RJB
m+p-Xylenes	01	179601-23-1	SW8260D	06/02/2022 13:38	06/02/2022 13:38	BLOD		0.60	2.00	1	ug/L	RJB
Methacrylonitrile	01	126-98-7	SW8260D	06/02/2022 13:38	06/02/2022 13:38	BLOD		1.00	1.50	1	ug/L	RJB

Certificate of Analysis

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Date Issued: 7/12/2022 2:25:23PM

Client Sample ID: Trip Blank

Laboratory Sample ID: 22E1463-01

Parameter	Samp ID	CAS	Reference Method	Sample Prep Date/Time	Analyzed Date/Time	Sample Results	Qual	LOD	LOQ	DF	Units	Analyst
Volatile Organic Compounds by GCMS												
Methyl methacrylate	01	80-62-6	SW8260D	06/02/2022 13:38	06/02/2022 13:38	BLOD		0.70	2.00	1	ug/L	RJB
Methylene chloride	01	75-09-2	SW8260D	06/02/2022 13:38	06/02/2022 13:38	BLOD		4.00	4.00	1	ug/L	RJB
Naphthalene	01	91-20-3	SW8260D	06/02/2022 13:38	06/02/2022 13:38	BLOD		0.80	1.00	1	ug/L	RJB
o-Xylene	01	95-47-6	SW8260D	06/02/2022 13:38	06/02/2022 13:38	BLOD		0.40	1.00	1	ug/L	RJB
Propionitrile	01	107-12-0	SW8260D	06/02/2022 13:38	06/02/2022 13:38	BLOD		7.50	40.0	1	ug/L	RJB
Styrene	01	100-42-5	SW8260D	06/02/2022 13:38	06/02/2022 13:38	BLOD		0.40	1.00	1	ug/L	RJB
Tetrachloroethylene (PCE)	01	127-18-4	SW8260D	06/02/2022 13:38	06/02/2022 13:38	BLOD		0.40	1.00	1	ug/L	RJB
Toluene	01	108-88-3	SW8260D	06/02/2022 13:38	06/02/2022 13:38	BLOD		0.50	1.00	1	ug/L	RJB
trans-1,2-Dichloroethylene	01	156-60-5	SW8260D	06/02/2022 13:38	06/02/2022 13:38	BLOD		0.60	1.00	1	ug/L	RJB
trans-1,3-Dichloropropene	01	10061-02-6	SW8260D	06/02/2022 13:38	06/02/2022 13:38	BLOD		0.30	1.00	1	ug/L	RJB
trans-1,4-Dichloro-2-butene	01	110-57-6	SW8260D	06/02/2022 13:38	06/02/2022 13:38	BLOD		1.00	4.00	1	ug/L	RJB
Trichloroethylene	01	79-01-6	SW8260D	06/02/2022 13:38	06/02/2022 13:38	BLOD		0.40	1.00	1	ug/L	RJB
Trichlorofluoromethane	01	75-69-4	SW8260D	06/02/2022 13:38	06/02/2022 13:38	BLOD		0.80	1.00	1	ug/L	RJB
Vinyl acetate	01	108-05-4	SW8260D	06/02/2022 13:38	06/02/2022 13:38	BLOD		2.00	10.0	1	ug/L	RJB
Vinyl chloride	01	75-01-4	SW8260D	06/02/2022 13:38	06/02/2022 13:38	BLOD		0.50	0.50	1	ug/L	RJB
Xylenes, Total	01	1330-20-7	SW8260D	06/02/2022 13:38	06/02/2022 13:38	BLOD		1.00	3.00	1	ug/L	RJB
<i>Surr: 1,2-Dichloroethane-d4 (Surr)</i>	<i>01</i>	<i>90.2 %</i>	<i>70-120</i>	<i>06/02/2022 13:38</i>	<i>06/02/2022 13:38</i>							
<i>Surr: 4-Bromofluorobenzene (Surr)</i>	<i>01</i>	<i>92.9 %</i>	<i>75-120</i>	<i>06/02/2022 13:38</i>	<i>06/02/2022 13:38</i>							
<i>Surr: Dibromofluoromethane (Surr)</i>	<i>01</i>	<i>91.3 %</i>	<i>70-130</i>	<i>06/02/2022 13:38</i>	<i>06/02/2022 13:38</i>							
<i>Surr: Toluene-d8 (Surr)</i>	<i>01</i>	<i>101 %</i>	<i>70-130</i>	<i>06/02/2022 13:38</i>	<i>06/02/2022 13:38</i>							

Certificate of Analysis

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Client Sample ID: Trip Blank

Laboratory Sample ID: 22E1463-01

Parameter	Samp ID	CAS	Reference Method	Sample Prep Date/Time	Analyzed Date/Time	Sample Results	Qual	LOD	LOQ	DF	Units	Analyst
Micro-extractables by GC/ECD												
1,2-Dibromoethane (EDB)	01	106-93-4	SW8011	06/07/2022 11:30	06/07/2022 19:36	BLOD		0.008	0.010	1	ug/L	LBH2
1,2,3-Trichloropropane	01	96-18-4	SW8011	06/07/2022 11:30	06/07/2022 19:36	BLOD		0.009	0.010	1	ug/L	LBH2
1,2-Dibromo-3-chloropropane (DBCP)	01	96-12-8	SW8011	06/07/2022 11:30	06/07/2022 19:36	BLOD		0.005	0.010	1	ug/L	LBH2

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Client Sample ID: MW-205B

Laboratory Sample ID: 22E1463-02

Parameter	Samp ID	CAS	Reference Method	Sample Prep Date/Time	Analyzed Date/Time	Sample Results	Qual	LOD	LOQ	DF	Units	Analyst
Metals (Total) by EPA 6000/7000 Series Methods												
Silver	02	7440-22-4	SW6020B	06/02/2022 17:00	06/07/2022 17:45	BLOD		0.0600	1.00	1	ug/L	RCV
Arsenic	02	7440-38-2	SW6020B	06/02/2022 17:00	06/07/2022 17:45	0.56	J	0.50	1.0	1	ug/L	RCV
Barium	02	7440-39-3	SW6020B	06/02/2022 17:00	06/07/2022 17:45	93.3		1.00	5.00	1	ug/L	RCV
Beryllium	02	7440-41-7	SW6020B	06/02/2022 17:00	06/07/2022 17:45	BLOD		0.200	1.00	1	ug/L	RCV
Cadmium	02	7440-43-9	SW6020B	06/02/2022 17:00	06/07/2022 17:45	BLOD		0.100	1.00	1	ug/L	RCV
Cobalt	02	7440-48-4	SW6020B	06/02/2022 17:00	06/07/2022 17:45	BLOD		0.200	1.00	1	ug/L	RCV
Chromium	02	7440-47-3	SW6020B	06/02/2022 17:00	06/07/2022 17:45	BLOD		0.400	1.00	1	ug/L	RCV
Copper	02	7440-50-8	SW6020B	06/02/2022 17:00	06/07/2022 17:45	BLOD		0.300	1.00	1	ug/L	RCV
Mercury	02	7439-97-6	SW7470A	06/09/2022 10:29	06/09/2022 15:20	BLOD		0.00020	0.00020	1	mg/L	MWL
Nickel	02	7440-02-0	SW6020B	06/02/2022 17:00	06/07/2022 17:45	BLOD		1.000	1.000	1	ug/L	RCV
Lead	02	7439-92-1	SW6020B	06/02/2022 17:00	06/07/2022 17:45	BLOD		1.0	1.0	1	ug/L	RCV
Antimony	02	7440-36-0	SW6020B	06/02/2022 17:00	06/07/2022 17:45	BLOD		1.0	1.0	1	ug/L	RCV
Selenium	02	7782-49-2	SW6020B	06/02/2022 17:00	06/07/2022 17:45	BLOD		0.850	1.00	1	ug/L	RCV
Tin	02	7440-31-5	SW6020B	06/02/2022 17:00	06/07/2022 17:45	BLOD		1.00	1.00	1	ug/L	RCV
Thallium	02	7440-28-0	SW6020B	06/02/2022 17:00	06/07/2022 17:45	BLOD		1.0	1.0	1	ug/L	RCV
Vanadium	02	7440-62-2	SW6020B	06/02/2022 17:00	06/07/2022 17:45	BLOD		2.50	5.00	1	ug/L	RCV
Zinc	02	7440-66-6	SW6020B	06/02/2022 17:00	06/07/2022 17:45	3.43	J	2.50	5.00	1	ug/L	RCV

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Client Sample ID: MW-205B

Laboratory Sample ID: 22E1463-02

Parameter	Samp ID	CAS	Reference Method	Sample Prep Date/Time	Analyzed Date/Time	Sample Results	Qual	LOD	LOQ	DF	Units	Analyst
Volatile Organic Compounds by GCMS												
1,1,1,2-Tetrachloroethane	02	630-20-6	SW8260D	06/01/2022 12:17	06/01/2022 12:17	BLOD		0.40	0.40	1	ug/L	BMR
1,1,1-Trichloroethane	02	71-55-6	SW8260D	06/01/2022 12:17	06/01/2022 12:17	BLOD		0.60	1.00	1	ug/L	BMR
1,1,2,2-Tetrachloroethane	02	79-34-5	SW8260D	06/01/2022 12:17	06/01/2022 12:17	BLOD		0.30	0.40	1	ug/L	BMR
1,1,2-Trichloroethane	02	79-00-5	SW8260D	06/01/2022 12:17	06/01/2022 12:17	BLOD		0.50	1.00	1	ug/L	BMR
1,1-Dichloroethane	02	75-34-3	SW8260D	06/01/2022 12:17	06/01/2022 12:17	BLOD		0.60	1.00	1	ug/L	BMR
1,1-Dichloroethylene	02	75-35-4	SW8260D	06/01/2022 12:17	06/01/2022 12:17	BLOD		0.70	1.00	1	ug/L	BMR
1,1-Dichloropropene	02	563-58-6	SW8260D	06/01/2022 12:17	06/01/2022 12:17	BLOD		0.60	1.00	1	ug/L	BMR
1,2,3-Trichloropropane	02	96-18-4	SW8260D	06/01/2022 12:17	06/01/2022 12:17	BLOD		0.40	1.00	1	ug/L	BMR
1,2,4-Trichlorobenzene	02	120-82-1	SW8260D	06/01/2022 12:17	06/01/2022 12:17	BLOD		0.50	1.00	1	ug/L	BMR
1,2-Dichlorobenzene	02	95-50-1	SW8260D	06/01/2022 12:17	06/01/2022 12:17	BLOD		0.40	1.00	1	ug/L	BMR
1,2-Dichloroethane	02	107-06-2	SW8260D	06/01/2022 12:17	06/01/2022 12:17	BLOD		0.70	1.00	1	ug/L	BMR
1,2-Dichloropropane	02	78-87-5	SW8260D	06/01/2022 12:17	06/01/2022 12:17	BLOD		0.40	1.00	1	ug/L	BMR
1,3-Dichlorobenzene	02	541-73-1	SW8260D	06/01/2022 12:17	06/01/2022 12:17	BLOD		0.30	1.00	1	ug/L	BMR
1,3-Dichloropropane	02	142-28-9	SW8260D	06/01/2022 12:17	06/01/2022 12:17	BLOD		1.00	1.00	1	ug/L	BMR
1,4-Dichlorobenzene	02	106-46-7	SW8260D	06/01/2022 12:17	06/01/2022 12:17	BLOD		0.40	1.00	1	ug/L	BMR
2,2-Dichloropropane	02	594-20-7	SW8260D	06/01/2022 12:17	06/01/2022 12:17	BLOD		0.60	2.00	1	ug/L	BMR
2-Butanone (MEK)	02	78-93-3	SW8260D	06/01/2022 12:17	06/01/2022 12:17	BLOD		3.00	10.0	1	ug/L	BMR
2-Hexanone (MBK)	02	591-78-6	SW8260D	06/01/2022 12:17	06/01/2022 12:17	BLOD		2.20	5.00	1	ug/L	BMR
4-Methyl-2-pentanone (MIBK)	02	108-10-1	SW8260D	06/01/2022 12:17	06/01/2022 12:17	BLOD		1.50	5.00	1	ug/L	BMR
Acetone	02	67-64-1	SW8260D	06/01/2022 12:17	06/01/2022 12:17	BLOD		7.00	10.0	1	ug/L	BMR
Acetonitrile	02	75-05-8	SW8260D	06/01/2022 12:17	06/01/2022 12:17	BLOD		8.00	10.0	1	ug/L	BMR
Acrolein	02	107-02-8	SW8260D	06/01/2022 12:17	06/01/2022 12:17	BLOD		6.00	10.0	1	ug/L	BMR
Acrylonitrile	02	107-13-1	SW8260D	06/01/2022 12:17	06/01/2022 12:17	BLOD		1.70	5.00	1	ug/L	BMR
Allyl chloride	02	107-05-1	SW8260D	06/01/2022 12:17	06/01/2022 12:17	BLOD		0.60	1.00	1	ug/L	BMR

Certificate of Analysis

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Client Sample ID: MW-205B

Laboratory Sample ID: 22E1463-02

Parameter	Samp ID	CAS	Reference Method	Sample Prep Date/Time	Analyzed Date/Time	Sample Results	Qual	LOD	LOQ	DF	Units	Analyst
Volatile Organic Compounds by GCMS												
Benzene	02	71-43-2	SW8260D	06/01/2022 12:17	06/01/2022 12:17	BLOD		0.40	1.00	1	ug/L	BMR
Bromochloromethane	02	74-97-5	SW8260D	06/01/2022 12:17	06/01/2022 12:17	BLOD		0.50	1.00	1	ug/L	BMR
Bromodichloromethane	02	75-27-4	SW8260D	06/01/2022 12:17	06/01/2022 12:17	BLOD		0.40	0.50	1	ug/L	BMR
Bromoform	02	75-25-2	SW8260D	06/01/2022 12:17	06/01/2022 12:17	BLOD		0.40	1.00	1	ug/L	BMR
Bromomethane	02	74-83-9	SW8260D	06/01/2022 12:17	06/01/2022 12:17	BLOD		0.80	1.00	1	ug/L	BMR
Carbon disulfide	02	75-15-0	SW8260D	06/01/2022 12:17	06/01/2022 12:17	BLOD		5.00	10.0	1	ug/L	BMR
Carbon tetrachloride	02	56-23-5	SW8260D	06/01/2022 12:17	06/01/2022 12:17	BLOD		0.50	1.00	1	ug/L	BMR
Chlorobenzene	02	108-90-7	SW8260D	06/01/2022 12:17	06/01/2022 12:17	BLOD		0.40	1.00	1	ug/L	BMR
Chloroethane	02	75-00-3	SW8260D	06/01/2022 12:17	06/01/2022 12:17	BLOD		0.70	1.00	1	ug/L	BMR
Chloroform	02	67-66-3	SW8260D	06/01/2022 12:17	06/01/2022 12:17	BLOD		0.50	0.50	1	ug/L	BMR
Chloromethane	02	74-87-3	SW8260D	06/01/2022 12:17	06/01/2022 12:17	BLOD		0.95	1.00	1	ug/L	BMR
Chloroprene	02	126-99-8	SW8260D	06/01/2022 12:17	06/01/2022 12:17	BLOD		0.50	5.00	1	ug/L	BMR
cis-1,2-Dichloroethylene	02	156-59-2	SW8260D	06/01/2022 12:17	06/01/2022 12:17	BLOD		0.40	1.00	1	ug/L	BMR
cis-1,3-Dichloropropene	02	10061-01-5	SW8260D	06/01/2022 12:17	06/01/2022 12:17	BLOD		0.30	1.00	1	ug/L	BMR
Dibromochloromethane	02	124-48-1	SW8260D	06/01/2022 12:17	06/01/2022 12:17	BLOD		0.35	0.50	1	ug/L	BMR
Dibromomethane	02	74-95-3	SW8260D	06/01/2022 12:17	06/01/2022 12:17	BLOD		0.40	1.00	1	ug/L	BMR
Dichlorodifluoromethane	02	75-71-8	SW8260D	06/01/2022 12:17	06/01/2022 12:17	BLOD		0.95	1.00	1	ug/L	BMR
Ethyl methacrylate	02	97-63-2	SW8260D	06/01/2022 12:17	06/01/2022 12:17	BLOD		0.70	5.00	1	ug/L	BMR
Ethylbenzene	02	100-41-4	SW8260D	06/01/2022 12:17	06/01/2022 12:17	BLOD		0.40	1.00	1	ug/L	BMR
Iodomethane	02	74-88-4	SW8260D	06/01/2022 12:17	06/01/2022 12:17	BLOD		6.00	10.0	1	ug/L	BMR
Isobutyl Alcohol	02	78-83-1	SW8260D	06/01/2022 12:17	06/01/2022 12:17	BLOD		25.0	40.0	1	ug/L	BMR
m+p-Xylenes	02	179601-23-1	SW8260D	06/01/2022 12:17	06/01/2022 12:17	BLOD		0.60	2.00	1	ug/L	BMR
Methacrylonitrile	02	126-98-7	SW8260D	06/01/2022 12:17	06/01/2022 12:17	BLOD		1.00	1.50	1	ug/L	BMR

Certificate of Analysis

Client Name: SCS Engineers-Winchester
 Client Site I.D.: City of Bristol 1st Semi-Annual 2022
 Submitted To: Jennifer Robb

Date Issued: 7/12/2022 2:25:23PM

Client Sample ID: MW-205B

Laboratory Sample ID: 22E1463-02

Parameter	Samp ID	CAS	Reference Method	Sample Prep Date/Time	Analyzed Date/Time	Sample Results	Qual	LOD	LOQ	DF	Units	Analyst
Volatile Organic Compounds by GCMS												
Methyl methacrylate	02	80-62-6	SW8260D	06/01/2022 12:17	06/01/2022 12:17	BLOD		0.70	2.00	1	ug/L	BMR
Methylene chloride	02	75-09-2	SW8260D	06/01/2022 12:17	06/01/2022 12:17	BLOD		4.00	4.00	1	ug/L	BMR
Naphthalene	02	91-20-3	SW8260D	06/01/2022 12:17	06/01/2022 12:17	BLOD		0.80	1.00	1	ug/L	BMR
o-Xylene	02	95-47-6	SW8260D	06/01/2022 12:17	06/01/2022 12:17	BLOD		0.40	1.00	1	ug/L	BMR
Propionitrile	02	107-12-0	SW8260D	06/01/2022 12:17	06/01/2022 12:17	BLOD		7.50	40.0	1	ug/L	BMR
Styrene	02	100-42-5	SW8260D	06/01/2022 12:17	06/01/2022 12:17	BLOD		0.40	1.00	1	ug/L	BMR
Tetrachloroethylene (PCE)	02	127-18-4	SW8260D	06/01/2022 12:17	06/01/2022 12:17	BLOD		0.40	1.00	1	ug/L	BMR
Toluene	02	108-88-3	SW8260D	06/01/2022 12:17	06/01/2022 12:17	BLOD		0.50	1.00	1	ug/L	BMR
trans-1,2-Dichloroethylene	02	156-60-5	SW8260D	06/01/2022 12:17	06/01/2022 12:17	BLOD		0.60	1.00	1	ug/L	BMR
trans-1,3-Dichloropropene	02	10061-02-6	SW8260D	06/01/2022 12:17	06/01/2022 12:17	BLOD		0.30	1.00	1	ug/L	BMR
trans-1,4-Dichloro-2-butene	02	110-57-6	SW8260D	06/01/2022 12:17	06/01/2022 12:17	BLOD		1.00	4.00	1	ug/L	BMR
Trichloroethylene	02	79-01-6	SW8260D	06/01/2022 12:17	06/01/2022 12:17	BLOD		0.40	1.00	1	ug/L	BMR
Trichlorofluoromethane	02	75-69-4	SW8260D	06/01/2022 12:17	06/01/2022 12:17	BLOD		0.80	1.00	1	ug/L	BMR
Vinyl acetate	02	108-05-4	SW8260D	06/01/2022 12:17	06/01/2022 12:17	BLOD		2.00	10.0	1	ug/L	BMR
Vinyl chloride	02	75-01-4	SW8260D	06/01/2022 12:17	06/01/2022 12:17	BLOD		0.50	0.50	1	ug/L	BMR
Xylenes, Total	02	1330-20-7	SW8260D	06/01/2022 12:17	06/01/2022 12:17	BLOD		1.00	3.00	1	ug/L	BMR
<i>Surr: 1,2-Dichloroethane-d4 (Surr)</i>	02	104 %	70-120	06/01/2022 12:17	06/01/2022 12:17							
<i>Surr: 4-Bromofluorobenzene (Surr)</i>	02	99.8 %	75-120	06/01/2022 12:17	06/01/2022 12:17							
<i>Surr: Dibromofluoromethane (Surr)</i>	02	103 %	70-130	06/01/2022 12:17	06/01/2022 12:17							
<i>Surr: Toluene-d8 (Surr)</i>	02	101 %	70-130	06/01/2022 12:17	06/01/2022 12:17							

Certificate of Analysis

Client Name: SCS Engineers-Winchester
 Client Site I.D.: City of Bristol 1st Semi-Annual 2022
 Submitted To: Jennifer Robb

Date Issued: 7/12/2022 2:25:23PM

Client Sample ID: MW-205B

Laboratory Sample ID: 22E1463-02

Parameter	Samp ID	CAS	Reference Method	Sample Prep Date/Time	Analyzed Date/Time	Sample Results	Qual	LOD	LOQ	DF	Units	Analyst
Semivolatle Organic Compounds by GCMS												
1,2,4,5-Tetrachlorobenzene	02	95-94-3	SW8270E	06/01/2022 10:16	06/01/2022 23:57	BLOD		1.87	10.0	1	ug/L	MGG
1,3,5-Trinitrobenzene	02	99-35-4	SW8270E	06/01/2022 10:16	06/01/2022 23:57	BLOD		0.93	5.00	1	ug/L	MGG
1,3-Dinitrobenzene	02	99-65-0	SW8270E	06/01/2022 10:16	06/01/2022 23:57	BLOD		2.34	2.50	1	ug/L	MGG
1,4-Naphthoquinone	02	130-15-4	SW8270E	06/01/2022 10:16	06/01/2022 23:57	BLOD		1.87	10.0	1	ug/L	MGG
1-Naphthylamine	02	134-32-7	SW8270E	06/01/2022 10:16	06/01/2022 23:57	BLOD		0.93	10.0	1	ug/L	MGG
2,3,4,6-Tetrachlorophenol	02	58-90-2	SW8270E	06/01/2022 10:16	06/01/2022 23:57	BLOD		0.93	10.0	1	ug/L	MGG
2,4,5-Trichlorophenol	02	95-95-4	SW8270E	06/01/2022 10:16	06/01/2022 23:57	BLOD		0.93	10.0	1	ug/L	MGG
2,4,6-Trichlorophenol	02	88-06-2	SW8270E	06/01/2022 10:16	06/01/2022 23:57	BLOD		7.48	10.0	1	ug/L	MGG
2,4-Dichlorophenol	02	120-83-2	SW8270E	06/01/2022 10:16	06/01/2022 23:57	BLOD		2.80	10.0	1	ug/L	MGG
2,4-Dimethylphenol	02	105-67-9	SW8270E	06/01/2022 10:16	06/01/2022 23:57	BLOD		4.67	4.67	1	ug/L	MGG
2,4-Dinitrophenol	02	51-28-5	SW8270E	06/01/2022 10:16	06/01/2022 23:57	BLOD		7.48	50.0	1	ug/L	MGG
2,4-Dinitrotoluene	02	121-14-2	SW8270E	06/01/2022 10:16	06/01/2022 23:57	BLOD		5.61	10.0	1	ug/L	MGG
2,6-Dichlorophenol	02	87-65-0	SW8270E	06/01/2022 10:16	06/01/2022 23:57	BLOD		0.93	10.0	1	ug/L	MGG
2,6-Dinitrotoluene	02	606-20-2	SW8270E	06/01/2022 10:16	06/01/2022 23:57	BLOD		3.74	10.0	1	ug/L	MGG
2-Acetylaminofluorene	02	53-96-3	SW8270E	06/01/2022 10:16	06/01/2022 23:57	BLOD		2.34	2.50	1	ug/L	MGG
2-Chloronaphthalene	02	91-58-7	SW8270E	06/01/2022 10:16	06/01/2022 23:57	BLOD		4.21	10.0	1	ug/L	MGG
2-Chlorophenol	02	95-57-8	SW8270E	06/01/2022 10:16	06/01/2022 23:57	BLOD		3.27	10.0	1	ug/L	MGG
2-Methylnaphthalene	02	91-57-6	SW8270E	06/01/2022 10:16	06/01/2022 23:57	BLOD		1.87	10.0	1	ug/L	MGG
2-Naphthylamine	02	91-59-8	SW8270E	06/01/2022 10:16	06/01/2022 23:57	BLOD		1.87	10.0	1	ug/L	MGG
2-Nitroaniline	02	88-74-4	SW8270E	06/01/2022 10:16	06/01/2022 23:57	BLOD		1.87	20.0	1	ug/L	MGG
2-Nitrophenol	02	88-75-5	SW8270E	06/01/2022 10:16	06/01/2022 23:57	BLOD		5.61	10.0	1	ug/L	MGG
3,3'-Dichlorobenzidine	02	91-94-1	SW8270E	06/01/2022 10:16	06/01/2022 23:57	BLOD		3.74	10.0	1	ug/L	MGG
3,3'-Dimethylbenzidine	02	119-93-7	SW8270E	06/01/2022 10:16	06/01/2022 23:57	BLOD		2.34	2.50	1	ug/L	MGG
3-Methylcholanthrene	02	56-49-5	SW8270E	06/01/2022 10:16	06/01/2022 23:57	BLOD		0.93	10.0	1	ug/L	MGG

Certificate of Analysis

Client Name: SCS Engineers-Winchester
 Client Site I.D.: City of Bristol 1st Semi-Annual 2022
 Submitted To: Jennifer Robb

Date Issued: 7/12/2022 2:25:23PM

Client Sample ID: MW-205B

Laboratory Sample ID: 22E1463-02

Parameter	Samp ID	CAS	Reference Method	Sample Prep Date/Time	Analyzed Date/Time	Sample Results	Qual	LOD	LOQ	DF	Units	Analyst
Semivolatile Organic Compounds by GCMS												
3-Nitroaniline	02	99-09-2	SW8270E	06/01/2022 10:16	06/01/2022 23:57	BLOD		1.87	20.0	1	ug/L	MGG
4,6-Dinitro-2-methylphenol	02	534-52-1	SW8270E	06/01/2022 10:16	06/01/2022 23:57	BLOD	C	7.48	50.0	1	ug/L	MGG
4-Aminobiphenyl	02	92-67-1	SW8270E	06/01/2022 10:16	06/01/2022 23:57	BLOD		1.87	10.0	1	ug/L	MGG
4-Bromophenyl phenyl ether	02	101-55-3	SW8270E	06/01/2022 10:16	06/01/2022 23:57	BLOD		3.27	10.0	1	ug/L	MGG
4-Chloroaniline	02	106-47-8	SW8270E	06/01/2022 10:16	06/01/2022 23:57	BLOD		1.87	10.0	1	ug/L	MGG
4-Chlorophenyl phenyl ether	02	7005-72-3	SW8270E	06/01/2022 10:16	06/01/2022 23:57	BLOD		3.27	10.0	1	ug/L	MGG
4-Nitroaniline	02	100-01-6	SW8270E	06/01/2022 10:16	06/01/2022 23:57	BLOD		1.87	20.0	1	ug/L	MGG
4-Nitrophenol	02	100-02-7	SW8270E	06/01/2022 10:16	06/01/2022 23:57	BLOD		1.87	50.0	1	ug/L	MGG
5-Nitro-o-toluidine	02	99-55-8	SW8270E	06/01/2022 10:16	06/01/2022 23:57	BLOD		1.87	10.0	1	ug/L	MGG
7,12-Dimethylbenz (a) anthracene	02	57-97-6	SW8270E	06/01/2022 10:16	06/01/2022 23:57	BLOD		1.87	10.0	1	ug/L	MGG
Acenaphthene	02	83-32-9	SW8270E	06/01/2022 10:16	06/01/2022 23:57	BLOD		3.74	10.0	1	ug/L	MGG
Acenaphthylene	02	208-96-8	SW8270E	06/01/2022 10:16	06/01/2022 23:57	BLOD		3.74	10.0	1	ug/L	MGG
Acetophenone	02	98-86-2	SW8270E	06/01/2022 10:16	06/01/2022 23:57	BLOD		1.87	20.0	1	ug/L	MGG
Anthracene	02	120-12-7	SW8270E	06/01/2022 10:16	06/01/2022 23:57	BLOD		4.67	10.0	1	ug/L	MGG
Benzo (a) anthracene	02	56-55-3	SW8270E	06/01/2022 10:16	06/01/2022 23:57	BLOD		3.27	9.35	1	ug/L	MGG
Benzo (a) pyrene	02	50-32-8	SW8270E	06/01/2022 10:16	06/01/2022 23:57	BLOD		0.19	0.20	1	ug/L	MGG
Benzo (b) fluoranthene	02	205-99-2	SW8270E	06/01/2022 10:16	06/01/2022 23:57	BLOD		3.74	10.0	1	ug/L	MGG
Benzo (g,h,i) perylene	02	191-24-2	SW8270E	06/01/2022 10:16	06/01/2022 23:57	BLOD	C	4.67	10.0	1	ug/L	MGG
Benzo (k) fluoranthene	02	207-08-9	SW8270E	06/01/2022 10:16	06/01/2022 23:57	BLOD		5.61	10.0	1	ug/L	MGG
Benzyl alcohol	02	100-51-6	SW8270E	06/01/2022 10:16	06/01/2022 23:57	BLOD		0.93	20.0	1	ug/L	MGG
bis (2-Chloroethoxy) methane	02	111-91-1	SW8270E	06/01/2022 10:16	06/01/2022 23:57	BLOD		3.27	10.0	1	ug/L	MGG
bis (2-Chloroethyl) ether	02	111-44-4	SW8270E	06/01/2022 10:16	06/01/2022 23:57	BLOD		3.27	10.0	1	ug/L	MGG
2,2'-Oxybis (1-chloropropane)	02	108-60-1	SW8270E	06/01/2022 10:16	06/01/2022 23:57	BLOD		2.80	10.0	1	ug/L	MGG
bis (2-Ethylhexyl) phthalate	02	117-81-7	SW8270E	06/01/2022 10:16	06/01/2022 23:57	BLOD		4.67	5.00	1	ug/L	MGG

Certificate of Analysis

Client Name: SCS Engineers-Winchester
 Client Site I.D.: City of Bristol 1st Semi-Annual 2022
 Submitted To: Jennifer Robb

Date Issued: 7/12/2022 2:25:23PM

Client Sample ID: MW-205B

Laboratory Sample ID: 22E1463-02

Parameter	Samp ID	CAS	Reference Method	Sample Prep Date/Time	Analyzed Date/Time	Sample Results	Qual	LOD	LOQ	DF	Units	Analyst
Semivolatile Organic Compounds by GCMS												
Butyl benzyl phthalate	02	85-68-7	SW8270E	06/01/2022 10:16	06/01/2022 23:57	BLOD		6.54	10.0	1	ug/L	MGG
Chlorobenzilate	02	510-15-6	SW8270E	06/01/2022 10:16	06/01/2022 23:57	BLOD		2.34	2.50	1	ug/L	MGG
Chrysene	02	218-01-9	SW8270E	06/01/2022 10:16	06/01/2022 23:57	BLOD		3.74	10.0	1	ug/L	MGG
Diallate	02	2303-16-4	SW8270E	06/01/2022 10:16	06/01/2022 23:57	BLOD		2.34	2.50	1	ug/L	MGG
Dibenz (a,h) anthracene	02	53-70-3	SW8270E	06/01/2022 10:16	06/01/2022 23:57	BLOD	C	4.67	10.0	1	ug/L	MGG
Dibenzofuran	02	132-64-9	SW8270E	06/01/2022 10:16	06/01/2022 23:57	BLOD		1.87	5.00	1	ug/L	MGG
Diethyl phthalate	02	84-66-2	SW8270E	06/01/2022 10:16	06/01/2022 23:57	BLOD		2.80	10.0	1	ug/L	MGG
Dimethoate	02	60-51-5	SW8270E	06/01/2022 10:16	06/01/2022 23:57	BLOD		2.34	2.50	1	ug/L	MGG
Dimethyl phthalate	02	131-11-3	SW8270E	06/01/2022 10:16	06/01/2022 23:57	BLOD		3.27	10.0	1	ug/L	MGG
Di-n-butyl phthalate	02	84-74-2	SW8270E	06/01/2022 10:16	06/01/2022 23:57	BLOD		3.74	10.0	1	ug/L	MGG
Di-n-octyl phthalate	02	117-84-0	SW8270E	06/01/2022 10:16	06/01/2022 23:57	BLOD		7.48	10.0	1	ug/L	MGG
Diphenylamine	02	122-39-4	SW8270E	06/01/2022 10:16	06/01/2022 23:57	BLOD		1.87	10.0	1	ug/L	MGG
Disulfoton	02	298-04-4	SW8270E	06/01/2022 10:16	06/01/2022 23:57	BLOD		2.34	2.50	1	ug/L	MGG
Ethyl methanesulfonate	02	62-50-0	SW8270E	06/01/2022 10:16	06/01/2022 23:57	BLOD		0.93	20.0	1	ug/L	MGG
Ethyl parathion	02	56-38-2	SW8270E	06/01/2022 10:16	06/01/2022 23:57	BLOD		2.34	2.50	1	ug/L	MGG
Famphur	02	52-85-7	SW8270E	06/01/2022 10:16	06/01/2022 23:57	BLOD		2.34	2.50	1	ug/L	MGG
Fluoranthene	02	206-44-0	SW8270E	06/01/2022 10:16	06/01/2022 23:57	BLOD		4.67	10.0	1	ug/L	MGG
Fluorene	02	86-73-7	SW8270E	06/01/2022 10:16	06/01/2022 23:57	BLOD		3.74	10.0	1	ug/L	MGG
Hexachlorobenzene	02	118-74-1	SW8270E	06/01/2022 10:16	06/01/2022 23:57	BLOD		0.93	0.93	1	ug/L	MGG
Hexachlorobutadiene	02	87-68-3	SW8270E	06/01/2022 10:16	06/01/2022 23:57	BLOD		4.21	10.0	1	ug/L	MGG
Hexachlorocyclopentadiene	02	77-47-4	SW8270E	06/01/2022 10:16	06/01/2022 23:57	BLOD	C	3.74	10.0	1	ug/L	MGG
Hexachloroethane	02	67-72-1	SW8270E	06/01/2022 10:16	06/01/2022 23:57	BLOD		3.27	10.0	1	ug/L	MGG
Hexachloropropene	02	1888-71-7	SW8270E	06/01/2022 10:16	06/01/2022 23:57	BLOD		1.87	2.50	1	ug/L	MGG
Indeno (1,2,3-cd) pyrene	02	193-39-5	SW8270E	06/01/2022 10:16	06/01/2022 23:57	BLOD	C	2.80	10.0	1	ug/L	MGG

Certificate of Analysis

Client Name: SCS Engineers-Winchester
 Client Site I.D.: City of Bristol 1st Semi-Annual 2022
 Submitted To: Jennifer Robb

Date Issued: 7/12/2022 2:25:23PM

Client Sample ID: MW-205B

Laboratory Sample ID: 22E1463-02

Parameter	Samp ID	CAS	Reference Method	Sample Prep Date/Time	Analyzed Date/Time	Sample Results	Qual	LOD	LOQ	DF	Units	Analyst
Semivolatile Organic Compounds by GCMS												
Isodrin	02	465-73-6	SW8270E	06/01/2022 10:16	06/01/2022 23:57	BLOD		0.93	10.0	1	ug/L	MGG
Isophorone	02	78-59-1	SW8270E	06/01/2022 10:16	06/01/2022 23:57	BLOD		4.67	10.0	1	ug/L	MGG
Isosafrole	02	120-58-1	SW8270E	06/01/2022 10:16	06/01/2022 23:57	BLOD		1.87	10.0	1	ug/L	MGG
Kepon	02	143-50-0	SW8270E	06/01/2022 10:16	06/01/2022 23:57	BLOD	C	1.87	9.35	1	ug/L	MGG
m+p-Cresols	02	1319-77-3	SW8270E	06/01/2022 10:16	06/01/2022 23:57	BLOD		0.93	10.0	1	ug/L	MGG
Methapyrilene	02	91-80-5	SW8270E	06/01/2022 10:16	06/01/2022 23:57	BLOD		0.93	10.0	1	ug/L	MGG
Methyl methanesulfonate	02	66-27-3	SW8270E	06/01/2022 10:16	06/01/2022 23:57	BLOD		0.93	10.0	1	ug/L	MGG
Methyl parathion	02	298-00-0	SW8270E	06/01/2022 10:16	06/01/2022 23:57	BLOD		1.87	2.50	1	ug/L	MGG
Nitrobenzene	02	98-95-3	SW8270E	06/01/2022 10:16	06/01/2022 23:57	BLOD		2.80	10.0	1	ug/L	MGG
n-Nitrosodiethylamine	02	55-18-5	SW8270E	06/01/2022 10:16	06/01/2022 23:57	BLOD		2.34	2.50	1	ug/L	MGG
n-Nitrosodimethylamine	02	62-75-9	SW8270E	06/01/2022 10:16	06/01/2022 23:57	BLOD		2.80	10.0	1	ug/L	MGG
n-Nitrosodi-n-butylamine	02	924-16-3	SW8270E	06/01/2022 10:16	06/01/2022 23:57	BLOD		1.87	10.0	1	ug/L	MGG
n-Nitrosodi-n-propylamine	02	621-64-7	SW8270E	06/01/2022 10:16	06/01/2022 23:57	BLOD		3.27	10.0	1	ug/L	MGG
n-Nitrosodiphenylamine	02	86-30-6	SW8270E	06/01/2022 10:16	06/01/2022 23:57	BLOD		2.80	10.0	1	ug/L	MGG
n-Nitrosomethylethylamine	02	10595-95-6	SW8270E	06/01/2022 10:16	06/01/2022 23:57	BLOD		1.87	2.50	1	ug/L	MGG
n-Nitrosopiperidine	02	100-75-4	SW8270E	06/01/2022 10:16	06/01/2022 23:57	BLOD		1.87	10.0	1	ug/L	MGG
n-Nitrosopyrrolidine	02	930-55-2	SW8270E	06/01/2022 10:16	06/01/2022 23:57	BLOD		1.87	2.50	1	ug/L	MGG
o,o,o-Triethyl phosphorothioate	02	126-68-1	SW8270E	06/01/2022 10:16	06/01/2022 23:57	BLOD		1.87	10.0	1	ug/L	MGG
o,o-Diethyl o-2-pyrazinyl phosphorothioate	02	297-97-2	SW8270E	06/01/2022 10:16	06/01/2022 23:57	BLOD		1.87	10.0	1	ug/L	MGG
o+m+p-Cresols	02	1319-77-3	SW8270E	06/01/2022 10:16	06/01/2022 23:57	BLOD		2.80	10.0	1	ug/L	MGG
o-Cresol	02	95-48-7	SW8270E	06/01/2022 10:16	06/01/2022 23:57	BLOD		7.48	10.0	1	ug/L	MGG
o-Toluidine	02	95-53-4	SW8270E	06/01/2022 10:16	06/01/2022 23:57	BLOD		1.87	2.50	1	ug/L	MGG
p-(Dimethylamino) azobenzene	02	60-11-7	SW8270E	06/01/2022 10:16	06/01/2022 23:57	BLOD		0.93	2.50	1	ug/L	MGG

Certificate of Analysis

 Client Name: SCS Engineers-Winchester
 Client Site I.D.: City of Bristol 1st Semi-Annual 2022
 Submitted To: Jennifer Robb

Date Issued: 7/12/2022 2:25:23PM

Client Sample ID: MW-205B

Laboratory Sample ID: 22E1463-02

Parameter	Samp ID	CAS	Reference Method	Sample Prep Date/Time	Analyzed Date/Time	Sample Results	Qual	LOD	LOQ	DF	Units	Analyst
Semivolatle Organic Compounds by GCMS												
p-Chloro-m-cresol	02	59-50-7	SW8270E	06/01/2022 10:16	06/01/2022 23:57	BLOD		7.48	10.0	1	ug/L	MGG
Pentachlorobenzene	02	608-93-5	SW8270E	06/01/2022 10:16	06/01/2022 23:57	BLOD		1.87	10.0	1	ug/L	MGG
Pentachloronitrobenzene (quintozene)	02	82-68-8	SW8270E	06/01/2022 10:16	06/01/2022 23:57	BLOD		0.93	9.35	1	ug/L	MGG
Phenacetin	02	62-44-2	SW8270E	06/01/2022 10:16	06/01/2022 23:57	BLOD		0.93	10.0	1	ug/L	MGG
Phenanthrene	02	85-01-8	SW8270E	06/01/2022 10:16	06/01/2022 23:57	BLOD		7.48	10.0	1	ug/L	MGG
Phenol	02	108-95-2	SW8270E	06/01/2022 10:16	06/01/2022 23:57	BLOD		2.34	10.0	1	ug/L	MGG
Phorate	02	298-02-2	SW8270E	06/01/2022 10:16	06/01/2022 23:57	BLOD		1.87	2.50	1	ug/L	MGG
p-Phenylenediamine	02	106-50-3	SW8270E	06/01/2022 10:16	06/01/2022 23:57	BLOD	C	1.87	10.0	1	ug/L	MGG
Pronamide	02	23950-58-5	SW8270E	06/01/2022 10:16	06/01/2022 23:57	BLOD		1.87	10.0	1	ug/L	MGG
Pyrene	02	129-00-0	SW8270E	06/01/2022 10:16	06/01/2022 23:57	BLOD		6.54	10.0	1	ug/L	MGG
Safrole	02	94-59-7	SW8270E	06/01/2022 10:16	06/01/2022 23:57	BLOD		1.87	2.50	1	ug/L	MGG
<i>Surr: 2,4,6-Tribromophenol (Surr)</i>	02	62.4 %	10-86	06/01/2022 10:16	06/01/2022 23:57							
<i>Surr: 2-Fluorobiphenyl (Surr)</i>	02	78.3 %	9-87	06/01/2022 10:16	06/01/2022 23:57							
<i>Surr: 2-Fluorophenol (Surr)</i>	02	50.0 %	10-52	06/01/2022 10:16	06/01/2022 23:57							
<i>Surr: Nitrobenzene-d5 (Surr)</i>	02	76.6 %	10-98.5	06/01/2022 10:16	06/01/2022 23:57							
<i>Surr: Phenol-d5 (Surr)</i>	02	32.8 %	5-33	06/01/2022 10:16	06/01/2022 23:57							
<i>Surr: p-Terphenyl-d14 (Surr)</i>	02	84.6 %	27-133	06/01/2022 10:16	06/01/2022 23:57							

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Client Sample ID: MW-205B

Laboratory Sample ID: 22E1463-02

Parameter	Samp ID	CAS	Reference Method	Sample Prep Date/Time	Analyzed Date/Time	Sample Results	Qual	LOD	LOQ	DF	Units	Analyst
Organochlorine Pesticides and PCBs by GC/ECD												
PCB as Aroclor 1016	02	12674-11-2	SW8082A	06/01/2022 09:00	06/01/2022 20:10	BLOD		0.140	0.200	1	ug/L	LBH2
PCB as Aroclor 1221	02	11104-28-2	SW8082A	06/01/2022 09:00	06/01/2022 20:10	BLOD		0.140	0.200	1	ug/L	LBH2
PCB as Aroclor 1232	02	11141-16-5	SW8082A	06/01/2022 09:00	06/01/2022 20:10	BLOD		0.140	0.200	1	ug/L	LBH2
PCB as Aroclor 1242	02	53469-21-9	SW8082A	06/01/2022 09:00	06/01/2022 20:10	BLOD		0.140	0.200	1	ug/L	LBH2
PCB as Aroclor 1248	02	12672-29-6	SW8082A	06/01/2022 09:00	06/01/2022 20:10	BLOD		0.140	0.200	1	ug/L	LBH2
PCB as Aroclor 1254	02	11097-69-1	SW8082A	06/01/2022 09:00	06/01/2022 20:10	BLOD		0.140	0.200	1	ug/L	LBH2
PCB as Aroclor 1260	02	11096-82-5	SW8082A	06/01/2022 09:00	06/01/2022 20:10	BLOD		0.140	0.200	1	ug/L	LBH2
<i>Surr: DCB</i>	02	98.7 %	30-105	06/01/2022 09:00	06/01/2022 20:10							
<i>Surr: TCMX</i>	02	63.9 %	30-105	06/01/2022 09:00	06/01/2022 20:10							
4,4'-DDD	02	72-54-8	SW8081B	06/01/2022 09:00	06/02/2022 10:16	BLOD		0.005	0.050	1	ug/L	LBH2
4,4'-DDE	02	72-55-9	SW8081B	06/01/2022 09:00	06/02/2022 10:16	BLOD		0.005	0.050	1	ug/L	LBH2
4,4'-DDT	02	50-29-3	SW8081B	06/01/2022 09:00	06/02/2022 10:16	BLOD		0.005	0.050	1	ug/L	LBH2
Aldrin	02	309-00-2	SW8081B	06/01/2022 09:00	06/02/2022 10:16	BLOD		0.005	0.050	1	ug/L	LBH2
alpha-BHC	02	319-84-6	SW8081B	06/01/2022 09:00	06/02/2022 10:16	BLOD		0.005	0.050	1	ug/L	LBH2
alpha-Chlordane	02	5103-71-9	SW8081B	06/01/2022 09:00	06/02/2022 10:16	BLOD		0.005	0.050	1	ug/L	LBH2
beta-BHC	02	319-85-7	SW8081B	06/01/2022 09:00	06/02/2022 10:16	BLOD		0.019	0.050	1	ug/L	LBH2
Chlordane	02	57-74-9	SW8081B	06/01/2022 09:00	06/02/2022 10:16	BLOD		0.187	0.200	1	ug/L	LBH2
delta-BHC	02	319-86-8	SW8081B	06/01/2022 09:00	06/02/2022 10:16	BLOD		0.005	0.050	1	ug/L	LBH2
Dieldrin	02	60-57-1	SW8081B	06/01/2022 09:00	06/02/2022 10:16	BLOD		0.005	0.050	1	ug/L	LBH2
Endosulfan I	02	959-98-8	SW8081B	06/01/2022 09:00	06/02/2022 10:16	BLOD		0.005	0.050	1	ug/L	LBH2
Endosulfan II	02	33213-65-9	SW8081B	06/01/2022 09:00	06/02/2022 10:16	BLOD		0.005	0.050	1	ug/L	LBH2
Endosulfan sulfate	02	1031-07-8	SW8081B	06/01/2022 09:00	06/02/2022 10:16	BLOD		0.005	0.050	1	ug/L	LBH2
Endrin	02	72-20-8	SW8081B	06/01/2022 09:00	06/02/2022 10:16	BLOD		0.005	0.050	1	ug/L	LBH2
Endrin aldehyde	02	7421-93-4	SW8081B	06/01/2022 09:00	06/02/2022 10:16	BLOD		0.005	0.050	1	ug/L	LBH2

Certificate of Analysis

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Client Sample ID: MW-205B

Laboratory Sample ID: 22E1463-02

Parameter	Samp ID	CAS	Reference Method	Sample Prep Date/Time	Analyzed Date/Time	Sample Results	Qual	LOD	LOQ	DF	Units	Analyst
Organochlorine Pesticides and PCBs by GC/ECD												
gamma-BHC (Lindane)	02	58-89-9	SW8081B	06/01/2022 09:00	06/02/2022 10:16	BLOD		0.005	0.050	1	ug/L	LBH2
gamma-Chlordane	02	5103-74-2	SW8081B	06/01/2022 09:00	06/02/2022 10:16	BLOD		0.005	0.050	1	ug/L	LBH2
Heptachlor	02	76-44-8	SW8081B	06/01/2022 09:00	06/02/2022 10:16	BLOD		0.005	0.050	1	ug/L	LBH2
Heptachlor epoxide	02	1024-57-3	SW8081B	06/01/2022 09:00	06/02/2022 10:16	BLOD		0.005	0.050	1	ug/L	LBH2
Methoxychlor	02	72-43-5	SW8081B	06/01/2022 09:00	06/02/2022 10:16	BLOD		0.005	0.050	1	ug/L	LBH2
Toxaphene	02	8001-35-2	SW8081B	06/01/2022 09:00	06/02/2022 10:16	BLOD		0.187	1.00	1	ug/L	LBH2
Surr: TCMX	02	55.8 %	18-112	06/01/2022 09:00	06/02/2022 10:16							
Surr: DCB	02	70.4 %	27-131	06/01/2022 09:00	06/02/2022 10:16							

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Parameter	Samp ID	CAS	Reference Method	Sample Prep Date/Time	Analyzed Date/Time	Sample Results	Qual	LOD	LOQ	DF	Units	Analyst
Organochlorine Herbicides by GC/ECD												
2,4,5-T	02	93-76-5	SW8151A	06/01/2022 16:20	06/09/2022 14:28	BLOD		0.200	0.500	1	ug/L	LBH2
2,4,5-TP (Silvex)	02	93-72-1	SW8151A	06/01/2022 16:20	06/09/2022 14:28	BLOD		0.107	0.500	1	ug/L	LBH2
2,4-D	02	94-75-7	SW8151A	06/01/2022 16:20	06/09/2022 14:28	BLOD		0.200	0.500	1	ug/L	LBH2
Dinoseb	02	88-85-7	SW8151A	06/01/2022 16:20	06/09/2022 14:28	BLOD		0.200	0.500	1	ug/L	LBH2
Pentachlorophenol	02	87-86-5	SW8151A	06/01/2022 16:20	06/09/2022 14:28	BLOD		0.200	0.500	1	ug/L	LBH2
<i>Surr: DCAA (Surr)</i>	02	86.1 %	48.5-134	06/01/2022 16:20	06/09/2022 14:28							

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Laboratory Sample ID: 22E1463-02

Parameter	Samp ID	CAS	Reference Method	Sample Prep Date/Time	Analyzed Date/Time	Sample Results	Qual	LOD	LOQ	DF	Units	Analyst
Micro-extractables by GC/ECD												
1,2-Dibromoethane (EDB)	02	106-93-4	SW8011	06/07/2022 11:30	06/07/2022 19:57	BLOD		0.008	0.010	1	ug/L	LBH2
1,2,3-Trichloropropane	02	96-18-4	SW8011	06/07/2022 11:30	06/07/2022 19:57	BLOD		0.009	0.010	1	ug/L	LBH2
1,2-Dibromo-3-chloropropane (DBCP)	02	96-12-8	SW8011	06/07/2022 11:30	06/07/2022 19:57	BLOD		0.005	0.010	1	ug/L	LBH2

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Laboratory Sample ID: 22E1463-02

Parameter	Samp ID	CAS	Reference Method	Sample Prep Date/Time	Analyzed Date/Time	Sample Results	Qual	LOD	LOQ	DF	Units	Analyst
Head Space Analysis by GC												
Ethane	02	74-84-0	RSK175M	06/02/2022 11:00	06/02/2022 11:00	BLOD		1.50	5.00	1	ug/L	BMR
Ethene	02	74-85-1	RSK175M	06/02/2022 11:00	06/02/2022 11:00	BLOD		1.50	5.00	1	ug/L	BMR
Methane	02	74-82-8	RSK175M	06/02/2022 11:00	06/02/2022 11:00	378		1.50	5.00	1	ug/L	BMR
<i>Surr: Acetylene (Surr)</i>	02	114 %	70-130	06/02/2022 11:00	06/02/2022 11:00							

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Parameter	Samp ID	CAS	Reference Method	Sample Prep Date/Time	Analyzed Date/Time	Sample Results	Qual	LOD	LOQ	DF	Units	Analyst
Wet Chemistry Analysis												
Alkalinity	02	NA	SM22 2320B-2011	06/08/2022 16:42	06/08/2022 16:42	309		5.0	5.0	1	mg/L	MAH
Chloride	02	16887-00-6	SW9056A	05/31/2022 22:02	05/31/2022 22:02	8.3		0.5	1.0	1	mg/L	MGG
Cyanide	02	57-12-5	SW9012B	06/06/2022 17:35	06/06/2022 17:35	BLOD		0.01	0.01	1	mg/L	Omnion Use
Sulfide	02	18496-25-8	SW9215	05/31/2022 16:50	05/31/2022 16:50	BLOD		0.80	1.00	1	mg/L	MJRL

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Client Sample ID: Field Blank

Laboratory Sample ID: 22E1463-03

Parameter	Samp ID	CAS	Reference Method	Sample Prep Date/Time	Analyzed Date/Time	Sample Results	Qual	LOD	LOQ	DF	Units	Analyst
Metals (Total) by EPA 6000/7000 Series Methods												
Silver	03	7440-22-4	SW6020B	06/02/2022 17:00	06/07/2022 17:53	BLOD		0.0600	1.00	1	ug/L	RCV
Arsenic	03	7440-38-2	SW6020B	06/02/2022 17:00	06/07/2022 17:53	BLOD		0.50	1.0	1	ug/L	RCV
Barium	03	7440-39-3	SW6020B	06/02/2022 17:00	06/07/2022 17:53	BLOD		1.00	5.00	1	ug/L	RCV
Beryllium	03	7440-41-7	SW6020B	06/02/2022 17:00	06/07/2022 17:53	BLOD		0.200	1.00	1	ug/L	RCV
Cadmium	03	7440-43-9	SW6020B	06/02/2022 17:00	06/07/2022 17:53	BLOD		0.100	1.00	1	ug/L	RCV
Cobalt	03	7440-48-4	SW6020B	06/02/2022 17:00	06/07/2022 17:53	BLOD		0.200	1.00	1	ug/L	RCV
Chromium	03	7440-47-3	SW6020B	06/02/2022 17:00	06/07/2022 17:53	BLOD		0.400	1.00	1	ug/L	RCV
Copper	03	7440-50-8	SW6020B	06/02/2022 17:00	06/07/2022 17:53	BLOD		0.300	1.00	1	ug/L	RCV
Mercury	03	7439-97-6	SW7470A	06/09/2022 10:29	06/09/2022 17:51	BLOD		0.00020	0.00020	1	mg/L	ARP
Nickel	03	7440-02-0	SW6020B	06/02/2022 17:00	06/07/2022 17:53	BLOD		1.000	1.000	1	ug/L	RCV
Lead	03	7439-92-1	SW6020B	06/02/2022 17:00	06/07/2022 17:53	BLOD		1.0	1.0	1	ug/L	RCV
Antimony	03	7440-36-0	SW6020B	06/02/2022 17:00	06/07/2022 17:53	BLOD		1.0	1.0	1	ug/L	RCV
Selenium	03	7782-49-2	SW6020B	06/02/2022 17:00	06/07/2022 17:53	BLOD		0.850	1.00	1	ug/L	RCV
Tin	03	7440-31-5	SW6020B	06/02/2022 17:00	06/07/2022 17:53	BLOD		1.00	1.00	1	ug/L	RCV
Thallium	03	7440-28-0	SW6020B	06/02/2022 17:00	06/07/2022 17:53	BLOD		1.0	1.0	1	ug/L	RCV
Vanadium	03	7440-62-2	SW6020B	06/02/2022 17:00	06/07/2022 17:53	BLOD		2.50	5.00	1	ug/L	RCV
Zinc	03	7440-66-6	SW6020B	06/02/2022 17:00	06/07/2022 17:53	BLOD		2.50	5.00	1	ug/L	RCV

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Client Sample ID: Field Blank

Laboratory Sample ID: 22E1463-03

Parameter	Samp ID	CAS	Reference Method	Sample Prep Date/Time	Analyzed Date/Time	Sample Results	Qual	LOD	LOQ	DF	Units	Analyst
Volatile Organic Compounds by GCMS												
1,1,1,2-Tetrachloroethane	03	630-20-6	SW8260D	06/02/2022 14:02	06/02/2022 14:02	BLOD		0.40	0.40	1	ug/L	RJB
1,1,1-Trichloroethane	03	71-55-6	SW8260D	06/02/2022 14:02	06/02/2022 14:02	BLOD		0.60	1.00	1	ug/L	RJB
1,1,2,2-Tetrachloroethane	03	79-34-5	SW8260D	06/02/2022 14:02	06/02/2022 14:02	BLOD		0.30	0.40	1	ug/L	RJB
1,1,2-Trichloroethane	03	79-00-5	SW8260D	06/02/2022 14:02	06/02/2022 14:02	BLOD		0.50	1.00	1	ug/L	RJB
1,1-Dichloroethane	03	75-34-3	SW8260D	06/02/2022 14:02	06/02/2022 14:02	BLOD		0.60	1.00	1	ug/L	RJB
1,1-Dichloroethylene	03	75-35-4	SW8260D	06/02/2022 14:02	06/02/2022 14:02	BLOD		0.70	1.00	1	ug/L	RJB
1,1-Dichloropropene	03	563-58-6	SW8260D	06/02/2022 14:02	06/02/2022 14:02	BLOD		0.60	1.00	1	ug/L	RJB
1,2,3-Trichloropropane	03	96-18-4	SW8260D	06/02/2022 14:02	06/02/2022 14:02	BLOD		0.40	1.00	1	ug/L	RJB
1,2,4-Trichlorobenzene	03	120-82-1	SW8260D	06/02/2022 14:02	06/02/2022 14:02	BLOD		0.50	1.00	1	ug/L	RJB
1,2-Dichlorobenzene	03	95-50-1	SW8260D	06/02/2022 14:02	06/02/2022 14:02	BLOD		0.40	1.00	1	ug/L	RJB
1,2-Dichloroethane	03	107-06-2	SW8260D	06/02/2022 14:02	06/02/2022 14:02	BLOD		0.70	1.00	1	ug/L	RJB
1,2-Dichloropropane	03	78-87-5	SW8260D	06/02/2022 14:02	06/02/2022 14:02	BLOD		0.40	1.00	1	ug/L	RJB
1,3-Dichlorobenzene	03	541-73-1	SW8260D	06/02/2022 14:02	06/02/2022 14:02	BLOD		0.30	1.00	1	ug/L	RJB
1,3-Dichloropropane	03	142-28-9	SW8260D	06/02/2022 14:02	06/02/2022 14:02	BLOD		1.00	1.00	1	ug/L	RJB
1,4-Dichlorobenzene	03	106-46-7	SW8260D	06/02/2022 14:02	06/02/2022 14:02	BLOD		0.40	1.00	1	ug/L	RJB
2,2-Dichloropropane	03	594-20-7	SW8260D	06/02/2022 14:02	06/02/2022 14:02	BLOD		0.60	2.00	1	ug/L	RJB
2-Butanone (MEK)	03	78-93-3	SW8260D	06/02/2022 14:02	06/02/2022 14:02	BLOD		3.00	10.0	1	ug/L	RJB
2-Hexanone (MBK)	03	591-78-6	SW8260D	06/02/2022 14:02	06/02/2022 14:02	BLOD		2.20	5.00	1	ug/L	RJB
4-Methyl-2-pentanone (MIBK)	03	108-10-1	SW8260D	06/02/2022 14:02	06/02/2022 14:02	BLOD		1.50	5.00	1	ug/L	RJB
Acetone	03	67-64-1	SW8260D	06/02/2022 14:02	06/02/2022 14:02	12.1		7.00	10.0	1	ug/L	RJB
Acetonitrile	03	75-05-8	SW8260D	06/02/2022 14:02	06/02/2022 14:02	BLOD		8.00	10.0	1	ug/L	RJB
Acrolein	03	107-02-8	SW8260D	06/02/2022 14:02	06/02/2022 14:02	BLOD		6.00	10.0	1	ug/L	RJB
Acrylonitrile	03	107-13-1	SW8260D	06/02/2022 14:02	06/02/2022 14:02	BLOD		1.70	5.00	1	ug/L	RJB
Allyl chloride	03	107-05-1	SW8260D	06/02/2022 14:02	06/02/2022 14:02	BLOD		0.60	1.00	1	ug/L	RJB

Certificate of Analysis

Client Name: SCS Engineers-Winchester
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 Submitted To: Jennifer Robb

Date Issued: 7/12/2022 2:25:23PM

Client Sample ID: Field Blank

Laboratory Sample ID: 22E1463-03

Parameter	Samp ID	CAS	Reference Method	Sample Prep Date/Time	Analyzed Date/Time	Sample Results	Qual	LOD	LOQ	DF	Units	Analyst
Volatile Organic Compounds by GCMS												
Benzene	03	71-43-2	SW8260D	06/02/2022 14:02	06/02/2022 14:02	BLOD		0.40	1.00	1	ug/L	RJB
Bromochloromethane	03	74-97-5	SW8260D	06/02/2022 14:02	06/02/2022 14:02	BLOD		0.50	1.00	1	ug/L	RJB
Bromodichloromethane	03	75-27-4	SW8260D	06/02/2022 14:02	06/02/2022 14:02	BLOD		0.40	0.50	1	ug/L	RJB
Bromoform	03	75-25-2	SW8260D	06/02/2022 14:02	06/02/2022 14:02	BLOD		0.40	1.00	1	ug/L	RJB
Bromomethane	03	74-83-9	SW8260D	06/02/2022 14:02	06/02/2022 14:02	BLOD		0.80	1.00	1	ug/L	RJB
Carbon disulfide	03	75-15-0	SW8260D	06/02/2022 14:02	06/02/2022 14:02	BLOD		5.00	10.0	1	ug/L	RJB
Carbon tetrachloride	03	56-23-5	SW8260D	06/02/2022 14:02	06/02/2022 14:02	BLOD		0.50	1.00	1	ug/L	RJB
Chlorobenzene	03	108-90-7	SW8260D	06/02/2022 14:02	06/02/2022 14:02	BLOD		0.40	1.00	1	ug/L	RJB
Chloroethane	03	75-00-3	SW8260D	06/02/2022 14:02	06/02/2022 14:02	BLOD		0.70	1.00	1	ug/L	RJB
Chloroform	03	67-66-3	SW8260D	06/02/2022 14:02	06/02/2022 14:02	BLOD		0.50	0.50	1	ug/L	RJB
Chloromethane	03	74-87-3	SW8260D	06/02/2022 14:02	06/02/2022 14:02	BLOD		0.95	1.00	1	ug/L	RJB
Chloroprene	03	126-99-8	SW8260D	06/02/2022 14:02	06/02/2022 14:02	BLOD		0.50	5.00	1	ug/L	RJB
cis-1,2-Dichloroethylene	03	156-59-2	SW8260D	06/02/2022 14:02	06/02/2022 14:02	BLOD		0.40	1.00	1	ug/L	RJB
cis-1,3-Dichloropropene	03	10061-01-5	SW8260D	06/02/2022 14:02	06/02/2022 14:02	BLOD		0.30	1.00	1	ug/L	RJB
Dibromochloromethane	03	124-48-1	SW8260D	06/02/2022 14:02	06/02/2022 14:02	BLOD		0.35	0.50	1	ug/L	RJB
Dibromomethane	03	74-95-3	SW8260D	06/02/2022 14:02	06/02/2022 14:02	BLOD		0.40	1.00	1	ug/L	RJB
Dichlorodifluoromethane	03	75-71-8	SW8260D	06/02/2022 14:02	06/02/2022 14:02	BLOD		0.95	1.00	1	ug/L	RJB
Ethyl methacrylate	03	97-63-2	SW8260D	06/02/2022 14:02	06/02/2022 14:02	BLOD		0.70	5.00	1	ug/L	RJB
Ethylbenzene	03	100-41-4	SW8260D	06/02/2022 14:02	06/02/2022 14:02	BLOD		0.40	1.00	1	ug/L	RJB
Iodomethane	03	74-88-4	SW8260D	06/02/2022 14:02	06/02/2022 14:02	BLOD		6.00	10.0	1	ug/L	RJB
Isobutyl Alcohol	03	78-83-1	SW8260D	06/02/2022 14:02	06/02/2022 14:02	BLOD		25.0	40.0	1	ug/L	RJB
m+p-Xylenes	03	179601-23-1	SW8260D	06/02/2022 14:02	06/02/2022 14:02	BLOD		0.60	2.00	1	ug/L	RJB
Methacrylonitrile	03	126-98-7	SW8260D	06/02/2022 14:02	06/02/2022 14:02	BLOD		1.00	1.50	1	ug/L	RJB

Certificate of Analysis

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Laboratory Sample ID: 22E1463-03

Parameter	Samp ID	CAS	Reference Method	Sample Prep Date/Time	Analyzed Date/Time	Sample Results	Qual	LOD	LOQ	DF	Units	Analyst
Volatile Organic Compounds by GCMS												
Methyl methacrylate	03	80-62-6	SW8260D	06/02/2022 14:02	06/02/2022 14:02	BLOD		0.70	2.00	1	ug/L	RJB
Methylene chloride	03	75-09-2	SW8260D	06/02/2022 14:02	06/02/2022 14:02	BLOD		4.00	4.00	1	ug/L	RJB
Naphthalene	03	91-20-3	SW8260D	06/02/2022 14:02	06/02/2022 14:02	BLOD		0.80	1.00	1	ug/L	RJB
o-Xylene	03	95-47-6	SW8260D	06/02/2022 14:02	06/02/2022 14:02	BLOD		0.40	1.00	1	ug/L	RJB
Propionitrile	03	107-12-0	SW8260D	06/02/2022 14:02	06/02/2022 14:02	BLOD		7.50	40.0	1	ug/L	RJB
Styrene	03	100-42-5	SW8260D	06/02/2022 14:02	06/02/2022 14:02	BLOD		0.40	1.00	1	ug/L	RJB
Tetrachloroethylene (PCE)	03	127-18-4	SW8260D	06/02/2022 14:02	06/02/2022 14:02	BLOD		0.40	1.00	1	ug/L	RJB
Toluene	03	108-88-3	SW8260D	06/02/2022 14:02	06/02/2022 14:02	BLOD		0.50	1.00	1	ug/L	RJB
trans-1,2-Dichloroethylene	03	156-60-5	SW8260D	06/02/2022 14:02	06/02/2022 14:02	BLOD		0.60	1.00	1	ug/L	RJB
trans-1,3-Dichloropropene	03	10061-02-6	SW8260D	06/02/2022 14:02	06/02/2022 14:02	BLOD		0.30	1.00	1	ug/L	RJB
trans-1,4-Dichloro-2-butene	03	110-57-6	SW8260D	06/02/2022 14:02	06/02/2022 14:02	BLOD		1.00	4.00	1	ug/L	RJB
Trichloroethylene	03	79-01-6	SW8260D	06/02/2022 14:02	06/02/2022 14:02	BLOD		0.40	1.00	1	ug/L	RJB
Trichlorofluoromethane	03	75-69-4	SW8260D	06/02/2022 14:02	06/02/2022 14:02	BLOD		0.80	1.00	1	ug/L	RJB
Vinyl acetate	03	108-05-4	SW8260D	06/02/2022 14:02	06/02/2022 14:02	BLOD		2.00	10.0	1	ug/L	RJB
Vinyl chloride	03	75-01-4	SW8260D	06/02/2022 14:02	06/02/2022 14:02	BLOD		0.50	0.50	1	ug/L	RJB
Xylenes, Total	03	1330-20-7	SW8260D	06/02/2022 14:02	06/02/2022 14:02	BLOD		1.00	3.00	1	ug/L	RJB
<i>Surr: 1,2-Dichloroethane-d4 (Surr)</i>	03	95.3 %	70-120	06/02/2022 14:02	06/02/2022 14:02							
<i>Surr: 4-Bromofluorobenzene (Surr)</i>	03	91.5 %	75-120	06/02/2022 14:02	06/02/2022 14:02							
<i>Surr: Dibromofluoromethane (Surr)</i>	03	89.8 %	70-130	06/02/2022 14:02	06/02/2022 14:02							
<i>Surr: Toluene-d8 (Surr)</i>	03	105 %	70-130	06/02/2022 14:02	06/02/2022 14:02							

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Parameter	Samp ID	CAS	Reference Method	Sample Prep Date/Time	Analyzed Date/Time	Sample Results	Qual	LOD	LOQ	DF	Units	Analyst
Semivolatile Organic Compounds by GCMS												
1,2,4,5-Tetrachlorobenzene	03	95-94-3	SW8270E	06/01/2022 13:30	06/02/2022 01:38	BLOD		1.87	10.0	1	ug/L	MGG
1,3,5-Trinitrobenzene	03	99-35-4	SW8270E	06/01/2022 13:30	06/02/2022 01:38	BLOD		0.93	5.00	1	ug/L	MGG
1,3-Dinitrobenzene	03	99-65-0	SW8270E	06/01/2022 13:30	06/02/2022 01:38	BLOD		2.34	2.50	1	ug/L	MGG
1,4-Naphthoquinone	03	130-15-4	SW8270E	06/01/2022 13:30	06/02/2022 01:38	BLOD		1.87	10.0	1	ug/L	MGG
1-Naphthylamine	03	134-32-7	SW8270E	06/01/2022 13:30	06/02/2022 01:38	BLOD		0.93	10.0	1	ug/L	MGG
2,3,4,6-Tetrachlorophenol	03	58-90-2	SW8270E	06/01/2022 13:30	06/02/2022 01:38	BLOD		0.93	10.0	1	ug/L	MGG
2,4,5-Trichlorophenol	03	95-95-4	SW8270E	06/01/2022 13:30	06/02/2022 01:38	BLOD		0.93	10.0	1	ug/L	MGG
2,4,6-Trichlorophenol	03	88-06-2	SW8270E	06/01/2022 13:30	06/02/2022 01:38	BLOD		7.48	10.0	1	ug/L	MGG
2,4-Dichlorophenol	03	120-83-2	SW8270E	06/01/2022 13:30	06/02/2022 01:38	BLOD		2.80	10.0	1	ug/L	MGG
2,4-Dimethylphenol	03	105-67-9	SW8270E	06/01/2022 13:30	06/02/2022 01:38	BLOD		4.67	4.67	1	ug/L	MGG
2,4-Dinitrophenol	03	51-28-5	SW8270E	06/01/2022 13:30	06/02/2022 01:38	BLOD		7.48	50.0	1	ug/L	MGG
2,4-Dinitrotoluene	03	121-14-2	SW8270E	06/01/2022 13:30	06/02/2022 01:38	BLOD		5.61	10.0	1	ug/L	MGG
2,6-Dichlorophenol	03	87-65-0	SW8270E	06/01/2022 13:30	06/02/2022 01:38	BLOD		0.93	10.0	1	ug/L	MGG
2,6-Dinitrotoluene	03	606-20-2	SW8270E	06/01/2022 13:30	06/02/2022 01:38	BLOD		3.74	10.0	1	ug/L	MGG
2-Acetylaminofluorene	03	53-96-3	SW8270E	06/01/2022 13:30	06/02/2022 01:38	BLOD		2.34	2.50	1	ug/L	MGG
2-Chloronaphthalene	03	91-58-7	SW8270E	06/01/2022 13:30	06/02/2022 01:38	BLOD		4.21	10.0	1	ug/L	MGG
2-Chlorophenol	03	95-57-8	SW8270E	06/01/2022 13:30	06/02/2022 01:38	BLOD		3.27	10.0	1	ug/L	MGG
2-Methylnaphthalene	03	91-57-6	SW8270E	06/01/2022 13:30	06/02/2022 01:38	BLOD		1.87	10.0	1	ug/L	MGG
2-Naphthylamine	03	91-59-8	SW8270E	06/01/2022 13:30	06/02/2022 01:38	BLOD		1.87	10.0	1	ug/L	MGG
2-Nitroaniline	03	88-74-4	SW8270E	06/01/2022 13:30	06/02/2022 01:38	BLOD		1.87	20.0	1	ug/L	MGG
2-Nitrophenol	03	88-75-5	SW8270E	06/01/2022 13:30	06/02/2022 01:38	BLOD		5.61	10.0	1	ug/L	MGG
3,3'-Dichlorobenzidine	03	91-94-1	SW8270E	06/01/2022 13:30	06/02/2022 01:38	BLOD		3.74	10.0	1	ug/L	MGG
3,3'-Dimethylbenzidine	03	119-93-7	SW8270E	06/01/2022 13:30	06/02/2022 01:38	BLOD		2.34	2.50	1	ug/L	MGG
3-Methylcholanthrene	03	56-49-5	SW8270E	06/01/2022 13:30	06/02/2022 01:38	BLOD		0.93	10.0	1	ug/L	MGG

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Parameter	Samp ID	CAS	Reference Method	Sample Prep Date/Time	Analyzed Date/Time	Sample Results	Qual	LOD	LOQ	DF	Units	Analyst
Semivolatile Organic Compounds by GCMS												
3-Nitroaniline	03	99-09-2	SW8270E	06/01/2022 13:30	06/02/2022 01:38	BLOD		1.87	20.0	1	ug/L	MGG
4,6-Dinitro-2-methylphenol	03	534-52-1	SW8270E	06/01/2022 13:30	06/02/2022 01:38	BLOD		7.48	50.0	1	ug/L	MGG
4-Aminobiphenyl	03	92-67-1	SW8270E	06/01/2022 13:30	06/02/2022 01:38	BLOD		1.87	10.0	1	ug/L	MGG
4-Bromophenyl phenyl ether	03	101-55-3	SW8270E	06/01/2022 13:30	06/02/2022 01:38	BLOD		3.27	10.0	1	ug/L	MGG
4-Chloroaniline	03	106-47-8	SW8270E	06/01/2022 13:30	06/02/2022 01:38	BLOD		1.87	10.0	1	ug/L	MGG
4-Chlorophenyl phenyl ether	03	7005-72-3	SW8270E	06/01/2022 13:30	06/02/2022 01:38	BLOD		3.27	10.0	1	ug/L	MGG
4-Nitroaniline	03	100-01-6	SW8270E	06/01/2022 13:30	06/02/2022 01:38	BLOD		1.87	20.0	1	ug/L	MGG
4-Nitrophenol	03	100-02-7	SW8270E	06/01/2022 13:30	06/02/2022 01:38	BLOD		1.87	50.0	1	ug/L	MGG
5-Nitro-o-toluidine	03	99-55-8	SW8270E	06/01/2022 13:30	06/02/2022 01:38	BLOD		1.87	10.0	1	ug/L	MGG
7,12-Dimethylbenz (a) anthracene	03	57-97-6	SW8270E	06/01/2022 13:30	06/02/2022 01:38	BLOD		1.87	10.0	1	ug/L	MGG
Acenaphthene	03	83-32-9	SW8270E	06/01/2022 13:30	06/02/2022 01:38	BLOD		3.74	10.0	1	ug/L	MGG
Acenaphthylene	03	208-96-8	SW8270E	06/01/2022 13:30	06/02/2022 01:38	BLOD		3.74	10.0	1	ug/L	MGG
Acetophenone	03	98-86-2	SW8270E	06/01/2022 13:30	06/02/2022 01:38	BLOD		1.87	20.0	1	ug/L	MGG
Anthracene	03	120-12-7	SW8270E	06/01/2022 13:30	06/02/2022 01:38	BLOD		4.67	10.0	1	ug/L	MGG
Benzo (a) anthracene	03	56-55-3	SW8270E	06/01/2022 13:30	06/02/2022 01:38	BLOD		3.27	9.35	1	ug/L	MGG
Benzo (a) pyrene	03	50-32-8	SW8270E	06/01/2022 13:30	06/02/2022 01:38	BLOD		0.19	0.20	1	ug/L	MGG
Benzo (b) fluoranthene	03	205-99-2	SW8270E	06/01/2022 13:30	06/02/2022 01:38	BLOD		3.74	10.0	1	ug/L	MGG
Benzo (g,h,i) perylene	03	191-24-2	SW8270E	06/01/2022 13:30	06/02/2022 01:38	BLOD		4.67	10.0	1	ug/L	MGG
Benzo (k) fluoranthene	03	207-08-9	SW8270E	06/01/2022 13:30	06/02/2022 01:38	BLOD		5.61	10.0	1	ug/L	MGG
Benzyl alcohol	03	100-51-6	SW8270E	06/01/2022 13:30	06/02/2022 01:38	BLOD		0.93	20.0	1	ug/L	MGG
bis (2-Chloroethoxy) methane	03	111-91-1	SW8270E	06/01/2022 13:30	06/02/2022 01:38	BLOD		3.27	10.0	1	ug/L	MGG
bis (2-Chloroethyl) ether	03	111-44-4	SW8270E	06/01/2022 13:30	06/02/2022 01:38	BLOD		3.27	10.0	1	ug/L	MGG
2,2'-Oxybis (1-chloropropane)	03	108-60-1	SW8270E	06/01/2022 13:30	06/02/2022 01:38	BLOD		2.80	10.0	1	ug/L	MGG
bis (2-Ethylhexyl) phthalate	03	117-81-7	SW8270E	06/01/2022 13:30	06/02/2022 01:38	BLOD		4.67	5.00	1	ug/L	MGG

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Parameter	Samp ID	CAS	Reference Method	Sample Prep Date/Time	Analyzed Date/Time	Sample Results	Qual	LOD	LOQ	DF	Units	Analyst
Semivolatile Organic Compounds by GCMS												
Butyl benzyl phthalate	03	85-68-7	SW8270E	06/01/2022 13:30	06/02/2022 01:38	BLOD		6.54	10.0	1	ug/L	MGG
Chlorobenzilate	03	510-15-6	SW8270E	06/01/2022 13:30	06/02/2022 01:38	BLOD		2.34	2.50	1	ug/L	MGG
Chrysene	03	218-01-9	SW8270E	06/01/2022 13:30	06/02/2022 01:38	BLOD		3.74	10.0	1	ug/L	MGG
Diallate	03	2303-16-4	SW8270E	06/01/2022 13:30	06/02/2022 01:38	BLOD		2.34	2.50	1	ug/L	MGG
Dibenz (a,h) anthracene	03	53-70-3	SW8270E	06/01/2022 13:30	06/02/2022 01:38	BLOD		4.67	10.0	1	ug/L	MGG
Dibenzofuran	03	132-64-9	SW8270E	06/01/2022 13:30	06/02/2022 01:38	BLOD		1.87	5.00	1	ug/L	MGG
Diethyl phthalate	03	84-66-2	SW8270E	06/01/2022 13:30	06/02/2022 01:38	BLOD		2.80	10.0	1	ug/L	MGG
Dimethoate	03	60-51-5	SW8270E	06/01/2022 13:30	06/02/2022 01:38	BLOD		2.34	2.50	1	ug/L	MGG
Dimethyl phthalate	03	131-11-3	SW8270E	06/01/2022 13:30	06/02/2022 01:38	BLOD		3.27	10.0	1	ug/L	MGG
Di-n-butyl phthalate	03	84-74-2	SW8270E	06/01/2022 13:30	06/02/2022 01:38	BLOD		3.74	10.0	1	ug/L	MGG
Di-n-octyl phthalate	03	117-84-0	SW8270E	06/01/2022 13:30	06/02/2022 01:38	BLOD		7.48	10.0	1	ug/L	MGG
Diphenylamine	03	122-39-4	SW8270E	06/01/2022 13:30	06/02/2022 01:38	BLOD		1.87	10.0	1	ug/L	MGG
Disulfoton	03	298-04-4	SW8270E	06/01/2022 13:30	06/02/2022 01:38	BLOD		2.34	2.50	1	ug/L	MGG
Ethyl methanesulfonate	03	62-50-0	SW8270E	06/01/2022 13:30	06/02/2022 01:38	BLOD		0.93	20.0	1	ug/L	MGG
Ethyl parathion	03	56-38-2	SW8270E	06/01/2022 13:30	06/02/2022 01:38	BLOD		2.34	2.50	1	ug/L	MGG
Famphur	03	52-85-7	SW8270E	06/01/2022 13:30	06/02/2022 01:38	BLOD		2.34	2.50	1	ug/L	MGG
Fluoranthene	03	206-44-0	SW8270E	06/01/2022 13:30	06/02/2022 01:38	BLOD		4.67	10.0	1	ug/L	MGG
Fluorene	03	86-73-7	SW8270E	06/01/2022 13:30	06/02/2022 01:38	BLOD		3.74	10.0	1	ug/L	MGG
Hexachlorobenzene	03	118-74-1	SW8270E	06/01/2022 13:30	06/02/2022 01:38	BLOD		0.93	0.93	1	ug/L	MGG
Hexachlorobutadiene	03	87-68-3	SW8270E	06/01/2022 13:30	06/02/2022 01:38	BLOD		4.21	10.0	1	ug/L	MGG
Hexachlorocyclopentadiene	03	77-47-4	SW8270E	06/01/2022 13:30	06/02/2022 01:38	BLOD		3.74	10.0	1	ug/L	MGG
Hexachloroethane	03	67-72-1	SW8270E	06/01/2022 13:30	06/02/2022 01:38	BLOD		3.27	10.0	1	ug/L	MGG
Hexachloropropene	03	1888-71-7	SW8270E	06/01/2022 13:30	06/02/2022 01:38	BLOD		1.87	2.50	1	ug/L	MGG
Indeno (1,2,3-cd) pyrene	03	193-39-5	SW8270E	06/01/2022 13:30	06/02/2022 01:38	BLOD		2.80	10.0	1	ug/L	MGG

Certificate of Analysis

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Laboratory Sample ID: 22E1463-03

Parameter	Samp ID	CAS	Reference Method	Sample Prep Date/Time	Analyzed Date/Time	Sample Results	Qual	LOD	LOQ	DF	Units	Analyst
Semivolatile Organic Compounds by GCMS												
Isodrin	03	465-73-6	SW8270E	06/01/2022 13:30	06/02/2022 01:38	BLOD		0.93	10.0	1	ug/L	MGG
Isophorone	03	78-59-1	SW8270E	06/01/2022 13:30	06/02/2022 01:38	BLOD		4.67	10.0	1	ug/L	MGG
Isosafrole	03	120-58-1	SW8270E	06/01/2022 13:30	06/02/2022 01:38	BLOD		1.87	10.0	1	ug/L	MGG
Kepon	03	143-50-0	SW8270E	06/01/2022 13:30	06/02/2022 01:38	BLOD		1.87	9.35	1	ug/L	MGG
m+p-Cresols	03	1319-77-3	SW8270E	06/01/2022 13:30	06/02/2022 01:38	BLOD		0.93	10.0	1	ug/L	MGG
Methapyrilene	03	91-80-5	SW8270E	06/01/2022 13:30	06/02/2022 01:38	BLOD		0.93	10.0	1	ug/L	MGG
Methyl methanesulfonate	03	66-27-3	SW8270E	06/01/2022 13:30	06/02/2022 01:38	BLOD		0.93	10.0	1	ug/L	MGG
Methyl parathion	03	298-00-0	SW8270E	06/01/2022 13:30	06/02/2022 01:38	BLOD		1.87	2.50	1	ug/L	MGG
Nitrobenzene	03	98-95-3	SW8270E	06/01/2022 13:30	06/02/2022 01:38	BLOD		2.80	10.0	1	ug/L	MGG
n-Nitrosodiethylamine	03	55-18-5	SW8270E	06/01/2022 13:30	06/02/2022 01:38	BLOD		2.34	2.50	1	ug/L	MGG
n-Nitrosodimethylamine	03	62-75-9	SW8270E	06/01/2022 13:30	06/02/2022 01:38	BLOD		2.80	10.0	1	ug/L	MGG
n-Nitrosodi-n-butylamine	03	924-16-3	SW8270E	06/01/2022 13:30	06/02/2022 01:38	BLOD		1.87	10.0	1	ug/L	MGG
n-Nitrosodi-n-propylamine	03	621-64-7	SW8270E	06/01/2022 13:30	06/02/2022 01:38	BLOD		3.27	10.0	1	ug/L	MGG
n-Nitrosodiphenylamine	03	86-30-6	SW8270E	06/01/2022 13:30	06/02/2022 01:38	BLOD		2.80	10.0	1	ug/L	MGG
n-Nitrosomethylethylamine	03	10595-95-6	SW8270E	06/01/2022 13:30	06/02/2022 01:38	BLOD		1.87	2.50	1	ug/L	MGG
n-Nitrosopiperidine	03	100-75-4	SW8270E	06/01/2022 13:30	06/02/2022 01:38	BLOD		1.87	10.0	1	ug/L	MGG
n-Nitrosopyrrolidine	03	930-55-2	SW8270E	06/01/2022 13:30	06/02/2022 01:38	BLOD		1.87	2.50	1	ug/L	MGG
o,o,o-Triethyl phosphorothioate	03	126-68-1	SW8270E	06/01/2022 13:30	06/02/2022 01:38	BLOD		1.87	10.0	1	ug/L	MGG
o,o-Diethyl o-2-pyrazinyl phosphorothioate	03	297-97-2	SW8270E	06/01/2022 13:30	06/02/2022 01:38	BLOD		1.87	10.0	1	ug/L	MGG
o+m+p-Cresols	03	1319-77-3	SW8270E	06/01/2022 13:30	06/02/2022 01:38	BLOD		2.80	10.0	1	ug/L	MGG
o-Cresol	03	95-48-7	SW8270E	06/01/2022 13:30	06/02/2022 01:38	BLOD		7.48	10.0	1	ug/L	MGG
o-Toluidine	03	95-53-4	SW8270E	06/01/2022 13:30	06/02/2022 01:38	BLOD		1.87	2.50	1	ug/L	MGG
p-(Dimethylamino) azobenzene	03	60-11-7	SW8270E	06/01/2022 13:30	06/02/2022 01:38	BLOD		0.93	2.50	1	ug/L	MGG

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Laboratory Sample ID: 22E1463-03

Parameter	Samp ID	CAS	Reference Method	Sample Prep Date/Time	Analyzed Date/Time	Sample Results	Qual	LOD	LOQ	DF	Units	Analyst
Semivolatile Organic Compounds by GCMS												
p-Chloro-m-cresol	03	59-50-7	SW8270E	06/01/2022 13:30	06/02/2022 01:38	BLOD		7.48	10.0	1	ug/L	MGG
Pentachlorobenzene	03	608-93-5	SW8270E	06/01/2022 13:30	06/02/2022 01:38	BLOD		1.87	10.0	1	ug/L	MGG
Pentachloronitrobenzene (quintozene)	03	82-68-8	SW8270E	06/01/2022 13:30	06/02/2022 01:38	BLOD		0.93	9.35	1	ug/L	MGG
Phenacetin	03	62-44-2	SW8270E	06/01/2022 13:30	06/02/2022 01:38	BLOD		0.93	10.0	1	ug/L	MGG
Phenanthrene	03	85-01-8	SW8270E	06/01/2022 13:30	06/02/2022 01:38	BLOD		7.48	10.0	1	ug/L	MGG
Phenol	03	108-95-2	SW8270E	06/01/2022 13:30	06/02/2022 01:38	BLOD		2.34	10.0	1	ug/L	MGG
Phorate	03	298-02-2	SW8270E	06/01/2022 13:30	06/02/2022 01:38	BLOD		1.87	2.50	1	ug/L	MGG
p-Phenylenediamine	03	106-50-3	SW8270E	06/01/2022 13:30	06/02/2022 01:38	BLOD		1.87	10.0	1	ug/L	MGG
Pronamide	03	23950-58-5	SW8270E	06/01/2022 13:30	06/02/2022 01:38	BLOD		1.87	10.0	1	ug/L	MGG
Pyrene	03	129-00-0	SW8270E	06/01/2022 13:30	06/02/2022 01:38	BLOD		6.54	10.0	1	ug/L	MGG
Safrole	03	94-59-7	SW8270E	06/01/2022 13:30	06/02/2022 01:38	BLOD		1.87	2.50	1	ug/L	MGG
<i>Surr: 2,4,6-Tribromophenol (Surr)</i>	03	32.7 %	10-86	06/01/2022 13:30	06/02/2022 01:38							
<i>Surr: 2-Fluorobiphenyl (Surr)</i>	03	47.3 %	9-87	06/01/2022 13:30	06/02/2022 01:38							
<i>Surr: 2-Fluorophenol (Surr)</i>	03	22.4 %	10-52	06/01/2022 13:30	06/02/2022 01:38							
<i>Surr: Nitrobenzene-d5 (Surr)</i>	03	49.9 %	10-98.5	06/01/2022 13:30	06/02/2022 01:38							
<i>Surr: Phenol-d5 (Surr)</i>	03	16.2 %	5-33	06/01/2022 13:30	06/02/2022 01:38							
<i>Surr: p-Terphenyl-d14 (Surr)</i>	03	60.8 %	27-133	06/01/2022 13:30	06/02/2022 01:38							

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Parameter	Samp ID	CAS	Reference Method	Sample Prep Date/Time	Analyzed Date/Time	Sample Results	Qual	LOD	LOQ	DF	Units	Analyst
Organochlorine Pesticides and PCBs by GC/ECD												
PCB as Aroclor 1016	03	12674-11-2	SW8082A	06/01/2022 09:00	06/01/2022 19:33	BLOD		0.140	0.200	1	ug/L	LBH2
PCB as Aroclor 1221	03	11104-28-2	SW8082A	06/01/2022 09:00	06/01/2022 19:33	BLOD		0.140	0.200	1	ug/L	LBH2
PCB as Aroclor 1232	03	11141-16-5	SW8082A	06/01/2022 09:00	06/01/2022 19:33	BLOD		0.140	0.200	1	ug/L	LBH2
PCB as Aroclor 1242	03	53469-21-9	SW8082A	06/01/2022 09:00	06/01/2022 19:33	BLOD		0.140	0.200	1	ug/L	LBH2
PCB as Aroclor 1248	03	12672-29-6	SW8082A	06/01/2022 09:00	06/01/2022 19:33	BLOD		0.140	0.200	1	ug/L	LBH2
PCB as Aroclor 1254	03	11097-69-1	SW8082A	06/01/2022 09:00	06/01/2022 19:33	BLOD		0.140	0.200	1	ug/L	LBH2
PCB as Aroclor 1260	03	11096-82-5	SW8082A	06/01/2022 09:00	06/01/2022 19:33	BLOD		0.140	0.200	1	ug/L	LBH2
Surr: DCB	03	58.5 %	30-105	06/01/2022 09:00	06/01/2022 19:33							
Surr: TCMX	03	54.3 %	30-105	06/01/2022 09:00	06/01/2022 19:33							
4,4'-DDD	03	72-54-8	SW8081B	06/01/2022 09:00	06/01/2022 19:33	BLOD		0.005	0.050	1	ug/L	LBH2
4,4'-DDE	03	72-55-9	SW8081B	06/01/2022 09:00	06/01/2022 19:33	BLOD		0.005	0.050	1	ug/L	LBH2
4,4'-DDT	03	50-29-3	SW8081B	06/01/2022 09:00	06/01/2022 19:33	BLOD		0.005	0.050	1	ug/L	LBH2
Aldrin	03	309-00-2	SW8081B	06/01/2022 09:00	06/01/2022 19:33	BLOD		0.005	0.050	1	ug/L	LBH2
alpha-BHC	03	319-84-6	SW8081B	06/01/2022 09:00	06/01/2022 19:33	BLOD		0.005	0.050	1	ug/L	LBH2
alpha-Chlordane	03	5103-71-9	SW8081B	06/01/2022 09:00	06/01/2022 19:33	BLOD		0.005	0.050	1	ug/L	LBH2
beta-BHC	03	319-85-7	SW8081B	06/01/2022 09:00	06/01/2022 19:33	BLOD		0.019	0.050	1	ug/L	LBH2
Chlordane	03	57-74-9	SW8081B	06/01/2022 09:00	06/01/2022 19:33	BLOD		0.187	0.200	1	ug/L	LBH2
delta-BHC	03	319-86-8	SW8081B	06/01/2022 09:00	06/01/2022 19:33	BLOD		0.005	0.050	1	ug/L	LBH2
Dieldrin	03	60-57-1	SW8081B	06/01/2022 09:00	06/01/2022 19:33	BLOD		0.005	0.050	1	ug/L	LBH2
Endosulfan I	03	959-98-8	SW8081B	06/01/2022 09:00	06/01/2022 19:33	BLOD		0.005	0.050	1	ug/L	LBH2
Endosulfan II	03	33213-65-9	SW8081B	06/01/2022 09:00	06/01/2022 19:33	BLOD		0.005	0.050	1	ug/L	LBH2
Endosulfan sulfate	03	1031-07-8	SW8081B	06/01/2022 09:00	06/01/2022 19:33	BLOD		0.005	0.050	1	ug/L	LBH2
Endrin	03	72-20-8	SW8081B	06/01/2022 09:00	06/01/2022 19:33	BLOD		0.005	0.050	1	ug/L	LBH2
Endrin aldehyde	03	7421-93-4	SW8081B	06/01/2022 09:00	06/01/2022 19:33	BLOD		0.005	0.050	1	ug/L	LBH2

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Parameter	Samp ID	CAS	Reference Method	Sample Prep Date/Time	Analyzed Date/Time	Sample Results	Qual	LOD	LOQ	DF	Units	Analyst
Organochlorine Pesticides and PCBs by GC/ECD												
gamma-BHC (Lindane)	03	58-89-9	SW8081B	06/01/2022 09:00	06/01/2022 19:33	BLOD		0.005	0.050	1	ug/L	LBH2
gamma-Chlordane	03	5103-74-2	SW8081B	06/01/2022 09:00	06/01/2022 19:33	BLOD		0.005	0.050	1	ug/L	LBH2
Heptachlor	03	76-44-8	SW8081B	06/01/2022 09:00	06/01/2022 19:33	BLOD		0.005	0.050	1	ug/L	LBH2
Heptachlor epoxide	03	1024-57-3	SW8081B	06/01/2022 09:00	06/01/2022 19:33	BLOD		0.005	0.050	1	ug/L	LBH2
Methoxychlor	03	72-43-5	SW8081B	06/01/2022 09:00	06/01/2022 19:33	BLOD		0.005	0.050	1	ug/L	LBH2
Toxaphene	03	8001-35-2	SW8081B	06/01/2022 09:00	06/01/2022 19:33	BLOD		0.187	1.00	1	ug/L	LBH2
Surr: TCMX	03	54.3 %	18-112	06/01/2022 09:00	06/01/2022 19:33							
Surr: DCB	03	58.5 %	27-131	06/01/2022 09:00	06/01/2022 19:33							

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Parameter	Samp ID	CAS	Reference Method	Sample Prep Date/Time	Analyzed Date/Time	Sample Results	Qual	LOD	LOQ	DF	Units	Analyst
Organochlorine Herbicides by GC/ECD												
2,4,5-T	03	93-76-5	SW8151A	06/01/2022 16:20	06/09/2022 19:31	BLOD		0.200	0.500	1	ug/L	LBH2
2,4,5-TP (Silvex)	03	93-72-1	SW8151A	06/01/2022 16:20	06/09/2022 19:31	BLOD		0.107	0.500	1	ug/L	LBH2
2,4-D	03	94-75-7	SW8151A	06/01/2022 16:20	06/09/2022 19:31	BLOD		0.200	0.500	1	ug/L	LBH2
Dinoseb	03	88-85-7	SW8151A	06/01/2022 16:20	06/09/2022 19:31	BLOD		0.200	0.500	1	ug/L	LBH2
Pentachlorophenol	03	87-86-5	SW8151A	06/01/2022 16:20	06/09/2022 19:31	BLOD		0.200	0.500	1	ug/L	LBH2
<i>Surr: DCAA (Surr)</i>	03	93.4 %	48.5-134	06/01/2022 16:20	06/09/2022 19:31							

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Parameter	Samp ID	CAS	Reference Method	Sample Prep Date/Time	Analyzed Date/Time	Sample Results	Qual	LOD	LOQ	DF	Units	Analyst
Micro-extractables by GC/ECD												
1,2-Dibromoethane (EDB)	03	106-93-4	SW8011	06/07/2022 11:30	06/07/2022 21:02	BLOD		0.008	0.010	1	ug/L	LBH2
1,2,3-Trichloropropane	03	96-18-4	SW8011	06/07/2022 11:30	06/07/2022 21:02	BLOD		0.009	0.010	1	ug/L	LBH2
1,2-Dibromo-3-chloropropane (DBCP)	03	96-12-8	SW8011	06/07/2022 11:30	06/07/2022 21:02	BLOD		0.005	0.010	1	ug/L	LBH2

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Parameter	Samp ID	CAS	Reference Method	Sample Prep Date/Time	Analyzed Date/Time	Sample Results	Qual	LOD	LOQ	DF	Units	Analyst
Head Space Analysis by GC												
Ethane	03	74-84-0	RSK175M	06/02/2022 10:47	06/02/2022 10:47	BLOD		1.50	5.00	1	ug/L	BMR
Ethene	03	74-85-1	RSK175M	06/02/2022 10:47	06/02/2022 10:47	BLOD		1.50	5.00	1	ug/L	BMR
Methane	03	74-82-8	RSK175M	06/02/2022 10:47	06/02/2022 10:47	BLOD		1.50	5.00	1	ug/L	BMR
<i>Surr: Acetylene (Surr)</i>	03	95.5 %	70-130	06/02/2022 10:47	06/02/2022 10:47							

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Parameter	Samp ID	CAS	Reference Method	Sample Prep Date/Time	Analyzed Date/Time	Sample Results	Qual	LOD	LOQ	DF	Units	Analyst
Wet Chemistry Analysis												
Alkalinity	03	NA	SM22 2320B-2011	06/08/2022 16:42	06/08/2022 16:42	BLOD		5.0	5.0	1	mg/L	MAH
Chloride	03	16887-00-6	SW9056A	05/31/2022 23:25	05/31/2022 23:25	BLOD		0.5	1.0	1	mg/L	MGG
Cyanide	03	57-12-5	SW9012B	06/06/2022 17:38	06/06/2022 17:38	BLOD		0.01	0.01	1	mg/L	Omnion Use
Sulfide	03	18496-25-8	SW9215	05/31/2022 16:50	05/31/2022 16:50	BLOD		0.80	1.00	1	mg/L	MJRL

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Client Sample ID: MW-211A

Laboratory Sample ID: 22E1463-04

Parameter	Samp ID	CAS	Reference Method	Sample Prep Date/Time	Analyzed Date/Time	Sample Results	Qual	LOD	LOQ	DF	Units	Analyst
Metals (Total) by EPA 6000/7000 Series Methods												
Silver	04	7440-22-4	SW6020B	06/02/2022 17:00	06/07/2022 17:56	BLOD		0.0600	1.00	1	ug/L	RCV
Arsenic	04	7440-38-2	SW6020B	06/02/2022 17:00	06/07/2022 17:56	BLOD		0.50	1.0	1	ug/L	RCV
Barium	04	7440-39-3	SW6020B	06/02/2022 17:00	06/07/2022 17:56	47.5		1.00	5.00	1	ug/L	RCV
Beryllium	04	7440-41-7	SW6020B	06/02/2022 17:00	06/07/2022 17:56	BLOD		0.200	1.00	1	ug/L	RCV
Cadmium	04	7440-43-9	SW6020B	06/02/2022 17:00	06/07/2022 17:56	BLOD		0.100	1.00	1	ug/L	RCV
Cobalt	04	7440-48-4	SW6020B	06/02/2022 17:00	06/07/2022 17:56	0.316	J	0.200	1.00	1	ug/L	RCV
Chromium	04	7440-47-3	SW6020B	06/02/2022 17:00	06/07/2022 17:56	BLOD		0.400	1.00	1	ug/L	RCV
Copper	04	7440-50-8	SW6020B	06/02/2022 17:00	06/07/2022 17:56	BLOD		0.300	1.00	1	ug/L	RCV
Mercury	04	7439-97-6	SW7470A	06/09/2022 10:29	06/09/2022 17:06	BLOD		0.00020	0.00020	1	mg/L	ARP
Nickel	04	7440-02-0	SW6020B	06/02/2022 17:00	06/07/2022 17:56	BLOD		1.000	1.000	1	ug/L	RCV
Lead	04	7439-92-1	SW6020B	06/02/2022 17:00	06/07/2022 17:56	BLOD		1.0	1.0	1	ug/L	RCV
Antimony	04	7440-36-0	SW6020B	06/02/2022 17:00	06/07/2022 17:56	BLOD		1.0	1.0	1	ug/L	RCV
Selenium	04	7782-49-2	SW6020B	06/02/2022 17:00	06/07/2022 17:56	BLOD		0.850	1.00	1	ug/L	RCV
Thallium	04	7440-28-0	SW6020B	06/02/2022 17:00	06/07/2022 17:56	BLOD		1.0	1.0	1	ug/L	RCV
Vanadium	04	7440-62-2	SW6020B	06/02/2022 17:00	06/07/2022 17:56	BLOD		2.50	5.00	1	ug/L	RCV
Zinc	04	7440-66-6	SW6020B	06/02/2022 17:00	06/07/2022 17:56	BLOD		2.50	5.00	1	ug/L	RCV

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Laboratory Sample ID: 22E1463-04

Parameter	Samp ID	CAS	Reference Method	Sample Prep Date/Time	Analyzed Date/Time	Sample Results	Qual	LOD	LOQ	DF	Units	Analyst
Volatile Organic Compounds by GCMS												
1,1,1,2-Tetrachloroethane	04	630-20-6	SW8260D	06/02/2022 18:32	06/02/2022 18:32	BLOD		0.40	0.40	1	ug/L	RJB
1,1,1-Trichloroethane	04	71-55-6	SW8260D	06/02/2022 18:32	06/02/2022 18:32	BLOD		0.60	1.00	1	ug/L	RJB
1,1,1,2-Tetrachloroethane	04	79-34-5	SW8260D	06/02/2022 18:32	06/02/2022 18:32	BLOD		0.30	0.40	1	ug/L	RJB
1,1,2-Trichloroethane	04	79-00-5	SW8260D	06/02/2022 18:32	06/02/2022 18:32	BLOD		0.50	1.00	1	ug/L	RJB
1,1-Dichloroethane	04	75-34-3	SW8260D	06/02/2022 18:32	06/02/2022 18:32	BLOD		0.60	1.00	1	ug/L	RJB
1,1-Dichloroethylene	04	75-35-4	SW8260D	06/02/2022 18:32	06/02/2022 18:32	BLOD		0.70	1.00	1	ug/L	RJB
1,2,3-Trichloropropane	04	96-18-4	SW8260D	06/02/2022 18:32	06/02/2022 18:32	BLOD		0.40	1.00	1	ug/L	RJB
1,2-Dichlorobenzene	04	95-50-1	SW8260D	06/02/2022 18:32	06/02/2022 18:32	BLOD		0.40	1.00	1	ug/L	RJB
1,2-Dichloroethane	04	107-06-2	SW8260D	06/02/2022 18:32	06/02/2022 18:32	BLOD		0.70	1.00	1	ug/L	RJB
1,2-Dichloropropane	04	78-87-5	SW8260D	06/02/2022 18:32	06/02/2022 18:32	BLOD		0.40	1.00	1	ug/L	RJB
1,4-Dichlorobenzene	04	106-46-7	SW8260D	06/02/2022 18:32	06/02/2022 18:32	BLOD		0.40	1.00	1	ug/L	RJB
2-Butanone (MEK)	04	78-93-3	SW8260D	06/02/2022 18:32	06/02/2022 18:32	BLOD		3.00	10.0	1	ug/L	RJB
2-Hexanone (MBK)	04	591-78-6	SW8260D	06/02/2022 18:32	06/02/2022 18:32	BLOD		2.20	5.00	1	ug/L	RJB
4-Methyl-2-pentanone (MIBK)	04	108-10-1	SW8260D	06/02/2022 18:32	06/02/2022 18:32	BLOD		1.50	5.00	1	ug/L	RJB
Acetone	04	67-64-1	SW8260D	06/02/2022 18:32	06/02/2022 18:32	BLOD		7.00	10.0	1	ug/L	RJB
Acrylonitrile	04	107-13-1	SW8260D	06/02/2022 18:32	06/02/2022 18:32	BLOD		1.70	5.00	1	ug/L	RJB
Benzene	04	71-43-2	SW8260D	06/02/2022 18:32	06/02/2022 18:32	BLOD		0.40	1.00	1	ug/L	RJB
Bromochloromethane	04	74-97-5	SW8260D	06/02/2022 18:32	06/02/2022 18:32	BLOD		0.50	1.00	1	ug/L	RJB
Bromodichloromethane	04	75-27-4	SW8260D	06/02/2022 18:32	06/02/2022 18:32	BLOD		0.40	0.50	1	ug/L	RJB
Bromoform	04	75-25-2	SW8260D	06/02/2022 18:32	06/02/2022 18:32	BLOD		0.40	1.00	1	ug/L	RJB
Bromomethane	04	74-83-9	SW8260D	06/02/2022 18:32	06/02/2022 18:32	BLOD		0.80	1.00	1	ug/L	RJB
Carbon disulfide	04	75-15-0	SW8260D	06/02/2022 18:32	06/02/2022 18:32	BLOD		5.00	10.0	1	ug/L	RJB
Carbon tetrachloride	04	56-23-5	SW8260D	06/02/2022 18:32	06/02/2022 18:32	BLOD		0.50	1.00	1	ug/L	RJB
Chlorobenzene	04	108-90-7	SW8260D	06/02/2022 18:32	06/02/2022 18:32	BLOD		0.40	1.00	1	ug/L	RJB

Certificate of Analysis

Client Name: SCS Engineers-Winchester
 Client Site I.D.: City of Bristol 1st Semi-Annual 2022
 Submitted To: Jennifer Robb

Date Issued: 7/12/2022 2:25:23PM

Client Sample ID: MW-211A

Laboratory Sample ID: 22E1463-04

Parameter	Samp ID	CAS	Reference Method	Sample Prep Date/Time	Analyzed Date/Time	Sample Results	Qual	LOD	LOQ	DF	Units	Analyst
Volatile Organic Compounds by GCMS												
Chloroethane	04	75-00-3	SW8260D	06/02/2022 18:32	06/02/2022 18:32	BLOD		0.70	1.00	1	ug/L	RJB
Chloroform	04	67-66-3	SW8260D	06/02/2022 18:32	06/02/2022 18:32	BLOD		0.50	0.50	1	ug/L	RJB
Chloromethane	04	74-87-3	SW8260D	06/02/2022 18:32	06/02/2022 18:32	BLOD		0.95	1.00	1	ug/L	RJB
cis-1,2-Dichloroethylene	04	156-59-2	SW8260D	06/02/2022 18:32	06/02/2022 18:32	BLOD		0.40	1.00	1	ug/L	RJB
cis-1,3-Dichloropropene	04	10061-01-5	SW8260D	06/02/2022 18:32	06/02/2022 18:32	BLOD		0.30	1.00	1	ug/L	RJB
Dibromochloromethane	04	124-48-1	SW8260D	06/02/2022 18:32	06/02/2022 18:32	BLOD		0.35	0.50	1	ug/L	RJB
Dibromomethane	04	74-95-3	SW8260D	06/02/2022 18:32	06/02/2022 18:32	BLOD		0.40	1.00	1	ug/L	RJB
Ethylbenzene	04	100-41-4	SW8260D	06/02/2022 18:32	06/02/2022 18:32	BLOD		0.40	1.00	1	ug/L	RJB
Iodomethane	04	74-88-4	SW8260D	06/02/2022 18:32	06/02/2022 18:32	BLOD		6.00	10.0	1	ug/L	RJB
m+p-Xylenes	04	179601-23-1	SW8260D	06/02/2022 18:32	06/02/2022 18:32	BLOD		0.60	2.00	1	ug/L	RJB
Methylene chloride	04	75-09-2	SW8260D	06/02/2022 18:32	06/02/2022 18:32	BLOD		4.00	4.00	1	ug/L	RJB
o-Xylene	04	95-47-6	SW8260D	06/02/2022 18:32	06/02/2022 18:32	BLOD		0.40	1.00	1	ug/L	RJB
Styrene	04	100-42-5	SW8260D	06/02/2022 18:32	06/02/2022 18:32	BLOD		0.40	1.00	1	ug/L	RJB
Tetrachloroethylene (PCE)	04	127-18-4	SW8260D	06/02/2022 18:32	06/02/2022 18:32	BLOD		0.40	1.00	1	ug/L	RJB
Toluene	04	108-88-3	SW8260D	06/02/2022 18:32	06/02/2022 18:32	BLOD		0.50	1.00	1	ug/L	RJB
trans-1,2-Dichloroethylene	04	156-60-5	SW8260D	06/02/2022 18:32	06/02/2022 18:32	BLOD		0.60	1.00	1	ug/L	RJB
trans-1,3-Dichloropropene	04	10061-02-6	SW8260D	06/02/2022 18:32	06/02/2022 18:32	BLOD		0.30	1.00	1	ug/L	RJB
trans-1,4-Dichloro-2-butene	04	110-57-6	SW8260D	06/02/2022 18:32	06/02/2022 18:32	BLOD		1.00	4.00	1	ug/L	RJB
Trichloroethylene	04	79-01-6	SW8260D	06/02/2022 18:32	06/02/2022 18:32	BLOD		0.40	1.00	1	ug/L	RJB
Trichlorofluoromethane	04	75-69-4	SW8260D	06/02/2022 18:32	06/02/2022 18:32	BLOD		0.80	1.00	1	ug/L	RJB
Vinyl acetate	04	108-05-4	SW8260D	06/02/2022 18:32	06/02/2022 18:32	BLOD		2.00	10.0	1	ug/L	RJB
Vinyl chloride	04	75-01-4	SW8260D	06/02/2022 18:32	06/02/2022 18:32	BLOD		0.50	0.50	1	ug/L	RJB
Xylenes, Total	04	1330-20-7	SW8260D	06/02/2022 18:32	06/02/2022 18:32	BLOD		1.00	3.00	1	ug/L	RJB

Certificate of Analysis

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Date Issued: 7/12/2022 2:25:23PM

Client Site I.D.: City of Bristol 1st Semi-Annual 2022

Submitted To: Jennifer Robb

Client Sample ID: MW-211A

Laboratory Sample ID: 22E1463-04

Parameter	Samp ID	CAS	Reference Method	Sample Prep Date/Time	Analyzed Date/Time	Sample Results	Qual	LOD	LOQ	DF	Units	Analyst
Volatile Organic Compounds by GCMS												
Surr: 1,2-Dichloroethane-d4 (Surr)	04	94.2 %	70-120	06/02/2022 18:32	06/02/2022 18:32							
Surr: 4-Bromofluorobenzene (Surr)	04	91.1 %	75-120	06/02/2022 18:32	06/02/2022 18:32							
Surr: Dibromofluoromethane (Surr)	04	80.7 %	70-130	06/02/2022 18:32	06/02/2022 18:32							
Surr: Toluene-d8 (Surr)	04	104 %	70-130	06/02/2022 18:32	06/02/2022 18:32							

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Parameter	Samp ID	CAS	Reference Method	Sample Prep Date/Time	Analyzed Date/Time	Sample Results	Qual	LOD	LOQ	DF	Units	Analyst
Semivolatle Organic Compounds by GCMS												
bis (2-Ethylhexyl) phthalate	04	117-81-7	SW8270E	06/01/2022 13:30	06/02/2022 02:11	BLOD		4.67	5.00	1	ug/L	MGG
<i>Surr: 2,4,6-Tribromophenol (Surr)</i>	04	56.5 %	10-86	06/01/2022 13:30	06/02/2022 02:11							
<i>Surr: 2-Fluorobiphenyl (Surr)</i>	04	76.0 %	9-87	06/01/2022 13:30	06/02/2022 02:11							
<i>Surr: 2-Fluorophenol (Surr)</i>	04	39.3 %	10-52	06/01/2022 13:30	06/02/2022 02:11							
<i>Surr: Nitrobenzene-d5 (Surr)</i>	04	83.2 %	10-98.5	06/01/2022 13:30	06/02/2022 02:11							
<i>Surr: Phenol-d5 (Surr)</i>	04	26.7 %	5-33	06/01/2022 13:30	06/02/2022 02:11							
<i>Surr: p-Terphenyl-d14 (Surr)</i>	04	84.1 %	27-133	06/01/2022 13:30	06/02/2022 02:11							

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Parameter	Samp ID	CAS	Reference Method	Sample Prep Date/Time	Analyzed Date/Time	Sample Results	Qual	LOD	LOQ	DF	Units	Analyst
Micro-extractables by GC/ECD												
1,2-Dibromoethane (EDB)	04	106-93-4	SW8011	06/07/2022 11:30	06/07/2022 21:23	BLOD		0.008	0.010	1	ug/L	LBH2
1,2,3-Trichloropropane	04	96-18-4	SW8011	06/07/2022 11:30	06/07/2022 21:23	BLOD		0.009	0.010	1	ug/L	LBH2
1,2-Dibromo-3-chloropropane (DBCP)	04	96-12-8	SW8011	06/07/2022 11:30	06/07/2022 21:23	BLOD		0.005	0.010	1	ug/L	LBH2

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Laboratory Sample ID: 22E1463-04

Parameter	Samp ID	CAS	Reference Method	Sample Prep Date/Time	Analyzed Date/Time	Sample Results	Qual	LOD	LOQ	DF	Units	Analyst
Head Space Analysis by GC												
Ethane	04	74-84-0	RSK175M	06/02/2022 12:29	06/02/2022 12:29	BLOD		1.50	5.00	1	ug/L	BMR
Ethene	04	74-85-1	RSK175M	06/02/2022 12:29	06/02/2022 12:29	BLOD		1.50	5.00	1	ug/L	BMR
Methane	04	74-82-8	RSK175M	06/02/2022 12:29	06/02/2022 12:29	27.0		1.50	5.00	1	ug/L	BMR
<i>Surr: Acetylene (Surr)</i>	04	127 %	70-130	06/02/2022 12:29	06/02/2022 12:29							

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Client Sample ID: MW-211A

Laboratory Sample ID: 22E1463-04

Parameter	Samp ID	CAS	Reference Method	Sample Prep Date/Time	Analyzed Date/Time	Sample Results	Qual	LOD	LOQ	DF	Units	Analyst
Wet Chemistry Analysis												
Alkalinity	04	NA	SM22 2320B-2011	06/08/2022 16:42	06/08/2022 16:42	297		5.0	5.0	1	mg/L	MAH
Chloride	04	16887-00-6	SW9056A	06/01/2022 03:35	06/01/2022 03:35	1.0	J	0.5	1.0	1	mg/L	MGG

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Client Sample ID: MW-206B

Laboratory Sample ID: 22E1463-05

Parameter	Samp ID	CAS	Reference Method	Sample Prep Date/Time	Analyzed Date/Time	Sample Results	Qual	LOD	LOQ	DF	Units	Analyst
Metals (Total) by EPA 6000/7000 Series Methods												
Silver	05	7440-22-4	SW6020B	06/02/2022 17:00	06/07/2022 17:58	0.136	J	0.0600	1.00	1	ug/L	RCV
Arsenic	05	7440-38-2	SW6020B	06/02/2022 17:00	06/07/2022 17:58	0.61	J	0.50	1.0	1	ug/L	RCV
Barium	05	7440-39-3	SW6020B	06/02/2022 17:00	06/07/2022 17:58	136		1.00	5.00	1	ug/L	RCV
Beryllium	05	7440-41-7	SW6020B	06/02/2022 17:00	06/07/2022 17:58	BLOD		0.200	1.00	1	ug/L	RCV
Cadmium	05	7440-43-9	SW6020B	06/02/2022 17:00	06/07/2022 17:58	BLOD		0.100	1.00	1	ug/L	RCV
Cobalt	05	7440-48-4	SW6020B	06/02/2022 17:00	06/07/2022 17:58	1.43		0.200	1.00	1	ug/L	RCV
Chromium	05	7440-47-3	SW6020B	06/02/2022 17:00	06/07/2022 17:58	0.961	J	0.400	1.00	1	ug/L	RCV
Copper	05	7440-50-8	SW6020B	06/02/2022 17:00	06/07/2022 17:58	1.31		0.300	1.00	1	ug/L	RCV
Nickel	05	7440-02-0	SW6020B	06/02/2022 17:00	06/07/2022 17:58	18.90		1.000	1.000	1	ug/L	RCV
Lead	05	7439-92-1	SW6020B	06/02/2022 17:00	06/07/2022 17:58	BLOD		1.0	1.0	1	ug/L	RCV
Antimony	05	7440-36-0	SW6020B	06/02/2022 17:00	06/07/2022 17:58	BLOD		1.0	1.0	1	ug/L	RCV
Selenium	05	7782-49-2	SW6020B	06/02/2022 17:00	06/07/2022 17:58	BLOD		0.850	1.00	1	ug/L	RCV
Thallium	05	7440-28-0	SW6020B	06/02/2022 17:00	06/07/2022 17:58	BLOD		1.0	1.0	1	ug/L	RCV
Vanadium	05	7440-62-2	SW6020B	06/02/2022 17:00	06/07/2022 17:58	BLOD		2.50	5.00	1	ug/L	RCV
Zinc	05	7440-66-6	SW6020B	06/02/2022 17:00	06/07/2022 17:58	15.7		2.50	5.00	1	ug/L	RCV

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Client Sample ID: MW-206B

Laboratory Sample ID: 22E1463-05

Parameter	Samp ID	CAS	Reference Method	Sample Prep Date/Time	Analyzed Date/Time	Sample Results	Qual	LOD	LOQ	DF	Units	Analyst
Volatile Organic Compounds by GCMS						Sample Qualifier:		pH				
1,1,1,2-Tetrachloroethane	05	630-20-6	SW8260D	06/02/2022 18:57	06/02/2022 18:57	BLOD		0.40	0.40	1	ug/L	RJB
1,1,1-Trichloroethane	05	71-55-6	SW8260D	06/02/2022 18:57	06/02/2022 18:57	BLOD		0.60	1.00	1	ug/L	RJB
1,1,2,2-Tetrachloroethane	05	79-34-5	SW8260D	06/02/2022 18:57	06/02/2022 18:57	BLOD		0.30	0.40	1	ug/L	RJB
1,1,2-Trichloroethane	05	79-00-5	SW8260D	06/02/2022 18:57	06/02/2022 18:57	BLOD		0.50	1.00	1	ug/L	RJB
1,1-Dichloroethane	05	75-34-3	SW8260D	06/02/2022 18:57	06/02/2022 18:57	BLOD		0.60	1.00	1	ug/L	RJB
1,1-Dichloroethylene	05	75-35-4	SW8260D	06/02/2022 18:57	06/02/2022 18:57	BLOD		0.70	1.00	1	ug/L	RJB
1,2,3-Trichloropropane	05	96-18-4	SW8260D	06/02/2022 18:57	06/02/2022 18:57	BLOD		0.40	1.00	1	ug/L	RJB
1,2-Dichlorobenzene	05	95-50-1	SW8260D	06/02/2022 18:57	06/02/2022 18:57	BLOD		0.40	1.00	1	ug/L	RJB
1,2-Dichloroethane	05	107-06-2	SW8260D	06/02/2022 18:57	06/02/2022 18:57	BLOD		0.70	1.00	1	ug/L	RJB
1,2-Dichloropropane	05	78-87-5	SW8260D	06/02/2022 18:57	06/02/2022 18:57	BLOD		0.40	1.00	1	ug/L	RJB
1,4-Dichlorobenzene	05	106-46-7	SW8260D	06/02/2022 18:57	06/02/2022 18:57	BLOD		0.40	1.00	1	ug/L	RJB
2-Butanone (MEK)	05	78-93-3	SW8260D	06/02/2022 18:57	06/02/2022 18:57	BLOD		3.00	10.0	1	ug/L	RJB
2-Hexanone (MBK)	05	591-78-6	SW8260D	06/02/2022 18:57	06/02/2022 18:57	BLOD		2.20	5.00	1	ug/L	RJB
4-Methyl-2-pentanone (MIBK)	05	108-10-1	SW8260D	06/02/2022 18:57	06/02/2022 18:57	BLOD		1.50	5.00	1	ug/L	RJB
Acetone	05	67-64-1	SW8260D	06/02/2022 18:57	06/02/2022 18:57	BLOD		7.00	10.0	1	ug/L	RJB
Acrylonitrile	05	107-13-1	SW8260D	06/02/2022 18:57	06/02/2022 18:57	BLOD		1.70	5.00	1	ug/L	RJB
Benzene	05	71-43-2	SW8260D	06/02/2022 18:57	06/02/2022 18:57	BLOD		0.40	1.00	1	ug/L	RJB
Bromochloromethane	05	74-97-5	SW8260D	06/02/2022 18:57	06/02/2022 18:57	BLOD		0.50	1.00	1	ug/L	RJB
Bromodichloromethane	05	75-27-4	SW8260D	06/02/2022 18:57	06/02/2022 18:57	BLOD		0.40	0.50	1	ug/L	RJB
Bromoform	05	75-25-2	SW8260D	06/02/2022 18:57	06/02/2022 18:57	BLOD		0.40	1.00	1	ug/L	RJB
Bromomethane	05	74-83-9	SW8260D	06/02/2022 18:57	06/02/2022 18:57	BLOD		0.80	1.00	1	ug/L	RJB
Carbon disulfide	05	75-15-0	SW8260D	06/02/2022 18:57	06/02/2022 18:57	BLOD		5.00	10.0	1	ug/L	RJB
Carbon tetrachloride	05	56-23-5	SW8260D	06/02/2022 18:57	06/02/2022 18:57	BLOD		0.50	1.00	1	ug/L	RJB
Chlorobenzene	05	108-90-7	SW8260D	06/02/2022 18:57	06/02/2022 18:57	BLOD		0.40	1.00	1	ug/L	RJB

Certificate of Analysis

Client Name: SCS Engineers-Winchester
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 Submitted To: Jennifer Robb

Date Issued: 7/12/2022 2:25:23PM

Client Sample ID: MW-206B

Laboratory Sample ID: 22E1463-05

Parameter	Samp ID	CAS	Reference Method	Sample Prep Date/Time	Analyzed Date/Time	Sample Results	Qual	LOD	LOQ	DF	Units	Analyst
Volatile Organic Compounds by GCMS							Sample Qualifier:	pH				
Chloroethane	05	75-00-3	SW8260D	06/02/2022 18:57	06/02/2022 18:57	BLOD		0.70	1.00	1	ug/L	RJB
Chloroform	05	67-66-3	SW8260D	06/02/2022 18:57	06/02/2022 18:57	BLOD		0.50	0.50	1	ug/L	RJB
Chloromethane	05	74-87-3	SW8260D	06/02/2022 18:57	06/02/2022 18:57	BLOD		0.95	1.00	1	ug/L	RJB
cis-1,2-Dichloroethylene	05	156-59-2	SW8260D	06/02/2022 18:57	06/02/2022 18:57	BLOD		0.40	1.00	1	ug/L	RJB
cis-1,3-Dichloropropene	05	10061-01-5	SW8260D	06/02/2022 18:57	06/02/2022 18:57	BLOD		0.30	1.00	1	ug/L	RJB
Dibromochloromethane	05	124-48-1	SW8260D	06/02/2022 18:57	06/02/2022 18:57	BLOD		0.35	0.50	1	ug/L	RJB
Dibromomethane	05	74-95-3	SW8260D	06/02/2022 18:57	06/02/2022 18:57	BLOD		0.40	1.00	1	ug/L	RJB
Ethylbenzene	05	100-41-4	SW8260D	06/02/2022 18:57	06/02/2022 18:57	BLOD		0.40	1.00	1	ug/L	RJB
Iodomethane	05	74-88-4	SW8260D	06/02/2022 18:57	06/02/2022 18:57	BLOD		6.00	10.0	1	ug/L	RJB
m+p-Xylenes	05	179601-23-1	SW8260D	06/02/2022 18:57	06/02/2022 18:57	BLOD		0.60	2.00	1	ug/L	RJB
Methylene chloride	05	75-09-2	SW8260D	06/02/2022 18:57	06/02/2022 18:57	BLOD		4.00	4.00	1	ug/L	RJB
o-Xylene	05	95-47-6	SW8260D	06/02/2022 18:57	06/02/2022 18:57	BLOD		0.40	1.00	1	ug/L	RJB
Styrene	05	100-42-5	SW8260D	06/02/2022 18:57	06/02/2022 18:57	BLOD		0.40	1.00	1	ug/L	RJB
Tetrachloroethylene (PCE)	05	127-18-4	SW8260D	06/02/2022 18:57	06/02/2022 18:57	BLOD		0.40	1.00	1	ug/L	RJB
Toluene	05	108-88-3	SW8260D	06/02/2022 18:57	06/02/2022 18:57	BLOD		0.50	1.00	1	ug/L	RJB
trans-1,2-Dichloroethylene	05	156-60-5	SW8260D	06/02/2022 18:57	06/02/2022 18:57	BLOD		0.60	1.00	1	ug/L	RJB
trans-1,3-Dichloropropene	05	10061-02-6	SW8260D	06/02/2022 18:57	06/02/2022 18:57	BLOD		0.30	1.00	1	ug/L	RJB
trans-1,4-Dichloro-2-butene	05	110-57-6	SW8260D	06/02/2022 18:57	06/02/2022 18:57	BLOD		1.00	4.00	1	ug/L	RJB
Trichloroethylene	05	79-01-6	SW8260D	06/02/2022 18:57	06/02/2022 18:57	BLOD		0.40	1.00	1	ug/L	RJB
Trichlorofluoromethane	05	75-69-4	SW8260D	06/02/2022 18:57	06/02/2022 18:57	BLOD		0.80	1.00	1	ug/L	RJB
Vinyl acetate	05	108-05-4	SW8260D	06/02/2022 18:57	06/02/2022 18:57	BLOD		2.00	10.0	1	ug/L	RJB
Vinyl chloride	05	75-01-4	SW8260D	06/02/2022 18:57	06/02/2022 18:57	BLOD		0.50	0.50	1	ug/L	RJB
Xylenes, Total	05	1330-20-7	SW8260D	06/02/2022 18:57	06/02/2022 18:57	BLOD		1.00	3.00	1	ug/L	RJB

Certificate of Analysis

Client Name: SCS Engineers-Winchester

Date Issued: 7/12/2022 2:25:23PM

Client Site I.D.: City of Bristol 1st Semi-Annual 2022

Submitted To: Jennifer Robb

Client Sample ID: MW-206B

Laboratory Sample ID: 22E1463-05

Parameter	Samp ID	CAS	Reference Method	Sample Prep Date/Time	Analyzed Date/Time	Sample Results	Qual	LOD	LOQ	DF	Units	Analyst
Volatile Organic Compounds by GCMS							Sample Qualifier: pH					
Surr: 1,2-Dichloroethane-d4 (Surr)	05	107 %	70-120	06/02/2022 18:57	06/02/2022 18:57							
Surr: 4-Bromofluorobenzene (Surr)	05	93.8 %	75-120	06/02/2022 18:57	06/02/2022 18:57							
Surr: Dibromofluoromethane (Surr)	05	94.7 %	70-130	06/02/2022 18:57	06/02/2022 18:57							
Surr: Toluene-d8 (Surr)	05	105 %	70-130	06/02/2022 18:57	06/02/2022 18:57							

Certificate of Analysis

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Date Issued: 7/12/2022 2:25:23PM

Client Sample ID: MW-206B

Laboratory Sample ID: 22E1463-05

Parameter	Samp ID	CAS	Reference Method	Sample Prep Date/Time	Analyzed Date/Time	Sample Results	Qual	LOD	LOQ	DF	Units	Analyst
Micro-extractables by GC/ECD												
1,2-Dibromoethane (EDB)	05	106-93-4	SW8011	06/07/2022 11:30	06/07/2022 21:45	BLOD		0.008	0.010	1	ug/L	LBH2
1,2,3-Trichloropropane	05	96-18-4	SW8011	06/07/2022 11:30	06/07/2022 21:45	BLOD		0.009	0.010	1	ug/L	LBH2
1,2-Dibromo-3-chloropropane (DBCP)	05	96-12-8	SW8011	06/07/2022 11:30	06/07/2022 21:45	BLOD		0.005	0.010	1	ug/L	LBH2

Certificate of Analysis

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Client Sample ID: MW-206B

Laboratory Sample ID: 22E1463-05

Parameter	Samp ID	CAS	Reference Method	Sample Prep Date/Time	Analyzed Date/Time	Sample Results	Qual	LOD	LOQ	DF	Units	Analyst
Head Space Analysis by GC												
Ethane	05	74-84-0	RSK175M	06/02/2022 12:42	06/02/2022 12:42	BLOD		1.50	5.00	1	ug/L	BMR
Ethene	05	74-85-1	RSK175M	06/02/2022 12:42	06/02/2022 12:42	BLOD		1.50	5.00	1	ug/L	BMR
Methane	05	74-82-8	RSK175M	06/02/2022 12:42	06/02/2022 12:42	3.48	J	1.50	5.00	1	ug/L	BMR
<i>Surr: Acetylene (Surr)</i>	05	111 %	70-130	06/02/2022 12:42	06/02/2022 12:42							

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Laboratory Sample ID: 22E1463-05

Parameter	Samp ID	CAS	Reference Method	Sample Prep Date/Time	Analyzed Date/Time	Sample Results	Qual	LOD	LOQ	DF	Units	Analyst
Wet Chemistry Analysis												
Alkalinity	05	NA	SM22 2320B-2011	06/08/2022 16:42	06/08/2022 16:42	333		5.0	5.0	1	mg/L	MAH
Chloride	05	16887-00-6	SW9056A	05/31/2022 23:53	05/31/2022 23:53	7.5		0.5	1.0	1	mg/L	MGG

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Client Sample ID: MW-211B

Laboratory Sample ID: 22E1463-06

Parameter	Samp ID	CAS	Reference Method	Sample Prep Date/Time	Analyzed Date/Time	Sample Results	Qual	LOD	LOQ	DF	Units	Analyst
Metals (Total) by EPA 6000/7000 Series Methods												
Silver	06	7440-22-4	SW6020B	06/02/2022 17:00	06/07/2022 18:01	0.0632	J	0.0600	1.00	1	ug/L	RCV
Arsenic	06	7440-38-2	SW6020B	06/02/2022 17:00	06/07/2022 18:01	BLOD		0.50	1.0	1	ug/L	RCV
Barium	06	7440-39-3	SW6020B	06/02/2022 17:00	06/07/2022 18:01	88.8		1.00	5.00	1	ug/L	RCV
Beryllium	06	7440-41-7	SW6020B	06/02/2022 17:00	06/07/2022 18:01	BLOD		0.200	1.00	1	ug/L	RCV
Cadmium	06	7440-43-9	SW6020B	06/02/2022 17:00	06/07/2022 18:01	BLOD		0.100	1.00	1	ug/L	RCV
Cobalt	06	7440-48-4	SW6020B	06/02/2022 17:00	06/07/2022 18:01	BLOD		0.200	1.00	1	ug/L	RCV
Chromium	06	7440-47-3	SW6020B	06/02/2022 17:00	06/07/2022 18:01	0.459	J	0.400	1.00	1	ug/L	RCV
Copper	06	7440-50-8	SW6020B	06/02/2022 17:00	06/07/2022 18:01	BLOD		0.300	1.00	1	ug/L	RCV
Mercury	06	7439-97-6	SW7470A	06/09/2022 10:29	06/09/2022 17:08	BLOD		0.00020	0.00020	1	mg/L	ARP
Nickel	06	7440-02-0	SW6020B	06/02/2022 17:00	06/07/2022 18:01	BLOD		1.000	1.000	1	ug/L	RCV
Lead	06	7439-92-1	SW6020B	06/02/2022 17:00	06/07/2022 18:01	BLOD		1.0	1.0	1	ug/L	RCV
Antimony	06	7440-36-0	SW6020B	06/02/2022 17:00	06/07/2022 18:01	BLOD		1.0	1.0	1	ug/L	RCV
Selenium	06	7782-49-2	SW6020B	06/02/2022 17:00	06/07/2022 18:01	BLOD		0.850	1.00	1	ug/L	RCV
Thallium	06	7440-28-0	SW6020B	06/02/2022 17:00	06/07/2022 18:01	BLOD		1.0	1.0	1	ug/L	RCV
Vanadium	06	7440-62-2	SW6020B	06/02/2022 17:00	06/07/2022 18:01	BLOD		2.50	5.00	1	ug/L	RCV
Zinc	06	7440-66-6	SW6020B	06/02/2022 17:00	06/07/2022 18:01	3.52	J	2.50	5.00	1	ug/L	RCV

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 Submitted To: Jennifer Robb

Date Issued: 7/12/2022 2:25:23PM

Client Sample ID: MW-211B

Laboratory Sample ID: 22E1463-06

Parameter	Samp ID	CAS	Reference Method	Sample Prep Date/Time	Analyzed Date/Time	Sample Results	Qual	LOD	LOQ	DF	Units	Analyst
Volatile Organic Compounds by GCMS												
1,1,1,2-Tetrachloroethane	06	630-20-6	SW8260D	06/02/2022 19:21	06/02/2022 19:21	BLOD		0.40	0.40	1	ug/L	RJB
1,1,1-Trichloroethane	06	71-55-6	SW8260D	06/02/2022 19:21	06/02/2022 19:21	BLOD		0.60	1.00	1	ug/L	RJB
1,1,2,2-Tetrachloroethane	06	79-34-5	SW8260D	06/02/2022 19:21	06/02/2022 19:21	BLOD		0.30	0.40	1	ug/L	RJB
1,1,2-Trichloroethane	06	79-00-5	SW8260D	06/02/2022 19:21	06/02/2022 19:21	BLOD		0.50	1.00	1	ug/L	RJB
1,1-Dichloroethane	06	75-34-3	SW8260D	06/02/2022 19:21	06/02/2022 19:21	BLOD		0.60	1.00	1	ug/L	RJB
1,1-Dichloroethylene	06	75-35-4	SW8260D	06/02/2022 19:21	06/02/2022 19:21	BLOD		0.70	1.00	1	ug/L	RJB
1,2,3-Trichloropropane	06	96-18-4	SW8260D	06/02/2022 19:21	06/02/2022 19:21	BLOD		0.40	1.00	1	ug/L	RJB
1,2-Dichlorobenzene	06	95-50-1	SW8260D	06/02/2022 19:21	06/02/2022 19:21	BLOD		0.40	1.00	1	ug/L	RJB
1,2-Dichloroethane	06	107-06-2	SW8260D	06/02/2022 19:21	06/02/2022 19:21	BLOD		0.70	1.00	1	ug/L	RJB
1,2-Dichloropropane	06	78-87-5	SW8260D	06/02/2022 19:21	06/02/2022 19:21	BLOD		0.40	1.00	1	ug/L	RJB
1,4-Dichlorobenzene	06	106-46-7	SW8260D	06/02/2022 19:21	06/02/2022 19:21	BLOD		0.40	1.00	1	ug/L	RJB
2-Butanone (MEK)	06	78-93-3	SW8260D	06/02/2022 19:21	06/02/2022 19:21	BLOD		3.00	10.0	1	ug/L	RJB
2-Hexanone (MBK)	06	591-78-6	SW8260D	06/02/2022 19:21	06/02/2022 19:21	BLOD		2.20	5.00	1	ug/L	RJB
4-Methyl-2-pentanone (MIBK)	06	108-10-1	SW8260D	06/02/2022 19:21	06/02/2022 19:21	BLOD		1.50	5.00	1	ug/L	RJB
Acetone	06	67-64-1	SW8260D	06/02/2022 19:21	06/02/2022 19:21	BLOD		7.00	10.0	1	ug/L	RJB
Acrylonitrile	06	107-13-1	SW8260D	06/02/2022 19:21	06/02/2022 19:21	BLOD		1.70	5.00	1	ug/L	RJB
Benzene	06	71-43-2	SW8260D	06/02/2022 19:21	06/02/2022 19:21	BLOD		0.40	1.00	1	ug/L	RJB
Bromochloromethane	06	74-97-5	SW8260D	06/02/2022 19:21	06/02/2022 19:21	BLOD		0.50	1.00	1	ug/L	RJB
Bromodichloromethane	06	75-27-4	SW8260D	06/02/2022 19:21	06/02/2022 19:21	BLOD		0.40	0.50	1	ug/L	RJB
Bromoform	06	75-25-2	SW8260D	06/02/2022 19:21	06/02/2022 19:21	BLOD		0.40	1.00	1	ug/L	RJB
Bromomethane	06	74-83-9	SW8260D	06/02/2022 19:21	06/02/2022 19:21	BLOD		0.80	1.00	1	ug/L	RJB
Carbon disulfide	06	75-15-0	SW8260D	06/02/2022 19:21	06/02/2022 19:21	BLOD		5.00	10.0	1	ug/L	RJB
Carbon tetrachloride	06	56-23-5	SW8260D	06/02/2022 19:21	06/02/2022 19:21	BLOD		0.50	1.00	1	ug/L	RJB
Chlorobenzene	06	108-90-7	SW8260D	06/02/2022 19:21	06/02/2022 19:21	BLOD		0.40	1.00	1	ug/L	RJB

Certificate of Analysis

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 Client Site I.D.: City of Bristol 1st Semi-Annual 2022
 Submitted To: Jennifer Robb

Date Issued: 7/12/2022 2:25:23PM

Client Sample ID: MW-211B

Laboratory Sample ID: 22E1463-06

Parameter	Samp ID	CAS	Reference Method	Sample Prep Date/Time	Analyzed Date/Time	Sample Results	Qual	LOD	LOQ	DF	Units	Analyst
Volatile Organic Compounds by GCMS												
Chloroethane	06	75-00-3	SW8260D	06/02/2022 19:21	06/02/2022 19:21	BLOD		0.70	1.00	1	ug/L	RJB
Chloroform	06	67-66-3	SW8260D	06/02/2022 19:21	06/02/2022 19:21	BLOD		0.50	0.50	1	ug/L	RJB
Chloromethane	06	74-87-3	SW8260D	06/02/2022 19:21	06/02/2022 19:21	BLOD		0.95	1.00	1	ug/L	RJB
cis-1,2-Dichloroethylene	06	156-59-2	SW8260D	06/02/2022 19:21	06/02/2022 19:21	BLOD		0.40	1.00	1	ug/L	RJB
cis-1,3-Dichloropropene	06	10061-01-5	SW8260D	06/02/2022 19:21	06/02/2022 19:21	BLOD		0.30	1.00	1	ug/L	RJB
Dibromochloromethane	06	124-48-1	SW8260D	06/02/2022 19:21	06/02/2022 19:21	BLOD		0.35	0.50	1	ug/L	RJB
Dibromomethane	06	74-95-3	SW8260D	06/02/2022 19:21	06/02/2022 19:21	BLOD		0.40	1.00	1	ug/L	RJB
Ethylbenzene	06	100-41-4	SW8260D	06/02/2022 19:21	06/02/2022 19:21	BLOD		0.40	1.00	1	ug/L	RJB
Iodomethane	06	74-88-4	SW8260D	06/02/2022 19:21	06/02/2022 19:21	BLOD		6.00	10.0	1	ug/L	RJB
m+p-Xylenes	06	179601-23-1	SW8260D	06/02/2022 19:21	06/02/2022 19:21	BLOD		0.60	2.00	1	ug/L	RJB
Methylene chloride	06	75-09-2	SW8260D	06/02/2022 19:21	06/02/2022 19:21	BLOD		4.00	4.00	1	ug/L	RJB
o-Xylene	06	95-47-6	SW8260D	06/02/2022 19:21	06/02/2022 19:21	BLOD		0.40	1.00	1	ug/L	RJB
Styrene	06	100-42-5	SW8260D	06/02/2022 19:21	06/02/2022 19:21	BLOD		0.40	1.00	1	ug/L	RJB
Tetrachloroethylene (PCE)	06	127-18-4	SW8260D	06/02/2022 19:21	06/02/2022 19:21	BLOD		0.40	1.00	1	ug/L	RJB
Toluene	06	108-88-3	SW8260D	06/02/2022 19:21	06/02/2022 19:21	BLOD		0.50	1.00	1	ug/L	RJB
trans-1,2-Dichloroethylene	06	156-60-5	SW8260D	06/02/2022 19:21	06/02/2022 19:21	BLOD		0.60	1.00	1	ug/L	RJB
trans-1,3-Dichloropropene	06	10061-02-6	SW8260D	06/02/2022 19:21	06/02/2022 19:21	BLOD		0.30	1.00	1	ug/L	RJB
trans-1,4-Dichloro-2-butene	06	110-57-6	SW8260D	06/02/2022 19:21	06/02/2022 19:21	BLOD		1.00	4.00	1	ug/L	RJB
Trichloroethylene	06	79-01-6	SW8260D	06/02/2022 19:21	06/02/2022 19:21	BLOD		0.40	1.00	1	ug/L	RJB
Trichlorofluoromethane	06	75-69-4	SW8260D	06/02/2022 19:21	06/02/2022 19:21	BLOD		0.80	1.00	1	ug/L	RJB
Vinyl acetate	06	108-05-4	SW8260D	06/02/2022 19:21	06/02/2022 19:21	BLOD		2.00	10.0	1	ug/L	RJB
Vinyl chloride	06	75-01-4	SW8260D	06/02/2022 19:21	06/02/2022 19:21	BLOD		0.50	0.50	1	ug/L	RJB
Xylenes, Total	06	1330-20-7	SW8260D	06/02/2022 19:21	06/02/2022 19:21	BLOD		1.00	3.00	1	ug/L	RJB

Certificate of Analysis

Client Name: SCS Engineers-Winchester

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Laboratory Sample ID: 22E1463-06

Parameter	Samp ID	CAS	Reference Method	Sample Prep Date/Time	Analyzed Date/Time	Sample Results	Qual	LOD	LOQ	DF	Units	Analyst
Volatile Organic Compounds by GCMS												
Surr: 1,2-Dichloroethane-d4 (Surr)	06	99.0 %	70-120	06/02/2022 19:21	06/02/2022 19:21							
Surr: 4-Bromofluorobenzene (Surr)	06	89.7 %	75-120	06/02/2022 19:21	06/02/2022 19:21							
Surr: Dibromofluoromethane (Surr)	06	99.2 %	70-130	06/02/2022 19:21	06/02/2022 19:21							
Surr: Toluene-d8 (Surr)	06	103 %	70-130	06/02/2022 19:21	06/02/2022 19:21							

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Parameter	Samp ID	CAS	Reference Method	Sample Prep Date/Time	Analyzed Date/Time	Sample Results	Qual	LOD	LOQ	DF	Units	Analyst
Semivolatle Organic Compounds by GCMS												
bis (2-Ethylhexyl) phthalate	06	117-81-7	SW8270E	05/27/2022 09:15	06/03/2022 15:16	BLOD		4.67	5.00	1	ug/L	MGG
Surr: 2,4,6-Tribromophenol (Surr)	06	56.5 %	10-86	05/27/2022 09:15	06/03/2022 15:16							S
Surr: 2-Fluorobiphenyl (Surr)	06	88.4 %	9-87	05/27/2022 09:15	06/03/2022 15:16							S
Surr: 2-Fluorophenol (Surr)	06	44.3 %	10-52	05/27/2022 09:15	06/03/2022 15:16							S
Surr: Nitrobenzene-d5 (Surr)	06	84.1 %	10-98.5	05/27/2022 09:15	06/03/2022 15:16							S
Surr: Phenol-d5 (Surr)	06	34.8 %	5-33	05/27/2022 09:15	06/03/2022 15:16							S
Surr: p-Terphenyl-d14 (Surr)	06	77.4 %	27-133	05/27/2022 09:15	06/03/2022 15:16							S

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Parameter	Samp ID	CAS	Reference Method	Sample Prep Date/Time	Analyzed Date/Time	Sample Results	Qual	LOD	LOQ	DF	Units	Analyst
Micro-extractables by GC/ECD												
1,2-Dibromoethane (EDB)	06	106-93-4	SW8011	06/07/2022 11:30	06/07/2022 22:06	BLOD		0.008	0.010	1	ug/L	LBH2
1,2,3-Trichloropropane	06	96-18-4	SW8011	06/07/2022 11:30	06/07/2022 22:06	BLOD		0.009	0.010	1	ug/L	LBH2
1,2-Dibromo-3-chloropropane (DBCP)	06	96-12-8	SW8011	06/07/2022 11:30	06/07/2022 22:06	BLOD		0.005	0.010	1	ug/L	LBH2

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Date Issued: 7/12/2022 2:25:23PM

Client Sample ID: MW-211B

Laboratory Sample ID: 22E1463-06

Parameter	Samp ID	CAS	Reference Method	Sample Prep Date/Time	Analyzed Date/Time	Sample Results	Qual	LOD	LOQ	DF	Units	Analyst
Head Space Analysis by GC												
Ethane	06	74-84-0	RSK175M	06/02/2022 12:54	06/02/2022 12:54	BLOD		1.50	5.00	1	ug/L	BMR
Ethene	06	74-85-1	RSK175M	06/02/2022 12:54	06/02/2022 12:54	BLOD		1.50	5.00	1	ug/L	BMR
Methane	06	74-82-8	RSK175M	06/02/2022 12:54	06/02/2022 12:54	BLOD		1.50	5.00	1	ug/L	BMR
<i>Surr: Acetylene (Surr)</i>	06	131 %	70-130	06/02/2022 12:54	06/02/2022 12:54							S

Certificate of Analysis

Client Name: SCS Engineers-Winchester
 Client Site I.D.: City of Bristol 1st Semi-Annual 2022
 Submitted To: Jennifer Robb

Date Issued: 7/12/2022 2:25:23PM

Client Sample ID: MW-211B

Laboratory Sample ID: 22E1463-06

Parameter	Samp ID	CAS	Reference Method	Sample Prep Date/Time	Analyzed Date/Time	Sample Results	Qual	LOD	LOQ	DF	Units	Analyst
Wet Chemistry Analysis												
Alkalinity	06	NA	SM22 2320B-2011	06/08/2022 16:42	06/08/2022 16:42	345		5.0	5.0	1	mg/L	MAH
Chloride	06	16887-00-6	SW9056A	06/01/2022 00:21	06/01/2022 00:21	2.2		0.5	1.0	1	mg/L	MGG

Certificate of Analysis

Client Name: SCS Engineers-Winchester
 Client Site I.D.: City of Bristol 1st Semi-Annual 2022
 Submitted To: Jennifer Robb

Date Issued: 7/12/2022 2:25:23PM

Client Sample ID: MW-108

Laboratory Sample ID: 22E1463-07

Parameter	Samp ID	CAS	Reference Method	Sample Prep Date/Time	Analyzed Date/Time	Sample Results	Qual	LOD	LOQ	DF	Units	Analyst
Metals (Total) by EPA 6000/7000 Series Methods												
Silver	07	7440-22-4	SW6020B	06/02/2022 17:00	06/07/2022 18:04	BLOD		0.0600	1.00	1	ug/L	RCV
Arsenic	07	7440-38-2	SW6020B	06/02/2022 17:00	06/07/2022 18:04	13		0.50	1.0	1	ug/L	RCV
Barium	07RE1	7440-39-3	SW6020B	06/02/2022 17:00	06/08/2022 13:16	757		10.0	50.0	10	ug/L	RCV
Beryllium	07	7440-41-7	SW6020B	06/02/2022 17:00	06/07/2022 18:04	BLOD		0.200	1.00	1	ug/L	RCV
Cadmium	07	7440-43-9	SW6020B	06/02/2022 17:00	06/07/2022 18:04	0.203	J	0.100	1.00	1	ug/L	RCV
Cobalt	07	7440-48-4	SW6020B	06/02/2022 17:00	06/07/2022 18:04	42.8		0.200	1.00	1	ug/L	RCV
Chromium	07	7440-47-3	SW6020B	06/02/2022 17:00	06/07/2022 18:04	1.15		0.400	1.00	1	ug/L	RCV
Copper	07	7440-50-8	SW6020B	06/02/2022 17:00	06/07/2022 18:04	2.50		0.300	1.00	1	ug/L	RCV
Mercury	07	7439-97-6	SW7470A	06/09/2022 10:29	06/09/2022 17:09	0.00057		0.00020	0.00020	1	mg/L	ARP
Nickel	07	7440-02-0	SW6020B	06/02/2022 17:00	06/07/2022 18:04	35.69		1.000	1.000	1	ug/L	RCV
Lead	07	7439-92-1	SW6020B	06/02/2022 17:00	06/07/2022 18:04	BLOD		1.0	1.0	1	ug/L	RCV
Antimony	07	7440-36-0	SW6020B	06/02/2022 17:00	06/07/2022 18:04	BLOD		1.0	1.0	1	ug/L	RCV
Selenium	07	7782-49-2	SW6020B	06/02/2022 17:00	06/07/2022 18:04	BLOD		0.850	1.00	1	ug/L	RCV
Tin	07	7440-31-5	SW6020B	06/02/2022 17:00	06/07/2022 18:04	BLOD		1.00	1.00	1	ug/L	RCV
Thallium	07	7440-28-0	SW6020B	06/02/2022 17:00	06/07/2022 18:04	BLOD		1.0	1.0	1	ug/L	RCV
Vanadium	07	7440-62-2	SW6020B	06/02/2022 17:00	06/07/2022 18:04	BLOD		2.50	5.00	1	ug/L	RCV
Zinc	07	7440-66-6	SW6020B	06/02/2022 17:00	06/07/2022 18:04	54.4		2.50	5.00	1	ug/L	RCV

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Client Sample ID: MW-108

Laboratory Sample ID: 22E1463-07

Parameter	Samp ID	CAS	Reference Method	Sample Prep Date/Time	Analyzed Date/Time	Sample Results	Qual	LOD	LOQ	DF	Units	Analyst
Volatile Organic Compounds by GCMS												
1,1,1,2-Tetrachloroethane	07	630-20-6	SW8260D	06/02/2022 19:46	06/02/2022 19:46	BLOD		0.40	0.40	1	ug/L	RJB
1,1,1-Trichloroethane	07	71-55-6	SW8260D	06/02/2022 19:46	06/02/2022 19:46	BLOD		0.60	1.00	1	ug/L	RJB
1,1,2,2-Tetrachloroethane	07	79-34-5	SW8260D	06/02/2022 19:46	06/02/2022 19:46	BLOD		0.30	0.40	1	ug/L	RJB
1,1,2-Trichloroethane	07	79-00-5	SW8260D	06/02/2022 19:46	06/02/2022 19:46	BLOD		0.50	1.00	1	ug/L	RJB
1,1-Dichloroethane	07	75-34-3	SW8260D	06/02/2022 19:46	06/02/2022 19:46	5.81		0.60	1.00	1	ug/L	RJB
1,1-Dichloroethylene	07	75-35-4	SW8260D	06/02/2022 19:46	06/02/2022 19:46	BLOD		0.70	1.00	1	ug/L	RJB
1,1-Dichloropropene	07	563-58-6	SW8260D	06/02/2022 19:46	06/02/2022 19:46	BLOD		0.60	1.00	1	ug/L	RJB
1,2,3-Trichloropropane	07	96-18-4	SW8260D	06/02/2022 19:46	06/02/2022 19:46	BLOD		0.40	1.00	1	ug/L	RJB
1,2,4-Trichlorobenzene	07	120-82-1	SW8260D	06/02/2022 19:46	06/02/2022 19:46	BLOD		0.50	1.00	1	ug/L	RJB
1,2-Dichlorobenzene	07	95-50-1	SW8260D	06/02/2022 19:46	06/02/2022 19:46	BLOD		0.40	1.00	1	ug/L	RJB
1,2-Dichloroethane	07	107-06-2	SW8260D	06/02/2022 19:46	06/02/2022 19:46	BLOD		0.70	1.00	1	ug/L	RJB
1,2-Dichloropropane	07	78-87-5	SW8260D	06/02/2022 19:46	06/02/2022 19:46	BLOD		0.40	1.00	1	ug/L	RJB
1,3-Dichlorobenzene	07	541-73-1	SW8260D	06/02/2022 19:46	06/02/2022 19:46	BLOD		0.30	1.00	1	ug/L	RJB
1,3-Dichloropropane	07	142-28-9	SW8260D	06/02/2022 19:46	06/02/2022 19:46	BLOD		1.00	1.00	1	ug/L	RJB
1,4-Dichlorobenzene	07	106-46-7	SW8260D	06/02/2022 19:46	06/02/2022 19:46	1.75		0.40	1.00	1	ug/L	RJB
2,2-Dichloropropane	07	594-20-7	SW8260D	06/02/2022 19:46	06/02/2022 19:46	BLOD		0.60	2.00	1	ug/L	RJB
2-Butanone (MEK)	07	78-93-3	SW8260D	06/02/2022 19:46	06/02/2022 19:46	BLOD		3.00	10.0	1	ug/L	RJB
2-Hexanone (MBK)	07	591-78-6	SW8260D	06/02/2022 19:46	06/02/2022 19:46	BLOD		2.20	5.00	1	ug/L	RJB
4-Methyl-2-pentanone (MIBK)	07	108-10-1	SW8260D	06/02/2022 19:46	06/02/2022 19:46	BLOD		1.50	5.00	1	ug/L	RJB
Acetone	07	67-64-1	SW8260D	06/02/2022 19:46	06/02/2022 19:46	BLOD		7.00	10.0	1	ug/L	RJB
Acetonitrile	07	75-05-8	SW8260D	06/02/2022 19:46	06/02/2022 19:46	BLOD		8.00	10.0	1	ug/L	RJB
Acrolein	07	107-02-8	SW8260D	06/02/2022 19:46	06/02/2022 19:46	BLOD		6.00	10.0	1	ug/L	RJB
Acrylonitrile	07	107-13-1	SW8260D	06/02/2022 19:46	06/02/2022 19:46	BLOD		1.70	5.00	1	ug/L	RJB
Allyl chloride	07	107-05-1	SW8260D	06/02/2022 19:46	06/02/2022 19:46	BLOD		0.60	1.00	1	ug/L	RJB

Certificate of Analysis

Client Name: SCS Engineers-Winchester
 Client Site I.D.: City of Bristol 1st Semi-Annual 2022
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Date Issued: 7/12/2022 2:25:23PM

Client Sample ID: MW-108

Laboratory Sample ID: 22E1463-07

Parameter	Samp ID	CAS	Reference Method	Sample Prep Date/Time	Analyzed Date/Time	Sample Results	Qual	LOD	LOQ	DF	Units	Analyst
Volatile Organic Compounds by GCMS												
Benzene	07	71-43-2	SW8260D	06/02/2022 19:46	06/02/2022 19:46	9.46		0.40	1.00	1	ug/L	RJB
Bromochloromethane	07	74-97-5	SW8260D	06/02/2022 19:46	06/02/2022 19:46	BLOD		0.50	1.00	1	ug/L	RJB
Bromodichloromethane	07	75-27-4	SW8260D	06/02/2022 19:46	06/02/2022 19:46	BLOD		0.40	0.50	1	ug/L	RJB
Bromoform	07	75-25-2	SW8260D	06/02/2022 19:46	06/02/2022 19:46	BLOD		0.40	1.00	1	ug/L	RJB
Bromomethane	07	74-83-9	SW8260D	06/02/2022 19:46	06/02/2022 19:46	BLOD		0.80	1.00	1	ug/L	RJB
Carbon disulfide	07	75-15-0	SW8260D	06/02/2022 19:46	06/02/2022 19:46	BLOD		5.00	10.0	1	ug/L	RJB
Carbon tetrachloride	07	56-23-5	SW8260D	06/02/2022 19:46	06/02/2022 19:46	BLOD		0.50	1.00	1	ug/L	RJB
Chlorobenzene	07	108-90-7	SW8260D	06/02/2022 19:46	06/02/2022 19:46	1.30		0.40	1.00	1	ug/L	RJB
Chloroethane	07	75-00-3	SW8260D	06/02/2022 19:46	06/02/2022 19:46	1.22		0.70	1.00	1	ug/L	RJB
Chloroform	07	67-66-3	SW8260D	06/02/2022 19:46	06/02/2022 19:46	BLOD		0.50	0.50	1	ug/L	RJB
Chloromethane	07	74-87-3	SW8260D	06/02/2022 19:46	06/02/2022 19:46	BLOD		0.95	1.00	1	ug/L	RJB
Chloroprene	07	126-99-8	SW8260D	06/02/2022 19:46	06/02/2022 19:46	BLOD		0.50	5.00	1	ug/L	RJB
cis-1,2-Dichloroethylene	07	156-59-2	SW8260D	06/02/2022 19:46	06/02/2022 19:46	54.7		0.40	1.00	1	ug/L	RJB
cis-1,3-Dichloropropene	07	10061-01-5	SW8260D	06/02/2022 19:46	06/02/2022 19:46	BLOD		0.30	1.00	1	ug/L	RJB
Dibromochloromethane	07	124-48-1	SW8260D	06/02/2022 19:46	06/02/2022 19:46	BLOD		0.35	0.50	1	ug/L	RJB
Dibromomethane	07	74-95-3	SW8260D	06/02/2022 19:46	06/02/2022 19:46	BLOD		0.40	1.00	1	ug/L	RJB
Dichlorodifluoromethane	07	75-71-8	SW8260D	06/02/2022 19:46	06/02/2022 19:46	BLOD		0.95	1.00	1	ug/L	RJB
Ethyl methacrylate	07	97-63-2	SW8260D	06/02/2022 19:46	06/02/2022 19:46	BLOD		0.70	5.00	1	ug/L	RJB
Ethylbenzene	07	100-41-4	SW8260D	06/02/2022 19:46	06/02/2022 19:46	BLOD		0.40	1.00	1	ug/L	RJB
Iodomethane	07	74-88-4	SW8260D	06/02/2022 19:46	06/02/2022 19:46	BLOD		6.00	10.0	1	ug/L	RJB
Isobutyl Alcohol	07	78-83-1	SW8260D	06/02/2022 19:46	06/02/2022 19:46	BLOD		25.0	40.0	1	ug/L	RJB
m+p-Xylenes	07	179601-23-1	SW8260D	06/02/2022 19:46	06/02/2022 19:46	BLOD		0.60	2.00	1	ug/L	RJB
Methacrylonitrile	07	126-98-7	SW8260D	06/02/2022 19:46	06/02/2022 19:46	BLOD		1.00	1.50	1	ug/L	RJB

Certificate of Analysis

 Client Name: SCS Engineers-Winchester
 Client Site I.D.: City of Bristol 1st Semi-Annual 2022
 Submitted To: Jennifer Robb

Date Issued: 7/12/2022 2:25:23PM

Client Sample ID: MW-108

Laboratory Sample ID: 22E1463-07

Parameter	Samp ID	CAS	Reference Method	Sample Prep Date/Time	Analyzed Date/Time	Sample Results	Qual	LOD	LOQ	DF	Units	Analyst
Volatile Organic Compounds by GCMS												
Methyl methacrylate	07	80-62-6	SW8260D	06/02/2022 19:46	06/02/2022 19:46	BLOD		0.70	2.00	1	ug/L	RJB
Methylene chloride	07	75-09-2	SW8260D	06/02/2022 19:46	06/02/2022 19:46	BLOD		4.00	4.00	1	ug/L	RJB
Naphthalene	07	91-20-3	SW8260D	06/02/2022 19:46	06/02/2022 19:46	BLOD		0.80	1.00	1	ug/L	RJB
o-Xylene	07	95-47-6	SW8260D	06/02/2022 19:46	06/02/2022 19:46	BLOD		0.40	1.00	1	ug/L	RJB
Propionitrile	07	107-12-0	SW8260D	06/02/2022 19:46	06/02/2022 19:46	BLOD		7.50	40.0	1	ug/L	RJB
Styrene	07	100-42-5	SW8260D	06/02/2022 19:46	06/02/2022 19:46	BLOD		0.40	1.00	1	ug/L	RJB
Tetrachloroethylene (PCE)	07	127-18-4	SW8260D	06/02/2022 19:46	06/02/2022 19:46	BLOD		0.40	1.00	1	ug/L	RJB
Toluene	07	108-88-3	SW8260D	06/02/2022 19:46	06/02/2022 19:46	17.4		0.50	1.00	1	ug/L	RJB
trans-1,2-Dichloroethylene	07	156-60-5	SW8260D	06/02/2022 19:46	06/02/2022 19:46	BLOD		0.60	1.00	1	ug/L	RJB
trans-1,3-Dichloropropene	07	10061-02-6	SW8260D	06/02/2022 19:46	06/02/2022 19:46	BLOD		0.30	1.00	1	ug/L	RJB
trans-1,4-Dichloro-2-butene	07	110-57-6	SW8260D	06/02/2022 19:46	06/02/2022 19:46	BLOD		1.00	4.00	1	ug/L	RJB
Trichloroethylene	07	79-01-6	SW8260D	06/02/2022 19:46	06/02/2022 19:46	BLOD		0.40	1.00	1	ug/L	RJB
Trichlorofluoromethane	07	75-69-4	SW8260D	06/02/2022 19:46	06/02/2022 19:46	BLOD		0.80	1.00	1	ug/L	RJB
Vinyl acetate	07	108-05-4	SW8260D	06/02/2022 19:46	06/02/2022 19:46	BLOD		2.00	10.0	1	ug/L	RJB
Vinyl chloride	07	75-01-4	SW8260D	06/02/2022 19:46	06/02/2022 19:46	8.13		0.50	0.50	1	ug/L	RJB
Xylenes, Total	07	1330-20-7	SW8260D	06/02/2022 19:46	06/02/2022 19:46	BLOD		1.00	3.00	1	ug/L	RJB
<i>Surr: 1,2-Dichloroethane-d4 (Surr)</i>	07	103 %	70-120	06/02/2022 19:46	06/02/2022 19:46							
<i>Surr: 4-Bromofluorobenzene (Surr)</i>	07	92.7 %	75-120	06/02/2022 19:46	06/02/2022 19:46							
<i>Surr: Dibromofluoromethane (Surr)</i>	07	90.5 %	70-130	06/02/2022 19:46	06/02/2022 19:46							
<i>Surr: Toluene-d8 (Surr)</i>	07	105 %	70-130	06/02/2022 19:46	06/02/2022 19:46							

Certificate of Analysis

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Date Issued: 7/12/2022 2:25:23PM

Client Sample ID: MW-108

Laboratory Sample ID: 22E1463-07

Parameter	Samp ID	CAS	Reference Method	Sample Prep Date/Time	Analyzed Date/Time	Sample Results	Qual	LOD	LOQ	DF	Units	Analyst
Semivolatile Organic Compounds by GCMS												
1,2,4,5-Tetrachlorobenzene	07	95-94-3	SW8270E	05/27/2022 09:15	06/03/2022 15:49	BLOD		1.87	10.0	1	ug/L	MGG
1,3,5-Trinitrobenzene	07	99-35-4	SW8270E	05/27/2022 09:15	06/03/2022 15:49	BLOD		0.93	5.00	1	ug/L	MGG
1,3-Dinitrobenzene	07	99-65-0	SW8270E	05/27/2022 09:15	06/03/2022 15:49	BLOD		2.34	2.50	1	ug/L	MGG
1,4-Naphthoquinone	07	130-15-4	SW8270E	05/27/2022 09:15	06/03/2022 15:49	BLOD		1.87	10.0	1	ug/L	MGG
1-Naphthylamine	07	134-32-7	SW8270E	05/27/2022 09:15	06/03/2022 15:49	BLOD		0.93	10.0	1	ug/L	MGG
2,3,4,6-Tetrachlorophenol	07	58-90-2	SW8270E	05/27/2022 09:15	06/03/2022 15:49	BLOD		0.93	10.0	1	ug/L	MGG
2,4,5-Trichlorophenol	07	95-95-4	SW8270E	05/27/2022 09:15	06/03/2022 15:49	BLOD		0.93	10.0	1	ug/L	MGG
2,4,6-Trichlorophenol	07	88-06-2	SW8270E	05/27/2022 09:15	06/03/2022 15:49	BLOD		7.48	10.0	1	ug/L	MGG
2,4-Dichlorophenol	07	120-83-2	SW8270E	05/27/2022 09:15	06/03/2022 15:49	BLOD		2.80	10.0	1	ug/L	MGG
2,4-Dimethylphenol	07	105-67-9	SW8270E	05/27/2022 09:15	06/03/2022 15:49	BLOD		4.67	4.67	1	ug/L	MGG
2,4-Dinitrophenol	07	51-28-5	SW8270E	05/27/2022 09:15	06/03/2022 15:49	BLOD		7.48	50.0	1	ug/L	MGG
2,4-Dinitrotoluene	07	121-14-2	SW8270E	05/27/2022 09:15	06/03/2022 15:49	BLOD		5.61	10.0	1	ug/L	MGG
2,6-Dichlorophenol	07	87-65-0	SW8270E	05/27/2022 09:15	06/03/2022 15:49	BLOD		0.93	10.0	1	ug/L	MGG
2,6-Dinitrotoluene	07	606-20-2	SW8270E	05/27/2022 09:15	06/03/2022 15:49	BLOD		3.74	10.0	1	ug/L	MGG
2-Acetylaminofluorene	07	53-96-3	SW8270E	05/27/2022 09:15	06/03/2022 15:49	BLOD		2.34	2.50	1	ug/L	MGG
2-Chloronaphthalene	07	91-58-7	SW8270E	05/27/2022 09:15	06/03/2022 15:49	BLOD		4.21	10.0	1	ug/L	MGG
2-Chlorophenol	07	95-57-8	SW8270E	05/27/2022 09:15	06/03/2022 15:49	BLOD		3.27	10.0	1	ug/L	MGG
2-Methylnaphthalene	07	91-57-6	SW8270E	05/27/2022 09:15	06/03/2022 15:49	BLOD		1.87	10.0	1	ug/L	MGG
2-Naphthylamine	07	91-59-8	SW8270E	05/27/2022 09:15	06/03/2022 15:49	BLOD		1.87	10.0	1	ug/L	MGG
2-Nitroaniline	07	88-74-4	SW8270E	05/27/2022 09:15	06/03/2022 15:49	BLOD		1.87	20.0	1	ug/L	MGG
2-Nitrophenol	07	88-75-5	SW8270E	05/27/2022 09:15	06/03/2022 15:49	BLOD		5.61	10.0	1	ug/L	MGG
3,3'-Dichlorobenzidine	07	91-94-1	SW8270E	05/27/2022 09:15	06/03/2022 15:49	BLOD		3.74	10.0	1	ug/L	MGG
3,3'-Dimethylbenzidine	07	119-93-7	SW8270E	05/27/2022 09:15	06/03/2022 15:49	BLOD		2.34	2.50	1	ug/L	MGG
3-Methylcholanthrene	07	56-49-5	SW8270E	05/27/2022 09:15	06/03/2022 15:49	BLOD		0.93	10.0	1	ug/L	MGG

Certificate of Analysis

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Date Issued: 7/12/2022 2:25:23PM

Client Sample ID: MW-108

Laboratory Sample ID: 22E1463-07

Parameter	Samp ID	CAS	Reference Method	Sample Prep Date/Time	Analyzed Date/Time	Sample Results	Qual	LOD	LOQ	DF	Units	Analyst
Semivolatile Organic Compounds by GCMS												
3-Nitroaniline	07	99-09-2	SW8270E	05/27/2022 09:15	06/03/2022 15:49	BLOD		1.87	20.0	1	ug/L	MGG
4,6-Dinitro-2-methylphenol	07	534-52-1	SW8270E	05/27/2022 09:15	06/03/2022 15:49	BLOD		7.48	50.0	1	ug/L	MGG
4-Aminobiphenyl	07	92-67-1	SW8270E	05/27/2022 09:15	06/03/2022 15:49	BLOD		1.87	10.0	1	ug/L	MGG
4-Bromophenyl phenyl ether	07	101-55-3	SW8270E	05/27/2022 09:15	06/03/2022 15:49	BLOD		3.27	10.0	1	ug/L	MGG
4-Chloroaniline	07	106-47-8	SW8270E	05/27/2022 09:15	06/03/2022 15:49	BLOD		1.87	10.0	1	ug/L	MGG
4-Chlorophenyl phenyl ether	07	7005-72-3	SW8270E	05/27/2022 09:15	06/03/2022 15:49	BLOD		3.27	10.0	1	ug/L	MGG
4-Nitroaniline	07	100-01-6	SW8270E	05/27/2022 09:15	06/03/2022 15:49	BLOD		1.87	20.0	1	ug/L	MGG
4-Nitrophenol	07	100-02-7	SW8270E	05/27/2022 09:15	06/03/2022 15:49	BLOD		1.87	50.0	1	ug/L	MGG
5-Nitro-o-toluidine	07	99-55-8	SW8270E	05/27/2022 09:15	06/03/2022 15:49	BLOD		1.87	10.0	1	ug/L	MGG
7,12-Dimethylbenz (a) anthracene	07	57-97-6	SW8270E	05/27/2022 09:15	06/03/2022 15:49	BLOD		1.87	10.0	1	ug/L	MGG
Acenaphthene	07	83-32-9	SW8270E	05/27/2022 09:15	06/03/2022 15:49	BLOD		3.74	10.0	1	ug/L	MGG
Acenaphthylene	07	208-96-8	SW8270E	05/27/2022 09:15	06/03/2022 15:49	BLOD		3.74	10.0	1	ug/L	MGG
Acetophenone	07	98-86-2	SW8270E	05/27/2022 09:15	06/03/2022 15:49	BLOD		1.87	20.0	1	ug/L	MGG
Anthracene	07	120-12-7	SW8270E	05/27/2022 09:15	06/03/2022 15:49	BLOD		4.67	10.0	1	ug/L	MGG
Benzo (a) anthracene	07	56-55-3	SW8270E	05/27/2022 09:15	06/03/2022 15:49	BLOD		3.27	9.35	1	ug/L	MGG
Benzo (a) pyrene	07	50-32-8	SW8270E	05/27/2022 09:15	06/03/2022 15:49	BLOD		0.19	0.20	1	ug/L	MGG
Benzo (b) fluoranthene	07	205-99-2	SW8270E	05/27/2022 09:15	06/03/2022 15:49	BLOD		3.74	10.0	1	ug/L	MGG
Benzo (g,h,i) perylene	07	191-24-2	SW8270E	05/27/2022 09:15	06/03/2022 15:49	BLOD		4.67	10.0	1	ug/L	MGG
Benzo (k) fluoranthene	07	207-08-9	SW8270E	05/27/2022 09:15	06/03/2022 15:49	BLOD		5.61	10.0	1	ug/L	MGG
Benzyl alcohol	07	100-51-6	SW8270E	05/27/2022 09:15	06/03/2022 15:49	BLOD		0.93	20.0	1	ug/L	MGG
bis (2-Chloroethoxy) methane	07	111-91-1	SW8270E	05/27/2022 09:15	06/03/2022 15:49	BLOD		3.27	10.0	1	ug/L	MGG
bis (2-Chloroethyl) ether	07	111-44-4	SW8270E	05/27/2022 09:15	06/03/2022 15:49	BLOD		3.27	10.0	1	ug/L	MGG
2,2'-Oxybis (1-chloropropane)	07	108-60-1	SW8270E	05/27/2022 09:15	06/03/2022 15:49	BLOD		2.80	10.0	1	ug/L	MGG
bis (2-Ethylhexyl) phthalate	07	117-81-7	SW8270E	05/27/2022 09:15	06/03/2022 15:49	BLOD		4.67	5.00	1	ug/L	MGG

Certificate of Analysis

 Client Name: SCS Engineers-Winchester
 Client Site I.D.: City of Bristol 1st Semi-Annual 2022
 Submitted To: Jennifer Robb

Date Issued: 7/12/2022 2:25:23PM

Client Sample ID: MW-108

Laboratory Sample ID: 22E1463-07

Parameter	Samp ID	CAS	Reference Method	Sample Prep Date/Time	Analyzed Date/Time	Sample Results	Qual	LOD	LOQ	DF	Units	Analyst
Semivolatle Organic Compounds by GCMS												
Butyl benzyl phthalate	07	85-68-7	SW8270E	05/27/2022 09:15	06/03/2022 15:49	BLOD		6.54	10.0	1	ug/L	MGG
Chlorobenzilate	07	510-15-6	SW8270E	05/27/2022 09:15	06/03/2022 15:49	BLOD		2.34	2.50	1	ug/L	MGG
Chrysene	07	218-01-9	SW8270E	05/27/2022 09:15	06/03/2022 15:49	BLOD		3.74	10.0	1	ug/L	MGG
Diallate	07	2303-16-4	SW8270E	05/27/2022 09:15	06/03/2022 15:49	BLOD		2.34	2.50	1	ug/L	MGG
Dibenz (a,h) anthracene	07	53-70-3	SW8270E	05/27/2022 09:15	06/03/2022 15:49	BLOD		4.67	10.0	1	ug/L	MGG
Dibenzofuran	07	132-64-9	SW8270E	05/27/2022 09:15	06/03/2022 15:49	BLOD		1.87	5.00	1	ug/L	MGG
Diethyl phthalate	07	84-66-2	SW8270E	05/27/2022 09:15	06/03/2022 15:49	BLOD		2.80	10.0	1	ug/L	MGG
Dimethoate	07	60-51-5	SW8270E	05/27/2022 09:15	06/03/2022 15:49	BLOD		2.34	2.50	1	ug/L	MGG
Dimethyl phthalate	07	131-11-3	SW8270E	05/27/2022 09:15	06/03/2022 15:49	BLOD		3.27	10.0	1	ug/L	MGG
Di-n-butyl phthalate	07	84-74-2	SW8270E	05/27/2022 09:15	06/03/2022 15:49	BLOD		3.74	10.0	1	ug/L	MGG
Di-n-octyl phthalate	07	117-84-0	SW8270E	05/27/2022 09:15	06/03/2022 15:49	BLOD		7.48	10.0	1	ug/L	MGG
Diphenylamine	07	122-39-4	SW8270E	05/27/2022 09:15	06/03/2022 15:49	BLOD		1.87	10.0	1	ug/L	MGG
Disulfoton	07	298-04-4	SW8270E	05/27/2022 09:15	06/03/2022 15:49	BLOD		2.34	2.50	1	ug/L	MGG
Ethyl methanesulfonate	07	62-50-0	SW8270E	05/27/2022 09:15	06/03/2022 15:49	BLOD		0.93	20.0	1	ug/L	MGG
Ethyl parathion	07	56-38-2	SW8270E	05/27/2022 09:15	06/03/2022 15:49	BLOD		2.34	2.50	1	ug/L	MGG
Famphur	07	52-85-7	SW8270E	05/27/2022 09:15	06/03/2022 15:49	BLOD		2.34	2.50	1	ug/L	MGG
Fluoranthene	07	206-44-0	SW8270E	05/27/2022 09:15	06/03/2022 15:49	BLOD		4.67	10.0	1	ug/L	MGG
Fluorene	07	86-73-7	SW8270E	05/27/2022 09:15	06/03/2022 15:49	BLOD		3.74	10.0	1	ug/L	MGG
Hexachlorobenzene	07	118-74-1	SW8270E	05/27/2022 09:15	06/03/2022 15:49	BLOD		0.93	0.93	1	ug/L	MGG
Hexachlorobutadiene	07	87-68-3	SW8270E	05/27/2022 09:15	06/03/2022 15:49	BLOD		4.21	10.0	1	ug/L	MGG
Hexachlorocyclopentadiene	07	77-47-4	SW8270E	05/27/2022 09:15	06/03/2022 15:49	BLOD	C	3.74	10.0	1	ug/L	MGG
Hexachloroethane	07	67-72-1	SW8270E	05/27/2022 09:15	06/03/2022 15:49	BLOD		3.27	10.0	1	ug/L	MGG
Hexachloropropene	07	1888-71-7	SW8270E	05/27/2022 09:15	06/03/2022 15:49	BLOD		1.87	2.50	1	ug/L	MGG
Indeno (1,2,3-cd) pyrene	07	193-39-5	SW8270E	05/27/2022 09:15	06/03/2022 15:49	BLOD		2.80	10.0	1	ug/L	MGG

Certificate of Analysis

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Date Issued: 7/12/2022 2:25:23PM

Client Sample ID: MW-108

Laboratory Sample ID: 22E1463-07

Parameter	Samp ID	CAS	Reference Method	Sample Prep Date/Time	Analyzed Date/Time	Sample Results	Qual	LOD	LOQ	DF	Units	Analyst
Semivolatile Organic Compounds by GCMS												
Isodrin	07	465-73-6	SW8270E	05/27/2022 09:15	06/03/2022 15:49	BLOD		0.93	10.0	1	ug/L	MGG
Isophorone	07	78-59-1	SW8270E	05/27/2022 09:15	06/03/2022 15:49	BLOD		4.67	10.0	1	ug/L	MGG
Isosafrole	07	120-58-1	SW8270E	05/27/2022 09:15	06/03/2022 15:49	BLOD		1.87	10.0	1	ug/L	MGG
Kepon	07	143-50-0	SW8270E	05/27/2022 09:15	06/03/2022 15:49	BLOD		1.87	9.35	1	ug/L	MGG
m+p-Cresols	07	1319-77-3	SW8270E	05/27/2022 09:15	06/03/2022 15:49	BLOD		0.93	10.0	1	ug/L	MGG
Methapyrilene	07	91-80-5	SW8270E	05/27/2022 09:15	06/03/2022 15:49	BLOD		0.93	10.0	1	ug/L	MGG
Methyl methanesulfonate	07	66-27-3	SW8270E	05/27/2022 09:15	06/03/2022 15:49	BLOD		0.93	10.0	1	ug/L	MGG
Methyl parathion	07	298-00-0	SW8270E	05/27/2022 09:15	06/03/2022 15:49	BLOD		1.87	2.50	1	ug/L	MGG
Nitrobenzene	07	98-95-3	SW8270E	05/27/2022 09:15	06/03/2022 15:49	BLOD		2.80	10.0	1	ug/L	MGG
n-Nitrosodiethylamine	07	55-18-5	SW8270E	05/27/2022 09:15	06/03/2022 15:49	BLOD		2.34	2.50	1	ug/L	MGG
n-Nitrosodimethylamine	07	62-75-9	SW8270E	05/27/2022 09:15	06/03/2022 15:49	BLOD		2.80	10.0	1	ug/L	MGG
n-Nitrosodi-n-butylamine	07	924-16-3	SW8270E	05/27/2022 09:15	06/03/2022 15:49	BLOD		1.87	10.0	1	ug/L	MGG
n-Nitrosodi-n-propylamine	07	621-64-7	SW8270E	05/27/2022 09:15	06/03/2022 15:49	BLOD		3.27	10.0	1	ug/L	MGG
n-Nitrosodiphenylamine	07	86-30-6	SW8270E	05/27/2022 09:15	06/03/2022 15:49	BLOD		2.80	10.0	1	ug/L	MGG
n-Nitrosomethylethylamine	07	10595-95-6	SW8270E	05/27/2022 09:15	06/03/2022 15:49	BLOD		1.87	2.50	1	ug/L	MGG
n-Nitrosopiperidine	07	100-75-4	SW8270E	05/27/2022 09:15	06/03/2022 15:49	BLOD		1.87	10.0	1	ug/L	MGG
n-Nitrosopyrrolidine	07	930-55-2	SW8270E	05/27/2022 09:15	06/03/2022 15:49	BLOD		1.87	2.50	1	ug/L	MGG
o,o,o-Triethyl phosphorothioate	07	126-68-1	SW8270E	05/27/2022 09:15	06/03/2022 15:49	BLOD		1.87	10.0	1	ug/L	MGG
o,o-Diethyl o-2-pyrazinyl phosphorothioate	07	297-97-2	SW8270E	05/27/2022 09:15	06/03/2022 15:49	BLOD		1.87	10.0	1	ug/L	MGG
o+m+p-Cresols	07	1319-77-3	SW8270E	05/27/2022 09:15	06/03/2022 15:49	BLOD		2.80	10.0	1	ug/L	MGG
o-Cresol	07	95-48-7	SW8270E	05/27/2022 09:15	06/03/2022 15:49	BLOD		7.48	10.0	1	ug/L	MGG
o-Toluidine	07	95-53-4	SW8270E	05/27/2022 09:15	06/03/2022 15:49	BLOD		1.87	2.50	1	ug/L	MGG
p-(Dimethylamino) azobenzene	07	60-11-7	SW8270E	05/27/2022 09:15	06/03/2022 15:49	BLOD		0.93	2.50	1	ug/L	MGG

Certificate of Analysis

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Date Issued: 7/12/2022 2:25:23PM

Client Sample ID: MW-108

Laboratory Sample ID: 22E1463-07

Parameter	Samp ID	CAS	Reference Method	Sample Prep Date/Time	Analyzed Date/Time	Sample Results	Qual	LOD	LOQ	DF	Units	Analyst
Semivolatle Organic Compounds by GCMS												
p-Chloro-m-cresol	07	59-50-7	SW8270E	05/27/2022 09:15	06/03/2022 15:49	BLOD		7.48	10.0	1	ug/L	MGG
Pentachlorobenzene	07	608-93-5	SW8270E	05/27/2022 09:15	06/03/2022 15:49	BLOD		1.87	10.0	1	ug/L	MGG
Pentachloronitrobenzene (quintozene)	07	82-68-8	SW8270E	05/27/2022 09:15	06/03/2022 15:49	BLOD		0.93	9.35	1	ug/L	MGG
Phenacetin	07	62-44-2	SW8270E	05/27/2022 09:15	06/03/2022 15:49	BLOD		0.93	10.0	1	ug/L	MGG
Phenanthrene	07	85-01-8	SW8270E	05/27/2022 09:15	06/03/2022 15:49	BLOD		7.48	10.0	1	ug/L	MGG
Phenol	07	108-95-2	SW8270E	05/27/2022 09:15	06/03/2022 15:49	3.37	J	2.34	10.0	1	ug/L	MGG
Phorate	07	298-02-2	SW8270E	05/27/2022 09:15	06/03/2022 15:49	BLOD		1.87	2.50	1	ug/L	MGG
p-Phenylenediamine	07	106-50-3	SW8270E	05/27/2022 09:15	06/03/2022 15:49	BLOD	C	1.87	10.0	1	ug/L	MGG
Pronamide	07	23950-58-5	SW8270E	05/27/2022 09:15	06/03/2022 15:49	BLOD		1.87	10.0	1	ug/L	MGG
Pyrene	07	129-00-0	SW8270E	05/27/2022 09:15	06/03/2022 15:49	BLOD		6.54	10.0	1	ug/L	MGG
Safrole	07	94-59-7	SW8270E	05/27/2022 09:15	06/03/2022 15:49	BLOD		1.87	2.50	1	ug/L	MGG
<i>Surr: 2,4,6-Tribromophenol (Surr)</i>	07	69.6 %	10-86	05/27/2022 09:15	06/03/2022 15:49							
<i>Surr: 2-Fluorobiphenyl (Surr)</i>	07	88.9 %	9-87	05/27/2022 09:15	06/03/2022 15:49							S
<i>Surr: 2-Fluorophenol (Surr)</i>	07	40.6 %	10-52	05/27/2022 09:15	06/03/2022 15:49							
<i>Surr: Nitrobenzene-d5 (Surr)</i>	07	82.0 %	10-98.5	05/27/2022 09:15	06/03/2022 15:49							
<i>Surr: Phenol-d5 (Surr)</i>	07	31.5 %	5-33	05/27/2022 09:15	06/03/2022 15:49							
<i>Surr: p-Terphenyl-d14 (Surr)</i>	07	80.9 %	27-133	05/27/2022 09:15	06/03/2022 15:49							

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Parameter	Samp ID	CAS	Reference Method	Sample Prep Date/Time	Analyzed Date/Time	Sample Results	Qual	LOD	LOQ	DF	Units	Analyst
Organochlorine Pesticides and PCBs by GC/ECD												
PCB as Aroclor 1016	07	12674-11-2	SW8082A	06/01/2022 09:00	06/01/2022 19:51	BLOD		0.140	0.200	1	ug/L	LBH2
PCB as Aroclor 1221	07	11104-28-2	SW8082A	06/01/2022 09:00	06/01/2022 19:51	BLOD		0.140	0.200	1	ug/L	LBH2
PCB as Aroclor 1232	07	11141-16-5	SW8082A	06/01/2022 09:00	06/01/2022 19:51	BLOD		0.140	0.200	1	ug/L	LBH2
PCB as Aroclor 1242	07	53469-21-9	SW8082A	06/01/2022 09:00	06/01/2022 19:51	BLOD		0.140	0.200	1	ug/L	LBH2
PCB as Aroclor 1248	07	12672-29-6	SW8082A	06/01/2022 09:00	06/01/2022 19:51	BLOD		0.140	0.200	1	ug/L	LBH2
PCB as Aroclor 1254	07	11097-69-1	SW8082A	06/01/2022 09:00	06/01/2022 19:51	BLOD		0.140	0.200	1	ug/L	LBH2
PCB as Aroclor 1260	07	11096-82-5	SW8082A	06/01/2022 09:00	06/01/2022 19:51	BLOD		0.140	0.200	1	ug/L	LBH2
<i>Surr: DCB</i>	07	82.3 %	30-105	06/01/2022 09:00	06/01/2022 19:51							
<i>Surr: TCMX</i>	07	72.9 %	30-105	06/01/2022 09:00	06/01/2022 19:51							
4,4'-DDD	07	72-54-8	SW8081B	06/01/2022 09:00	06/01/2022 19:51	BLOD		0.005	0.050	1	ug/L	LBH2
4,4'-DDE	07	72-55-9	SW8081B	06/01/2022 09:00	06/01/2022 19:51	BLOD		0.005	0.050	1	ug/L	LBH2
4,4'-DDT	07	50-29-3	SW8081B	06/01/2022 09:00	06/01/2022 19:51	BLOD		0.005	0.050	1	ug/L	LBH2
Aldrin	07	309-00-2	SW8081B	06/01/2022 09:00	06/01/2022 19:51	BLOD		0.005	0.050	1	ug/L	LBH2
alpha-BHC	07	319-84-6	SW8081B	06/01/2022 09:00	06/01/2022 19:51	BLOD		0.005	0.050	1	ug/L	LBH2
alpha-Chlordane	07	5103-71-9	SW8081B	06/01/2022 09:00	06/01/2022 19:51	BLOD		0.005	0.050	1	ug/L	LBH2
beta-BHC	07	319-85-7	SW8081B	06/01/2022 09:00	06/01/2022 19:51	BLOD		0.019	0.050	1	ug/L	LBH2
Chlordane	07	57-74-9	SW8081B	06/01/2022 09:00	06/01/2022 19:51	BLOD		0.187	0.200	1	ug/L	LBH2
delta-BHC	07	319-86-8	SW8081B	06/01/2022 09:00	06/01/2022 19:51	BLOD		0.005	0.050	1	ug/L	LBH2
Dieldrin	07	60-57-1	SW8081B	06/01/2022 09:00	06/01/2022 19:51	BLOD		0.005	0.050	1	ug/L	LBH2
Endosulfan I	07	959-98-8	SW8081B	06/01/2022 09:00	06/01/2022 19:51	BLOD		0.005	0.050	1	ug/L	LBH2
Endosulfan II	07	33213-65-9	SW8081B	06/01/2022 09:00	06/01/2022 19:51	BLOD		0.005	0.050	1	ug/L	LBH2
Endosulfan sulfate	07	1031-07-8	SW8081B	06/01/2022 09:00	06/01/2022 19:51	BLOD		0.005	0.050	1	ug/L	LBH2
Endrin	07	72-20-8	SW8081B	06/01/2022 09:00	06/01/2022 19:51	BLOD		0.005	0.050	1	ug/L	LBH2
Endrin aldehyde	07	7421-93-4	SW8081B	06/01/2022 09:00	06/01/2022 19:51	BLOD		0.005	0.050	1	ug/L	LBH2

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Laboratory Sample ID: 22E1463-07

Parameter	Samp ID	CAS	Reference Method	Sample Prep Date/Time	Analyzed Date/Time	Sample Results	Qual	LOD	LOQ	DF	Units	Analyst
Organochlorine Pesticides and PCBs by GC/ECD												
gamma-BHC (Lindane)	07	58-89-9	SW8081B	06/01/2022 09:00	06/01/2022 19:51	BLOD		0.005	0.050	1	ug/L	LBH2
gamma-Chlordane	07	5103-74-2	SW8081B	06/01/2022 09:00	06/01/2022 19:51	BLOD		0.005	0.050	1	ug/L	LBH2
Heptachlor	07	76-44-8	SW8081B	06/01/2022 09:00	06/01/2022 19:51	BLOD		0.005	0.050	1	ug/L	LBH2
Heptachlor epoxide	07	1024-57-3	SW8081B	06/01/2022 09:00	06/01/2022 19:51	BLOD		0.005	0.050	1	ug/L	LBH2
Methoxychlor	07	72-43-5	SW8081B	06/01/2022 09:00	06/01/2022 19:51	BLOD		0.005	0.050	1	ug/L	LBH2
Toxaphene	07	8001-35-2	SW8081B	06/01/2022 09:00	06/01/2022 19:51	BLOD		0.187	1.00	1	ug/L	LBH2
Surr: TCMX	07	72.9 %	18-112	06/01/2022 09:00	06/01/2022 19:51							
Surr: DCB	07	82.3 %	27-131	06/01/2022 09:00	06/01/2022 19:51							

Certificate of Analysis

Client Name: SCS Engineers-Winchester
 Client Site I.D.: City of Bristol 1st Semi-Annual 2022
 Submitted To: Jennifer Robb

Date Issued: 7/12/2022 2:25:23PM

Client Sample ID: MW-108

Laboratory Sample ID: 22E1463-07

Parameter	Samp ID	CAS	Reference Method	Sample Prep Date/Time	Analyzed Date/Time	Sample Results	Qual	LOD	LOQ	DF	Units	Analyst
Organochlorine Herbicides by GC/ECD												
2,4,5-T	07	93-76-5	SW8151A	06/02/2022 12:30	06/09/2022 17:13	BLOD		0.200	0.500	1	ug/L	LBH2
2,4,5-TP (Silvex)	07	93-72-1	SW8151A	06/02/2022 12:30	06/09/2022 17:13	BLOD		0.107	0.500	1	ug/L	LBH2
2,4-D	07	94-75-7	SW8151A	06/02/2022 12:30	06/09/2022 17:13	BLOD		0.200	0.500	1	ug/L	LBH2
Dinoseb	07	88-85-7	SW8151A	06/02/2022 12:30	06/09/2022 17:13	BLOD		0.200	0.500	1	ug/L	LBH2
Pentachlorophenol	07	87-86-5	SW8151A	06/02/2022 12:30	06/09/2022 17:13	BLOD		0.200	0.500	1	ug/L	LBH2
<i>Surr: DCAA (Surr)</i>	07	88.7 %	48.5-134	06/02/2022 12:30	06/09/2022 17:13							

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Parameter	Samp ID	CAS	Reference Method	Sample Prep Date/Time	Analyzed Date/Time	Sample Results	Qual	LOD	LOQ	DF	Units	Analyst
Micro-extractables by GC/ECD												
1,2-Dibromoethane (EDB)	07	106-93-4	SW8011	06/07/2022 11:30	06/07/2022 22:28	BLOD		0.008	0.010	1	ug/L	LBH2
1,2,3-Trichloropropane	07	96-18-4	SW8011	06/07/2022 11:30	06/07/2022 22:28	BLOD		0.009	0.010	1	ug/L	LBH2
1,2-Dibromo-3-chloropropane (DBCP)	07	96-12-8	SW8011	06/07/2022 11:30	06/07/2022 22:28	BLOD		0.005	0.010	1	ug/L	LBH2

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Parameter	Samp ID	CAS	Reference Method	Sample Prep Date/Time	Analyzed Date/Time	Sample Results	Qual	LOD	LOQ	DF	Units	Analyst
Head Space Analysis by GC												
Ethane	07	74-84-0	RSK175M	06/02/2022 13:07	06/02/2022 13:07	BLOD		1.50	5.00	1	ug/L	BMR
Ethene	07	74-85-1	RSK175M	06/02/2022 13:07	06/02/2022 13:07	BLOD		1.50	5.00	1	ug/L	BMR
Methane	07RE1	74-82-8	RSK175M	06/02/2022 13:57	06/02/2022 13:57	2440		7.50	25.0	5	ug/L	BMR
<i>Surr: Acetylene (Surr)</i>	07	125 %	70-130	06/02/2022 13:07	06/02/2022 13:07							
<i>Surr: Acetylene (Surr)</i>	07RE1	158 %	70-130	06/02/2022 13:57	06/02/2022 13:57							S
Wet Chemistry Analysis												
Alkalinity	07	NA	SM22 2320B-2011	06/08/2022 16:42	06/08/2022 16:42	680		5.0	5.0	1	mg/L	MAH
Chloride	07	16887-00-6	SW9056A	06/01/2022 00:48	06/01/2022 00:48	34.7		0.5	1.0	1	mg/L	MGG
Cyanide	07	57-12-5	SW9012B	06/06/2022 17:40	06/06/2022 17:40	BLOD	CI	0.01	0.01	1	mg/L	Omnion Use
Sulfide	07	18496-25-8	SW9215	05/31/2022 16:50	05/31/2022 16:50	BLOD		0.80	1.00	1	mg/L	MJRL

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Laboratory Sample ID: 22E1463-08

Parameter	Samp ID	CAS	Reference Method	Sample Prep Date/Time	Analyzed Date/Time	Sample Results	Qual	LOD	LOQ	DF	Units	Analyst
Metals (Total) by EPA 6000/7000 Series Methods												
Silver	08	7440-22-4	SW6020B	06/02/2022 17:00	06/07/2022 18:14	BLOD		0.0600	1.00	1	ug/L	RCV
Arsenic	08	7440-38-2	SW6020B	06/02/2022 17:00	06/07/2022 18:14	13		0.50	1.0	1	ug/L	RCV
Barium	08RE1	7440-39-3	SW6020B	06/02/2022 17:00	06/08/2022 13:19	733		10.0	50.0	10	ug/L	RCV
Beryllium	08	7440-41-7	SW6020B	06/02/2022 17:00	06/07/2022 18:14	BLOD		0.200	1.00	1	ug/L	RCV
Cadmium	08	7440-43-9	SW6020B	06/02/2022 17:00	06/07/2022 18:14	BLOD		0.100	1.00	1	ug/L	RCV
Cobalt	08	7440-48-4	SW6020B	06/02/2022 17:00	06/07/2022 18:14	41.7		0.200	1.00	1	ug/L	RCV
Chromium	08	7440-47-3	SW6020B	06/02/2022 17:00	06/07/2022 18:14	0.473	J	0.400	1.00	1	ug/L	RCV
Copper	08	7440-50-8	SW6020B	06/02/2022 17:00	06/07/2022 18:14	0.716	J	0.300	1.00	1	ug/L	RCV
Mercury	08	7439-97-6	SW7470A	06/09/2022 10:29	06/09/2022 17:11	BLOD		0.00020	0.00020	1	mg/L	ARP
Nickel	08	7440-02-0	SW6020B	06/02/2022 17:00	06/07/2022 18:14	34.63		1.000	1.000	1	ug/L	RCV
Lead	08	7439-92-1	SW6020B	06/02/2022 17:00	06/07/2022 18:14	BLOD		1.0	1.0	1	ug/L	RCV
Antimony	08	7440-36-0	SW6020B	06/02/2022 17:00	06/07/2022 18:14	BLOD		1.0	1.0	1	ug/L	RCV
Selenium	08	7782-49-2	SW6020B	06/02/2022 17:00	06/07/2022 18:14	BLOD		0.850	1.00	1	ug/L	RCV
Tin	08	7440-31-5	SW6020B	06/02/2022 17:00	06/07/2022 18:14	BLOD		1.00	1.00	1	ug/L	RCV
Thallium	08	7440-28-0	SW6020B	06/02/2022 17:00	06/07/2022 18:14	BLOD		1.0	1.0	1	ug/L	RCV
Vanadium	08	7440-62-2	SW6020B	06/02/2022 17:00	06/07/2022 18:14	BLOD		2.50	5.00	1	ug/L	RCV
Zinc	08	7440-66-6	SW6020B	06/02/2022 17:00	06/07/2022 18:14	27.6		2.50	5.00	1	ug/L	RCV

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Parameter	Samp ID	CAS	Reference Method	Sample Prep Date/Time	Analyzed Date/Time	Sample Results	Qual	LOD	LOQ	DF	Units	Analyst
Volatile Organic Compounds by GCMS												
1,1,1,2-Tetrachloroethane	08	630-20-6	SW8260D	06/02/2022 14:51	06/02/2022 14:51	BLOD		0.40	0.40	1	ug/L	RJB
1,1,1-Trichloroethane	08	71-55-6	SW8260D	06/02/2022 14:51	06/02/2022 14:51	BLOD		0.60	1.00	1	ug/L	RJB
1,1,2,2-Tetrachloroethane	08	79-34-5	SW8260D	06/02/2022 14:51	06/02/2022 14:51	BLOD		0.30	0.40	1	ug/L	RJB
1,1,2-Trichloroethane	08	79-00-5	SW8260D	06/02/2022 14:51	06/02/2022 14:51	BLOD		0.50	1.00	1	ug/L	RJB
1,1-Dichloroethane	08	75-34-3	SW8260D	06/02/2022 14:51	06/02/2022 14:51	6.28		0.60	1.00	1	ug/L	RJB
1,1-Dichloroethylene	08	75-35-4	SW8260D	06/02/2022 14:51	06/02/2022 14:51	BLOD		0.70	1.00	1	ug/L	RJB
1,1-Dichloropropene	08	563-58-6	SW8260D	06/02/2022 14:51	06/02/2022 14:51	BLOD		0.60	1.00	1	ug/L	RJB
1,2,3-Trichloropropane	08	96-18-4	SW8260D	06/02/2022 14:51	06/02/2022 14:51	BLOD		0.40	1.00	1	ug/L	RJB
1,2,4-Trichlorobenzene	08	120-82-1	SW8260D	06/02/2022 14:51	06/02/2022 14:51	BLOD		0.50	1.00	1	ug/L	RJB
1,2-Dichlorobenzene	08	95-50-1	SW8260D	06/02/2022 14:51	06/02/2022 14:51	BLOD		0.40	1.00	1	ug/L	RJB
1,2-Dichloroethane	08	107-06-2	SW8260D	06/02/2022 14:51	06/02/2022 14:51	BLOD		0.70	1.00	1	ug/L	RJB
1,2-Dichloropropane	08	78-87-5	SW8260D	06/02/2022 14:51	06/02/2022 14:51	BLOD		0.40	1.00	1	ug/L	RJB
1,3-Dichlorobenzene	08	541-73-1	SW8260D	06/02/2022 14:51	06/02/2022 14:51	BLOD		0.30	1.00	1	ug/L	RJB
1,3-Dichloropropane	08	142-28-9	SW8260D	06/02/2022 14:51	06/02/2022 14:51	BLOD		1.00	1.00	1	ug/L	RJB
1,4-Dichlorobenzene	08	106-46-7	SW8260D	06/02/2022 14:51	06/02/2022 14:51	BLOD		0.40	1.00	1	ug/L	RJB
2,2-Dichloropropane	08	594-20-7	SW8260D	06/02/2022 14:51	06/02/2022 14:51	BLOD		0.60	2.00	1	ug/L	RJB
2-Butanone (MEK)	08	78-93-3	SW8260D	06/02/2022 14:51	06/02/2022 14:51	BLOD		3.00	10.0	1	ug/L	RJB
2-Hexanone (MBK)	08	591-78-6	SW8260D	06/02/2022 14:51	06/02/2022 14:51	BLOD		2.20	5.00	1	ug/L	RJB
4-Methyl-2-pentanone (MIBK)	08	108-10-1	SW8260D	06/02/2022 14:51	06/02/2022 14:51	BLOD		1.50	5.00	1	ug/L	RJB
Acetone	08	67-64-1	SW8260D	06/02/2022 14:51	06/02/2022 14:51	BLOD		7.00	10.0	1	ug/L	RJB
Acetonitrile	08	75-05-8	SW8260D	06/02/2022 14:51	06/02/2022 14:51	BLOD		8.00	10.0	1	ug/L	RJB
Acrolein	08	107-02-8	SW8260D	06/02/2022 14:51	06/02/2022 14:51	BLOD		6.00	10.0	1	ug/L	RJB
Acrylonitrile	08	107-13-1	SW8260D	06/02/2022 14:51	06/02/2022 14:51	BLOD		1.70	5.00	1	ug/L	RJB
Allyl chloride	08	107-05-1	SW8260D	06/02/2022 14:51	06/02/2022 14:51	BLOD		0.60	1.00	1	ug/L	RJB

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Parameter	Samp ID	CAS	Reference Method	Sample Prep Date/Time	Analyzed Date/Time	Sample Results	Qual	LOD	LOQ	DF	Units	Analyst
Volatile Organic Compounds by GCMS												
Benzene	08	71-43-2	SW8260D	06/02/2022 14:51	06/02/2022 14:51	7.30		0.40	1.00	1	ug/L	RJB
Bromochloromethane	08	74-97-5	SW8260D	06/02/2022 14:51	06/02/2022 14:51	BLOD		0.50	1.00	1	ug/L	RJB
Bromodichloromethane	08	75-27-4	SW8260D	06/02/2022 14:51	06/02/2022 14:51	BLOD		0.40	0.50	1	ug/L	RJB
Bromoform	08	75-25-2	SW8260D	06/02/2022 14:51	06/02/2022 14:51	BLOD		0.40	1.00	1	ug/L	RJB
Bromomethane	08	74-83-9	SW8260D	06/02/2022 14:51	06/02/2022 14:51	BLOD		0.80	1.00	1	ug/L	RJB
Carbon disulfide	08	75-15-0	SW8260D	06/02/2022 14:51	06/02/2022 14:51	BLOD		5.00	10.0	1	ug/L	RJB
Carbon tetrachloride	08	56-23-5	SW8260D	06/02/2022 14:51	06/02/2022 14:51	BLOD		0.50	1.00	1	ug/L	RJB
Chlorobenzene	08	108-90-7	SW8260D	06/02/2022 14:51	06/02/2022 14:51	1.31		0.40	1.00	1	ug/L	RJB
Chloroethane	08	75-00-3	SW8260D	06/02/2022 14:51	06/02/2022 14:51	1.07		0.70	1.00	1	ug/L	RJB
Chloroform	08	67-66-3	SW8260D	06/02/2022 14:51	06/02/2022 14:51	BLOD		0.50	0.50	1	ug/L	RJB
Chloromethane	08	74-87-3	SW8260D	06/02/2022 14:51	06/02/2022 14:51	BLOD		0.95	1.00	1	ug/L	RJB
Chloroprene	08	126-99-8	SW8260D	06/02/2022 14:51	06/02/2022 14:51	BLOD		0.50	5.00	1	ug/L	RJB
cis-1,2-Dichloroethylene	08	156-59-2	SW8260D	06/02/2022 14:51	06/02/2022 14:51	61.3		0.40	1.00	1	ug/L	RJB
cis-1,3-Dichloropropene	08	10061-01-5	SW8260D	06/02/2022 14:51	06/02/2022 14:51	BLOD		0.30	1.00	1	ug/L	RJB
Dibromochloromethane	08	124-48-1	SW8260D	06/02/2022 14:51	06/02/2022 14:51	BLOD		0.35	0.50	1	ug/L	RJB
Dibromomethane	08	74-95-3	SW8260D	06/02/2022 14:51	06/02/2022 14:51	BLOD		0.40	1.00	1	ug/L	RJB
Dichlorodifluoromethane	08	75-71-8	SW8260D	06/02/2022 14:51	06/02/2022 14:51	BLOD		0.95	1.00	1	ug/L	RJB
Ethyl methacrylate	08	97-63-2	SW8260D	06/02/2022 14:51	06/02/2022 14:51	BLOD		0.70	5.00	1	ug/L	RJB
Ethylbenzene	08	100-41-4	SW8260D	06/02/2022 14:51	06/02/2022 14:51	BLOD		0.40	1.00	1	ug/L	RJB
Iodomethane	08	74-88-4	SW8260D	06/02/2022 14:51	06/02/2022 14:51	BLOD		6.00	10.0	1	ug/L	RJB
Isobutyl Alcohol	08	78-83-1	SW8260D	06/02/2022 14:51	06/02/2022 14:51	BLOD		25.0	40.0	1	ug/L	RJB
m+p-Xylenes	08	179601-23-1	SW8260D	06/02/2022 14:51	06/02/2022 14:51	BLOD		0.60	2.00	1	ug/L	RJB
Methacrylonitrile	08	126-98-7	SW8260D	06/02/2022 14:51	06/02/2022 14:51	BLOD		1.00	1.50	1	ug/L	RJB

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Laboratory Sample ID: 22E1463-08

Parameter	Samp ID	CAS	Reference Method	Sample Prep Date/Time	Analyzed Date/Time	Sample Results	Qual	LOD	LOQ	DF	Units	Analyst
Volatile Organic Compounds by GCMS												
Methyl methacrylate	08	80-62-6	SW8260D	06/02/2022 14:51	06/02/2022 14:51	BLOD		0.70	2.00	1	ug/L	RJB
Methylene chloride	08	75-09-2	SW8260D	06/02/2022 14:51	06/02/2022 14:51	BLOD		4.00	4.00	1	ug/L	RJB
Naphthalene	08	91-20-3	SW8260D	06/02/2022 14:51	06/02/2022 14:51	BLOD		0.80	1.00	1	ug/L	RJB
o-Xylene	08	95-47-6	SW8260D	06/02/2022 14:51	06/02/2022 14:51	BLOD		0.40	1.00	1	ug/L	RJB
Propionitrile	08	107-12-0	SW8260D	06/02/2022 14:51	06/02/2022 14:51	BLOD		7.50	40.0	1	ug/L	RJB
Styrene	08	100-42-5	SW8260D	06/02/2022 14:51	06/02/2022 14:51	BLOD		0.40	1.00	1	ug/L	RJB
Tetrachloroethylene (PCE)	08	127-18-4	SW8260D	06/02/2022 14:51	06/02/2022 14:51	BLOD		0.40	1.00	1	ug/L	RJB
Toluene	08	108-88-3	SW8260D	06/02/2022 14:51	06/02/2022 14:51	10.9		0.50	1.00	1	ug/L	RJB
trans-1,2-Dichloroethylene	08	156-60-5	SW8260D	06/02/2022 14:51	06/02/2022 14:51	BLOD		0.60	1.00	1	ug/L	RJB
trans-1,3-Dichloropropene	08	10061-02-6	SW8260D	06/02/2022 14:51	06/02/2022 14:51	BLOD		0.30	1.00	1	ug/L	RJB
trans-1,4-Dichloro-2-butene	08	110-57-6	SW8260D	06/02/2022 14:51	06/02/2022 14:51	BLOD		1.00	4.00	1	ug/L	RJB
Trichloroethylene	08	79-01-6	SW8260D	06/02/2022 14:51	06/02/2022 14:51	BLOD		0.40	1.00	1	ug/L	RJB
Trichlorofluoromethane	08	75-69-4	SW8260D	06/02/2022 14:51	06/02/2022 14:51	BLOD		0.80	1.00	1	ug/L	RJB
Vinyl acetate	08	108-05-4	SW8260D	06/02/2022 14:51	06/02/2022 14:51	BLOD		2.00	10.0	1	ug/L	RJB
Vinyl chloride	08	75-01-4	SW8260D	06/02/2022 14:51	06/02/2022 14:51	7.98		0.50	0.50	1	ug/L	RJB
Xylenes, Total	08	1330-20-7	SW8260D	06/02/2022 14:51	06/02/2022 14:51	BLOD		1.00	3.00	1	ug/L	RJB
<i>Surr: 1,2-Dichloroethane-d4 (Surr)</i>	08	101 %	70-120	06/02/2022 14:51	06/02/2022 14:51							
<i>Surr: 4-Bromofluorobenzene (Surr)</i>	08	95.8 %	75-120	06/02/2022 14:51	06/02/2022 14:51							
<i>Surr: Dibromofluoromethane (Surr)</i>	08	85.0 %	70-130	06/02/2022 14:51	06/02/2022 14:51							
<i>Surr: Toluene-d8 (Surr)</i>	08	103 %	70-130	06/02/2022 14:51	06/02/2022 14:51							

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Semivolatile Organic Compounds by GCMS												
1,2,4,5-Tetrachlorobenzene	08	95-94-3	SW8270E	05/27/2022 09:15	06/03/2022 16:22	BLOD		1.87	10.0	1	ug/L	MGG
1,3,5-Trinitrobenzene	08	99-35-4	SW8270E	05/27/2022 09:15	06/03/2022 16:22	BLOD		0.93	5.00	1	ug/L	MGG
1,3-Dinitrobenzene	08	99-65-0	SW8270E	05/27/2022 09:15	06/03/2022 16:22	BLOD		2.34	2.50	1	ug/L	MGG
1,4-Naphthoquinone	08	130-15-4	SW8270E	05/27/2022 09:15	06/03/2022 16:22	BLOD		1.87	10.0	1	ug/L	MGG
1-Naphthylamine	08	134-32-7	SW8270E	05/27/2022 09:15	06/03/2022 16:22	BLOD		0.93	10.0	1	ug/L	MGG
2,3,4,6-Tetrachlorophenol	08	58-90-2	SW8270E	05/27/2022 09:15	06/03/2022 16:22	BLOD		0.93	10.0	1	ug/L	MGG
2,4,5-Trichlorophenol	08	95-95-4	SW8270E	05/27/2022 09:15	06/03/2022 16:22	BLOD		0.93	10.0	1	ug/L	MGG
2,4,6-Trichlorophenol	08	88-06-2	SW8270E	05/27/2022 09:15	06/03/2022 16:22	BLOD		7.48	10.0	1	ug/L	MGG
2,4-Dichlorophenol	08	120-83-2	SW8270E	05/27/2022 09:15	06/03/2022 16:22	BLOD		2.80	10.0	1	ug/L	MGG
2,4-Dimethylphenol	08	105-67-9	SW8270E	05/27/2022 09:15	06/03/2022 16:22	BLOD		4.67	4.67	1	ug/L	MGG
2,4-Dinitrophenol	08	51-28-5	SW8270E	05/27/2022 09:15	06/03/2022 16:22	BLOD		7.48	50.0	1	ug/L	MGG
2,4-Dinitrotoluene	08	121-14-2	SW8270E	05/27/2022 09:15	06/03/2022 16:22	BLOD		5.61	10.0	1	ug/L	MGG
2,6-Dichlorophenol	08	87-65-0	SW8270E	05/27/2022 09:15	06/03/2022 16:22	BLOD		0.93	10.0	1	ug/L	MGG
2,6-Dinitrotoluene	08	606-20-2	SW8270E	05/27/2022 09:15	06/03/2022 16:22	BLOD		3.74	10.0	1	ug/L	MGG
2-Acetylaminofluorene	08	53-96-3	SW8270E	05/27/2022 09:15	06/03/2022 16:22	BLOD		2.34	2.50	1	ug/L	MGG
2-Chloronaphthalene	08	91-58-7	SW8270E	05/27/2022 09:15	06/03/2022 16:22	BLOD		4.21	10.0	1	ug/L	MGG
2-Chlorophenol	08	95-57-8	SW8270E	05/27/2022 09:15	06/03/2022 16:22	BLOD		3.27	10.0	1	ug/L	MGG
2-Methylnaphthalene	08	91-57-6	SW8270E	05/27/2022 09:15	06/03/2022 16:22	BLOD		1.87	10.0	1	ug/L	MGG
2-Naphthylamine	08	91-59-8	SW8270E	05/27/2022 09:15	06/03/2022 16:22	BLOD		1.87	10.0	1	ug/L	MGG
2-Nitroaniline	08	88-74-4	SW8270E	05/27/2022 09:15	06/03/2022 16:22	BLOD		1.87	20.0	1	ug/L	MGG
2-Nitrophenol	08	88-75-5	SW8270E	05/27/2022 09:15	06/03/2022 16:22	BLOD		5.61	10.0	1	ug/L	MGG
3,3'-Dichlorobenzidine	08	91-94-1	SW8270E	05/27/2022 09:15	06/03/2022 16:22	BLOD		3.74	10.0	1	ug/L	MGG
3,3'-Dimethylbenzidine	08	119-93-7	SW8270E	05/27/2022 09:15	06/03/2022 16:22	BLOD		2.34	2.50	1	ug/L	MGG
3-Methylcholanthrene	08	56-49-5	SW8270E	05/27/2022 09:15	06/03/2022 16:22	BLOD		0.93	10.0	1	ug/L	MGG

Certificate of Analysis

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Date Issued: 7/12/2022 2:25:23PM

Client Sample ID: MW-108 Duplicate

Laboratory Sample ID: 22E1463-08

Parameter	Samp ID	CAS	Reference Method	Sample Prep Date/Time	Analyzed Date/Time	Sample Results	Qual	LOD	LOQ	DF	Units	Analyst
Semivolatile Organic Compounds by GCMS												
3-Nitroaniline	08	99-09-2	SW8270E	05/27/2022 09:15	06/03/2022 16:22	BLOD		1.87	20.0	1	ug/L	MGG
4,6-Dinitro-2-methylphenol	08	534-52-1	SW8270E	05/27/2022 09:15	06/03/2022 16:22	BLOD		7.48	50.0	1	ug/L	MGG
4-Aminobiphenyl	08	92-67-1	SW8270E	05/27/2022 09:15	06/03/2022 16:22	BLOD		1.87	10.0	1	ug/L	MGG
4-Bromophenyl phenyl ether	08	101-55-3	SW8270E	05/27/2022 09:15	06/03/2022 16:22	BLOD		3.27	10.0	1	ug/L	MGG
4-Chloroaniline	08	106-47-8	SW8270E	05/27/2022 09:15	06/03/2022 16:22	BLOD		1.87	10.0	1	ug/L	MGG
4-Chlorophenyl phenyl ether	08	7005-72-3	SW8270E	05/27/2022 09:15	06/03/2022 16:22	BLOD		3.27	10.0	1	ug/L	MGG
4-Nitroaniline	08	100-01-6	SW8270E	05/27/2022 09:15	06/03/2022 16:22	BLOD		1.87	20.0	1	ug/L	MGG
4-Nitrophenol	08	100-02-7	SW8270E	05/27/2022 09:15	06/03/2022 16:22	BLOD		1.87	50.0	1	ug/L	MGG
5-Nitro-o-toluidine	08	99-55-8	SW8270E	05/27/2022 09:15	06/03/2022 16:22	BLOD		1.87	10.0	1	ug/L	MGG
7,12-Dimethylbenz (a) anthracene	08	57-97-6	SW8270E	05/27/2022 09:15	06/03/2022 16:22	BLOD		1.87	10.0	1	ug/L	MGG
Acenaphthene	08	83-32-9	SW8270E	05/27/2022 09:15	06/03/2022 16:22	BLOD		3.74	10.0	1	ug/L	MGG
Acenaphthylene	08	208-96-8	SW8270E	05/27/2022 09:15	06/03/2022 16:22	BLOD		3.74	10.0	1	ug/L	MGG
Acetophenone	08	98-86-2	SW8270E	05/27/2022 09:15	06/03/2022 16:22	BLOD		1.87	20.0	1	ug/L	MGG
Anthracene	08	120-12-7	SW8270E	05/27/2022 09:15	06/03/2022 16:22	BLOD		4.67	10.0	1	ug/L	MGG
Benzo (a) anthracene	08	56-55-3	SW8270E	05/27/2022 09:15	06/03/2022 16:22	BLOD		3.27	9.35	1	ug/L	MGG
Benzo (a) pyrene	08	50-32-8	SW8270E	05/27/2022 09:15	06/03/2022 16:22	BLOD		0.19	0.20	1	ug/L	MGG
Benzo (b) fluoranthene	08	205-99-2	SW8270E	05/27/2022 09:15	06/03/2022 16:22	BLOD		3.74	10.0	1	ug/L	MGG
Benzo (g,h,i) perylene	08	191-24-2	SW8270E	05/27/2022 09:15	06/03/2022 16:22	BLOD		4.67	10.0	1	ug/L	MGG
Benzo (k) fluoranthene	08	207-08-9	SW8270E	05/27/2022 09:15	06/03/2022 16:22	BLOD		5.61	10.0	1	ug/L	MGG
Benzyl alcohol	08	100-51-6	SW8270E	05/27/2022 09:15	06/03/2022 16:22	BLOD		0.93	20.0	1	ug/L	MGG
bis (2-Chloroethoxy) methane	08	111-91-1	SW8270E	05/27/2022 09:15	06/03/2022 16:22	BLOD		3.27	10.0	1	ug/L	MGG
bis (2-Chloroethyl) ether	08	111-44-4	SW8270E	05/27/2022 09:15	06/03/2022 16:22	BLOD		3.27	10.0	1	ug/L	MGG
2,2'-Oxybis (1-chloropropane)	08	108-60-1	SW8270E	05/27/2022 09:15	06/03/2022 16:22	BLOD		2.80	10.0	1	ug/L	MGG
bis (2-Ethylhexyl) phthalate	08	117-81-7	SW8270E	05/27/2022 09:15	06/03/2022 16:22	BLOD		4.67	5.00	1	ug/L	MGG

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Laboratory Sample ID: 22E1463-08

Parameter	Samp ID	CAS	Reference Method	Sample Prep Date/Time	Analyzed Date/Time	Sample Results	Qual	LOD	LOQ	DF	Units	Analyst
Semivolatle Organic Compounds by GCMS												
Butyl benzyl phthalate	08	85-68-7	SW8270E	05/27/2022 09:15	06/03/2022 16:22	BLOD		6.54	10.0	1	ug/L	MGG
Chlorobenzilate	08	510-15-6	SW8270E	05/27/2022 09:15	06/03/2022 16:22	BLOD		2.34	2.50	1	ug/L	MGG
Chrysene	08	218-01-9	SW8270E	05/27/2022 09:15	06/03/2022 16:22	BLOD		3.74	10.0	1	ug/L	MGG
Diallate	08	2303-16-4	SW8270E	05/27/2022 09:15	06/03/2022 16:22	BLOD		2.34	2.50	1	ug/L	MGG
Dibenz (a,h) anthracene	08	53-70-3	SW8270E	05/27/2022 09:15	06/03/2022 16:22	BLOD		4.67	10.0	1	ug/L	MGG
Dibenzofuran	08	132-64-9	SW8270E	05/27/2022 09:15	06/03/2022 16:22	BLOD		1.87	5.00	1	ug/L	MGG
Diethyl phthalate	08	84-66-2	SW8270E	05/27/2022 09:15	06/03/2022 16:22	BLOD		2.80	10.0	1	ug/L	MGG
Dimethoate	08	60-51-5	SW8270E	05/27/2022 09:15	06/03/2022 16:22	BLOD		2.34	2.50	1	ug/L	MGG
Dimethyl phthalate	08	131-11-3	SW8270E	05/27/2022 09:15	06/03/2022 16:22	BLOD		3.27	10.0	1	ug/L	MGG
Di-n-butyl phthalate	08	84-74-2	SW8270E	05/27/2022 09:15	06/03/2022 16:22	BLOD		3.74	10.0	1	ug/L	MGG
Di-n-octyl phthalate	08	117-84-0	SW8270E	05/27/2022 09:15	06/03/2022 16:22	BLOD		7.48	10.0	1	ug/L	MGG
Diphenylamine	08	122-39-4	SW8270E	05/27/2022 09:15	06/03/2022 16:22	BLOD		1.87	10.0	1	ug/L	MGG
Disulfoton	08	298-04-4	SW8270E	05/27/2022 09:15	06/03/2022 16:22	BLOD		2.34	2.50	1	ug/L	MGG
Ethyl methanesulfonate	08	62-50-0	SW8270E	05/27/2022 09:15	06/03/2022 16:22	BLOD		0.93	20.0	1	ug/L	MGG
Ethyl parathion	08	56-38-2	SW8270E	05/27/2022 09:15	06/03/2022 16:22	BLOD		2.34	2.50	1	ug/L	MGG
Famphur	08	52-85-7	SW8270E	05/27/2022 09:15	06/03/2022 16:22	BLOD		2.34	2.50	1	ug/L	MGG
Fluoranthene	08	206-44-0	SW8270E	05/27/2022 09:15	06/03/2022 16:22	BLOD		4.67	10.0	1	ug/L	MGG
Fluorene	08	86-73-7	SW8270E	05/27/2022 09:15	06/03/2022 16:22	BLOD		3.74	10.0	1	ug/L	MGG
Hexachlorobenzene	08	118-74-1	SW8270E	05/27/2022 09:15	06/03/2022 16:22	BLOD		0.93	0.93	1	ug/L	MGG
Hexachlorobutadiene	08	87-68-3	SW8270E	05/27/2022 09:15	06/03/2022 16:22	BLOD		4.21	10.0	1	ug/L	MGG
Hexachlorocyclopentadiene	08	77-47-4	SW8270E	05/27/2022 09:15	06/03/2022 16:22	BLOD	C	3.74	10.0	1	ug/L	MGG
Hexachloroethane	08	67-72-1	SW8270E	05/27/2022 09:15	06/03/2022 16:22	BLOD		3.27	10.0	1	ug/L	MGG
Hexachloropropene	08	1888-71-7	SW8270E	05/27/2022 09:15	06/03/2022 16:22	BLOD		1.87	2.50	1	ug/L	MGG
Indeno (1,2,3-cd) pyrene	08	193-39-5	SW8270E	05/27/2022 09:15	06/03/2022 16:22	BLOD		2.80	10.0	1	ug/L	MGG

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Parameter	Samp ID	CAS	Reference Method	Sample Prep Date/Time	Analyzed Date/Time	Sample Results	Qual	LOD	LOQ	DF	Units	Analyst
Semivolatile Organic Compounds by GCMS												
Isodrin	08	465-73-6	SW8270E	05/27/2022 09:15	06/03/2022 16:22	BLOD		0.93	10.0	1	ug/L	MGG
Isophorone	08	78-59-1	SW8270E	05/27/2022 09:15	06/03/2022 16:22	BLOD		4.67	10.0	1	ug/L	MGG
Isosafrole	08	120-58-1	SW8270E	05/27/2022 09:15	06/03/2022 16:22	BLOD		1.87	10.0	1	ug/L	MGG
Kepone	08	143-50-0	SW8270E	05/27/2022 09:15	06/03/2022 16:22	BLOD		1.87	9.35	1	ug/L	MGG
m+p-Cresols	08	1319-77-3	SW8270E	05/27/2022 09:15	06/03/2022 16:22	BLOD		0.93	10.0	1	ug/L	MGG
Methapyrilene	08	91-80-5	SW8270E	05/27/2022 09:15	06/03/2022 16:22	BLOD		0.93	10.0	1	ug/L	MGG
Methyl methanesulfonate	08	66-27-3	SW8270E	05/27/2022 09:15	06/03/2022 16:22	BLOD		0.93	10.0	1	ug/L	MGG
Methyl parathion	08	298-00-0	SW8270E	05/27/2022 09:15	06/03/2022 16:22	BLOD		1.87	2.50	1	ug/L	MGG
Nitrobenzene	08	98-95-3	SW8270E	05/27/2022 09:15	06/03/2022 16:22	BLOD		2.80	10.0	1	ug/L	MGG
n-Nitrosodiethylamine	08	55-18-5	SW8270E	05/27/2022 09:15	06/03/2022 16:22	BLOD		2.34	2.50	1	ug/L	MGG
n-Nitrosodimethylamine	08	62-75-9	SW8270E	05/27/2022 09:15	06/03/2022 16:22	BLOD		2.80	10.0	1	ug/L	MGG
n-Nitrosodi-n-butylamine	08	924-16-3	SW8270E	05/27/2022 09:15	06/03/2022 16:22	BLOD		1.87	10.0	1	ug/L	MGG
n-Nitrosodi-n-propylamine	08	621-64-7	SW8270E	05/27/2022 09:15	06/03/2022 16:22	BLOD		3.27	10.0	1	ug/L	MGG
n-Nitrosodiphenylamine	08	86-30-6	SW8270E	05/27/2022 09:15	06/03/2022 16:22	BLOD		2.80	10.0	1	ug/L	MGG
n-Nitrosomethylethylamine	08	10595-95-6	SW8270E	05/27/2022 09:15	06/03/2022 16:22	BLOD		1.87	2.50	1	ug/L	MGG
n-Nitrosopiperidine	08	100-75-4	SW8270E	05/27/2022 09:15	06/03/2022 16:22	BLOD		1.87	10.0	1	ug/L	MGG
n-Nitrosopyrrolidine	08	930-55-2	SW8270E	05/27/2022 09:15	06/03/2022 16:22	BLOD		1.87	2.50	1	ug/L	MGG
o,o,o-Triethyl phosphorothioate	08	126-68-1	SW8270E	05/27/2022 09:15	06/03/2022 16:22	BLOD		1.87	10.0	1	ug/L	MGG
o,o-Diethyl o-2-pyrazinyl phosphorothioate	08	297-97-2	SW8270E	05/27/2022 09:15	06/03/2022 16:22	BLOD		1.87	10.0	1	ug/L	MGG
o+m+p-Cresols	08	1319-77-3	SW8270E	05/27/2022 09:15	06/03/2022 16:22	BLOD		2.80	10.0	1	ug/L	MGG
o-Cresol	08	95-48-7	SW8270E	05/27/2022 09:15	06/03/2022 16:22	BLOD		7.48	10.0	1	ug/L	MGG
o-Toluidine	08	95-53-4	SW8270E	05/27/2022 09:15	06/03/2022 16:22	BLOD		1.87	2.50	1	ug/L	MGG
p-(Dimethylamino) azobenzene	08	60-11-7	SW8270E	05/27/2022 09:15	06/03/2022 16:22	BLOD		0.93	2.50	1	ug/L	MGG

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Parameter	Samp ID	CAS	Reference Method	Sample Prep Date/Time	Analyzed Date/Time	Sample Results	Qual	LOD	LOQ	DF	Units	Analyst
Semivolatle Organic Compounds by GCMS												
p-Chloro-m-cresol	08	59-50-7	SW8270E	05/27/2022 09:15	06/03/2022 16:22	BLOD		7.48	10.0	1	ug/L	MGG
Pentachlorobenzene	08	608-93-5	SW8270E	05/27/2022 09:15	06/03/2022 16:22	BLOD		1.87	10.0	1	ug/L	MGG
Pentachloronitrobenzene (quintozene)	08	82-68-8	SW8270E	05/27/2022 09:15	06/03/2022 16:22	BLOD		0.93	9.35	1	ug/L	MGG
Phenacetin	08	62-44-2	SW8270E	05/27/2022 09:15	06/03/2022 16:22	BLOD		0.93	10.0	1	ug/L	MGG
Phenanthrene	08	85-01-8	SW8270E	05/27/2022 09:15	06/03/2022 16:22	BLOD		7.48	10.0	1	ug/L	MGG
Phenol	08	108-95-2	SW8270E	05/27/2022 09:15	06/03/2022 16:22	2.75	J	2.34	10.0	1	ug/L	MGG
Phorate	08	298-02-2	SW8270E	05/27/2022 09:15	06/03/2022 16:22	BLOD		1.87	2.50	1	ug/L	MGG
p-Phenylenediamine	08	106-50-3	SW8270E	05/27/2022 09:15	06/03/2022 16:22	BLOD	C	1.87	10.0	1	ug/L	MGG
Pronamide	08	23950-58-5	SW8270E	05/27/2022 09:15	06/03/2022 16:22	BLOD		1.87	10.0	1	ug/L	MGG
Pyrene	08	129-00-0	SW8270E	05/27/2022 09:15	06/03/2022 16:22	BLOD		6.54	10.0	1	ug/L	MGG
Safrole	08	94-59-7	SW8270E	05/27/2022 09:15	06/03/2022 16:22	BLOD		1.87	2.50	1	ug/L	MGG
<i>Surr: 2,4,6-Tribromophenol (Surr)</i>	08	61.9 %	10-86	05/27/2022 09:15	06/03/2022 16:22							
<i>Surr: 2-Fluorobiphenyl (Surr)</i>	08	76.7 %	9-87	05/27/2022 09:15	06/03/2022 16:22							
<i>Surr: 2-Fluorophenol (Surr)</i>	08	35.9 %	10-52	05/27/2022 09:15	06/03/2022 16:22							
<i>Surr: Nitrobenzene-d5 (Surr)</i>	08	71.9 %	10-98.5	05/27/2022 09:15	06/03/2022 16:22							
<i>Surr: Phenol-d5 (Surr)</i>	08	27.4 %	5-33	05/27/2022 09:15	06/03/2022 16:22							
<i>Surr: p-Terphenyl-d14 (Surr)</i>	08	70.3 %	27-133	05/27/2022 09:15	06/03/2022 16:22							

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Organochlorine Pesticides and PCBs by GC/ECD												
PCB as Aroclor 1016	08	12674-11-2	SW8082A	06/01/2022 09:00	06/01/2022 17:21	BLOD		0.140	0.200	1	ug/L	LBH2
PCB as Aroclor 1221	08	11104-28-2	SW8082A	06/01/2022 09:00	06/01/2022 17:21	BLOD		0.140	0.200	1	ug/L	LBH2
PCB as Aroclor 1232	08	11141-16-5	SW8082A	06/01/2022 09:00	06/01/2022 17:21	BLOD		0.140	0.200	1	ug/L	LBH2
PCB as Aroclor 1242	08	53469-21-9	SW8082A	06/01/2022 09:00	06/01/2022 17:21	BLOD		0.140	0.200	1	ug/L	LBH2
PCB as Aroclor 1248	08	12672-29-6	SW8082A	06/01/2022 09:00	06/01/2022 17:21	BLOD		0.140	0.200	1	ug/L	LBH2
PCB as Aroclor 1254	08	11097-69-1	SW8082A	06/01/2022 09:00	06/01/2022 17:21	BLOD		0.140	0.200	1	ug/L	LBH2
PCB as Aroclor 1260	08	11096-82-5	SW8082A	06/01/2022 09:00	06/01/2022 17:21	BLOD		0.140	0.200	1	ug/L	LBH2
<i>Surr: DCB</i>	08	49.9 %	30-105	06/01/2022 09:00	06/01/2022 17:21							
<i>Surr: TCMX</i>	08	57.7 %	30-105	06/01/2022 09:00	06/01/2022 17:21							
4,4'-DDD	08	72-54-8	SW8081B	06/01/2022 09:00	06/01/2022 17:21	BLOD		0.005	0.050	1	ug/L	LBH2
4,4'-DDE	08	72-55-9	SW8081B	06/01/2022 09:00	06/01/2022 17:21	BLOD		0.005	0.050	1	ug/L	LBH2
4,4'-DDT	08	50-29-3	SW8081B	06/01/2022 09:00	06/01/2022 17:21	BLOD		0.005	0.050	1	ug/L	LBH2
Aldrin	08	309-00-2	SW8081B	06/01/2022 09:00	06/01/2022 17:21	BLOD		0.005	0.050	1	ug/L	LBH2
alpha-BHC	08	319-84-6	SW8081B	06/01/2022 09:00	06/01/2022 17:21	BLOD		0.005	0.050	1	ug/L	LBH2
alpha-Chlordane	08	5103-71-9	SW8081B	06/01/2022 09:00	06/01/2022 17:21	BLOD		0.005	0.050	1	ug/L	LBH2
beta-BHC	08	319-85-7	SW8081B	06/01/2022 09:00	06/01/2022 17:21	BLOD		0.019	0.050	1	ug/L	LBH2
Chlordane	08	57-74-9	SW8081B	06/01/2022 09:00	06/01/2022 17:21	BLOD		0.187	0.200	1	ug/L	LBH2
delta-BHC	08	319-86-8	SW8081B	06/01/2022 09:00	06/01/2022 17:21	BLOD		0.005	0.050	1	ug/L	LBH2
Dieldrin	08	60-57-1	SW8081B	06/01/2022 09:00	06/01/2022 17:21	BLOD		0.005	0.050	1	ug/L	LBH2
Endosulfan I	08	959-98-8	SW8081B	06/01/2022 09:00	06/01/2022 17:21	BLOD		0.005	0.050	1	ug/L	LBH2
Endosulfan II	08	33213-65-9	SW8081B	06/01/2022 09:00	06/01/2022 17:21	BLOD		0.005	0.050	1	ug/L	LBH2
Endosulfan sulfate	08	1031-07-8	SW8081B	06/01/2022 09:00	06/01/2022 17:21	BLOD		0.005	0.050	1	ug/L	LBH2
Endrin	08	72-20-8	SW8081B	06/01/2022 09:00	06/01/2022 17:21	BLOD		0.005	0.050	1	ug/L	LBH2
Endrin aldehyde	08	7421-93-4	SW8081B	06/01/2022 09:00	06/01/2022 17:21	BLOD		0.005	0.050	1	ug/L	LBH2

Certificate of Analysis

Client Name: SCS Engineers-Winchester
 Client Site I.D.: City of Bristol 1st Semi-Annual 2022
 Submitted To: Jennifer Robb

Date Issued: 7/12/2022 2:25:23PM

Client Sample ID: MW-108 Duplicate

Laboratory Sample ID: 22E1463-08

Parameter	Samp ID	CAS	Reference Method	Sample Prep Date/Time	Analyzed Date/Time	Sample Results	Qual	LOD	LOQ	DF	Units	Analyst
Organochlorine Pesticides and PCBs by GC/ECD												
gamma-BHC (Lindane)	08	58-89-9	SW8081B	06/01/2022 09:00	06/01/2022 17:21	BLOD		0.005	0.050	1	ug/L	LBH2
gamma-Chlordane	08	5103-74-2	SW8081B	06/01/2022 09:00	06/01/2022 17:21	BLOD		0.005	0.050	1	ug/L	LBH2
Heptachlor	08	76-44-8	SW8081B	06/01/2022 09:00	06/01/2022 17:21	BLOD		0.005	0.050	1	ug/L	LBH2
Heptachlor epoxide	08	1024-57-3	SW8081B	06/01/2022 09:00	06/01/2022 17:21	BLOD		0.005	0.050	1	ug/L	LBH2
Methoxychlor	08	72-43-5	SW8081B	06/01/2022 09:00	06/01/2022 17:21	BLOD		0.005	0.050	1	ug/L	LBH2
Toxaphene	08	8001-35-2	SW8081B	06/01/2022 09:00	06/01/2022 17:21	BLOD		0.187	1.00	1	ug/L	LBH2
Surr: TCMX	08	57.7 %	18-112	06/01/2022 09:00	06/01/2022 17:21							
Surr: DCB	08	49.9 %	27-131	06/01/2022 09:00	06/01/2022 17:21							

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Laboratory Sample ID: 22E1463-08

Parameter	Samp ID	CAS	Reference Method	Sample Prep Date/Time	Analyzed Date/Time	Sample Results	Qual	LOD	LOQ	DF	Units	Analyst
Organochlorine Herbicides by GC/ECD												
2,4,5-T	08	93-76-5	SW8151A	06/02/2022 12:30	06/09/2022 17:41	BLOD		0.200	0.500	1	ug/L	LBH2
2,4,5-TP (Silvex)	08	93-72-1	SW8151A	06/02/2022 12:30	06/09/2022 17:41	BLOD		0.107	0.500	1	ug/L	LBH2
2,4-D	08	94-75-7	SW8151A	06/02/2022 12:30	06/09/2022 17:41	BLOD		0.200	0.500	1	ug/L	LBH2
Dinoseb	08	88-85-7	SW8151A	06/02/2022 12:30	06/09/2022 17:41	BLOD		0.200	0.500	1	ug/L	LBH2
Pentachlorophenol	08	87-86-5	SW8151A	06/02/2022 12:30	06/09/2022 17:41	BLOD		0.200	0.500	1	ug/L	LBH2
<i>Surr: DCAA (Surr)</i>	08	94.9 %	48.5-134	06/02/2022 12:30	06/09/2022 17:41							

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Laboratory Sample ID: 22E1463-08

Parameter	Samp ID	CAS	Reference Method	Sample Prep Date/Time	Analyzed Date/Time	Sample Results	Qual	LOD	LOQ	DF	Units	Analyst
Micro-extractables by GC/ECD												
1,2-Dibromoethane (EDB)	08	106-93-4	SW8011	06/07/2022 11:30	06/07/2022 22:49	BLOD		0.008	0.010	1	ug/L	LBH2
1,2,3-Trichloropropane	08	96-18-4	SW8011	06/07/2022 11:30	06/07/2022 22:49	BLOD		0.009	0.010	1	ug/L	LBH2
1,2-Dibromo-3-chloropropane (DBCP)	08	96-12-8	SW8011	06/07/2022 11:30	06/07/2022 22:49	BLOD		0.005	0.010	1	ug/L	LBH2

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Laboratory Sample ID: 22E1463-08

Parameter	Samp ID	CAS	Reference Method	Sample Prep Date/Time	Analyzed Date/Time	Sample Results	Qual	LOD	LOQ	DF	Units	Analyst
Head Space Analysis by GC												
Ethane	08	74-84-0	RSK175M	06/02/2022 13:20	06/02/2022 13:20	BLOD		1.50	5.00	1	ug/L	BMR
Ethene	08	74-85-1	RSK175M	06/02/2022 13:20	06/02/2022 13:20	BLOD		1.50	5.00	1	ug/L	BMR
Methane	08RE1	74-82-8	RSK175M	06/02/2022 14:09	06/02/2022 14:09	3430		7.50	25.0	5	ug/L	BMR
<i>Surr: Acetylene (Surr)</i>	08	128 %	70-130	06/02/2022 13:20	06/02/2022 13:20							
<i>Surr: Acetylene (Surr)</i>	08RE1	137 %	70-130	06/02/2022 14:09	06/02/2022 14:09							S
Wet Chemistry Analysis												
Alkalinity	08	NA	SM22 2320B-2011	06/08/2022 16:42	06/08/2022 16:42	639		5.0	5.0	1	mg/L	MAH
Chloride	08	16887-00-6	SW9056A	06/01/2022 01:16	06/01/2022 01:16	35.7		0.5	1.0	1	mg/L	MGG
Cyanide	08	57-12-5	SW9012B	06/06/2022 17:41	06/06/2022 17:41	BLOD	CI	0.01	0.01	1	mg/L	Omnion Use
Sulfide	08	18496-25-8	SW9215	05/31/2022 16:50	05/31/2022 16:50	BLOD		0.80	1.00	1	mg/L	MJRL

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Metals (Total) by EPA 6000/7000 Series Methods - Quality Control

Enthalpy Analytical

Analyte	Result	LOQ	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Qual
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Batch BFF0097 - EPA200.8 R5.4

Blank (BFF0097-BLK1)

Prepared: 06/02/2022 Analyzed: 06/07/2022

Antimony	ND	1.0	ug/L							
Arsenic	ND	1.0	ug/L							
Barium	ND	5.00	ug/L							
Beryllium	ND	1.00	ug/L							
Cadmium	ND	1.00	ug/L							
Chromium	ND	1.00	ug/L							
Cobalt	ND	1.00	ug/L							
Copper	ND	1.00	ug/L							
Lead	ND	1.0	ug/L							
Nickel	ND	1.000	ug/L							
Selenium	ND	1.00	ug/L							
Silver	ND	1.00	ug/L							
Thallium	ND	1.0	ug/L							
Tin	ND	1.00	ug/L							
Vanadium	ND	5.00	ug/L							
Zinc	ND	5.00	ug/L							

LCS (BFF0097-BS1)

Prepared: 06/02/2022 Analyzed: 06/07/2022

Antimony	50	1.0	ug/L	50.0		99.6	80-120			
Arsenic	50	1.0	ug/L	50.0		100	80-120			
Barium	46.7	5.00	ug/L	50.0		93.4	80-120			
Beryllium	50.6	1.00	ug/L	50.0		101	80-120			
Cadmium	49.0	1.00	ug/L	50.0		98.1	80-120			
Chromium	48.4	1.00	ug/L	50.0		96.8	80-120			
Cobalt	47.7	1.00	ug/L	50.0		95.4	80-120			

Certificate of Analysis

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Metals (Total) by EPA 6000/7000 Series Methods - Quality Control

Enthalpy Analytical

Analyte	Result	LOQ	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Qual
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Batch BFF0097 - EPA200.8 R5.4

LCS (BFF0097-BS1)

Prepared: 06/02/2022 Analyzed: 06/07/2022

Copper	48.0	1.00	ug/L	50.0		96.0	80-120			
Lead	50	1.0	ug/L	50.0		99.0	80-120			
Nickel	47.49	1.000	ug/L	50.0		95.0	80-120			
Selenium	52.6	1.00	ug/L	50.0		105	80-120			
Silver	9.44	1.00	ug/L	10.0		94.4	80-120			
Thallium	50	1.0	ug/L	50.0		100	80-120			
Tin	49.0	1.00	ug/L	50.0		98.0	80-120			
Vanadium	48.5	5.00	ug/L	50.0		96.9	80-120			
Zinc	51.9	5.00	ug/L	50.0		104	80-120			

Matrix Spike (BFF0097-MS1)

Source: 22E1463-02

Prepared: 06/02/2022 Analyzed: 06/07/2022

Antimony	50	1.0	ug/L	50.0	BLOD	99.8	75-125			
Arsenic	50	1.0	ug/L	50.0	0.56	99.0	75-125			
Barium	143	5.00	ug/L	50.0	93.3	100	75-125			
Beryllium	52.8	1.00	ug/L	50.0	BLOD	106	75-125			
Cadmium	47.9	1.00	ug/L	50.0	BLOD	95.8	75-125			
Chromium	49.2	1.00	ug/L	50.0	BLOD	98.3	75-125			
Cobalt	46.1	1.00	ug/L	50.0	BLOD	92.1	75-125			
Copper	45.4	1.00	ug/L	50.0	BLOD	90.7	75-125			
Lead	49	1.0	ug/L	50.0	BLOD	97.4	75-125			
Nickel	46.48	1.000	ug/L	50.0	BLOD	93.0	75-125			
Selenium	51.6	1.00	ug/L	50.0	BLOD	103	75-125			
Silver	9.00	1.00	ug/L	10.0	BLOD	90.0	75-125			
Thallium	51	1.0	ug/L	50.0	BLOD	101	75-125			
Tin	50.3	1.00	ug/L	50.0	BLOD	101	75-125			

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Metals (Total) by EPA 6000/7000 Series Methods - Quality Control

Enthalpy Analytical

Analyte	Result	LOQ	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Qual
Batch BFF0097 - EPA200.8 R5.4										
Matrix Spike (BFF0097-MS1)		Source: 22E1463-02			Prepared: 06/02/2022 Analyzed: 06/07/2022					
Vanadium	50.5	5.00	ug/L	50.0	BLOD	101	75-125			
Zinc	50.2	5.00	ug/L	50.0	3.43	93.6	75-125			
Matrix Spike (BFF0097-MS2)		Source: 22F0064-03			Prepared: 06/02/2022 Analyzed: 06/07/2022					
Antimony	51	1.0	ug/L	50.0	BLOD	102	75-125			
Arsenic	51	1.0	ug/L	50.0	BLOD	103	75-125			
Barium	82.0	5.00	ug/L	50.0	33.6	96.8	75-125			
Beryllium	57.3	1.00	ug/L	50.0	BLOD	115	75-125			
Cadmium	50.2	1.00	ug/L	50.0	BLOD	100	75-125			
Chromium	50.7	1.00	ug/L	50.0	BLOD	101	75-125			
Cobalt	49.1	1.00	ug/L	50.0	BLOD	98.2	75-125			
Copper	48.4	1.00	ug/L	50.0	BLOD	96.9	75-125			
Lead	49	1.0	ug/L	50.0	BLOD	98.4	75-125			
Nickel	49.03	1.000	ug/L	50.0	BLOD	98.1	75-125			
Selenium	54.5	1.00	ug/L	50.0	BLOD	109	75-125			
Silver	9.39	1.00	ug/L	10.0	BLOD	93.9	75-125			
Thallium	50	1.0	ug/L	50.0	BLOD	101	75-125			
Tin	51.8	1.00	ug/L	50.0	BLOD	104	75-125			
Vanadium	52.4	5.00	ug/L	50.0	BLOD	105	75-125			
Zinc	51.4	5.00	ug/L	50.0	BLOD	103	75-125			
Matrix Spike Dup (BFF0097-MSD1)		Source: 22E1463-02			Prepared: 06/02/2022 Analyzed: 06/07/2022					
Antimony	51	1.0	ug/L	50.0	BLOD	101	75-125	1.62	20	
Arsenic	51	1.0	ug/L	50.0	0.56	102	75-125	2.82	20	
Barium	144	5.00	ug/L	50.0	93.3	101	75-125	0.458	20	
Beryllium	50.1	1.00	ug/L	50.0	BLOD	100	75-125	5.20	20	

Certificate of Analysis

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Metals (Total) by EPA 6000/7000 Series Methods - Quality Control

Enthalpy Analytical

Analyte	Result	LOQ	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Qual
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Batch BFF0097 - EPA200.8 R5.4

Matrix Spike Dup (BFF0097-MSD1)	Source: 22E1463-02		Prepared: 06/02/2022 Analyzed: 06/07/2022							
Cadmium	48.3	1.00	ug/L	50.0	BLOD	96.5	75-125	0.752	20	
Chromium	50.2	1.00	ug/L	50.0	BLOD	100	75-125	1.99	20	
Cobalt	46.9	1.00	ug/L	50.0	BLOD	93.8	75-125	1.81	20	
Copper	45.8	1.00	ug/L	50.0	BLOD	91.6	75-125	0.892	20	
Lead	48	1.0	ug/L	50.0	BLOD	96.6	75-125	0.831	20	
Nickel	46.90	1.000	ug/L	50.0	BLOD	93.8	75-125	0.903	20	
Selenium	52.2	1.00	ug/L	50.0	BLOD	104	75-125	1.26	20	
Silver	8.96	1.00	ug/L	10.0	BLOD	89.6	75-125	0.376	20	
Thallium	50	1.0	ug/L	50.0	BLOD	101	75-125	0.565	20	
Tin	51.0	1.00	ug/L	50.0	BLOD	102	75-125	1.25	20	
Vanadium	50.8	5.00	ug/L	50.0	BLOD	102	75-125	0.608	20	
Zinc	51.3	5.00	ug/L	50.0	3.43	95.8	75-125	2.20	20	

Matrix Spike Dup (BFF0097-MSD2)	Source: 22F0064-03		Prepared: 06/02/2022 Analyzed: 06/07/2022							
Antimony	50	1.0	ug/L	50.0	BLOD	99.2	75-125	3.13	20	
Arsenic	50	1.0	ug/L	50.0	BLOD	99.2	75-125	3.30	20	
Barium	80.9	5.00	ug/L	50.0	33.6	94.7	75-125	1.33	20	
Beryllium	54.3	1.00	ug/L	50.0	BLOD	109	75-125	5.32	20	
Cadmium	48.6	1.00	ug/L	50.0	BLOD	97.2	75-125	3.34	20	
Chromium	49.5	1.00	ug/L	50.0	BLOD	98.9	75-125	2.43	20	
Cobalt	47.0	1.00	ug/L	50.0	BLOD	94.0	75-125	4.42	20	
Copper	47.0	1.00	ug/L	50.0	BLOD	94.0	75-125	3.02	20	
Lead	48	1.0	ug/L	50.0	BLOD	96.7	75-125	1.74	20	
Nickel	47.05	1.000	ug/L	50.0	BLOD	94.1	75-125	4.11	20	
Selenium	52.5	1.00	ug/L	50.0	BLOD	105	75-125	3.65	20	

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Enthalpy Analytical

Analyte	Result	LOQ	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Qual
Batch BFF0097 - EPA200.8 R5.4										
Matrix Spike Dup (BFF0097-MSD2) Source: 22F0064-03 Prepared: 06/02/2022 Analyzed: 06/07/2022										
Silver	9.07	1.00	ug/L	10.0	BLOD	90.7	75-125	3.47	20	
Thallium	49	1.0	ug/L	50.0	BLOD	98.2	75-125	2.67	20	
Tin	50.3	1.00	ug/L	50.0	BLOD	101	75-125	2.87	20	
Vanadium	50.9	5.00	ug/L	50.0	BLOD	102	75-125	2.82	20	
Zinc	50.3	5.00	ug/L	50.0	BLOD	101	75-125	2.17	20	
Batch BFF0393 - SW7470A										
Blank (BFF0393-BLK1) Prepared & Analyzed: 06/09/2022										
Mercury	ND	0.00020	mg/L							
LCS (BFF0393-BS1) Prepared & Analyzed: 06/09/2022										
Mercury	0.00251	0.00020	mg/L	0.00250		100	80-120			
Matrix Spike (BFF0393-MS1) Source: 22E1463-02 Prepared & Analyzed: 06/09/2022										
Mercury	0.00274	0.00020	mg/L	0.00250	BLOD	110	80-120			
Matrix Spike (BFF0393-MS2) Source: 22E1463-03 Prepared & Analyzed: 06/09/2022										
Mercury	0.00244	0.00020	mg/L	0.00250	BLOD	97.7	80-120			
Matrix Spike Dup (BFF0393-MSD1) Source: 22E1463-02 Prepared & Analyzed: 06/09/2022										
Mercury	0.00263	0.00020	mg/L	0.00250	BLOD	105	80-120	3.98	20	
Matrix Spike Dup (BFF0393-MSD2) Source: 22E1463-03 Prepared & Analyzed: 06/09/2022										
Mercury	0.00259	0.00020	mg/L	0.00250	BLOD	104	80-120	5.84	20	

Certificate of Analysis

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Volatile Organic Compounds by GCMS - Quality Control

Enthalpy Analytical

Analyte	Result	LOQ	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Qual
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Batch BFF0032 - SW5030B-MS

Blank (BFF0032-BLK1)

Prepared & Analyzed: 06/02/2022

1,1,1,2-Tetrachloroethane	ND	0.40	ug/L
1,1,1-Trichloroethane	ND	1.00	ug/L
1,1,2,2-Tetrachloroethane	ND	0.40	ug/L
1,1,2-Trichloroethane	ND	1.00	ug/L
1,1-Dichloroethane	ND	1.00	ug/L
1,1-Dichloroethylene	ND	1.00	ug/L
1,1-Dichloropropene	ND	1.00	ug/L
1,2,3-Trichloropropane	ND	1.00	ug/L
1,2,4-Trichlorobenzene	ND	1.00	ug/L
1,2-Dichlorobenzene	ND	1.00	ug/L
1,2-Dichloroethane	ND	1.00	ug/L
1,2-Dichloropropane	ND	1.00	ug/L
1,3-Dichlorobenzene	ND	1.00	ug/L
1,3-Dichloropropane	ND	1.00	ug/L
1,4-Dichlorobenzene	ND	1.00	ug/L
2,2-Dichloropropane	ND	2.00	ug/L
2-Butanone (MEK)	ND	10.0	ug/L
2-Hexanone (MBK)	ND	5.00	ug/L
4-Methyl-2-pentanone (MIBK)	ND	5.00	ug/L
Acetone	ND	10.0	ug/L
Acetonitrile	ND	10.0	ug/L
Acrolein	ND	10.0	ug/L
Acrylonitrile	ND	5.00	ug/L
Allyl chloride	ND	1.00	ug/L
Benzene	ND	1.00	ug/L

Certificate of Analysis

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Volatile Organic Compounds by GCMS - Quality Control

Enthalpy Analytical

Analyte	Result	LOQ	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Qual
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Batch BFF0032 - SW5030B-MS

Blank (BFF0032-BLK1)

Prepared & Analyzed: 06/02/2022

Bromochloromethane	ND	1.00	ug/L
Bromodichloromethane	ND	0.50	ug/L
Bromoform	ND	1.00	ug/L
Bromomethane	ND	1.00	ug/L
Carbon disulfide	ND	10.0	ug/L
Carbon tetrachloride	ND	1.00	ug/L
Chlorobenzene	ND	1.00	ug/L
Chloroethane	ND	1.00	ug/L
Chloroform	ND	0.50	ug/L
Chloromethane	ND	1.00	ug/L
Chloroprene	ND	5.00	ug/L
cis-1,2-Dichloroethylene	ND	1.00	ug/L
cis-1,3-Dichloropropene	ND	1.00	ug/L
Dibromochloromethane	ND	0.50	ug/L
Dibromomethane	ND	1.00	ug/L
Dichlorodifluoromethane	ND	1.00	ug/L
Dichlorodifluoromethane	ND	1.00	ug/L
Ethyl methacrylate	ND	5.00	ug/L
Ethylbenzene	ND	1.00	ug/L
Iodomethane	ND	10.0	ug/L
Isobutyl Alcohol	ND	40.0	ug/L
m+p-Xylenes	ND	2.00	ug/L
Methacrylonitrile	ND	1.50	ug/L
Methyl methacrylate	ND	2.00	ug/L
Methylene chloride	ND	4.00	ug/L

Certificate of Analysis

 Client Name: SCS Engineers-Winchester
 Client Site I.D.: City of Bristol 1st Semi-Annual 2022
 Submitted To: Jennifer Robb

Date Issued: 7/12/2022 2:25:23PM

Volatile Organic Compounds by GCMS - Quality Control

Enthalpy Analytical

Analyte	Result	LOQ	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Qual
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Batch BFF0032 - SW5030B-MS

Blank (BFF0032-BLK1)

Prepared & Analyzed: 06/02/2022

o-Xylene	ND	1.00	ug/L							
Propionitrile	ND	40.0	ug/L							
Styrene	ND	1.00	ug/L							
Tetrachloroethylene (PCE)	ND	1.00	ug/L							
Toluene	ND	1.00	ug/L							
trans-1,2-Dichloroethylene	ND	1.00	ug/L							
trans-1,3-Dichloropropene	ND	1.00	ug/L							
trans-1,4-Dichloro-2-butene	ND	4.00	ug/L							
Trichloroethylene	ND	1.00	ug/L							
Trichlorofluoromethane	ND	1.00	ug/L							
Vinyl acetate	ND	10.0	ug/L							
Vinyl chloride	ND	0.50	ug/L							
Xylenes, Total	ND	3.00	ug/L							
<i>Surr: 1,2-Dichloroethane-d4 (Surr)</i>	49.1		ug/L	50.0		98.2	70-120			
<i>Surr: 4-Bromofluorobenzene (Surr)</i>	47.5		ug/L	50.0		95.0	75-120			
<i>Surr: Dibromofluoromethane (Surr)</i>	49.0		ug/L	50.0		98.1	70-130			
<i>Surr: Toluene-d8 (Surr)</i>	50.8		ug/L	50.0		102	70-130			

LCS (BFF0032-BS1)

Prepared & Analyzed: 06/02/2022

1,1,1,2-Tetrachloroethane	45.8	0.4	ug/L	50.0		91.6	80-130			
1,1,1-Trichloroethane	50.4	1	ug/L	50.0		101	65-130			
1,1,2,2-Tetrachloroethane	47.8	0.4	ug/L	50.0		95.6	65-130			
1,1,2-Trichloroethane	50.5	1	ug/L	50.0		101	75-125			
1,1-Dichloroethane	48.6	1	ug/L	50.0		97.3	70-135			
1,1-Dichloroethylene	41.3	1	ug/L	50.0		82.6	70-130			

Certificate of Analysis

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Volatile Organic Compounds by GCMS - Quality Control

Enthalpy Analytical

Analyte	Result	LOQ	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Qual
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Batch BFF0032 - SW5030B-MS

LCS (BFF0032-BS1)

Prepared & Analyzed: 06/02/2022

1,1-Dichloropropene	49.6	1	ug/L	50.0		99.1	75-135			
1,2,3-Trichloropropane	45.7	1	ug/L	50.0		91.4	75-125			
1,2,4-Trichlorobenzene	49.5	1	ug/L	50.0		98.9	65-135			
1,2-Dichlorobenzene	45.9	0.5	ug/L	50.0		91.8	70-120			
1,2-Dichloroethane	45.2	1	ug/L	50.0		90.5	70-130			
1,2-Dichloropropane	48.8	0.5	ug/L	50.0		97.6	75-125			
1,3-Dichlorobenzene	45.2	1	ug/L	50.0		90.4	75-125			
1,3-Dichloropropane	47.0	1	ug/L	50.0		94.0	75-125			
1,4-Dichlorobenzene	45.3	1	ug/L	50.0		90.6	75-125			
2,2-Dichloropropane	49.7	1	ug/L	50.0		99.5	70-135			
2-Butanone (MEK)	49.0	10	ug/L	50.0		98.0	30-150			
2-Hexanone (MBK)	44.5	5	ug/L	50.0		89.0	55-130			
4-Methyl-2-pentanone (MIBK)	47.8	5	ug/L	50.0		95.6	60-135			
Acetone	56.1	10	ug/L	50.0		112	40-140			
Acrylonitrile	252	5	ug/L	250		101	70-130			
Benzene	46.8	1	ug/L	50.0		93.5	80-120			
Bromochloromethane	43.0	1	ug/L	50.0		86.1	65-130			
Bromodichloromethane	53.1	0.5	ug/L	50.0		106	75-120			
Bromoform	41.6	1	ug/L	50.0		83.1	70-130			
Bromomethane	57.0	1	ug/L	50.0		114	30-145			
Carbon disulfide	43.4	10	ug/L	50.0		86.8	35-160			
Carbon tetrachloride	51.2	1	ug/L	50.0		102	65-140			
Chlorobenzene	45.3	1	ug/L	50.0		90.5	80-120			
Chloroethane	50.9	1	ug/L	50.0		102	60-135			
Chloroform	48.0	0.5	ug/L	50.0		96.0	65-135			

Certificate of Analysis

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Volatile Organic Compounds by GCMS - Quality Control

Enthalpy Analytical

Analyte	Result	LOQ	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Qual
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Batch BFF0032 - SW5030B-MS

LCS (BFF0032-BS1)

Prepared & Analyzed: 06/02/2022

Chloromethane	50.0	1	ug/L	50.0		100	40-125			
cis-1,2-Dichloroethylene	44.2	1	ug/L	50.0		88.5	70-125			
cis-1,3-Dichloropropene	38.5	1	ug/L	50.0		77.0	70-130			
Dibromochloromethane	42.3	0.5	ug/L	50.0		84.6	60-135			
Dibromomethane	46.2	1	ug/L	50.0		92.4	75-125			
Dichlorodifluoromethane	45.5	1	ug/L	50.0		91.1	30-155			
Dichlorodifluoromethane	45.5	1	ug/L	50.0		91.1	30-155			
Ethylbenzene	51.1	1	ug/L	50.0		102	75-125			
m+p-Xylenes	92.9	2	ug/L	100		92.9	75-130			
Methylene chloride	47.0	4	ug/L	50.0		94.0	55-140			
o-Xylene	48.0	1	ug/L	50.0		96.0	80-120			
Styrene	41.4	1	ug/L	50.0		82.7	65-135			
Tetrachloroethylene (PCE)	77.4	1	ug/L	50.0		155	45-150			L
Toluene	46.0	1	ug/L	50.0		92.1	75-120			
trans-1,2-Dichloroethylene	47.0	1	ug/L	50.0		94.1	60-140			
trans-1,3-Dichloropropene	36.1	1	ug/L	50.0		72.2	55-140			
Trichloroethylene	47.9	1	ug/L	50.0		95.7	70-125			
Trichlorofluoromethane	54.1	1	ug/L	50.0		108	60-145			
Vinyl chloride	56.8	0.5	ug/L	50.0		114	50-145			
<hr/>										
<i>Surr: 1,2-Dichloroethane-d4 (Surr)</i>	<i>49.1</i>		ug/L	<i>50.0</i>		<i>98.3</i>	<i>70-120</i>			
<i>Surr: 4-Bromofluorobenzene (Surr)</i>	<i>51.4</i>		ug/L	<i>50.0</i>		<i>103</i>	<i>75-120</i>			
<i>Surr: Dibromofluoromethane (Surr)</i>	<i>46.8</i>		ug/L	<i>50.0</i>		<i>93.6</i>	<i>70-130</i>			
<i>Surr: Toluene-d8 (Surr)</i>	<i>50.9</i>		ug/L	<i>50.0</i>		<i>102</i>	<i>70-130</i>			

Duplicate (BFF0032-DUP1)

Source: 22E1463-08

Prepared & Analyzed: 06/02/2022

Certificate of Analysis

Client Name: SCS Engineers-Winchester
 Client Site I.D.: City of Bristol 1st Semi-Annual 2022
 Submitted To: Jennifer Robb

Date Issued: 7/12/2022 2:25:23PM

Volatile Organic Compounds by GCMS - Quality Control

Enthalpy Analytical

Analyte	Result	LOQ	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Qual
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Batch BFF0032 - SW5030B-MS

Duplicate (BFF0032-DUP1)	Source: 22E1463-08			Prepared & Analyzed: 06/02/2022						
1,1,1,2-Tetrachloroethane	ND	0.40	ug/L		BLOD			NA	30	
1,1,1-Trichloroethane	ND	1.00	ug/L		BLOD			NA	30	
1,1,2,2-Tetrachloroethane	ND	0.40	ug/L		BLOD			NA	30	
1,1,2-Trichloroethane	ND	1.00	ug/L		BLOD			NA	30	
1,1-Dichloroethane	6.12	1.00	ug/L		6.28			2.58	30	
1,1-Dichloroethylene	ND	1.00	ug/L		BLOD			NA	30	
1,1-Dichloropropene	ND	1.00	ug/L		BLOD			NA	30	
1,2,3-Trichloropropane	ND	1.00	ug/L		BLOD			NA	30	
1,2,4-Trichlorobenzene	ND	1.00	ug/L		BLOD			NA	30	
1,2-Dichlorobenzene	ND	1.00	ug/L		BLOD			NA	30	
1,2-Dichloroethane	ND	1.00	ug/L		BLOD			NA	30	
1,2-Dichloropropane	ND	1.00	ug/L		BLOD			NA	30	
1,3-Dichlorobenzene	ND	1.00	ug/L		BLOD			NA	30	
1,3-Dichloropropane	ND	1.00	ug/L		BLOD			NA	30	
1,4-Dichlorobenzene	1.93	1.00	ug/L		BLOD			NA	30	
2,2-Dichloropropane	ND	2.00	ug/L		BLOD			NA	30	
2-Butanone (MEK)	ND	10.0	ug/L		BLOD			NA	30	
2-Hexanone (MBK)	ND	5.00	ug/L		BLOD			NA	30	
4-Methyl-2-pentanone (MIBK)	ND	5.00	ug/L		BLOD			NA	30	
Acetone	ND	10.0	ug/L		BLOD			NA	30	
Acetonitrile	ND	10.0	ug/L		BLOD			NA	30	
Acrolein	ND	10.0	ug/L		BLOD			NA	30	
Acrylonitrile	ND	5.00	ug/L		BLOD			NA	30	
Allyl chloride	ND	1.00	ug/L		BLOD			NA	30	
Benzene	7.46	1.00	ug/L		7.30			2.17	30	

Certificate of Analysis

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Volatile Organic Compounds by GCMS - Quality Control

Enthalpy Analytical

Analyte	Result	LOQ	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Qual
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Batch BFF0032 - SW5030B-MS

Duplicate (BFF0032-DUP1)

Source: 22E1463-08

Prepared & Analyzed: 06/02/2022

Bromochloromethane	ND	1.00	ug/L		BLOD			NA	30	
Bromodichloromethane	ND	0.50	ug/L		BLOD			NA	30	
Bromoform	ND	1.00	ug/L		BLOD			NA	30	
Bromomethane	ND	1.00	ug/L		BLOD			NA	30	
Carbon disulfide	ND	10.0	ug/L		BLOD			NA	30	
Carbon tetrachloride	ND	1.00	ug/L		BLOD			NA	30	
Chlorobenzene	1.35	1.00	ug/L		1.31			3.01	30	
Chloroethane	1.36	1.00	ug/L		1.07			23.9	30	
Chloroform	ND	0.50	ug/L		BLOD			NA	30	
Chloromethane	ND	1.00	ug/L		BLOD			NA	30	
Chloroprene	ND	5.00	ug/L		BLOD			NA	30	
cis-1,2-Dichloroethylene	59.9	1.00	ug/L		61.3			2.41	30	
cis-1,3-Dichloropropene	ND	1.00	ug/L		BLOD			NA	30	
Dibromochloromethane	ND	0.50	ug/L		BLOD			NA	30	
Dibromomethane	ND	1.00	ug/L		BLOD			NA	30	
Dichlorodifluoromethane	ND	1.00	ug/L		BLOD			NA	30	
Dichlorodifluoromethane	ND	1.00	ug/L		BLOD			NA	30	
Ethyl methacrylate	ND	5.00	ug/L		BLOD			NA	30	
Ethylbenzene	ND	1.00	ug/L		BLOD			NA	30	
Iodomethane	ND	10.0	ug/L		BLOD			NA	30	
Isobutyl Alcohol	ND	40.0	ug/L		BLOD			NA	30	
m+p-Xylenes	ND	2.00	ug/L		BLOD			NA	30	
Methacrylonitrile	ND	1.50	ug/L		BLOD			NA	30	
Methyl methacrylate	ND	2.00	ug/L		BLOD			NA	30	
Methylene chloride	ND	4.00	ug/L		BLOD			NA	30	

Certificate of Analysis

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Volatile Organic Compounds by GCMS - Quality Control

Enthalpy Analytical

Analyte	Result	LOQ	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Qual
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Batch BFF0032 - SW5030B-MS

Duplicate (BFF0032-DUP1)

Source: 22E1463-08

Prepared & Analyzed: 06/02/2022

o-Xylene	ND	1.00	ug/L		BLOD			NA	30	
Propionitrile	ND	40.0	ug/L		BLOD			NA	30	
Styrene	ND	1.00	ug/L		BLOD			NA	30	
Tetrachloroethylene (PCE)	ND	1.00	ug/L		BLOD			NA	30	
Toluene	10.8	1.00	ug/L		10.9			0.551	30	
trans-1,2-Dichloroethylene	ND	1.00	ug/L		BLOD			NA	30	
trans-1,3-Dichloropropene	ND	1.00	ug/L		BLOD			NA	30	
trans-1,4-Dichloro-2-butene	ND	4.00	ug/L		BLOD			NA	30	
Trichloroethylene	ND	1.00	ug/L		BLOD			NA	30	
Trichlorofluoromethane	ND	1.00	ug/L		BLOD			NA	30	
Vinyl acetate	ND	10.0	ug/L		BLOD			NA	30	
Vinyl chloride	7.56	0.50	ug/L		7.98			5.41	30	
Xylenes, Total	ND	3.00	ug/L		BLOD			NA	30	
Tetrahydrofuran	ND	10.0	ug/L		BLOD			NA	30	
<i>Surr: 1,2-Dichloroethane-d4 (Surr)</i>	48.4		ug/L	50.0		96.9	70-120			
<i>Surr: 4-Bromofluorobenzene (Surr)</i>	47.5		ug/L	50.0		95.0	75-120			
<i>Surr: Dibromofluoromethane (Surr)</i>	44.8		ug/L	50.0		89.6	70-130			
<i>Surr: Toluene-d8 (Surr)</i>	51.3		ug/L	50.0		103	70-130			

Matrix Spike (BFF0032-MS1)

Source: 22E1463-08

Prepared & Analyzed: 06/02/2022

1,1,1,2-Tetrachloroethane	50.7	0.4	ug/L	50.0	BLOD	101	80-130			
1,1,1-Trichloroethane	50.8	1	ug/L	50.0	BLOD	102	65-130			
1,1,2,2-Tetrachloroethane	48.6	0.4	ug/L	50.0	BLOD	97.2	65-130			
1,1,2-Trichloroethane	51.6	1	ug/L	50.0	BLOD	103	75-125			
1,1-Dichloroethane	53.2	1	ug/L	50.0	6.28	93.9	70-135			

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Volatile Organic Compounds by GCMS - Quality Control

Enthalpy Analytical

Analyte	Result	LOQ	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Qual
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Batch BFF0032 - SW5030B-MS

Matrix Spike (BFF0032-MS1)

Source: 22E1463-08

Prepared & Analyzed: 06/02/2022

1,1-Dichloroethylene	40.7	1	ug/L	50.0	BLOD	81.4	70-130			
1,1-Dichloropropene	49.1	1	ug/L	50.0	BLOD	98.3	75-135			
1,2,3-Trichloropropane	47.5	1	ug/L	50.0	BLOD	95.0	75-125			
1,2,4-Trichlorobenzene	52.3	1	ug/L	50.0	BLOD	105	65-135			
1,2-Dichlorobenzene	48.3	0.5	ug/L	50.0	BLOD	96.7	70-120			
1,2-Dichloroethane	45.6	1	ug/L	50.0	BLOD	91.3	70-130			
1,2-Dichloropropane	49.4	0.5	ug/L	50.0	BLOD	98.9	75-125			
1,3-Dichlorobenzene	50.8	1	ug/L	50.0	BLOD	102	75-125			
1,3-Dichloropropane	47.7	1	ug/L	50.0	BLOD	95.4	75-125			
1,4-Dichlorobenzene	51.2	1	ug/L	50.0	BLOD	102	75-125			
2,2-Dichloropropane	50.4	1	ug/L	50.0	BLOD	101	70-135			
2-Butanone (MEK)	39.5	10	ug/L	50.0	BLOD	79.0	30-150			
2-Hexanone (MBK)	41.6	5	ug/L	50.0	BLOD	83.3	55-130			
4-Methyl-2-pentanone (MIBK)	44.6	5	ug/L	50.0	BLOD	89.1	60-135			
Acetone	44.2	10	ug/L	50.0	BLOD	80.7	40-140			
Acrylonitrile	224	5	ug/L	250	BLOD	89.8	70-130			
Benzene	57.7	1	ug/L	50.0	7.30	101	80-120			
Bromochloromethane	43.2	1	ug/L	50.0	BLOD	86.3	65-130			
Bromodichloromethane	54.2	0.5	ug/L	50.0	BLOD	108	75-120			
Bromoform	43.8	1	ug/L	50.0	BLOD	87.6	70-130			
Bromomethane	46.4	1	ug/L	50.0	BLOD	92.8	30-145			
Carbon disulfide	42.1	10	ug/L	50.0	BLOD	84.1	35-160			
Carbon tetrachloride	53.7	1	ug/L	50.0	BLOD	107	65-140			
Chlorobenzene	50.3	1	ug/L	50.0	1.31	97.9	80-120			
Chloroethane	47.1	1	ug/L	50.0	1.07	92.0	60-135			

Certificate of Analysis

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Volatile Organic Compounds by GCMS - Quality Control

Enthalpy Analytical

Analyte	Result	LOQ	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Qual
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Batch BFF0032 - SW5030B-MS

Matrix Spike (BFF0032-MS1)

Source: 22E1463-08

Prepared & Analyzed: 06/02/2022

Chloroform	47.6	0.5	ug/L	50.0	BLOD	95.2	65-135			
Chloromethane	55.1	1	ug/L	50.0	BLOD	110	40-125			
cis-1,2-Dichloroethylene	103	1	ug/L	50.0	61.3	83.7	70-125			
cis-1,2-Dichloroethylene	103	1	ug/L	50.0	61.3	83.7	70-125			M
cis-1,3-Dichloropropene	39.6	1	ug/L	50.0	BLOD	79.1	70-130			
Dibromochloromethane	43.9	0.5	ug/L	50.0	BLOD	87.7	60-135			
Dibromomethane	46.2	1	ug/L	50.0	BLOD	92.5	75-125			
Dichlorodifluoromethane	45.2	1	ug/L	50.0	BLOD	90.3	30-155			
Dichlorodifluoromethane	45.2	1	ug/L	50.0	BLOD	90.3	30-155			
Ethylbenzene	54.6	1	ug/L	50.0	BLOD	109	75-125			
m+p-Xylenes	100	2	ug/L	100	BLOD	100	75-130			
Methylene chloride	45.2	4	ug/L	50.0	BLOD	90.3	55-140			
o-Xylene	51.1	1	ug/L	50.0	BLOD	102	80-120			
Styrene	44.8	1	ug/L	50.0	BLOD	89.5	65-135			
Tetrachloroethylene (PCE)	84.1	1	ug/L	50.0	BLOD	168	45-150			M
Toluene	59.3	1	ug/L	50.0	10.9	96.9	75-120			
trans-1,2-Dichloroethylene	45.8	1	ug/L	50.0	BLOD	90.6	60-140			
trans-1,3-Dichloropropene	37.3	1	ug/L	50.0	BLOD	74.5	55-140			
Trichloroethylene	50.0	1	ug/L	50.0	BLOD	99.9	70-125			
Trichlorofluoromethane	51.9	1	ug/L	50.0	BLOD	104	60-145			
Vinyl chloride	64.3	0.5	ug/L	50.0	7.98	113	50-145			
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<i>Surr: 1,2-Dichloroethane-d4 (Surr)</i>	<i>49.1</i>		<i>ug/L</i>	<i>50.0</i>		<i>98.2</i>	<i>70-120</i>			
<i>Surr: 4-Bromofluorobenzene (Surr)</i>	<i>54.3</i>		<i>ug/L</i>	<i>50.0</i>		<i>109</i>	<i>75-120</i>			
<i>Surr: Dibromofluoromethane (Surr)</i>	<i>44.9</i>		<i>ug/L</i>	<i>50.0</i>		<i>89.9</i>	<i>70-130</i>			
<i>Surr: Toluene-d8 (Surr)</i>	<i>50.8</i>		<i>ug/L</i>	<i>50.0</i>		<i>102</i>	<i>70-130</i>			

Certificate of Analysis

Client Name: SCS Engineers-Winchester
 Client Site I.D.: City of Bristol 1st Semi-Annual 2022
 Submitted To: Jennifer Robb

Date Issued: 7/12/2022 2:25:23PM

Volatile Organic Compounds by GCMS - Quality Control

Enthalpy Analytical

Analyte	Result	LOQ	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Qual
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Batch BFF0032 - SW5030B-MS

Matrix Spike (BFF0032-MS1) Source: 22E1463-08 Prepared & Analyzed: 06/02/2022

Batch BFF0033 - SW5030B-MS

Blank (BFF0033-BLK1) Prepared & Analyzed: 06/01/2022

1,1,1,2-Tetrachloroethane	ND	0.40	ug/L
1,1,1-Trichloroethane	ND	1.00	ug/L
1,1,2,2-Tetrachloroethane	ND	0.40	ug/L
1,1,2-Trichloroethane	ND	1.00	ug/L
1,1-Dichloroethane	ND	1.00	ug/L
1,1-Dichloroethylene	ND	1.00	ug/L
1,1-Dichloropropene	ND	1.00	ug/L
1,2,3-Trichloropropane	ND	1.00	ug/L
1,2,4-Trichlorobenzene	ND	1.00	ug/L
1,2-Dichlorobenzene	ND	1.00	ug/L
1,2-Dichloroethane	ND	1.00	ug/L
1,2-Dichloropropane	ND	1.00	ug/L
1,3-Dichlorobenzene	ND	1.00	ug/L
1,3-Dichloropropane	ND	1.00	ug/L
1,4-Dichlorobenzene	ND	1.00	ug/L
2,2-Dichloropropane	ND	2.00	ug/L
2-Butanone (MEK)	ND	10.0	ug/L
2-Hexanone (MBK)	ND	5.00	ug/L
4-Methyl-2-pentanone (MIBK)	ND	5.00	ug/L
Acetone	ND	10.0	ug/L
Acetonitrile	ND	10.0	ug/L
Acrolein	ND	10.0	ug/L

Certificate of Analysis

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Volatile Organic Compounds by GCMS - Quality Control

Enthalpy Analytical

Analyte	Result	LOQ	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Qual
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Batch BFF0033 - SW5030B-MS

Blank (BFF0033-BLK1)

Prepared & Analyzed: 06/01/2022

Acrylonitrile	ND	5.00	ug/L
Allyl chloride	ND	1.00	ug/L
Benzene	ND	1.00	ug/L
Bromochloromethane	ND	1.00	ug/L
Bromodichloromethane	ND	0.50	ug/L
Bromoform	ND	1.00	ug/L
Bromomethane	ND	1.00	ug/L
Carbon disulfide	ND	10.0	ug/L
Carbon tetrachloride	ND	1.00	ug/L
Chlorobenzene	ND	1.00	ug/L
Chloroethane	ND	1.00	ug/L
Chloroform	ND	0.50	ug/L
Chloromethane	ND	1.00	ug/L
Chloroprene	ND	5.00	ug/L
cis-1,2-Dichloroethylene	ND	1.00	ug/L
cis-1,3-Dichloropropene	ND	1.00	ug/L
Dibromochloromethane	ND	0.50	ug/L
Dibromomethane	ND	1.00	ug/L
Dichlorodifluoromethane	ND	1.00	ug/L
Ethyl methacrylate	ND	5.00	ug/L
Ethylbenzene	ND	1.00	ug/L
Iodomethane	ND	10.0	ug/L
Isobutyl Alcohol	ND	40.0	ug/L
m+p-Xylenes	ND	2.00	ug/L
Methacrylonitrile	ND	1.50	ug/L

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Volatile Organic Compounds by GCMS - Quality Control

Enthalpy Analytical

Analyte	Result	LOQ	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Qual
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Batch BFF0033 - SW5030B-MS

Blank (BFF0033-BLK1)

Prepared & Analyzed: 06/01/2022

Methyl methacrylate	ND	2.00	ug/L							
Methylene chloride	ND	4.00	ug/L							
o-Xylene	ND	1.00	ug/L							
Propionitrile	ND	40.0	ug/L							
Styrene	ND	1.00	ug/L							
Tetrachloroethylene (PCE)	ND	1.00	ug/L							
Toluene	ND	1.00	ug/L							
trans-1,2-Dichloroethylene	ND	1.00	ug/L							
trans-1,3-Dichloropropene	ND	1.00	ug/L							
trans-1,4-Dichloro-2-butene	ND	4.00	ug/L							
Trichloroethylene	ND	1.00	ug/L							
Trichlorofluoromethane	ND	1.00	ug/L							
Vinyl acetate	ND	10.0	ug/L							
Vinyl chloride	ND	0.50	ug/L							
Xylenes, Total	ND	3.00	ug/L							
<hr/>										
<i>Surr: 1,2-Dichloroethane-d4 (Surr)</i>	<i>54.1</i>		ug/L	<i>50.0</i>		<i>108</i>	<i>70-120</i>			
<i>Surr: 4-Bromofluorobenzene (Surr)</i>	<i>49.6</i>		ug/L	<i>50.0</i>		<i>99.2</i>	<i>75-120</i>			
<i>Surr: Dibromofluoromethane (Surr)</i>	<i>51.5</i>		ug/L	<i>50.0</i>		<i>103</i>	<i>70-130</i>			
<i>Surr: Toluene-d8 (Surr)</i>	<i>51.0</i>		ug/L	<i>50.0</i>		<i>102</i>	<i>70-130</i>			

LCS (BFF0033-BS1)

Prepared & Analyzed: 06/01/2022

1,1,1,2-Tetrachloroethane	52.8	0.4	ug/L	50.0		106	80-130			
1,1,1-Trichloroethane	53.9	1	ug/L	50.0		108	65-130			
1,1,2,2-Tetrachloroethane	53.5	0.4	ug/L	50.0		107	65-130			
1,1,2-Trichloroethane	49.2	1	ug/L	50.0		98.4	75-125			

Certificate of Analysis

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Volatile Organic Compounds by GCMS - Quality Control

Enthalpy Analytical

Analyte	Result	LOQ	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Qual
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Batch BFF0033 - SW5030B-MS

LCS (BFF0033-BS1)

Prepared & Analyzed: 06/01/2022

1,1-Dichloroethane	48.4	1	ug/L	50.0		96.9	70-135			
1,1-Dichloroethylene	42.1	1	ug/L	50.0		84.2	70-130			
1,1-Dichloropropene	50.6	1	ug/L	50.0		101	75-135			
1,2,3-Trichloropropane	55.1	1	ug/L	50.0		110	75-125			
1,2,4-Trichlorobenzene	48.7	1	ug/L	50.0		97.4	65-135			
1,2-Dichlorobenzene	51.2	0.5	ug/L	50.0		102	70-120			
1,2-Dichloroethane	50.4	1	ug/L	50.0		101	70-130			
1,2-Dichloropropane	47.2	0.5	ug/L	50.0		94.5	75-125			
1,3-Dichlorobenzene	52.0	1	ug/L	50.0		104	75-125			
1,3-Dichloropropane	48.3	1	ug/L	50.0		96.6	75-125			
1,4-Dichlorobenzene	51.3	1	ug/L	50.0		103	75-125			
2,2-Dichloropropane	44.8	1	ug/L	50.0		89.6	70-135			
2-Butanone (MEK)	41.1	10	ug/L	50.0		82.1	30-150			
2-Hexanone (MBK)	58.8	5	ug/L	50.0		118	55-130			
4-Methyl-2-pentanone (MIBK)	48.6	5	ug/L	50.0		97.2	60-135			
Acetone	48.0	10	ug/L	50.0		96.0	40-140			
Acrylonitrile	301	5	ug/L	250		120	70-130			
Benzene	47.3	1	ug/L	50.0		94.6	80-120			
Bromochloromethane	44.1	1	ug/L	50.0		88.2	65-130			
Bromodichloromethane	53.0	0.5	ug/L	50.0		106	75-120			
Bromoform	50.6	1	ug/L	50.0		101	70-130			
Bromomethane	42.6	1	ug/L	50.0		85.3	30-145			
Carbon disulfide	51.3	10	ug/L	50.0		103	35-160			
Carbon tetrachloride	53.1	1	ug/L	50.0		106	65-140			
Chlorobenzene	52.4	1	ug/L	50.0		105	80-120			

Certificate of Analysis

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Volatile Organic Compounds by GCMS - Quality Control

Enthalpy Analytical

Analyte	Result	LOQ	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Qual
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Batch BFF0033 - SW5030B-MS

LCS (BFF0033-BS1)

Prepared & Analyzed: 06/01/2022

Chloroethane	48.2	1	ug/L	50.0		96.5	60-135			
Chloroform	45.4	0.5	ug/L	50.0		90.9	65-135			
Chloromethane	49.8	1	ug/L	50.0		99.5	40-125			
cis-1,2-Dichloroethylene	45.3	1	ug/L	50.0		90.5	70-125			
cis-1,3-Dichloropropene	35.9	1	ug/L	50.0		71.8	70-130			
Dibromochloromethane	47.7	0.5	ug/L	50.0		95.5	60-135			
Dibromomethane	44.6	1	ug/L	50.0		89.3	75-125			
Dichlorodifluoromethane	42.1	1	ug/L	50.0		84.2	30-155			
Ethylbenzene	56.7	1	ug/L	50.0		113	75-125			
m+p-Xylenes	104	2	ug/L	100		104	75-130			
Methylene chloride	44.8	4	ug/L	50.0		89.7	55-140			
o-Xylene	53.6	1	ug/L	50.0		107	80-120			
Styrene	52.2	1	ug/L	50.0		104	65-135			
Tetrachloroethylene (PCE)	90.5	1	ug/L	50.0		181	45-150			L
Toluene	49.1	1	ug/L	50.0		98.1	75-120			
trans-1,2-Dichloroethylene	45.8	1	ug/L	50.0		91.7	60-140			
trans-1,3-Dichloropropene	39.4	1	ug/L	50.0		78.8	55-140			
Trichloroethylene	49.0	1	ug/L	50.0		98.0	70-125			
Trichlorofluoromethane	61.1	1	ug/L	50.0		122	60-145			
Vinyl chloride	50.6	0.5	ug/L	50.0		101	50-145			
<hr/>										
<i>Surr: 1,2-Dichloroethane-d4 (Surr)</i>	<i>52.9</i>		<i>ug/L</i>	<i>50.0</i>		<i>106</i>	<i>70-120</i>			
<i>Surr: 4-Bromofluorobenzene (Surr)</i>	<i>55.6</i>		<i>ug/L</i>	<i>50.0</i>		<i>111</i>	<i>75-120</i>			
<i>Surr: Dibromofluoromethane (Surr)</i>	<i>52.3</i>		<i>ug/L</i>	<i>50.0</i>		<i>105</i>	<i>70-130</i>			
<i>Surr: Toluene-d8 (Surr)</i>	<i>50.7</i>		<i>ug/L</i>	<i>50.0</i>		<i>101</i>	<i>70-130</i>			

Certificate of Analysis

Client Name: SCS Engineers-Winchester
 Client Site I.D.: City of Bristol 1st Semi-Annual 2022
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Volatile Organic Compounds by GCMS - Quality Control

Enthalpy Analytical

Analyte	Result	LOQ	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Qual
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Batch BFF0033 - SW5030B-MS

Matrix Spike (BFF0033-MS1)

Source: 22E1463-02

Prepared & Analyzed: 06/01/2022

1,1,1,2-Tetrachloroethane	47.9	0.4	ug/L	50.0	BLOD	95.8	80-130			
1,1,1-Trichloroethane	52.0	1	ug/L	50.0	BLOD	104	65-130			
1,1,2,2-Tetrachloroethane	48.1	0.4	ug/L	50.0	BLOD	96.2	65-130			
1,1,2-Trichloroethane	46.6	1	ug/L	50.0	BLOD	93.2	75-125			
1,1-Dichloroethane	47.1	1	ug/L	50.0	BLOD	94.3	70-135			
1,1-Dichloroethylene	41.4	1	ug/L	50.0	BLOD	82.9	70-130			
1,1-Dichloropropene	49.3	1	ug/L	50.0	BLOD	98.7	75-135			
1,2,3-Trichloropropane	49.5	1	ug/L	50.0	BLOD	99.0	75-125			
1,2,4-Trichlorobenzene	46.5	1	ug/L	50.0	BLOD	92.9	65-135			
1,2-Dichlorobenzene	49.1	0.5	ug/L	50.0	BLOD	98.2	70-120			
1,2-Dichloroethane	48.4	1	ug/L	50.0	BLOD	96.9	70-130			
1,2-Dichloropropane	44.7	0.5	ug/L	50.0	BLOD	89.5	75-125			
1,3-Dichlorobenzene	49.6	1	ug/L	50.0	BLOD	99.3	75-125			
1,3-Dichloropropane	48.2	1	ug/L	50.0	BLOD	96.4	75-125			
1,4-Dichlorobenzene	50.0	1	ug/L	50.0	BLOD	100	75-125			
2,2-Dichloropropane	44.6	1	ug/L	50.0	BLOD	89.2	70-135			
2-Butanone (MEK)	40.6	10	ug/L	50.0	BLOD	81.3	30-150			
2-Hexanone (MBK)	51.7	5	ug/L	50.0	BLOD	103	55-130			
4-Methyl-2-pentanone (MIBK)	48.0	5	ug/L	50.0	BLOD	96.0	60-135			
Acetone	50.0	10	ug/L	50.0	BLOD	92.9	40-140			
Acrylonitrile	290	5	ug/L	250	BLOD	116	70-130			
Benzene	46.7	1	ug/L	50.0	BLOD	93.4	80-120			
Bromochloromethane	43.9	1	ug/L	50.0	BLOD	87.8	65-130			
Bromodichloromethane	48.8	0.5	ug/L	50.0	BLOD	97.5	75-120			
Bromoform	45.7	1	ug/L	50.0	BLOD	91.4	70-130			

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Volatile Organic Compounds by GCMS - Quality Control

Enthalpy Analytical

Analyte	Result	LOQ	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Qual
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Batch BFF0033 - SW5030B-MS

Matrix Spike (BFF0033-MS1)	Source: 22E1463-02			Prepared & Analyzed: 06/01/2022						
Bromomethane	44.0	1	ug/L	50.0	BLOD	88.1	30-145			
Carbon disulfide	48.0	10	ug/L	50.0	BLOD	96.0	35-160			
Carbon tetrachloride	52.0	1	ug/L	50.0	BLOD	104	65-140			
Chlorobenzene	47.4	1	ug/L	50.0	BLOD	94.8	80-120			
Chloroethane	47.8	1	ug/L	50.0	BLOD	95.7	60-135			
Chloroform	43.4	0.5	ug/L	50.0	BLOD	86.8	65-135			
Chloromethane	50.3	1	ug/L	50.0	BLOD	101	40-125			
cis-1,2-Dichloroethylene	43.9	1	ug/L	50.0	BLOD	87.8	70-125			
cis-1,3-Dichloropropene	35.2	1	ug/L	50.0	BLOD	70.4	70-130			
Dibromochloromethane	46.0	0.5	ug/L	50.0	BLOD	92.0	60-135			
Dibromomethane	43.2	1	ug/L	50.0	BLOD	86.5	75-125			
Dichlorodifluoromethane	42.5	1	ug/L	50.0	BLOD	84.9	30-155			
Ethylbenzene	51.8	1	ug/L	50.0	BLOD	104	75-125			
m+p-Xylenes	94.8	2	ug/L	100	BLOD	94.8	75-130			
Methylene chloride	42.4	4	ug/L	50.0	BLOD	84.9	55-140			
o-Xylene	49.1	1	ug/L	50.0	BLOD	98.3	80-120			
Styrene	47.1	1	ug/L	50.0	BLOD	94.2	65-135			
Tetrachloroethylene (PCE)	84.9	1	ug/L	50.0	BLOD	170	45-150			M
Toluene	47.6	1	ug/L	50.0	BLOD	95.2	75-120			
trans-1,2-Dichloroethylene	45.5	1	ug/L	50.0	BLOD	91.1	60-140			
trans-1,3-Dichloropropene	38.7	1	ug/L	50.0	BLOD	77.5	55-140			
Trichloroethylene	46.9	1	ug/L	50.0	BLOD	93.8	70-125			
Trichlorofluoromethane	59.4	1	ug/L	50.0	BLOD	119	60-145			
Vinyl chloride	50.3	0.5	ug/L	50.0	BLOD	101	50-145			
<i>Surr: 1,2-Dichloroethane-d4 (Surr)</i>	<i>55.0</i>		<i>ug/L</i>	<i>50.0</i>		<i>110</i>	<i>70-120</i>			

Certificate of Analysis

Client Name: SCS Engineers-Winchester
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Volatile Organic Compounds by GCMS - Quality Control

Enthalpy Analytical

Analyte	Result	LOQ	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Qual
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Batch BFF0033 - SW5030B-MS

Matrix Spike (BFF0033-MS1)

Source: 22E1463-02

Prepared & Analyzed: 06/01/2022

<i>Surr: 4-Bromofluorobenzene (Surr)</i>	50.8		ug/L	50.0		102	75-120		
<i>Surr: Dibromofluoromethane (Surr)</i>	50.6		ug/L	50.0		101	70-130		
<i>Surr: Toluene-d8 (Surr)</i>	50.7		ug/L	50.0		101	70-130		

Matrix Spike Dup (BFF0033-MSD1)

Source: 22E1463-02

Prepared & Analyzed: 06/01/2022

1,1,1,2-Tetrachloroethane	48.7	0.4	ug/L	50.0	BLOD	97.4	80-130	1.72	30
1,1,1-Trichloroethane	51.4	1	ug/L	50.0	BLOD	103	65-130	1.10	30
1,1,2,2-Tetrachloroethane	48.7	0.4	ug/L	50.0	BLOD	97.4	65-130	1.24	30
1,1,2-Trichloroethane	47.6	1	ug/L	50.0	BLOD	95.3	75-125	2.19	30
1,1-Dichloroethane	46.2	1	ug/L	50.0	BLOD	92.3	70-135	2.08	30
1,1-Dichloroethylene	39.9	1	ug/L	50.0	BLOD	79.8	70-130	3.76	30
1,1-Dichloropropene	47.7	1	ug/L	50.0	BLOD	95.5	75-135	3.30	30
1,2,3-Trichloropropane	49.8	1	ug/L	50.0	BLOD	99.5	75-125	0.564	30
1,2,4-Trichlorobenzene	49.0	1	ug/L	50.0	BLOD	98.1	65-135	5.38	30
1,2-Dichlorobenzene	49.9	0.5	ug/L	50.0	BLOD	99.8	70-120	1.58	30
1,2-Dichloroethane	48.0	1	ug/L	50.0	BLOD	95.9	70-130	0.975	30
1,2-Dichloropropane	45.6	0.5	ug/L	50.0	BLOD	91.2	75-125	1.95	30
1,3-Dichlorobenzene	50.4	1	ug/L	50.0	BLOD	101	75-125	1.58	30
1,3-Dichloropropane	46.9	1	ug/L	50.0	BLOD	93.9	75-125	2.69	30
1,4-Dichlorobenzene	50.3	1	ug/L	50.0	BLOD	101	75-125	0.618	30
2,2-Dichloropropane	42.4	1	ug/L	50.0	BLOD	84.8	70-135	5.01	30
2-Butanone (MEK)	43.4	10	ug/L	50.0	BLOD	86.7	30-150	6.45	30
2-Hexanone (MBK)	56.8	5	ug/L	50.0	BLOD	114	55-130	9.36	30
4-Methyl-2-pentanone (MIBK)	53.0	5	ug/L	50.0	BLOD	106	60-135	9.79	30
Acetone	48.7	10	ug/L	50.0	BLOD	90.2	40-140	2.70	30

Certificate of Analysis

 Client Name: SCS Engineers-Winchester
 Client Site I.D.: City of Bristol 1st Semi-Annual 2022
 Submitted To: Jennifer Robb

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Volatile Organic Compounds by GCMS - Quality Control

Enthalpy Analytical

Analyte	Result	LOQ	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Qual
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Batch BFF0033 - SW5030B-MS

Matrix Spike Dup (BFF0033-MSD1)

Source: 22E1463-02

Prepared & Analyzed: 06/01/2022

Acrylonitrile	294	5	ug/L	250	BLOD	118	70-130	1.41	30	
Benzene	46.4	1	ug/L	50.0	BLOD	92.7	80-120	0.752	30	
Bromochloromethane	41.9	1	ug/L	50.0	BLOD	83.8	65-130	4.64	30	
Bromodichloromethane	50.3	0.5	ug/L	50.0	BLOD	101	75-120	3.13	30	
Bromoform	46.7	1	ug/L	50.0	BLOD	93.5	70-130	2.23	30	
Bromomethane	44.6	1	ug/L	50.0	BLOD	89.3	30-145	1.40	30	
Carbon disulfide	51.1	10	ug/L	50.0	BLOD	102	35-160	6.23	30	
Carbon tetrachloride	50.5	1	ug/L	50.0	BLOD	101	65-140	2.85	30	
Chlorobenzene	47.5	1	ug/L	50.0	BLOD	95.0	80-120	0.211	30	
Chloroethane	46.9	1	ug/L	50.0	BLOD	93.7	60-135	2.05	30	
Chloroform	43.7	0.5	ug/L	50.0	BLOD	87.5	65-135	0.780	30	
Chloromethane	48.7	1	ug/L	50.0	BLOD	97.5	40-125	3.21	30	
cis-1,2-Dichloroethylene	43.6	1	ug/L	50.0	BLOD	87.2	70-125	0.617	30	
cis-1,3-Dichloropropene	35.5	1	ug/L	50.0	BLOD	70.9	70-130	0.679	30	
Dibromochloromethane	45.2	0.5	ug/L	50.0	BLOD	90.4	60-135	1.82	30	
Dibromomethane	42.3	1	ug/L	50.0	BLOD	84.6	75-125	2.17	30	
Dichlorodifluoromethane	37.0	1	ug/L	50.0	BLOD	74.0	30-155	13.7	30	
Ethylbenzene	51.9	1	ug/L	50.0	BLOD	104	75-125	0.328	30	
m+p-Xylenes	95.3	2	ug/L	100	BLOD	95.3	75-130	0.558	30	
Methylene chloride	42.5	4	ug/L	50.0	BLOD	85.0	55-140	0.0942	30	
o-Xylene	49.8	1	ug/L	50.0	BLOD	99.6	80-120	1.35	30	
Styrene	46.5	1	ug/L	50.0	BLOD	93.0	65-135	1.26	30	
Tetrachloroethylene (PCE)	81.8	1	ug/L	50.0	BLOD	164	45-150	3.80	30	M
Toluene	47.3	1	ug/L	50.0	BLOD	94.7	75-120	0.506	30	
trans-1,2-Dichloroethylene	44.3	1	ug/L	50.0	BLOD	88.7	60-140	2.67	30	

Certificate of Analysis

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Volatile Organic Compounds by GCMS - Quality Control

Enthalpy Analytical

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Batch BFF0033 - SW5030B-MS

Matrix Spike Dup (BFF0033-MSD1)	Source: 22E1463-02			Prepared & Analyzed: 06/01/2022						
trans-1,3-Dichloropropene	38.6	1	ug/L	50.0	BLOD	77.2	55-140	0.362	30	
Trichloroethylene	47.1	1	ug/L	50.0	BLOD	94.2	70-125	0.447	30	
Trichlorofluoromethane	54.2	1	ug/L	50.0	BLOD	108	60-145	9.18	30	
Vinyl chloride	47.2	0.5	ug/L	50.0	BLOD	94.4	50-145	6.34	30	
<i>Surr: 1,2-Dichloroethane-d4 (Surr)</i>	<i>50.3</i>		ug/L	<i>50.0</i>		<i>101</i>	<i>70-120</i>			
<i>Surr: 4-Bromofluorobenzene (Surr)</i>	<i>50.8</i>		ug/L	<i>50.0</i>		<i>102</i>	<i>75-120</i>			
<i>Surr: Dibromofluoromethane (Surr)</i>	<i>51.9</i>		ug/L	<i>50.0</i>		<i>104</i>	<i>70-130</i>			
<i>Surr: Toluene-d8 (Surr)</i>	<i>50.4</i>		ug/L	<i>50.0</i>		<i>101</i>	<i>70-130</i>			

Certificate of Analysis

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Semivolatile Organic Compounds by GCMS - Quality Control

Enthalpy Analytical

Analyte	Result	LOQ	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Qual
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Batch BFF0013 - SW3580A-MS

Blank (BFF0013-BLK1)

Prepared & Analyzed: 06/01/2022

1,2,4,5-Tetrachlorobenzene	ND	10.0	ug/L
1,3,5-Trinitrobenzene	ND	5.00	ug/L
1,3-Dinitrobenzene	ND	2.50	ug/L
1,4-Naphthoquinone	ND	10.0	ug/L
1-Naphthylamine	ND	10.0	ug/L
2,3,4,6-Tetrachlorophenol	ND	10.0	ug/L
2,4,5-Trichlorophenol	ND	10.0	ug/L
2,4,6-Trichlorophenol	ND	10.0	ug/L
2,4-Dichlorophenol	ND	10.0	ug/L
2,4-Dimethylphenol	ND	5.00	ug/L
2,4-Dinitrophenol	ND	50.0	ug/L
2,4-Dinitrotoluene	ND	10.0	ug/L
2,6-Dichlorophenol	ND	10.0	ug/L
2,6-Dinitrotoluene	ND	10.0	ug/L
2-Acetylaminofluorene	ND	2.50	ug/L
2-Chloronaphthalene	ND	10.0	ug/L
2-Chlorophenol	ND	10.0	ug/L
2-Methylnaphthalene	ND	10.0	ug/L
2-Naphthylamine	ND	10.0	ug/L
2-Nitroaniline	ND	20.0	ug/L
2-Nitrophenol	ND	10.0	ug/L
3,3'-Dichlorobenzidine	ND	10.0	ug/L
3,3'-Dimethylbenzidine	ND	2.50	ug/L
3-Methylcholanthrene	ND	10.0	ug/L
3-Nitroaniline	ND	20.0	ug/L

Certificate of Analysis

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Semivolatile Organic Compounds by GCMS - Quality Control

Enthalpy Analytical

Analyte	Result	LOQ	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Qual
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Batch BFF0013 - SW3580A-MS

Blank (BFF0013-BLK1)

Prepared & Analyzed: 06/01/2022

4,6-Dinitro-2-methylphenol	ND	50.0	ug/L
4-Aminobiphenyl	ND	10.0	ug/L
4-Bromophenyl phenyl ether	ND	10.0	ug/L
4-Chloroaniline	ND	10.0	ug/L
4-Chlorophenyl phenyl ether	ND	10.0	ug/L
4-Nitroaniline	ND	20.0	ug/L
4-Nitrophenol	ND	50.0	ug/L
5-Nitro-o-toluidine	ND	10.0	ug/L
7,12-Dimethylbenz (a) anthracene	ND	10.0	ug/L
Acenaphthene	ND	10.0	ug/L
Acenaphthylene	ND	10.0	ug/L
Acetophenone	ND	20.0	ug/L
Anthracene	ND	10.0	ug/L
Benzo (a) anthracene	ND	10.0	ug/L
Benzo (a) pyrene	ND	10.0	ug/L
Benzo (b) fluoranthene	ND	10.0	ug/L
Benzo (g,h,i) perylene	ND	10.0	ug/L
Benzo (k) fluoranthene	ND	10.0	ug/L
Benzyl alcohol	ND	20.0	ug/L
bis (2-Chloroethoxy) methane	ND	10.0	ug/L
bis (2-Chloroethyl) ether	ND	10.0	ug/L
2,2'-Oxybis (1-chloropropane)	ND	10.0	ug/L
bis (2-Ethylhexyl) phthalate	ND	5.00	ug/L
Butyl benzyl phthalate	ND	10.0	ug/L
Chlorobenzilate	ND	2.50	ug/L

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Semivolatile Organic Compounds by GCMS - Quality Control

Enthalpy Analytical

Analyte	Result	LOQ	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Qual
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Batch BFF0013 - SW3580A-MS

Blank (BFF0013-BLK1)

Prepared & Analyzed: 06/01/2022

Chrysene	ND	10.0	ug/L
Diallate	ND	2.50	ug/L
Dibenz (a,h) anthracene	ND	10.0	ug/L
Dibenzofuran	ND	5.00	ug/L
Diethyl phthalate	ND	10.0	ug/L
Dimethoate	ND	2.50	ug/L
Dimethyl phthalate	ND	10.0	ug/L
Di-n-butyl phthalate	ND	10.0	ug/L
Di-n-octyl phthalate	ND	10.0	ug/L
Diphenylamine	ND	10.0	ug/L
Disulfoton	ND	2.50	ug/L
Ethyl methanesulfonate	ND	20.0	ug/L
Ethyl parathion	ND	2.50	ug/L
Famphur	ND	2.50	ug/L
Fluoranthene	ND	10.0	ug/L
Fluorene	ND	10.0	ug/L
Hexachlorobenzene	ND	1.00	ug/L
Hexachlorobutadiene	ND	10.0	ug/L
Hexachlorocyclopentadiene	ND	10.0	ug/L
Hexachloroethane	ND	10.0	ug/L
Hexachloropropene	ND	2.50	ug/L
Indeno (1,2,3-cd) pyrene	ND	10.0	ug/L
Isodrin	ND	10.0	ug/L
Isophorone	ND	10.0	ug/L
Isosafrole	ND	10.0	ug/L

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Enthalpy Analytical

Analyte	Result	LOQ	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Qual
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Batch BFF0013 - SW3580A-MS

Blank (BFF0013-BLK1)

Prepared & Analyzed: 06/01/2022

Kepone	ND	10.0	ug/L							
m+p-Cresols	ND	10.0	ug/L							
Methapyrilene	ND	10.0	ug/L							
Methyl methanesulfonate	ND	10.0	ug/L							
Methyl parathion	ND	2.50	ug/L							
Naphthalene	0.26	0.10	ug/L							B
Nitrobenzene	ND	10.0	ug/L							
n-Nitrosodiethylamine	ND	2.50	ug/L							
n-Nitrosodimethylamine	ND	10.0	ug/L							
n-Nitrosodi-n-butylamine	ND	10.0	ug/L							
n-Nitrosodi-n-propylamine	ND	10.0	ug/L							
n-Nitrosodiphenylamine	ND	10.0	ug/L							
n-Nitrosomethylethylamine	ND	2.50	ug/L							
n-Nitrosopiperidine	ND	10.0	ug/L							
n-Nitrosopyrrolidine	ND	2.50	ug/L							
o,o,o-Triethyl phosphorothioate	ND	10.0	ug/L							
o,o-Diethyl o-2-pyrazinyl phosphorothioate	ND	10.0	ug/L							
o+m+p-Cresols	ND	10.0	ug/L							
o-Cresol	ND	10.0	ug/L							
o-Toluidine	ND	2.50	ug/L							
p-(Dimethylamino) azobenzene	ND	2.50	ug/L							
p-Chloro-m-cresol	ND	10.0	ug/L							
Pentachlorobenzene	ND	10.0	ug/L							
Pentachloronitrobenzene (quintozene)	ND	10.0	ug/L							
Phenacetin	ND	10.0	ug/L							

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Batch BFF0013 - SW3580A-MS

Blank (BFF0013-BLK1)

Prepared & Analyzed: 06/01/2022

Phenanthrene	ND	10.0	ug/L							
Phenol	ND	10.0	ug/L							
Phorate	ND	2.50	ug/L							
p-Phenylenediamine	ND	10.0	ug/L							
Pronamide	ND	10.0	ug/L							
Pyrene	ND	10.0	ug/L							
Safrole	ND	2.50	ug/L							
<i>Surr: 2,4,6-Tribromophenol (Surr)</i>	55.4		ug/L	100		55.4	10-86			
<i>Surr: 2-Fluorobiphenyl (Surr)</i>	33.8		ug/L	50.0		67.5	9-87			
<i>Surr: 2-Fluorophenol (Surr)</i>	45.2		ug/L	100		45.2	10-52			
<i>Surr: Nitrobenzene-d5 (Surr)</i>	34.4		ug/L	50.0		68.9	10-98.5			
<i>Surr: Phenol-d5 (Surr)</i>	31.6		ug/L	100		31.6	5-33			
<i>Surr: p-Terphenyl-d14 (Surr)</i>	40.5		ug/L	50.0		81.0	27-133			

LCS (BFF0013-BS1)

Prepared & Analyzed: 06/01/2022

1,2,4-Trichlorobenzene	17.2	10.0	ug/L	50.0		34.5	22-135			
1,2-Dichlorobenzene	12.3	10.0	ug/L	50.0		24.7	22-115			
1,3-Dichlorobenzene	10.7	10.0	ug/L	50.0		21.5	22-112			L
1,4-Dichlorobenzene	11.7	10.0	ug/L	50.0		23.3	13-112			
2,4,6-Trichlorophenol	26.0	10.0	ug/L	50.0		51.9	11-145			
2,4-Dichlorophenol	28.3	10.0	ug/L	50.0		56.7	11-75			
2,4-Dimethylphenol	23.8	5.00	ug/L	50.0		47.5	11-121			
2,4-Dinitrophenol	31.7	50.0	ug/L	50.0		63.4	11-165			
2,4-Dinitrotoluene	35.6	10.0	ug/L	50.0		71.1	17-155			
2,6-Dinitrotoluene	26.7	10.0	ug/L	50.0		53.4	15-125			

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Semivolatile Organic Compounds by GCMS - Quality Control

Enthalpy Analytical

Analyte	Result	LOQ	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Qual
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Batch BFF0013 - SW3580A-MS

LCS (BFF0013-BS1)

Prepared & Analyzed: 06/01/2022

2-Chloronaphthalene	25.8	10.0	ug/L	50.0		51.5	27-89			
2-Chlorophenol	20.5	10.0	ug/L	50.0		41.1	15-110			
2-Nitrophenol	22.9	10.0	ug/L	50.0		45.8	11-115			
3,3'-Dichlorobenzidine	19.7	10.0	ug/L	50.0		39.4	25-95			
4,6-Dinitro-2-methylphenol	36.0	50.0	ug/L	50.0		72.1	25-130			
4-Bromophenyl phenyl ether	23.7	10.0	ug/L	50.0		47.4	15-110			
4-Chlorophenyl phenyl ether	25.2	10.0	ug/L	50.0		50.4	15-110			
4-Nitrophenol	13.7	50.0	ug/L	50.0		27.4	12-70			
Acenaphthene	27.2	10.0	ug/L	50.0		54.5	18-85			
Acenaphthylene	30.0	10.0	ug/L	50.0		60.1	20-75			
Acetophenone	20.9	20.0	ug/L	50.0		41.8	0-200			
alpha-Terpineol	19.8	2.50	ug/L	50.0		39.6	0-200			
Anthracene	33.3	10.0	ug/L	50.0		66.6	35-95			
Benzo (a) anthracene	40.2	10.0	ug/L	50.0		80.3	25-95			
Benzo (a) pyrene	46.3	10.0	ug/L	50.0		92.7	37-110			
Benzo (b) fluoranthene	49.3	10.0	ug/L	50.0		98.5	25-75			L
Benzo (g,h,i) perylene	16.2	10.0	ug/L	50.0		32.4	25-90			
Benzo (k) fluoranthene	42.8	10.0	ug/L	50.0		85.6	25-95			
bis (2-Chloroethoxy) methane	23.6	10.0	ug/L	50.0		47.1	25-110			
bis (2-Chloroethyl) ether	19.4	10.0	ug/L	50.0		38.8	25-85			
2,2'-Oxybis (1-chloropropane)	20.4	10.0	ug/L	50.0		40.9	25-95			
bis (2-Ethylhexyl) phthalate	46.0	5.00	ug/L	50.0		91.9	30-125			
Butyl benzyl phthalate	45.3	10.0	ug/L	50.0		90.6	30-115			
Carbazole	42.8	2.50	ug/L	50.0		85.5	0-200			
Chrysene	42.6	10.0	ug/L	50.0		85.2	20-90			

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Semivolatile Organic Compounds by GCMS - Quality Control

Enthalpy Analytical

Analyte	Result	LOQ	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Qual
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Batch BFF0013 - SW3580A-MS

LCS (BFF0013-BS1)

Prepared & Analyzed: 06/01/2022

Dibenz (a,h) anthracene	21.5	10.0	ug/L	50.0		43.1	27-125			
Diethyl phthalate	32.9	10.0	ug/L	50.0		65.8	25-120			
Dimethyl phthalate	32.1	10.0	ug/L	50.0		64.3	25-125			
Di-n-butyl phthalate	44.7	10.0	ug/L	50.0		89.4	35-115			
Di-n-octyl phthalate	73.4	10.0	ug/L	50.0		147	25-105			L
Fluoranthene	42.7	10.0	ug/L	50.0		85.3	33-95			
Fluorene	30.3	10.0	ug/L	50.0		60.5	15-97			
Hexachlorobenzene	26.3	1.00	ug/L	50.0		52.6	25-125			
Hexachlorobutadiene	15.4	10.0	ug/L	50.0		30.8	25-125			
Hexachlorocyclopentadiene	10.3	10.0	ug/L	50.0		20.6	25-125			L
Hexachloroethane	9.46	10.0	ug/L	50.0		18.9	25-125			L
Indeno (1,2,3-cd) pyrene	21.8	10.0	ug/L	50.0		43.6	25-125			
Isophorone	16.4	10.0	ug/L	50.0		32.9	10-110			
Naphthalene	19.0	0.10	ug/L	50.0		38.0	12-100			
Nitrobenzene	21.8	10.0	ug/L	50.0		43.5	30-97			
n-Nitrosodimethylamine	11.6	10.0	ug/L	50.0		23.2	10-85			
n-Nitrosodi-n-propylamine	24.8	10.0	ug/L	50.0		49.6	12-97			
n-Nitrosodiphenylamine	23.0	10.0	ug/L	50.0		46.0	12-97			
p-Chloro-m-cresol	28.5	10.0	ug/L	50.0		57.0	10-91			
Pentachlorophenol	28.8	20.0	ug/L	50.0		57.6	30-109			
Phenanthrene	35.8	10.0	ug/L	50.0		71.7	30-88			
Phenol	9.42	10.0	ug/L	50.5		18.7	10-70			
Pyrene	44.5	10.0	ug/L	50.0		89.0	27-110			
Pyridine	18.9	10.0	ug/L	50.0		37.8	0-200			
<i>Surr: 2,4,6-Tribromophenol (Surr)</i>	<i>55.7</i>		ug/L	<i>100</i>		<i>55.7</i>	<i>10-86</i>			

Certificate of Analysis

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Semivolatile Organic Compounds by GCMS - Quality Control

Enthalpy Analytical

Analyte	Result	LOQ	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Qual
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Batch BFF0013 - SW3580A-MS

LCS (BFF0013-BS1)

Prepared & Analyzed: 06/01/2022

<i>Surr: 2-Fluorobiphenyl (Surr)</i>	28.0		ug/L	50.0		56.0	9-87
<i>Surr: 2-Fluorophenol (Surr)</i>	26.7		ug/L	100		26.7	10-52
<i>Surr: Nitrobenzene-d5 (Surr)</i>	24.7		ug/L	50.0		49.4	10-98.5
<i>Surr: Phenol-d5 (Surr)</i>	22.5		ug/L	100		22.5	5-33
<i>Surr: p-Terphenyl-d14 (Surr)</i>	46.9		ug/L	50.0		93.8	27-133

Matrix Spike (BFF0013-MS1)

Source: 22E1463-02

Prepared: 06/01/2022 Analyzed: 06/02/2022

1,2,4-Trichlorobenzene	20.1	10.0	ug/L	46.7	BLOD	43.0	22-65
1,2-Dichlorobenzene	18.0	10.0	ug/L	46.7	BLOD	38.6	22-60
1,3-Dichlorobenzene	16.8	10.0	ug/L	46.7	BLOD	36.0	22-60
1,4-Dichlorobenzene	18.1	10.0	ug/L	46.7	BLOD	38.7	13-60
2,4,6-Trichlorophenol	23.1	10.0	ug/L	46.7	BLOD	49.4	11-75
2,4-Dichlorophenol	25.3	10.0	ug/L	46.7	BLOD	54.1	11-75
2,4-Dimethylphenol	22.0	4.67	ug/L	46.7	BLOD	47.1	11-65
2,4-Dinitrophenol	31.6	50.0	ug/L	46.7	BLOD	67.7	11-110
2,4-Dinitrotoluene	35.6	10.0	ug/L	46.7	BLOD	76.3	17-95
2,6-Dinitrotoluene	28.1	10.0	ug/L	46.7	BLOD	60.2	15-125
2-Chloronaphthalene	25.3	10.0	ug/L	46.7	BLOD	54.1	27-89
2-Chlorophenol	22.8	10.0	ug/L	46.7	BLOD	48.9	19-64
2-Nitrophenol	23.1	10.0	ug/L	46.7	BLOD	49.4	11-75
3,3'-Dichlorobenzidine	14.1	10.0	ug/L	46.7	BLOD	30.2	10-85
4,6-Dinitro-2-methylphenol	32.2	50.0	ug/L	46.7	BLOD	69.0	40-130
4-Bromophenyl phenyl ether	24.5	10.0	ug/L	46.7	BLOD	52.4	15-110
4-Chlorophenyl phenyl ether	26.4	10.0	ug/L	46.7	BLOD	56.5	15-110
4-Nitrophenol	11.8	50.0	ug/L	46.7	BLOD	25.3	12-70

Certificate of Analysis

 Client Name: SCS Engineers-Winchester
 Client Site I.D.: City of Bristol 1st Semi-Annual 2022
 Submitted To: Jennifer Robb

Date Issued: 7/12/2022 2:25:23PM

Semivolatile Organic Compounds by GCMS - Quality Control

Enthalpy Analytical

Analyte	Result	LOQ	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Qual
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Batch BFF0013 - SW3580A-MS

Matrix Spike (BFF0013-MS1)

Source: 22E1463-02

Prepared: 06/01/2022 Analyzed: 06/02/2022

Acenaphthene	27.4	10.0	ug/L	46.7	BLOD	58.6	15-90			
Acenaphthylene	29.9	10.0	ug/L	46.7	BLOD	63.9	15-99			
Acetophenone	20.5	20.0	ug/L	46.7	BLOD	43.9	0-200			
alpha-Terpineol	16.7	2.50	ug/L	46.7	BLOD	35.8	0-200			
Anthracene	34.4	10.0	ug/L	46.7	BLOD	73.7	20-95			
Benzo (a) anthracene	36.4	9.35	ug/L	46.7	BLOD	77.9	25-95			
Benzo (a) pyrene	43.9	9.35	ug/L	46.7	BLOD	94.0	25-82			M
Benzo (b) fluoranthene	44.4	10.0	ug/L	46.7	BLOD	95.0	25-75			M
Benzo (g,h,i) perylene	14.2	10.0	ug/L	46.7	BLOD	30.4	25-90			
Benzo (k) fluoranthene	47.9	10.0	ug/L	46.7	BLOD	102	25-95			M
bis (2-Chloroethoxy) methane	22.1	10.0	ug/L	46.7	BLOD	47.3	25-85			
bis (2-Chloroethyl) ether	22.1	10.0	ug/L	46.7	BLOD	47.3	25-85			
2,2'-Oxybis (1-chloropropane)	21.8	10.0	ug/L	46.7	BLOD	46.7	25-87			
bis (2-Ethylhexyl) phthalate	42.8	5.00	ug/L	46.7	BLOD	91.6	30-125			
Butyl benzyl phthalate	42.3	10.0	ug/L	46.7	BLOD	90.6	30-115			
Carbazole	38.9	2.50	ug/L	46.7	BLOD	83.1	0-200			
Chrysene	38.8	10.0	ug/L	46.7	BLOD	83.0	20-90			
Dibenz (a,h) anthracene	18.9	10.0	ug/L	46.7	BLOD	40.5	27-125			
Diethyl phthalate	33.6	10.0	ug/L	46.7	BLOD	71.9	25-120			
Dimethyl phthalate	33.3	10.0	ug/L	46.7	BLOD	71.3	25-125			
Di-n-butyl phthalate	40.6	10.0	ug/L	46.7	BLOD	87.0	25-115			
Di-n-octyl phthalate	84.0	10.0	ug/L	46.7	BLOD	180	22-105			M
Fluoranthene	38.7	10.0	ug/L	46.7	BLOD	82.9	25-96			
Fluorene	32.6	10.0	ug/L	46.7	BLOD	69.8	15-97			
Hexachlorobenzene	26.0	0.93	ug/L	46.7	BLOD	55.6	25-125			

Certificate of Analysis

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Semivolatile Organic Compounds by GCMS - Quality Control

Enthalpy Analytical

Analyte	Result	LOQ	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Qual
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Batch BFF0013 - SW3580A-MS

Matrix Spike (BFF0013-MS1)

Source: 22E1463-02

Prepared: 06/01/2022 Analyzed: 06/02/2022

Hexachlorobutadiene	19.2	10.0	ug/L	46.7	BLOD	41.0	25-125			
Hexachlorocyclopentadiene	8.53	10.0	ug/L	46.7	BLOD	18.3	10-90			
Hexachloroethane	16.5	10.0	ug/L	46.7	BLOD	35.4	25-125			
Indeno (1,2,3-cd) pyrene	19.1	10.0	ug/L	46.7	BLOD	40.9	25-125			
Isophorone	14.3	10.0	ug/L	46.7	BLOD	30.7	10-110			
Naphthalene	21.3	0.10	ug/L	46.7	0.20	45.1	12-100			
Nitrobenzene	22.5	10.0	ug/L	46.7	BLOD	48.1	27-77			
n-Nitrosodimethylamine	13.9	10.0	ug/L	46.7	BLOD	29.8	10-85			
n-Nitrosodi-n-propylamine	21.8	10.0	ug/L	46.7	BLOD	46.6	12-97			
n-Nitrosodiphenylamine	24.1	10.0	ug/L	46.7	BLOD	51.6	12-97			
p-Chloro-m-cresol	25.6	10.0	ug/L	46.7	BLOD	54.8	10-91			
Pentachlorophenol	25.4	20.0	ug/L	46.7	BLOD	54.4	27-109			
Phenanthrene	38.2	10.0	ug/L	46.7	BLOD	81.8	35-115			
Phenol	8.69	10.0	ug/L	47.2	BLOD	18.4	10-70			
Pyrene	43.1	10.0	ug/L	46.7	BLOD	92.2	23-110			
Pyridine	5.50	10.0	ug/L	46.7	BLOD	11.8	0-200			
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<i>Surr: 2,4,6-Tribromophenol (Surr)</i>	55.4		ug/L	93.5		59.3	10-86			
<i>Surr: 2-Fluorobiphenyl (Surr)</i>	27.7		ug/L	46.7		59.3	9-87			
<i>Surr: 2-Fluorophenol (Surr)</i>	33.1		ug/L	93.5		35.4	10-52			
<i>Surr: Nitrobenzene-d5 (Surr)</i>	26.7		ug/L	46.7		57.1	10-98.5			
<i>Surr: Phenol-d5 (Surr)</i>	22.0		ug/L	93.5		23.5	5-33			
<i>Surr: p-Terphenyl-d14 (Surr)</i>	44.7		ug/L	46.7		95.6	27-133			

Matrix Spike Dup (BFF0013-MSD1)

Source: 22E1463-02

Prepared: 06/01/2022 Analyzed: 06/02/2022

1,2,4-Trichlorobenzene	28.4	10.0	ug/L	46.7	BLOD	60.7	22-65	34.2	20	P
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Semivolatile Organic Compounds by GCMS - Quality Control

Enthalpy Analytical

Analyte	Result	LOQ	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Qual
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Batch BFF0013 - SW3580A-MS

Matrix Spike Dup (BFF0013-MSD1)	Source: 22E1463-02		Prepared: 06/01/2022 Analyzed: 06/02/2022							
1,2-Dichlorobenzene	27.2	10.0	ug/L	46.7	BLOD	58.2	22-60	40.5	20	P
1,3-Dichlorobenzene	25.6	10.0	ug/L	46.7	BLOD	54.8	22-60	41.4	20	P
1,4-Dichlorobenzene	27.3	10.0	ug/L	46.7	BLOD	58.4	13-60	40.6	20	P
2,4,6-Trichlorophenol	31.5	10.0	ug/L	46.7	BLOD	67.3	11-75	30.7	20	P
2,4-Dichlorophenol	36.4	10.0	ug/L	46.7	BLOD	77.9	11-75	36.1	20	M, P
2,4-Dimethylphenol	30.1	4.67	ug/L	46.7	BLOD	64.5	11-65	31.2	20	P
2,4-Dinitrophenol	51.7	50.0	ug/L	46.7	BLOD	111	11-110	48.2	20	M, P
2,4-Dinitrotoluene	47.6	10.0	ug/L	46.7	BLOD	102	17-95	28.8	20	M, P
2,6-Dinitrotoluene	36.4	10.0	ug/L	46.7	BLOD	77.9	15-125	25.6	20	P
2-Chloronaphthalene	37.7	10.0	ug/L	46.7	BLOD	80.6	27-89	39.4	20	P
2-Chlorophenol	33.9	10.0	ug/L	46.7	BLOD	72.4	19-64	38.8	20	M, P
2-Nitrophenol	32.2	10.0	ug/L	46.7	BLOD	68.8	11-75	33.0	20	P
3,3'-Dichlorobenzidine	20.7	10.0	ug/L	46.7	BLOD	44.4	10-85	37.9	20	P
4,6-Dinitro-2-methylphenol	47.4	50.0	ug/L	46.7	BLOD	102	40-130	38.2	20	P
4-Bromophenyl phenyl ether	29.5	10.0	ug/L	46.7	BLOD	63.2	15-110	18.7	20	
4-Chlorophenyl phenyl ether	36.6	10.0	ug/L	46.7	BLOD	78.2	15-110	32.3	20	P
4-Nitrophenol	16.9	50.0	ug/L	46.7	BLOD	36.1	12-70	35.1	20	P
Acenaphthene	38.7	10.0	ug/L	46.7	BLOD	82.9	15-90	34.4	20	P
Acenaphthylene	43.8	10.0	ug/L	46.7	BLOD	93.8	15-99	37.8	20	P
Acetophenone	29.1	20.0	ug/L	46.7	BLOD	62.2	0-200	34.6	20	P
alpha-Terpineol	22.6	2.50	ug/L	46.7	BLOD	48.4	0-200	30.0	20	P
Anthracene	44.9	10.0	ug/L	46.7	BLOD	96.1	20-95	26.4	20	M, P
Benzo (a) anthracene	48.0	9.35	ug/L	46.7	BLOD	103	25-95	27.5	20	M, P
Benzo (a) pyrene	57.3	9.35	ug/L	46.7	BLOD	123	25-82	26.4	20	M, P
Benzo (b) fluoranthene	55.7	10.0	ug/L	46.7	BLOD	119	25-75	22.6	20	M, P

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Semivolatile Organic Compounds by GCMS - Quality Control

Enthalpy Analytical

Analyte	Result	LOQ	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Qual
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Batch BFF0013 - SW3580A-MS

Matrix Spike Dup (BFF0013-MSD1)	Source: 22E1463-02		Prepared: 06/01/2022 Analyzed: 06/02/2022							
Benzo (g,h,i) perylene	20.7	10.0	ug/L	46.7	BLOD	44.2	25-90	37.2	20	P
Benzo (k) fluoranthene	71.2	10.0	ug/L	46.7	BLOD	152	25-95	39.3	20	M, P
bis (2-Chloroethoxy) methane	32.4	10.0	ug/L	46.7	BLOD	69.2	25-85	37.7	20	P
bis (2-Chloroethyl) ether	32.8	10.0	ug/L	46.7	BLOD	70.3	25-85	39.2	20	P
2,2'-Oxybis (1-chloropropane)	33.5	10.0	ug/L	46.7	BLOD	71.7	25-87	42.2	20	P
bis (2-Ethylhexyl) phthalate	51.1	5.00	ug/L	46.7	BLOD	109	30-125	17.7	20	
Butyl benzyl phthalate	51.7	10.0	ug/L	46.7	BLOD	111	30-115	19.9	20	
Carbazole	52.1	2.50	ug/L	46.7	BLOD	112	0-200	29.2	20	P
Chrysene	51.6	10.0	ug/L	46.7	BLOD	110	20-90	28.4	20	M, P
Dibenz (a,h) anthracene	27.6	10.0	ug/L	46.7	BLOD	59.0	27-125	37.3	20	P
Diethyl phthalate	44.1	10.0	ug/L	46.7	BLOD	94.3	25-120	26.9	20	P
Dimethyl phthalate	45.5	10.0	ug/L	46.7	BLOD	97.3	25-125	30.9	20	P
Di-n-butyl phthalate	55.3	10.0	ug/L	46.7	BLOD	118	25-115	30.5	20	M, P
Di-n-octyl phthalate	69.6	10.0	ug/L	46.7	BLOD	149	22-105	18.8	20	M
Fluoranthene	52.7	10.0	ug/L	46.7	BLOD	113	25-96	30.6	20	M, P
Fluorene	44.8	10.0	ug/L	46.7	BLOD	95.9	15-97	31.5	20	P
Hexachlorobenzene	32.1	0.93	ug/L	46.7	BLOD	68.7	25-125	21.2	20	P
Hexachlorobutadiene	27.3	10.0	ug/L	46.7	BLOD	58.4	25-125	35.0	20	P
Hexachlorocyclopentadiene	14.2	10.0	ug/L	46.7	BLOD	30.5	10-90	50.1	20	P
Hexachloroethane	26.0	10.0	ug/L	46.7	BLOD	55.5	25-125	44.4	20	P
Indeno (1,2,3-cd) pyrene	28.0	10.0	ug/L	46.7	BLOD	59.9	25-125	37.7	20	P
Isophorone	22.1	10.0	ug/L	46.7	BLOD	47.3	10-110	42.7	20	P
Naphthalene	31.0	0.10	ug/L	46.7	0.20	66.0	12-100	37.4	20	P
Nitrobenzene	34.1	10.0	ug/L	46.7	BLOD	73.1	27-77	41.3	20	P
n-Nitrosodimethylamine	18.5	10.0	ug/L	46.7	BLOD	39.6	10-85	28.1	20	P

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Semivolatile Organic Compounds by GCMS - Quality Control

Enthalpy Analytical

Analyte	Result	LOQ	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Qual
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Batch BFF0013 - SW3580A-MS

Matrix Spike Dup (BFF0013-MSD1)	Source: 22E1463-02		Prepared: 06/01/2022 Analyzed: 06/02/2022							
n-Nitrosodi-n-propylamine	31.0	10.0	ug/L	46.7	BLOD	66.4	12-97	35.0	20	P
n-Nitrosodiphenylamine	30.0	10.0	ug/L	46.7	BLOD	64.3	12-97	21.9	20	P
p-Chloro-m-cresol	35.9	10.0	ug/L	46.7	BLOD	76.9	10-91	33.6	20	P
Pentachlorophenol	36.1	20.0	ug/L	46.7	BLOD	77.3	27-109	34.8	20	P
Phenanthrene	50.0	10.0	ug/L	46.7	BLOD	107	35-115	26.7	20	P
Phenol	14.5	10.0	ug/L	47.2	BLOD	30.6	10-70	49.8	20	P
Pyrene	51.4	10.0	ug/L	46.7	BLOD	110	23-110	17.5	20	
Pyridine	27.2	10.0	ug/L	46.7	BLOD	58.2	0-200	133	20	P
<i>Surr: 2,4,6-Tribromophenol (Surr)</i>	<i>67.0</i>		ug/L	<i>93.5</i>		<i>71.7</i>	<i>10-86</i>			
<i>Surr: 2-Fluorobiphenyl (Surr)</i>	<i>38.8</i>		ug/L	<i>46.7</i>		<i>82.9</i>	<i>9-87</i>			
<i>Surr: 2-Fluorophenol (Surr)</i>	<i>45.7</i>		ug/L	<i>93.5</i>		<i>48.9</i>	<i>10-52</i>			
<i>Surr: Nitrobenzene-d5 (Surr)</i>	<i>36.8</i>		ug/L	<i>46.7</i>		<i>78.8</i>	<i>10-98.5</i>			
<i>Surr: Phenol-d5 (Surr)</i>	<i>31.7</i>		ug/L	<i>93.5</i>		<i>33.9</i>	<i>5-33</i>			S
<i>Surr: p-Terphenyl-d14 (Surr)</i>	<i>51.6</i>		ug/L	<i>46.7</i>		<i>110</i>	<i>27-133</i>			

Batch BFF0088 - SW3580A-MS

Blank (BFF0088-BLK1)	Prepared: 06/02/2022 Analyzed: 06/03/2022									
1,2,4,5-Tetrachlorobenzene	ND	10.0	ug/L							
1,3,5-Trinitrobenzene	ND	5.00	ug/L							
1,3-Dinitrobenzene	ND	2.50	ug/L							
1,4-Naphthoquinone	ND	10.0	ug/L							
1-Naphthylamine	ND	10.0	ug/L							
2,3,4,6-Tetrachlorophenol	ND	10.0	ug/L							
2,4,5-Trichlorophenol	ND	10.0	ug/L							
2,4,6-Trichlorophenol	ND	10.0	ug/L							

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Semivolatile Organic Compounds by GCMS - Quality Control

Enthalpy Analytical

Analyte	Result	LOQ	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Qual
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Batch BFF0088 - SW3580A-MS

Blank (BFF0088-BLK1)

Prepared: 06/02/2022 Analyzed: 06/03/2022

2,4-Dichlorophenol	ND	10.0	ug/L
2,4-Dimethylphenol	ND	5.00	ug/L
2,4-Dinitrophenol	ND	50.0	ug/L
2,4-Dinitrotoluene	ND	10.0	ug/L
2,6-Dichlorophenol	ND	10.0	ug/L
2,6-Dinitrotoluene	ND	10.0	ug/L
2-Acetylaminofluorene	ND	2.50	ug/L
2-Chloronaphthalene	ND	10.0	ug/L
2-Chlorophenol	ND	10.0	ug/L
2-Methylnaphthalene	ND	10.0	ug/L
2-Naphthylamine	ND	10.0	ug/L
2-Nitroaniline	ND	20.0	ug/L
2-Nitrophenol	ND	10.0	ug/L
3,3'-Dichlorobenzidine	ND	10.0	ug/L
3,3'-Dimethylbenzidine	ND	2.50	ug/L
3-Methylcholanthrene	ND	10.0	ug/L
3-Nitroaniline	ND	20.0	ug/L
4,6-Dinitro-2-methylphenol	ND	50.0	ug/L
4-Aminobiphenyl	ND	10.0	ug/L
4-Bromophenyl phenyl ether	ND	10.0	ug/L
4-Chloroaniline	ND	10.0	ug/L
4-Chlorophenyl phenyl ether	ND	10.0	ug/L
4-Nitroaniline	ND	20.0	ug/L
4-Nitrophenol	ND	50.0	ug/L
5-Nitro-o-toluidine	ND	10.0	ug/L

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Semivolatile Organic Compounds by GCMS - Quality Control

Enthalpy Analytical

Analyte	Result	LOQ	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Qual
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Batch BFF0088 - SW3580A-MS

Blank (BFF0088-BLK1)

Prepared: 06/02/2022 Analyzed: 06/03/2022

7,12-Dimethylbenz (a) anthracene	ND	10.0	ug/L
Acenaphthene	ND	10.0	ug/L
Acenaphthylene	ND	10.0	ug/L
Acetophenone	ND	20.0	ug/L
Anthracene	ND	10.0	ug/L
Benzo (a) anthracene	ND	10.0	ug/L
Benzo (a) pyrene	ND	10.0	ug/L
Benzo (b) fluoranthene	ND	10.0	ug/L
Benzo (g,h,i) perylene	ND	10.0	ug/L
Benzo (k) fluoranthene	ND	10.0	ug/L
Benzyl alcohol	ND	20.0	ug/L
bis (2-Chloroethoxy) methane	ND	10.0	ug/L
bis (2-Chloroethyl) ether	ND	10.0	ug/L
2,2'-Oxybis (1-chloropropane)	ND	10.0	ug/L
bis (2-Ethylhexyl) phthalate	ND	5.00	ug/L
Butyl benzyl phthalate	ND	10.0	ug/L
Chlorobenzilate	ND	2.50	ug/L
Chrysene	ND	10.0	ug/L
Diallate	ND	2.50	ug/L
Dibenz (a,h) anthracene	ND	10.0	ug/L
Dibenzofuran	ND	5.00	ug/L
Diethyl phthalate	ND	10.0	ug/L
Dimethoate	ND	2.50	ug/L
Dimethyl phthalate	ND	10.0	ug/L
Di-n-butyl phthalate	ND	10.0	ug/L

Certificate of Analysis

Client Name: SCS Engineers-Winchester
 Client Site I.D.: City of Bristol 1st Semi-Annual 2022
 Submitted To: Jennifer Robb

Date Issued: 7/12/2022 2:25:23PM

Semivolatile Organic Compounds by GCMS - Quality Control

Enthalpy Analytical

Analyte	Result	LOQ	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Qual
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Batch BFF0088 - SW3580A-MS

Blank (BFF0088-BLK1)

Prepared: 06/02/2022 Analyzed: 06/03/2022

Di-n-octyl phthalate	ND	10.0	ug/L
Diphenylamine	ND	10.0	ug/L
Disulfoton	ND	2.50	ug/L
Ethyl methanesulfonate	ND	20.0	ug/L
Ethyl parathion	ND	2.50	ug/L
Famphur	ND	2.50	ug/L
Fluoranthene	ND	10.0	ug/L
Fluorene	ND	10.0	ug/L
Hexachlorobenzene	ND	1.00	ug/L
Hexachlorobutadiene	ND	10.0	ug/L
Hexachlorocyclopentadiene	ND	10.0	ug/L
Hexachloroethane	ND	10.0	ug/L
Hexachloropropene	ND	2.50	ug/L
Indeno (1,2,3-cd) pyrene	ND	10.0	ug/L
Isodrin	ND	10.0	ug/L
Isophorone	ND	10.0	ug/L
Isosafrole	ND	10.0	ug/L
Kepone	ND	10.0	ug/L
m+p-Cresols	ND	10.0	ug/L
Methapyrilene	ND	10.0	ug/L
Methyl methanesulfonate	ND	10.0	ug/L
Methyl parathion	ND	2.50	ug/L
Naphthalene	0.28	0.10	ug/L
Nitrobenzene	ND	10.0	ug/L
n-Nitrosodiethylamine	ND	2.50	ug/L

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Certificate of Analysis

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Semivolatile Organic Compounds by GCMS - Quality Control

Enthalpy Analytical

Analyte	Result	LOQ	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Qual
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Batch BFF0088 - SW3580A-MS

Blank (BFF0088-BLK1)

Prepared: 06/02/2022 Analyzed: 06/03/2022

n-Nitrosodimethylamine	ND	10.0	ug/L							
n-Nitrosodi-n-butylamine	ND	10.0	ug/L							
n-Nitrosodi-n-propylamine	ND	10.0	ug/L							
n-Nitrosodiphenylamine	ND	10.0	ug/L							
n-Nitrosomethylethylamine	ND	2.50	ug/L							
n-Nitrosopiperidine	ND	10.0	ug/L							
n-Nitrosopyrrolidine	ND	2.50	ug/L							
o,o,o-Triethyl phosphorothioate	ND	10.0	ug/L							
o,o-Diethyl o-2-pyrazinyl phosphorothioate	ND	10.0	ug/L							
o+m+p-Cresols	ND	10.0	ug/L							
o-Cresol	ND	10.0	ug/L							
o-Toluidine	ND	2.50	ug/L							
p-(Dimethylamino) azobenzene	ND	2.50	ug/L							
p-Chloro-m-cresol	ND	10.0	ug/L							
Pentachlorobenzene	ND	10.0	ug/L							
Pentachloronitrobenzene (quintozene)	ND	10.0	ug/L							
Phenacetin	ND	10.0	ug/L							
Phenanthrene	ND	10.0	ug/L							
Phenol	ND	10.0	ug/L							
Phorate	ND	2.50	ug/L							
p-Phenylenediamine	ND	10.0	ug/L							
Pronamide	ND	10.0	ug/L							
Pyrene	ND	10.0	ug/L							
Safrole	ND	2.50	ug/L							
<i>Surr: 2,4,6-Tribromophenol (Surr)</i>	49.8		ug/L	100		49.8	10-86			

Certificate of Analysis

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Semivolatile Organic Compounds by GCMS - Quality Control

Enthalpy Analytical

Analyte	Result	LOQ	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Qual
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Batch BFF0088 - SW3580A-MS

Blank (BFF0088-BLK1)

Prepared: 06/02/2022 Analyzed: 06/03/2022

<i>Surr: 2-Fluorobiphenyl (Surr)</i>	38.6		ug/L	50.0		77.1	9-87			
<i>Surr: 2-Fluorophenol (Surr)</i>	38.8		ug/L	100		38.8	10-52			
<i>Surr: Nitrobenzene-d5 (Surr)</i>	37.4		ug/L	50.0		74.7	10-98.5			
<i>Surr: Phenol-d5 (Surr)</i>	29.9		ug/L	100		29.9	5-33			
<i>Surr: p-Terphenyl-d14 (Surr)</i>	38.5		ug/L	50.0		76.9	27-133			

LCS (BFF0088-BS1)

Prepared: 06/02/2022 Analyzed: 06/03/2022

1,2,4-Trichlorobenzene	13.2	10.0	ug/L	50.0		26.5	22-135			
1,2-Dichlorobenzene	12.2	10.0	ug/L	50.0		24.4	22-115			
1,3-Dichlorobenzene	11.7	10.0	ug/L	50.0		23.3	22-112			
1,4-Dichlorobenzene	12.4	10.0	ug/L	50.0		24.7	13-112			
2,4,6-Trichlorophenol	17.4	10.0	ug/L	50.0		34.9	11-145			
2,4-Dichlorophenol	17.0	10.0	ug/L	50.0		34.0	11-75			
2,4-Dimethylphenol	14.4	5.00	ug/L	50.0		28.8	11-121			
2,4-Dinitrophenol	26.8	50.0	ug/L	50.0		53.6	11-165			
2,4-Dinitrotoluene	27.5	10.0	ug/L	50.0		55.1	17-155			
2,6-Dinitrotoluene	19.0	10.0	ug/L	50.0		38.1	15-125			
2-Chloronaphthalene	17.0	10.0	ug/L	50.0		33.9	27-89			
2-Chlorophenol	15.7	10.0	ug/L	50.0		31.4	15-110			
2-Nitrophenol	15.9	10.0	ug/L	50.0		31.7	11-115			
3,3'-Dichlorobenzidine	13.5	10.0	ug/L	50.0		27.0	25-95			
4,6-Dinitro-2-methylphenol	28.9	50.0	ug/L	50.0		57.8	25-130			
4-Bromophenyl phenyl ether	18.4	10.0	ug/L	50.0		36.8	15-110			
4-Chlorophenyl phenyl ether	18.0	10.0	ug/L	50.0		36.0	15-110			
4-Nitrophenol	9.83	50.0	ug/L	50.0		19.7	12-70			

Certificate of Analysis

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Semivolatile Organic Compounds by GCMS - Quality Control

Enthalpy Analytical

Analyte	Result	LOQ	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Qual
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Batch BFF0088 - SW3580A-MS

LCS (BFF0088-BS1)

Prepared: 06/02/2022 Analyzed: 06/03/2022

Acenaphthene	17.8	10.0	ug/L	50.0		35.6	18-85			
Acenaphthylene	19.2	10.0	ug/L	50.0		38.5	20-75			
Acetophenone	16.4	20.0	ug/L	50.0		32.9	0-200			
alpha-Terpineol	16.0	2.50	ug/L	50.0		32.1	0-200			
Anthracene	24.7	10.0	ug/L	50.0		49.4	35-95			
Benzo (a) anthracene	35.6	10.0	ug/L	50.0		71.2	25-95			
Benzo (a) pyrene	46.0	10.0	ug/L	50.0		91.9	37-110			
Benzo (b) fluoranthene	44.1	10.0	ug/L	50.0		88.2	25-75			L
Benzo (g,h,i) perylene	39.4	10.0	ug/L	50.0		78.8	25-90			
Benzo (k) fluoranthene	41.2	10.0	ug/L	50.0		82.5	25-95			
bis (2-Chloroethoxy) methane	16.8	10.0	ug/L	50.0		33.5	25-110			
bis (2-Chloroethyl) ether	16.4	10.0	ug/L	50.0		32.8	25-85			
2,2'-Oxybis (1-chloropropane)	14.9	10.0	ug/L	50.0		29.7	25-95			
bis (2-Ethylhexyl) phthalate	41.7	5.00	ug/L	50.0		83.3	30-125			
Butyl benzyl phthalate	38.6	10.0	ug/L	50.0		77.3	30-115			
Carbazole	34.3	2.50	ug/L	50.0		68.7	0-200			
Chrysene	41.2	10.0	ug/L	50.0		82.3	20-90			
Dibenz (a,h) anthracene	40.5	10.0	ug/L	50.0		80.9	27-125			
Diethyl phthalate	27.4	10.0	ug/L	50.0		54.7	25-120			
Dimethyl phthalate	22.0	10.0	ug/L	50.0		43.9	25-125			
Di-n-butyl phthalate	43.3	10.0	ug/L	50.0		86.6	35-115			
Di-n-octyl phthalate	55.5	10.0	ug/L	50.0		111	25-105			L
Fluoranthene	38.1	10.0	ug/L	50.0		76.2	33-95			
Fluorene	21.5	10.0	ug/L	50.0		43.0	15-97			
Hexachlorobenzene	22.4	1.00	ug/L	50.0		44.8	25-125			

Certificate of Analysis

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Semivolatile Organic Compounds by GCMS - Quality Control

Enthalpy Analytical

Analyte	Result	LOQ	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Qual
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Batch BFF0088 - SW3580A-MS

LCS (BFF0088-BS1)

Prepared: 06/02/2022 Analyzed: 06/03/2022

Hexachlorobutadiene	13.5	10.0	ug/L	50.0		27.0	25-125			
Hexachlorocyclopentadiene	ND	10.0	ug/L	50.0			25-125			L
Hexachloroethane	12.2	10.0	ug/L	50.0		24.3	25-125			L
Indeno (1,2,3-cd) pyrene	42.0	10.0	ug/L	50.0		84.0	25-125			
Isophorone	9.44	10.0	ug/L	50.0		18.9	10-110			
Naphthalene	15.2	0.10	ug/L	50.0		30.5	12-100			
Nitrobenzene	17.8	10.0	ug/L	50.0		35.6	30-97			
n-Nitrosodimethylamine	10.6	10.0	ug/L	50.0		21.1	10-85			
n-Nitrosodi-n-propylamine	19.1	10.0	ug/L	50.0		38.1	12-97			
n-Nitrosodiphenylamine	18.4	10.0	ug/L	50.0		36.8	12-97			
p-Chloro-m-cresol	17.6	10.0	ug/L	50.0		35.3	10-91			
Pentachlorophenol	20.2	20.0	ug/L	50.0		40.5	30-109			
Phenanthrene	31.2	10.0	ug/L	50.0		62.3	30-88			
Phenol	5.34	10.0	ug/L	50.5		10.6	10-70			
Pyrene	41.7	10.0	ug/L	50.0		83.4	27-110			
Pyridine	5.10	10.0	ug/L	50.0		10.2	0-200			
<hr/>										
<i>Surr: 2,4,6-Tribromophenol (Surr)</i>	38.1		ug/L	100		38.1	10-86			
<i>Surr: 2-Fluorobiphenyl (Surr)</i>	17.8		ug/L	50.0		35.5	9-87			
<i>Surr: 2-Fluorophenol (Surr)</i>	19.8		ug/L	100		19.8	10-52			
<i>Surr: Nitrobenzene-d5 (Surr)</i>	18.9		ug/L	50.0		37.8	10-98.5			
<i>Surr: Phenol-d5 (Surr)</i>	13.8		ug/L	100		13.8	5-33			
<i>Surr: p-Terphenyl-d14 (Surr)</i>	37.4		ug/L	50.0		74.9	27-133			

Matrix Spike (BFF0088-MS1)

Source: 22F0103-05

Prepared & Analyzed: 06/03/2022

1,2,4-Trichlorobenzene	45.1	10.0	ug/L	48.5	BLOD	92.8	22-65			M
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Certificate of Analysis

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Semivolatile Organic Compounds by GCMS - Quality Control

Enthalpy Analytical

Analyte	Result	LOQ	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Qual
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Batch BFF0088 - SW3580A-MS

Matrix Spike (BFF0088-MS1)

Source: 22F0103-05

Prepared & Analyzed: 06/03/2022

1,2-Dichlorobenzene	33.2	10.0	ug/L	48.5	BLOD	68.3	22-60			M
1,3-Dichlorobenzene	30.8	10.0	ug/L	48.5	BLOD	63.4	22-60			M
1,4-Dichlorobenzene	31.9	10.0	ug/L	48.5	BLOD	65.8	13-60			M
2,4,6-Trichlorophenol	38.8	10.0	ug/L	48.5	BLOD	79.8	11-75			M
2,4-Dichlorophenol	49.6	10.0	ug/L	48.5	BLOD	102	11-75			M
2,4-Dimethylphenol	39.9	4.85	ug/L	48.5	BLOD	82.1	11-65			M
2,4-Dinitrophenol	63.9	50.0	ug/L	48.5	BLOD	132	11-110			M
2,4-Dinitrotoluene	50.3	10.0	ug/L	48.5	BLOD	104	17-95			M
2,6-Dinitrotoluene	43.4	10.0	ug/L	48.5	BLOD	89.4	15-125			
2-Chloronaphthalene	38.3	10.0	ug/L	48.5	BLOD	78.8	27-89			
2-Chlorophenol	38.5	10.0	ug/L	48.5	BLOD	79.3	19-64			M
2-Nitrophenol	45.3	10.0	ug/L	48.5	BLOD	93.2	11-75			M
3,3'-Dichlorobenzidine	28.8	10.0	ug/L	48.5	BLOD	59.3	10-85			
4,6-Dinitro-2-methylphenol	60.3	50.0	ug/L	48.5	BLOD	124	40-130			
4-Bromophenyl phenyl ether	41.1	10.0	ug/L	48.5	BLOD	84.6	15-110			
4-Chlorophenyl phenyl ether	42.0	10.0	ug/L	48.5	BLOD	86.6	15-110			
4-Nitrophenol	24.2	50.0	ug/L	48.5	BLOD	49.9	12-70			
Acenaphthene	38.0	10.0	ug/L	48.5	BLOD	78.2	15-90			
Acenaphthylene	36.0	10.0	ug/L	48.5	BLOD	74.2	15-99			
Acetophenone	40.2	20.0	ug/L	48.5	BLOD	82.8	0-200			
alpha-Terpineol	30.2	2.50	ug/L	48.5	BLOD	62.3	0-200			
Anthracene	38.1	10.0	ug/L	48.5	BLOD	78.4	20-95			
Benzo (a) anthracene	43.9	9.71	ug/L	48.5	BLOD	90.4	25-95			
Benzo (a) pyrene	41.8	9.71	ug/L	48.5	BLOD	86.2	25-82			M
Benzo (b) fluoranthene	46.3	10.0	ug/L	48.5	BLOD	95.4	25-75			M

Certificate of Analysis

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Semivolatile Organic Compounds by GCMS - Quality Control

Enthalpy Analytical

Analyte	Result	LOQ	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Qual
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Batch BFF0088 - SW3580A-MS

Matrix Spike (BFF0088-MS1)

Source: 22F0103-05

Prepared & Analyzed: 06/03/2022

Benzo (g,h,i) perylene	31.1	10.0	ug/L	48.5	BLOD	64.1	25-90			
Benzo (k) fluoranthene	46.1	10.0	ug/L	48.5	BLOD	94.9	25-95			
bis (2-Chloroethoxy) methane	44.2	10.0	ug/L	48.5	BLOD	91.0	25-85			M
bis (2-Chloroethyl) ether	39.1	10.0	ug/L	48.5	BLOD	80.6	25-85			
2,2'-Oxybis (1-chloropropane)	39.1	10.0	ug/L	48.5	BLOD	80.6	25-87			
bis (2-Ethylhexyl) phthalate	41.7	5.00	ug/L	48.5	BLOD	85.9	30-125			
Butyl benzyl phthalate	38.8	10.0	ug/L	48.5	BLOD	80.0	30-115			
Carbazole	42.3	2.50	ug/L	48.5	BLOD	87.1	0-200			
Chrysene	43.0	10.0	ug/L	48.5	BLOD	88.7	20-90			
Dibenz (a,h) anthracene	39.8	10.0	ug/L	48.5	BLOD	82.1	27-125			
Diethyl phthalate	39.5	10.0	ug/L	48.5	BLOD	81.3	25-120			
Dimethyl phthalate	42.3	10.0	ug/L	48.5	BLOD	87.0	25-125			
Di-n-butyl phthalate	39.9	10.0	ug/L	48.5	BLOD	82.1	25-115			
Di-n-octyl phthalate	41.5	10.0	ug/L	48.5	BLOD	85.5	22-105			
Fluoranthene	48.9	10.0	ug/L	48.5	BLOD	101	25-96			M
Fluorene	39.1	10.0	ug/L	48.5	BLOD	80.6	15-97			
Hexachlorobenzene	39.6	0.97	ug/L	48.5	BLOD	81.6	25-125			
Hexachlorobutadiene	57.9	10.0	ug/L	48.5	BLOD	119	25-125			
Hexachlorocyclopentadiene	25.5	10.0	ug/L	48.5	BLOD	52.5	10-90			
Hexachloroethane	42.9	10.0	ug/L	48.5	BLOD	88.4	25-125			
Indeno (1,2,3-cd) pyrene	37.3	10.0	ug/L	48.5	BLOD	76.9	25-125			
Isophorone	30.1	10.0	ug/L	48.5	BLOD	62.0	10-110			
Naphthalene	37.4	0.10	ug/L	48.5	0.28	76.5	12-100			
Nitrobenzene	56.4	10.0	ug/L	48.5	BLOD	116	27-77			M
n-Nitrosodimethylamine	23.3	10.0	ug/L	48.5	BLOD	48.1	10-85			

Certificate of Analysis

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Semivolatile Organic Compounds by GCMS - Quality Control

Enthalpy Analytical

Analyte	Result	LOQ	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Qual
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Batch BFF0088 - SW3580A-MS

Matrix Spike (BFF0088-MS1)

Source: 22F0103-05

Prepared & Analyzed: 06/03/2022

n-Nitrosodi-n-propylamine	39.3	10.0	ug/L	48.5	BLOD	80.9	12-97			
n-Nitrosodiphenylamine	32.5	10.0	ug/L	48.5	BLOD	66.9	12-97			
p-Chloro-m-cresol	53.5	10.0	ug/L	48.5	BLOD	110	10-91			M
Pentachlorophenol	36.2	20.0	ug/L	48.5	BLOD	74.6	27-109			
Phenanthrene	41.8	10.0	ug/L	48.5	BLOD	86.1	35-115			
Phenol	17.8	10.0	ug/L	49.0	BLOD	36.3	10-70			
Pyrene	39.5	10.0	ug/L	48.5	BLOD	81.4	23-110			
Pyridine	35.9	10.0	ug/L	48.5	BLOD	73.9	0-200			
<i>Surr: 2,4,6-Tribromophenol (Surr)</i>	73.8		ug/L	97.1		76.0	10-86			
<i>Surr: 2-Fluorobiphenyl (Surr)</i>	40.1		ug/L	48.5		82.6	9-87			
<i>Surr: 2-Fluorophenol (Surr)</i>	45.3		ug/L	97.1		46.7	10-52			
<i>Surr: Nitrobenzene-d5 (Surr)</i>	49.3		ug/L	48.5		101	10-98.5			M
<i>Surr: Phenol-d5 (Surr)</i>	33.0		ug/L	97.1		34.0	5-33			M
<i>Surr: p-Terphenyl-d14 (Surr)</i>	37.6		ug/L	48.5		77.5	27-133			

Matrix Spike Dup (BFF0088-MSD1)

Source: 22F0103-05

Prepared: 06/03/2022 Analyzed: 06/04/2022

1,2,4-Trichlorobenzene	42.4	10.0	ug/L	48.5	BLOD	87.4	22-65	6.06	20	M
1,2-Dichlorobenzene	30.8	10.0	ug/L	48.5	BLOD	63.5	22-60	7.41	20	M
1,3-Dichlorobenzene	28.9	10.0	ug/L	48.5	BLOD	59.6	22-60	6.11	20	
1,4-Dichlorobenzene	29.9	10.0	ug/L	48.5	BLOD	61.5	13-60	6.73	20	M
2,4,6-Trichlorophenol	37.7	10.0	ug/L	48.5	BLOD	77.6	11-75	2.87	20	M
2,4-Dichlorophenol	48.0	10.0	ug/L	48.5	BLOD	98.8	11-75	3.26	20	M
2,4-Dimethylphenol	38.6	4.85	ug/L	48.5	BLOD	79.6	11-65	3.14	20	M
2,4-Dinitrophenol	69.1	50.0	ug/L	48.5	BLOD	142	11-110	7.84	20	M
2,4-Dinitrotoluene	48.9	10.0	ug/L	48.5	BLOD	101	17-95	2.70	20	M

Certificate of Analysis

Client Name: SCS Engineers-Winchester
 Client Site I.D.: City of Bristol 1st Semi-Annual 2022
 Submitted To: Jennifer Robb

Date Issued: 7/12/2022 2:25:23PM

Semivolatile Organic Compounds by GCMS - Quality Control

Enthalpy Analytical

Analyte	Result	LOQ	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Qual
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Batch BFF0088 - SW3580A-MS

Matrix Spike Dup (BFF0088-MSD1)	Source: 22F0103-05			Prepared: 06/03/2022 Analyzed: 06/04/2022						
2,6-Dinitrotoluene	41.0	10.0	ug/L	48.5	BLOD	84.4	15-125	5.73	20	
2-Chloronaphthalene	36.0	10.0	ug/L	48.5	BLOD	74.1	27-89	6.20	20	
2-Chlorophenol	36.2	10.0	ug/L	48.5	BLOD	74.7	19-64	5.98	20	M
2-Nitrophenol	44.0	10.0	ug/L	48.5	BLOD	90.7	11-75	2.74	20	M
3,3'-Dichlorobenzidine	28.0	10.0	ug/L	48.5	BLOD	57.7	10-85	2.67	20	
4,6-Dinitro-2-methylphenol	57.7	50.0	ug/L	48.5	BLOD	119	40-130	4.46	20	
4-Bromophenyl phenyl ether	38.9	10.0	ug/L	48.5	BLOD	80.1	15-110	5.51	20	
4-Chlorophenyl phenyl ether	39.7	10.0	ug/L	48.5	BLOD	81.7	15-110	5.77	20	
4-Nitrophenol	23.3	50.0	ug/L	48.5	BLOD	47.9	12-70	4.13	20	
Acenaphthene	36.0	10.0	ug/L	48.5	BLOD	74.2	15-90	5.25	20	
Acenaphthylene	33.9	10.0	ug/L	48.5	BLOD	69.8	15-99	6.11	20	
Acetophenone	38.1	20.0	ug/L	48.5	BLOD	78.6	0-200	5.23	20	
alpha-Terpineol	29.2	2.50	ug/L	48.5	BLOD	60.1	0-200	3.63	20	
Anthracene	36.0	10.0	ug/L	48.5	BLOD	74.1	20-95	5.74	20	
Benzo (a) anthracene	42.9	9.71	ug/L	48.5	BLOD	88.4	25-95	2.28	20	
Benzo (a) pyrene	41.9	9.71	ug/L	48.5	BLOD	86.4	25-82	0.209	20	M
Benzo (b) fluoranthene	43.1	10.0	ug/L	48.5	BLOD	88.9	25-75	7.03	20	M
Benzo (g,h,i) perylene	33.9	10.0	ug/L	48.5	BLOD	69.9	25-90	8.60	20	
Benzo (k) fluoranthene	43.6	10.0	ug/L	48.5	BLOD	89.7	25-95	5.59	20	
bis (2-Chloroethoxy) methane	41.2	10.0	ug/L	48.5	BLOD	84.9	25-85	6.94	20	
bis (2-Chloroethyl) ether	36.4	10.0	ug/L	48.5	BLOD	75.1	25-85	7.07	20	
2,2'-Oxybis (1-chloropropane)	35.2	10.0	ug/L	48.5	BLOD	72.5	25-87	10.7	20	
bis (2-Ethylhexyl) phthalate	43.4	5.00	ug/L	48.5	BLOD	89.4	30-125	4.01	20	
Butyl benzyl phthalate	40.2	10.0	ug/L	48.5	BLOD	82.8	30-115	3.44	20	
Carbazole	39.2	2.50	ug/L	48.5	BLOD	80.7	0-200	7.58	20	

Certificate of Analysis

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Semivolatile Organic Compounds by GCMS - Quality Control

Enthalpy Analytical

Analyte	Result	LOQ	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Qual
Batch BFF0088 - SW3580A-MS										
Matrix Spike Dup (BFF0088-MSD1)	Source: 22F0103-05			Prepared: 06/03/2022 Analyzed: 06/04/2022						
Chrysene	42.8	10.0	ug/L	48.5	BLOD	88.1	20-90	0.611	20	
Dibenz (a,h) anthracene	42.4	10.0	ug/L	48.5	BLOD	87.4	27-125	6.30	20	
Diethyl phthalate	38.5	10.0	ug/L	48.5	BLOD	79.3	25-120	2.57	20	
Dimethyl phthalate	39.8	10.0	ug/L	48.5	BLOD	82.1	25-125	5.87	20	
Di-n-butyl phthalate	37.5	10.0	ug/L	48.5	BLOD	77.2	25-115	6.20	20	
Di-n-octyl phthalate	41.5	10.0	ug/L	48.5	BLOD	85.6	22-105	0.0702	20	
Fluoranthene	47.4	10.0	ug/L	48.5	BLOD	97.7	25-96	3.00	20	M
Fluorene	36.5	10.0	ug/L	48.5	BLOD	75.2	15-97	6.93	20	
Hexachlorobenzene	37.7	0.97	ug/L	48.5	BLOD	77.6	25-125	5.05	20	
Hexachlorobutadiene	55.3	10.0	ug/L	48.5	BLOD	114	25-125	4.53	20	
Hexachlorocyclopentadiene	24.8	10.0	ug/L	48.5	BLOD	51.2	10-90	2.62	20	
Hexachloroethane	41.9	10.0	ug/L	48.5	BLOD	86.3	25-125	2.34	20	
Indeno (1,2,3-cd) pyrene	40.4	10.0	ug/L	48.5	BLOD	83.2	25-125	7.97	20	
Isophorone	27.8	10.0	ug/L	48.5	BLOD	57.3	10-110	7.81	20	
Naphthalene	34.6	0.10	ug/L	48.5	0.28	70.6	12-100	7.95	20	
Nitrobenzene	52.8	10.0	ug/L	48.5	BLOD	109	27-77	6.72	20	M
n-Nitrosodimethylamine	24.3	10.0	ug/L	48.5	BLOD	50.0	10-85	4.04	20	
n-Nitrosodi-n-propylamine	37.3	10.0	ug/L	48.5	BLOD	76.9	12-97	5.02	20	
n-Nitrosodiphenylamine	30.4	10.0	ug/L	48.5	BLOD	62.7	12-97	6.48	20	
p-Chloro-m-cresol	50.2	10.0	ug/L	48.5	BLOD	104	10-91	6.29	20	M
Pentachlorophenol	33.1	20.0	ug/L	48.5	BLOD	68.2	27-109	9.02	20	
Phenanthrene	38.0	10.0	ug/L	48.5	BLOD	78.4	35-115	9.44	20	
Phenol	16.4	10.0	ug/L	49.0	BLOD	33.4	10-70	8.25	20	
Pyrene	43.1	10.0	ug/L	48.5	BLOD	88.8	23-110	8.72	20	
Pyridine	32.4	10.0	ug/L	48.5	BLOD	66.8	0-200	10.1	20	

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Semivolatile Organic Compounds by GCMS - Quality Control

Enthalpy Analytical

Analyte	Result	LOQ	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Qual
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Batch BFF0088 - SW3580A-MS

Matrix Spike Dup (BFF0088-MSD1) **Source: 22F0103-05** Prepared: 06/03/2022 Analyzed: 06/04/2022

<i>Surr: 2,4,6-Tribromophenol (Surr)</i>	64.2		ug/L	97.1		66.1	10-86
<i>Surr: 2-Fluorobiphenyl (Surr)</i>	36.9		ug/L	48.5		76.0	9-87
<i>Surr: 2-Fluorophenol (Surr)</i>	45.0		ug/L	97.1		46.3	10-52
<i>Surr: Nitrobenzene-d5 (Surr)</i>	42.8		ug/L	48.5		88.2	10-98.5
<i>Surr: Phenol-d5 (Surr)</i>	29.0		ug/L	97.1		29.9	5-33
<i>Surr: p-Terphenyl-d14 (Surr)</i>	38.7		ug/L	48.5		79.8	27-133

Certificate of Analysis

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Organochlorine Pesticides and PCBs by GC/ECD - Quality Control

Enthalpy Analytical

Analyte	Result	LOQ	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Qual
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Batch BFE1147 - SW3510C/EPA600-ECD

Blank (BFE1147-BLK1)

Prepared: 05/31/2022 Analyzed: 06/01/2022

4,4'-DDD	ND	0.050	ug/L
PCB as Aroclor 1016	ND	0.200	ug/L
PCB as Aroclor 1221	ND	0.200	ug/L
4,4'-DDE	ND	0.050	ug/L
PCB as Aroclor 1232	ND	0.200	ug/L
PCB as Aroclor 1242	ND	0.200	ug/L
4,4'-DDT	ND	0.050	ug/L
PCB as Aroclor 1248	ND	0.200	ug/L
PCB as Aroclor 1254	ND	0.200	ug/L
Aldrin	ND	0.050	ug/L
PCB as Aroclor 1260	ND	0.200	ug/L
alpha-BHC	ND	0.050	ug/L
alpha-Chlordane	ND	0.050	ug/L
beta-BHC	ND	0.050	ug/L
Chlordane	ND	0.200	ug/L
delta-BHC	ND	0.050	ug/L
Dieldrin	ND	0.050	ug/L
Endosulfan I	ND	0.050	ug/L
Endosulfan II	ND	0.050	ug/L
Endosulfan sulfate	ND	0.050	ug/L
Endrin	ND	0.050	ug/L
Endrin aldehyde	ND	0.050	ug/L
Endrin ketone	ND	0.050	ug/L
gamma-BHC (Lindane)	ND	0.050	ug/L
gamma-Chlordane	ND	0.050	ug/L

Certificate of Analysis

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Organochlorine Pesticides and PCBs by GC/ECD - Quality Control

Enthalpy Analytical

Analyte	Result	LOQ	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Qual
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Batch BFE1147 - SW3510C/EPA600-ECD

Blank (BFE1147-BLK1)

Prepared: 05/31/2022 Analyzed: 06/01/2022

Heptachlor	ND	0.050	ug/L							
Heptachlor epoxide	ND	0.050	ug/L							
Methoxychlor	ND	0.050	ug/L							
Toxaphene	ND	1.00	ug/L							
<i>Surr: DCB</i>	<i>0.158</i>		ug/L	<i>0.200</i>		<i>79.2</i>	<i>30-105</i>			
<i>Surr: TCMX</i>	<i>0.117</i>		ug/L	<i>0.200</i>		<i>58.5</i>	<i>18-112</i>			
<i>Surr: TCMX</i>	<i>0.126</i>		ug/L	<i>0.200</i>		<i>63.2</i>	<i>30-105</i>			
<i>Surr: DCB</i>	<i>0.154</i>		ug/L	<i>0.200</i>		<i>76.9</i>	<i>27-131</i>			

LCS (BFE1147-BS1)

Prepared: 05/31/2022 Analyzed: 06/01/2022

4,4'-DDD	0.108	0.050	ug/L	0.100		108	23-134			
4,4'-DDE	0.096	0.050	ug/L	0.100		96.5	23-134			
4,4'-DDT	0.101	0.050	ug/L	0.100		101	23-134			
Aldrin	0.061	0.050	ug/L	0.100		61.4	23-134			
alpha-BHC	0.070	0.050	ug/L	0.100		69.8	23-134			
beta-BHC	0.068	0.050	ug/L	0.100		68.2	23-134			
delta-BHC	0.080	0.050	ug/L	0.100		79.9	23-134			
Dieldrin	0.091	0.050	ug/L	0.100		90.7	23-134			
Endosulfan I	0.085	0.050	ug/L	0.100		85.0	23-134			
Endosulfan II	0.097	0.050	ug/L	0.100		96.9	23-134			
Endosulfan sulfate	0.103	0.050	ug/L	0.100		103	23-134			
Endrin	0.100	0.050	ug/L	0.100		100	23-134			
Endrin aldehyde	0.107	0.050	ug/L	0.100		107	23-134			
gamma-BHC (Lindane)	0.069	0.050	ug/L	0.100		69.5	23-134			
Heptachlor	0.071	0.050	ug/L	0.100		71.3	23-134			

Certificate of Analysis

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Organochlorine Pesticides and PCBs by GC/ECD - Quality Control

Enthalpy Analytical

Analyte	Result	LOQ	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Qual
Batch BFE1147 - SW3510C/EPA600-ECD										
LCS (BFE1147-BS1) Prepared: 05/31/2022 Analyzed: 06/01/2022										
Heptachlor epoxide	0.090	0.050	ug/L	0.100		90.4	23-134			
Methoxychlor	0.111	0.050	ug/L	0.100		111	23-134			
Mirex	0.104	0.050	ug/L	0.100		104	23-134			
<i>Surr: TCMX</i>	<i>0.0998</i>		ug/L	<i>0.200</i>		<i>49.9</i>	<i>18-112</i>			
<i>Surr: DCB</i>	<i>0.222</i>		ug/L	<i>0.200</i>		<i>111</i>	<i>27-131</i>			
LCS (BFE1147-BS2) Prepared: 05/31/2022 Analyzed: 06/01/2022										
PCB as Aroclor 1016	0.831	0.200	ug/L	1.00		83.1	70-130			
PCB as Aroclor 1260	0.780	0.200	ug/L	1.00		78.0	70-130			
<i>Surr: DCB</i>	<i>0.170</i>		ug/L	<i>0.200</i>		<i>84.9</i>	<i>30-105</i>			
<i>Surr: TCMX</i>	<i>0.123</i>		ug/L	<i>0.200</i>		<i>61.3</i>	<i>30-105</i>			
LCS (BFE1147-BS3) Prepared: 05/31/2022 Analyzed: 06/01/2022										
Toxaphene	1.94	1.00	ug/L	2.50		77.5	23-134			
<i>Surr: TCMX</i>	<i>0.136</i>		ug/L	<i>0.200</i>		<i>68.2</i>	<i>18-112</i>			
<i>Surr: DCB</i>	<i>0.174</i>		ug/L	<i>0.200</i>		<i>86.9</i>	<i>27-131</i>			
LCS (BFE1147-BS4) Prepared: 05/31/2022 Analyzed: 06/01/2022										
Chlordane	1.80	0.200	ug/L	2.50		71.9	23-134			
<i>Surr: TCMX</i>	<i>0.136</i>		ug/L	<i>0.200</i>		<i>68.2</i>	<i>18-112</i>			
<i>Surr: DCB</i>	<i>0.152</i>		ug/L	<i>0.200</i>		<i>76.2</i>	<i>27-131</i>			
Matrix Spike (BFE1147-MS1) Source: 22E1463-02 Prepared & Analyzed: 06/01/2022										
4,4'-DDD	0.125	0.050	ug/L	0.0935	BLOD	133	23-134			
4,4'-DDE	0.116	0.050	ug/L	0.0935	BLOD	124	23-134			
4,4'-DDT	0.119	0.050	ug/L	0.0935	BLOD	127	23-134			

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Organochlorine Pesticides and PCBs by GC/ECD - Quality Control

Enthalpy Analytical

Analyte	Result	LOQ	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Qual
Batch BFE1147 - SW3510C/EPA600-ECD										
Matrix Spike (BFE1147-MS1)										
Source: 22E1463-02			Prepared & Analyzed: 06/01/2022							
Aldrin	0.083	0.050	ug/L	0.0935	BLOD	89.3	23-134			
alpha-BHC	0.095	0.050	ug/L	0.0935	BLOD	102	23-134			
beta-BHC	0.085	0.050	ug/L	0.0935	BLOD	91.3	23-134			
delta-BHC	0.116	0.050	ug/L	0.0935	BLOD	125	23-134			
Dieldrin	0.110	0.050	ug/L	0.0935	BLOD	118	23-134			
Endosulfan I	0.101	0.050	ug/L	0.0935	BLOD	108	23-134			
Endosulfan II	0.118	0.050	ug/L	0.0935	BLOD	126	23-134			
Endosulfan sulfate	0.121	0.050	ug/L	0.0935	BLOD	129	23-134			
Endrin	0.120	0.050	ug/L	0.0935	BLOD	129	23-134			
Endrin aldehyde	0.117	0.050	ug/L	0.0935	BLOD	126	23-134			
gamma-BHC (Lindane)	0.094	0.050	ug/L	0.0935	BLOD	101	23-134			
Heptachlor	0.097	0.050	ug/L	0.0935	BLOD	104	23-134			
Heptachlor epoxide	0.111	0.050	ug/L	0.0935	BLOD	118	23-134			
Methoxychlor	0.125	0.050	ug/L	0.0935	BLOD	134	23-134			
Mirex	0.078	0.050	ug/L	0.0935	BLOD	83.5	23-134			
<i>Surr: TCMX</i>	<i>0.0951</i>		ug/L	<i>0.187</i>		<i>50.9</i>	<i>18-112</i>			
<i>Surr: DCB</i>	<i>0.125</i>		ug/L	<i>0.187</i>		<i>67.0</i>	<i>27-131</i>			
Matrix Spike (BFE1147-MS2)										
Source: 22E1463-02			Prepared & Analyzed: 06/01/2022							
PCB as Aroclor 1016	1.27	0.200	ug/L	0.935	BLOD	135	70-130			M
PCB as Aroclor 1260	0.990	0.200	ug/L	0.935	BLOD	106	70-130			
<i>Surr: DCB</i>	<i>0.202</i>		ug/L	<i>0.187</i>		<i>108</i>	<i>30-105</i>			S
<i>Surr: TCMX</i>	<i>0.102</i>		ug/L	<i>0.187</i>		<i>54.6</i>	<i>30-105</i>			
Matrix Spike Dup (BFE1147-MSD1)										
Source: 22E1463-02			Prepared & Analyzed: 06/01/2022							
4,4'-DDD	0.140	0.050	ug/L	0.0935	BLOD	150	23-134	11.5	20	M

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Organochlorine Pesticides and PCBs by GC/ECD - Quality Control

Enthalpy Analytical

Analyte	Result	LOQ	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Qual
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Batch BFE1147 - SW3510C/EPA600-ECD

Matrix Spike Dup (BFE1147-MSD1)		Source: 22E1463-02			Prepared & Analyzed: 06/01/2022					
4,4'-DDE	0.125	0.050	ug/L	0.0935	BLOD	134	23-134	7.64	20	M
4,4'-DDT	0.137	0.050	ug/L	0.0935	BLOD	147	23-134	14.3	20	M
Aldrin	0.094	0.050	ug/L	0.0935	BLOD	101	23-134	12.2	20	
alpha-BHC	0.104	0.050	ug/L	0.0935	BLOD	111	23-134	8.82	20	
beta-BHC	0.102	0.050	ug/L	0.0935	BLOD	109	23-134	17.7	20	
delta-BHC	0.116	0.050	ug/L	0.0935	BLOD	125	23-134	0.0401	20	
Dieldrin	0.119	0.050	ug/L	0.0935	BLOD	127	23-134	7.17	20	
Endosulfan I	0.110	0.050	ug/L	0.0935	BLOD	117	23-134	8.63	20	
Endosulfan II	0.132	0.050	ug/L	0.0935	BLOD	142	23-134	11.8	20	M
Endosulfan sulfate	0.139	0.050	ug/L	0.0935	BLOD	148	23-134	13.7	20	M
Endrin	0.129	0.050	ug/L	0.0935	BLOD	138	23-134	6.84	20	M
Endrin aldehyde	0.130	0.050	ug/L	0.0935	BLOD	139	23-134	10.0	20	M
gamma-BHC (Lindane)	0.103	0.050	ug/L	0.0935	BLOD	110	23-134	8.44	20	
Heptachlor	0.097	0.050	ug/L	0.0935	BLOD	104	23-134	0.154	20	
Heptachlor epoxide	0.108	0.050	ug/L	0.0935	BLOD	115	23-134	2.53	20	
Methoxychlor	0.145	0.050	ug/L	0.0935	BLOD	155	23-134	14.7	20	M
Mirex	0.094	0.050	ug/L	0.0935	BLOD	101	23-134	18.6	20	
<i>Surr: TCMX</i>		0.102	ug/L	0.187		54.7	18-112			
<i>Surr: DCB</i>		0.140	ug/L	0.187		74.7	27-131			
Matrix Spike Dup (BFE1147-MSD2)		Source: 22E1463-02			Prepared & Analyzed: 06/01/2022					
PCB as Aroclor 1016	0.839	0.200	ug/L	0.935	BLOD	89.8	70-130	40.5	20	P
PCB as Aroclor 1260	0.760	0.200	ug/L	0.935	BLOD	81.3	70-130	26.3	20	P
<i>Surr: DCB</i>		0.163	ug/L	0.187		87.0	30-105			
<i>Surr: TCMX</i>		0.130	ug/L	0.187		69.6	30-105			

Certificate of Analysis

 Client Name: SCS Engineers-Winchester
 Client Site I.D.: City of Bristol 1st Semi-Annual 2022
 Submitted To: Jennifer Robb

Date Issued: 7/12/2022 2:25:23PM

Organochlorine Herbicides by GC/ECD - Quality Control

Enthalpy Analytical

Analyte	Result	LOQ	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Qual
Batch BFE1204 - SW8151A/EPA600										
Blank (BFE1204-BLK1)										
				Prepared: 05/31/2022 Analyzed: 06/09/2022						
2,4,5-T	ND	0.500	ug/L							
2,4,5-TP (Silvex)	ND	0.500	ug/L							
2,4-D	ND	0.500	ug/L							
Dinoseb	ND	0.500	ug/L							
Pentachlorophenol	ND	0.500	ug/L							
<i>Surr: DCAA (Surr)</i>	<i>1.01</i>		ug/L	<i>1.11</i>		<i>90.5</i>	<i>48.5-134</i>			
LCS (BFE1204-BS1)										
				Prepared: 05/31/2022 Analyzed: 06/09/2022						
2,4,5-T	0.548	0.500	ug/L	0.556		98.7	62-145			
2,4,5-TP (Silvex)	0.601	0.500	ug/L	0.556		108	62-132			
2,4-D	0.652	0.500	ug/L	0.556		117	74-139			
Dinoseb	0.467	0.500	ug/L	0.556		84.0	59-136			
Pentachlorophenol	0.523	0.500	ug/L	0.556		94.1	62-118			
<i>Surr: DCAA (Surr)</i>	<i>1.00</i>		ug/L	<i>1.11</i>		<i>90.4</i>	<i>70-130</i>			
Matrix Spike (BFE1204-MS1)										
		Source: 22E1463-02		Prepared: 06/01/2022 Analyzed: 06/09/2022						
2,4,5-T	0.530	0.500	ug/L	0.556	BLOD	95.3	53-144			
2,4,5-TP (Silvex)	0.576	0.500	ug/L	0.556	BLOD	104	52-129			
2,4-D	0.502	0.500	ug/L	0.556	BLOD	90.3	53-126			
Dinoseb	0.446	0.500	ug/L	0.556	BLOD	80.3	60-137			
Pentachlorophenol	0.602	0.500	ug/L	0.556	BLOD	108	52-124			
<i>Surr: DCAA (Surr)</i>	<i>1.08</i>		ug/L	<i>1.11</i>		<i>97.5</i>	<i>70-130</i>			
Matrix Spike Dup (BFE1204-MSD1)										
		Source: 22E1463-02		Prepared: 06/01/2022 Analyzed: 06/09/2022						
2,4,5-T	0.511	0.500	ug/L	0.556	BLOD	91.9	53-144	3.63	20	
2,4,5-TP (Silvex)	0.528	0.500	ug/L	0.556	BLOD	94.9	52-129	8.76	20	

Certificate of Analysis

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Organochlorine Herbicides by GC/ECD - Quality Control

Enthalpy Analytical

Analyte	Result	LOQ	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Qual
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Batch BFE1204 - SW8151A/EPA600

Matrix Spike Dup (BFE1204-MSD1)		Source: 22E1463-02		Prepared: 06/01/2022 Analyzed: 06/09/2022					
2,4-D	0.411	0.500	ug/L	0.556	BLOD	74.0	53-126	19.8	20
Dinoseb	0.423	0.500	ug/L	0.556	BLOD	76.2	60-137	5.20	20
Pentachlorophenol	0.521	0.500	ug/L	0.556	BLOD	93.7	52-124	14.4	20
<i>Surr: DCAA (Surr)</i>	<i>1.06</i>		ug/L	<i>1.11</i>		<i>95.7</i>	<i>70-130</i>		

Batch BFF0117 - SW8151A/EPA600

Blank (BFF0117-BLK1)				Prepared: 06/02/2022 Analyzed: 06/09/2022		
2,4,5-T	ND	0.500	ug/L			
2,4,5-TP (Silvex)	ND	0.500	ug/L			
2,4-D	ND	0.500	ug/L			
Dinoseb	ND	0.500	ug/L			
Pentachlorophenol	ND	0.500	ug/L			
<i>Surr: DCAA (Surr)</i>	<i>1.06</i>		ug/L	<i>1.11</i>	<i>95.5</i>	<i>48.5-134</i>

LCS (BFF0117-BS1)				Prepared: 06/02/2022 Analyzed: 06/09/2022		
2,4,5-T	0.633	0.500	ug/L	0.556	114	62-145
2,4,5-TP (Silvex)	0.562	0.500	ug/L	0.556	101	62-132
2,4-D	0.579	0.500	ug/L	0.556	104	74-139
Dinoseb	0.530	0.500	ug/L	0.556	95.4	59-136
Pentachlorophenol	0.607	0.500	ug/L	0.556	109	62-118
<i>Surr: DCAA (Surr)</i>	<i>1.04</i>		ug/L	<i>1.11</i>	<i>93.4</i>	<i>70-130</i>

Matrix Spike (BFF0117-MS1)		Source: 22F0103-05		Prepared: 06/03/2022 Analyzed: 06/09/2022			
2,4,5-T	0.469	0.500	ug/L	0.556	BLOD	84.4	53-144
2,4,5-TP (Silvex)	0.470	0.500	ug/L	0.556	BLOD	84.6	52-129

Certificate of Analysis

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Organochlorine Herbicides by GC/ECD - Quality Control

Enthalpy Analytical

Analyte	Result	LOQ	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Qual
Batch BFF0117 - SW8151A/EPA600										
Matrix Spike (BFF0117-MS1)										
			Source: 22F0103-05		Prepared: 06/03/2022 Analyzed: 06/09/2022					
2,4-D	0.486	0.500	ug/L	0.556	BLOD	87.5	53-126			
Dinoseb	0.440	0.500	ug/L	0.556	BLOD	79.2	60-137			
Pentachlorophenol	0.482	0.500	ug/L	0.556	BLOD	86.8	52-124			
<i>Surr: DCAA (Surr)</i>	<i>1.08</i>		ug/L	<i>1.11</i>		<i>96.9</i>	<i>70-130</i>			
Matrix Spike Dup (BFF0117-MSD1)										
			Source: 22F0103-05		Prepared: 06/03/2022 Analyzed: 06/09/2022					
2,4,5-T	0.414	0.500	ug/L	0.556	BLOD	74.4	53-144	12.5	20	
2,4,5-TP (Silvex)	0.455	0.500	ug/L	0.556	BLOD	81.9	52-129	3.24	20	
2,4-D	0.484	0.500	ug/L	0.556	BLOD	87.2	53-126	0.389	20	
Dinoseb	0.392	0.500	ug/L	0.556	BLOD	70.6	60-137	11.5	20	
Pentachlorophenol	0.470	0.500	ug/L	0.556	BLOD	84.6	52-124	2.49	20	
<i>Surr: DCAA (Surr)</i>	<i>1.02</i>		ug/L	<i>1.11</i>		<i>91.4</i>	<i>70-130</i>			

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Micro-extractables by GC/ECD - Quality Control

Enthalpy Analytical

Analyte	Result	LOQ	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Qual
Batch BFF0301 - SW8011										
Blank (BFF0301-BLK1)				Prepared & Analyzed: 06/07/2022						
1,2-Dibromoethane (EDB)	ND	0.010	ug/L							
1,2,3-Trichloropropane	ND	0.010	ug/L							
1,2-Dibromo-3-chloropropane (DBCP)	ND	0.010	ug/L							
LCS (BFF0301-BS1)				Prepared & Analyzed: 06/07/2022						
1,2-Dibromoethane (EDB)	0.324	0.010	ug/L	0.250		130	65-135			
1,2,3-Trichloropropane	0.265	0.010	ug/L	0.250		106	65-135			
1,2-Dibromo-3-chloropropane (DBCP)	0.333	0.010	ug/L	0.250		133	65-135			
Matrix Spike (BFF0301-MS1)				Source: 22E1463-02		Prepared & Analyzed: 06/07/2022				
1,2-Dibromoethane (EDB)	0.247	0.010	ug/L	0.253	BLOD	97.7	65-135			
1,2,3-Trichloropropane	0.197	0.010	ug/L	0.253	BLOD	78.1	65-135			
1,2-Dibromo-3-chloropropane (DBCP)	0.243	0.010	ug/L	0.253	BLOD	96.4	65-135			
Matrix Spike (BFF0301-MS2)				Source: 22F0064-03		Prepared: 06/07/2022 Analyzed: 06/08/2022				
1,2-Dibromoethane (EDB)	0.201	0.010	ug/L	0.251	BLOD	80.3	65-135			
1,2,3-Trichloropropane	0.176	0.010	ug/L	0.251	BLOD	70.0	65-135			
1,2-Dibromo-3-chloropropane (DBCP)	0.188	0.010	ug/L	0.251	BLOD	74.8	65-135			
Matrix Spike Dup (BFF0301-MSD1)				Source: 22E1463-02		Prepared & Analyzed: 06/07/2022				
1,2-Dibromoethane (EDB)	0.261	0.010	ug/L	0.252	BLOD	104	65-135	5.73	20	
1,2,3-Trichloropropane	0.242	0.010	ug/L	0.252	BLOD	96.2	65-135	20.5	20	P
1,2-Dibromo-3-chloropropane (DBCP)	0.257	0.010	ug/L	0.252	BLOD	102	65-135	5.29	20	
Matrix Spike Dup (BFF0301-MSD2)				Source: 22F0064-03		Prepared: 06/07/2022 Analyzed: 06/08/2022				
1,2-Dibromoethane (EDB)	0.235	0.010	ug/L	0.254	BLOD	92.7	65-135	15.5	20	
1,2,3-Trichloropropane	0.206	0.010	ug/L	0.254	BLOD	81.0	65-135	15.6	20	
1,2-Dibromo-3-chloropropane (DBCP)	0.221	0.010	ug/L	0.254	BLOD	87.2	65-135	16.5	20	

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Head Space Analysis by GC - Quality Control

Enthalpy Analytical

Analyte	Result	LOQ	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Qual
Batch BFF0087 - No Prep VOC										
Blank (BFF0087-BLK1)										
				Prepared & Analyzed: 06/02/2022						
Ethane	ND	5.00	ug/L							
Ethene	ND	5.00	ug/L							
Methane	ND	5.00	ug/L							
<i>Surr: Acetylene (Surr)</i>	449		ug/L	432		104	70-130			
LCS (BFF0087-BS1)										
				Prepared & Analyzed: 06/02/2022						
Ethane	540	5.00	ug/L	500		108	70-130			
Ethene	488	5.00	ug/L	464		105	70-130			
Methane	276	5.00	ug/L	266		104	70-130			
<i>Surr: Acetylene (Surr)</i>	496		ug/L	432		115	70-130			
Duplicate (BFF0087-DUP1)										
				Source: 22E1463-02			Prepared & Analyzed: 06/02/2022			
Ethane	ND	5.00	ug/L		BLOD			NA	20	
Ethene	ND	5.00	ug/L		BLOD			NA	20	
Methane	379	5.00	ug/L		378			0.346	20	
<i>Surr: Acetylene (Surr)</i>	510		ug/L	432		118	70-130			
Matrix Spike (BFF0087-MS1)										
				Source: 22E1463-02			Prepared & Analyzed: 06/02/2022			
Ethane	612	5.00	ug/L	500	BLOD	122	70-130			
Ethene	544	5.00	ug/L	464	BLOD	117	70-130			
Methane	547	5.00	ug/L	266	378	63.7	70-130			M
<i>Surr: Acetylene (Surr)</i>	489		ug/L	432		113	70-130			
Matrix Spike Dup (BFF0087-MSD1)										
				Source: 22E1463-02			Prepared & Analyzed: 06/02/2022			
Ethane	716	5.00	ug/L	500	BLOD	143	70-130	15.7	20	M
Ethene	635	5.00	ug/L	464	BLOD	137	70-130	15.4	20	M

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Head Space Analysis by GC - Quality Control

Enthalpy Analytical

Analyte	Result	LOQ	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Qual
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Batch BFF0087 - No Prep VOC

Matrix Spike Dup (BFF0087-MSD1)	Source: 22E1463-02		Prepared & Analyzed: 06/02/2022							
Methane	597	5.00	ug/L	266	378	82.5	70-130	8.74	20	
<i>Surr: Acetylene (Surr)</i>	591		ug/L	432		137	70-130			S

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 Client Name: SCS Engineers-Winchester
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Wet Chemistry Analysis - Quality Control

Enthalpy Analytical

Analyte	Result	LOQ	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Qual
Batch BFE1202 - No Prep IC										
Blank (BFE1202-BLK1)				Prepared & Analyzed: 05/31/2022						
Chloride	ND	1.0	mg/L							
LCS (BFE1202-BS1)				Prepared & Analyzed: 05/31/2022						
Chloride	18.0	1	mg/L	20.0		90.2	90-110			
LCS Dup (BFE1202-BSD1)				Prepared & Analyzed: 05/31/2022						
Chloride	18.9	1	mg/L	20.0		94.3	90-110	4.48	15	
Matrix Spike (BFE1202-MS1)				Source: 22E1463-02 Prepared & Analyzed: 05/31/2022						
Chloride	20.8	1.0	mg/L	11.1	8.3	112	90-110			M
Matrix Spike (BFE1202-MS2)				Source: 22E1463-04 Prepared & Analyzed: 06/01/2022						
Chloride	11.8	1.0	mg/L	11.1	1.0	97.3	90-110			
Matrix Spike Dup (BFE1202-MSD1)				Source: 22E1463-02 Prepared & Analyzed: 05/31/2022						
Chloride	19.6	1.0	mg/L	11.1	8.3	101	90-110	6.12	15	
Matrix Spike Dup (BFE1202-MSD2)				Source: 22E1463-04 Prepared & Analyzed: 06/01/2022						
Chloride	11.8	1.0	mg/L	11.1	1.0	97.1	90-110	0.170	15	
Batch BFF0002 - No Prep Wet Chem										
Blank (BFF0002-BLK1)				Prepared & Analyzed: 05/31/2022						
Sulfide	ND	1.00	mg/L							
LCS (BFF0002-BS1)				Prepared & Analyzed: 05/31/2022						
Sulfide	4.90	1	mg/L	5.00		98.0	80-120			

Certificate of Analysis

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Wet Chemistry Analysis - Quality Control

Enthalpy Analytical

Analyte	Result	LOQ	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Qual
Batch BFF0002 - No Prep Wet Chem										
Matrix Spike (BFF0002-MS1)		Source: 22E1463-02			Prepared & Analyzed: 05/31/2022					
Sulfide	4.83	1.00	mg/L	5.00	BLOD	96.6	75-125			
Matrix Spike Dup (BFF0002-MSD1)		Source: 22E1463-02			Prepared & Analyzed: 05/31/2022					
Sulfide	4.87	1.00	mg/L	5.00	BLOD	97.4	75-125	0.825	20	
Batch BFF0256 - No Prep Wet Chem										
LCS (BFF0256-BS1)		Prepared & Analyzed: 06/06/2022								
Cyanide	0.27	0.01	mg/L	0.250		109	80-120			
Matrix Spike (BFF0256-MS1)		Source: 22E1249-12			Prepared & Analyzed: 06/06/2022					
Cyanide	0.25	0.01	mg/L	0.250	BLOD	98.4	80-120			
Matrix Spike (BFF0256-MS2)		Source: 22E1463-02			Prepared & Analyzed: 06/06/2022					
Cyanide	0.23	0.01	mg/L	0.250	BLOD	90.0	80-120			
Matrix Spike Dup (BFF0256-MSD1)		Source: 22E1249-12			Prepared & Analyzed: 06/06/2022					
Cyanide	0.25	0.01	mg/L	0.250	BLOD	101	80-120	2.93	20	
Matrix Spike Dup (BFF0256-MSD2)		Source: 22E1463-02			Prepared & Analyzed: 06/06/2022					
Cyanide	0.23	0.01	mg/L	0.250	BLOD	92.4	80-120	2.54	20	
Batch BFF0367 - No Prep Wet Chem										
Blank (BFF0367-BLK1)		Prepared & Analyzed: 06/08/2022								
Alkalinity	ND	5.0	mg/L							

Certificate of Analysis

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Wet Chemistry Analysis - Quality Control

Enthalpy Analytical

Analyte	Result	LOQ	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Qual
Batch BFF0367 - No Prep Wet Chem										
LCS (BFF0367-BS1)				Prepared & Analyzed: 06/08/2022						
Alkalinity	47.0	5.0	mg/L	50.0		94.0	80-120			
Duplicate (BFF0367-DUP1)				Prepared & Analyzed: 06/08/2022						
Alkalinity	144	5.0	mg/L		148			2.74	20	
Duplicate (BFF0367-DUP2)				Prepared & Analyzed: 06/08/2022						
Alkalinity	313	5.0	mg/L		309			1.29	20	

Certificate of Analysis

Client Name: SCS Engineers-Winchester
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Analytical Summary

Sample ID	Preparation Factors Initial / Final	Method	Batch ID	Sequence ID	Calibration ID
Metals (Total) by EPA 6000/7000 Series Methods			Preparation Method:	EPA200.8 R5.4	
22E1463-02	50.0 mL / 50.0 mL	SW6020B	BFF0097	SFF0273	AF20035
22E1463-03	50.0 mL / 50.0 mL	SW6020B	BFF0097	SFF0273	AF20035
22E1463-04	50.0 mL / 50.0 mL	SW6020B	BFF0097	SFF0273	AF20035
22E1463-05	50.0 mL / 50.0 mL	SW6020B	BFF0097	SFF0273	AF20035
22E1463-06	50.0 mL / 50.0 mL	SW6020B	BFF0097	SFF0273	AF20035
22E1463-07	50.0 mL / 50.0 mL	SW6020B	BFF0097	SFF0273	AF20035
22E1463-07RE1	50.0 mL / 50.0 mL	SW6020B	BFF0097	SFF0327	AF20045
22E1463-08	50.0 mL / 50.0 mL	SW6020B	BFF0097	SFF0273	AF20035
22E1463-08RE1	50.0 mL / 50.0 mL	SW6020B	BFF0097	SFF0327	AF20045

Sample ID	Preparation Factors Initial / Final	Method	Batch ID	Sequence ID	Calibration ID
Wet Chemistry Analysis			Preparation Method:	No Prep IC	
22E1463-02	1.00 mL / 1.00 mL	SW9056A	BFE1202	SFF0117	AB20130
22E1463-03	1.00 mL / 1.00 mL	SW9056A	BFE1202	SFF0117	AB20130
22E1463-04	1.00 mL / 1.00 mL	SW9056A	BFE1202	SFF0117	AB20130
22E1463-05	1.00 mL / 1.00 mL	SW9056A	BFE1202	SFF0117	AB20130
22E1463-06	1.00 mL / 1.00 mL	SW9056A	BFE1202	SFF0117	AB20130
22E1463-07	1.00 mL / 1.00 mL	SW9056A	BFE1202	SFF0117	AB20130
22E1463-08	1.00 mL / 1.00 mL	SW9056A	BFE1202	SFF0117	AB20130

Sample ID	Preparation Factors Initial / Final	Method	Batch ID	Sequence ID	Calibration ID
Head Space Analysis by GC			Preparation Method:	No Prep VOC	
22E1463-02	5.00 mL / 5.00 mL	RSK175M	BFF0087	SFF0075	AB20185
22E1463-03	5.00 mL / 5.00 mL	RSK175M	BFF0087	SFF0075	AB20185
22E1463-04	5.00 mL / 5.00 mL	RSK175M	BFF0087	SFF0075	AB20185

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Sample ID	Preparation Factors Initial / Final	Method	Batch ID	Sequence ID	Calibration ID
Head Space Analysis by GC			Preparation Method:	No Prep VOC	
22E1463-05	5.00 mL / 5.00 mL	RSK175M	BFF0087	SFF0075	AB20185
22E1463-06	5.00 mL / 5.00 mL	RSK175M	BFF0087	SFF0075	AB20185
22E1463-07	5.00 mL / 5.00 mL	RSK175M	BFF0087	SFF0075	AB20185
22E1463-07RE1	5.00 mL / 5.00 mL	RSK175M	BFF0087	SFF0075	AB20185
22E1463-08	5.00 mL / 5.00 mL	RSK175M	BFF0087	SFF0075	AB20185
22E1463-08RE1	5.00 mL / 5.00 mL	RSK175M	BFF0087	SFF0075	AB20185

Sample ID	Preparation Factors Initial / Final	Method	Batch ID	Sequence ID	Calibration ID
Wet Chemistry Analysis			Preparation Method:	No Prep Wet Chem	
22E1463-02	6.00 mL / 6.00 mL	SW9215	BFF0002	SFF0002	
22E1463-03	6.00 mL / 6.00 mL	SW9215	BFF0002	SFF0002	
22E1463-07	6.00 mL / 6.00 mL	SW9215	BFF0002	SFF0002	
22E1463-08	6.00 mL / 6.00 mL	SW9215	BFF0002	SFF0002	
22E1463-02	6.00 mL / 6.00 mL	SW9012B	BFF0256	SFF0305	AF20043
22E1463-03	6.00 mL / 6.00 mL	SW9012B	BFF0256	SFF0305	AF20043
22E1463-07	6.00 mL / 6.00 mL	SW9012B	BFF0256	SFF0305	AF20043
22E1463-08	6.00 mL / 6.00 mL	SW9012B	BFF0256	SFF0305	AF20043
22E1463-02	50.0 mL / 50.0 mL	SM22 2320B-2011	BFF0367	SFF0426	
22E1463-03	200 mL / 200 mL	SM22 2320B-2011	BFF0367	SFF0426	
22E1463-04	50.0 mL / 50.0 mL	SM22 2320B-2011	BFF0367	SFF0426	
22E1463-05	50.0 mL / 50.0 mL	SM22 2320B-2011	BFF0367	SFF0426	
22E1463-06	50.0 mL / 50.0 mL	SM22 2320B-2011	BFF0367	SFF0426	
22E1463-07	10.0 mL / 50.0 mL	SM22 2320B-2011	BFF0367	SFF0426	
22E1463-08	10.0 mL / 50.0 mL	SM22 2320B-2011	BFF0367	SFF0426	

Sample ID	Preparation Factors Initial / Final	Method	Batch ID	Sequence ID	Calibration ID
Organochlorine Pesticides and PCBs by GC/ECD			Preparation Method:	SW3510C/EPA600-ECD	

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Sample ID	Preparation Factors Initial / Final	Method	Batch ID	Sequence ID	Calibration ID
Organochlorine Pesticides and PCBs by GC/ECD			Preparation Method: SW3510C/EPA600-ECD		
22E1463-02	1070 mL / 1.00 mL	SW8081B	BFE1147	SFF0066	AE20143
22E1463-03	1070 mL / 1.00 mL	SW8081B	BFE1147	SFF0056	AE20143
22E1463-07	1070 mL / 1.00 mL	SW8081B	BFE1147	SFF0056	AE20143
22E1463-08	1070 mL / 1.00 mL	SW8081B	BFE1147	SFF0056	AE20143
22E1463-02	1070 mL / 1.00 mL	SW8082A	BFE1147	SFF0059	AC20077
22E1463-02RE1	1070 mL / 1.00 mL	SW8082A	BFE1147	SFF0059	AC20077
22E1463-03	1070 mL / 1.00 mL	SW8082A	BFE1147	SFF0059	AC20077
22E1463-07	1070 mL / 1.00 mL	SW8082A	BFE1147	SFF0059	AC20077
22E1463-08	1070 mL / 1.00 mL	SW8082A	BFE1147	SFF0059	AC20077
Sample ID	Preparation Factors Initial / Final	Method	Batch ID	Sequence ID	Calibration ID
Semivolatile Organic Compounds by GCMS			Preparation Method: SW3580A-MS		
22E1463-02	1070 mL / 1.00 mL	SW8270E	BFF0013	SFF0089	AE20006
22E1463-03	1070 mL / 1.00 mL	SW8270E	BFF0013	SFF0079	AC20134
22E1463-04	1070 mL / 1.00 mL	SW8270E	BFF0013	SFF0079	AC20134
22E1463-06	1070 mL / 1.00 mL	SW8270E	BFF0088	SFF0213	AE20006
22E1463-07	1070 mL / 1.00 mL	SW8270E	BFF0088	SFF0213	AE20006
22E1463-08	1070 mL / 1.00 mL	SW8270E	BFF0088	SFF0213	AE20006
Sample ID	Preparation Factors Initial / Final	Method	Batch ID	Sequence ID	Calibration ID
Volatile Organic Compounds by GCMS			Preparation Method: SW5030B-MS		
22E1463-01	5.00 mL / 5.00 mL	SW8260D	BFF0032	SFF0038	AE20157
22E1463-03	5.00 mL / 5.00 mL	SW8260D	BFF0032	SFF0038	AE20157
22E1463-04	5.00 mL / 5.00 mL	SW8260D	BFF0032	SFF0038	AE20157
22E1463-05	5.00 mL / 5.00 mL	SW8260D	BFF0032	SFF0038	AE20157
22E1463-06	5.00 mL / 5.00 mL	SW8260D	BFF0032	SFF0038	AE20157
22E1463-07	5.00 mL / 5.00 mL	SW8260D	BFF0032	SFF0038	AE20157
22E1463-08	5.00 mL / 5.00 mL	SW8260D	BFF0032	SFF0038	AE20157

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Sample ID	Preparation Factors Initial / Final	Method	Batch ID	Sequence ID	Calibration ID
Volatile Organic Compounds by GCMS			Preparation Method: SW5030B-MS		
22E1463-02	5.00 mL / 5.00 mL	SW8260D	BFF0033	SFF0030	AE20066

Sample ID	Preparation Factors Initial / Final	Method	Batch ID	Sequence ID	Calibration ID
Metals (Total) by EPA 6000/7000 Series Methods			Preparation Method: SW7470A		
22E1463-02	20.0 mL / 20.0 mL	SW7470A	BFF0393	SFF0385	AF20056
22E1463-03	20.0 mL / 20.0 mL	SW7470A	BFF0393	SFF0385	AF20056
22E1463-04	20.0 mL / 20.0 mL	SW7470A	BFF0393	SFF0385	AF20056
22E1463-06	20.0 mL / 20.0 mL	SW7470A	BFF0393	SFF0385	AF20056
22E1463-07	20.0 mL / 20.0 mL	SW7470A	BFF0393	SFF0385	AF20056
22E1463-08	20.0 mL / 20.0 mL	SW7470A	BFF0393	SFF0385	AF20056

Sample ID	Preparation Factors Initial / Final	Method	Batch ID	Sequence ID	Calibration ID
Micro-extractables by GC/ECD			Preparation Method: SW8011		
22E1463-01	59.8 mL / 2.00 mL	SW8011	BFF0301	SFF0286	AE20047
22E1463-02	59.2 mL / 2.00 mL	SW8011	BFF0301	SFF0286	AE20047
22E1463-03	59.3 mL / 2.00 mL	SW8011	BFF0301	SFF0286	AE20047
22E1463-04	59.6 mL / 2.00 mL	SW8011	BFF0301	SFF0286	AE20047
22E1463-05	60.0 mL / 2.00 mL	SW8011	BFF0301	SFF0286	AE20047
22E1463-06	59.5 mL / 2.00 mL	SW8011	BFF0301	SFF0286	AE20047
22E1463-07	59.8 mL / 2.00 mL	SW8011	BFF0301	SFF0286	AE20047
22E1463-08	58.7 mL / 2.00 mL	SW8011	BFF0301	SFF0286	AE20047

Sample ID	Preparation Factors Initial / Final	Method	Batch ID	Sequence ID	Calibration ID
Organochlorine Herbicides by GC/ECD			Preparation Method: SW8151A/EPA600		
22E1463-02	900 mL / 5.00 mL	SW8151A	BFE1204	SFF0393	AD20156
22E1463-03	900 mL / 5.00 mL	SW8151A	BFE1204	SFF0393	AD20156

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Sample ID	Preparation Factors Initial / Final	Method	Batch ID	Sequence ID	Calibration ID
Organochlorine Herbicides by GC/ECD			Preparation Method: SW8151A/EPA600		
22E1463-07	900 mL / 5.00 mL	SW8151A	BFF0117	SFF0393	AD20156
22E1463-08	900 mL / 5.00 mL	SW8151A	BFF0117	SFF0393	AD20156

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QC Analytical Summary

Sample ID	Preparation Factors Initial / Final	Method	Batch ID	Sequence ID	Calibration ID
Metals (Total) by EPA 6000/7000 Series Methods			Preparation Method:	EPA200.8 R5.4	
BFF0097-BLK1	50.0 mL / 50.0 mL	SW6020B	BFF0097	SFF0273	AF20035
BFF0097-BS1	50.0 mL / 50.0 mL	SW6020B	BFF0097	SFF0273	AF20035
BFF0097-BS2		SW6020B	BFF0097		
BFF0097-MS1	50.0 mL / 50.0 mL	SW6020B	BFF0097	SFF0273	AF20035
BFF0097-MS2	50.0 mL / 50.0 mL	SW6020B	BFF0097	SFF0273	AF20035
BFF0097-MSD1	50.0 mL / 50.0 mL	SW6020B	BFF0097	SFF0273	AF20035
BFF0097-MSD2	50.0 mL / 50.0 mL	SW6020B	BFF0097	SFF0273	AF20035

Sample ID	Preparation Factors Initial / Final	Method	Batch ID	Sequence ID	Calibration ID
Wet Chemistry Analysis			Preparation Method:	No Prep IC	
BFE1202-BLK1	1.00 mL / 1.00 mL	SW9056A	BFE1202	SFF0117	AB20130
BFE1202-BS1	1.00 mL / 1.00 mL	SW9056A	BFE1202	SFF0117	AB20130
BFE1202-BSD1	1.00 mL / 1.00 mL	SW9056A	BFE1202	SFF0117	AB20130
BFE1202-MS1	4.50 mL / 5.00 mL	SW9056A	BFE1202	SFF0117	AB20130
BFE1202-MS2	4.50 mL / 5.00 mL	SW9056A	BFE1202	SFF0117	AB20130
BFE1202-MSD1	4.50 mL / 5.00 mL	SW9056A	BFE1202	SFF0117	AB20130
BFE1202-MSD2	4.50 mL / 5.00 mL	SW9056A	BFE1202	SFF0117	AB20130

Sample ID	Preparation Factors Initial / Final	Method	Batch ID	Sequence ID	Calibration ID
Head Space Analysis by GC			Preparation Method:	No Prep VOC	
BFF0087-BLK1	5.00 mL / 5.00 mL	RSK175M	BFF0087	SFF0075	AB20185
BFF0087-BS1	5.00 mL / 5.00 mL	RSK175M	BFF0087	SFF0075	AB20185
BFF0087-DUP1	5.00 mL / 5.00 mL	RSK175M	BFF0087	SFF0075	AB20185

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Sample ID	Preparation Factors Initial / Final	Method	Batch ID	Sequence ID	Calibration ID
Head Space Analysis by GC			Preparation Method:	No Prep VOC	
BFF0087-MRL1	5.00 mL / 5.00 mL	RSK175M	BFF0087	SFF0075	AB20185
BFF0087-MS1	5.00 mL / 5.00 mL	RSK175M	BFF0087	SFF0075	AB20185
BFF0087-MSD1	5.00 mL / 5.00 mL	RSK175M	BFF0087	SFF0075	AB20185

Sample ID	Preparation Factors Initial / Final	Method	Batch ID	Sequence ID	Calibration ID
Wet Chemistry Analysis			Preparation Method:	No Prep Wet Chem	
BFF0002-BLK1	6.00 mL / 6.00 mL	SW9215	BFF0002	SFF0002	
BFF0002-BS1	6.00 mL / 6.00 mL	SW9215	BFF0002	SFF0002	
BFF0002-MRL1	6.00 mL / 6.00 mL	SW9215	BFF0002	SFF0002	
BFF0002-MS1	6.00 mL / 6.00 mL	SW9215	BFF0002	SFF0002	
BFF0002-MSD1	6.00 mL / 6.00 mL	SW9215	BFF0002	SFF0002	
BFF0256-BLK1		SW9012B	BFF0256	SFF0305	AF20043
BFF0256-BS1	6.00 mL / 6.00 mL	SW9012B	BFF0256	SFF0305	AF20043
BFF0256-MS1	6.00 mL / 6.00 mL	SW9012B	BFF0256	SFF0305	AF20043
BFF0256-MS2	6.00 mL / 6.00 mL	SW9012B	BFF0256	SFF0305	AF20043
BFF0256-MSD1	6.00 mL / 6.00 mL	SW9012B	BFF0256	SFF0305	AF20043
BFF0256-MSD2	6.00 mL / 6.00 mL	SW9012B	BFF0256	SFF0305	AF20043
BFF0367-BLK1	50.0 mL / 50.0 mL	SM22 2320B-2011	BFF0367	SFF0426	
BFF0367-BS1	50.0 mL / 50.0 mL	SM22 2320B-2011	BFF0367	SFF0426	
BFF0367-DUP1	50.0 mL / 50.0 mL	SM22 2320B-2011	BFF0367	SFF0426	
BFF0367-DUP2	50.0 mL / 50.0 mL	SM22 2320B-2011	BFF0367	SFF0426	

Sample ID	Preparation Factors Initial / Final	Method	Batch ID	Sequence ID	Calibration ID
Organochlorine Pesticides and PCBs by GC/ECD			Preparation Method:	SW3510C/EPA600-ECD	
BFE1147-BLK1	1000 mL / 1.00 mL	SW8081B	BFE1147	SFF0056	AE20143
BFE1147-BS1	1000 mL / 1.00 mL	SW8081B	BFE1147	SFF0056	AE20143
BFE1147-BS2		SW8081B	BFE1147	SFF0059	AC20077

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Organochlorine Pesticides and PCBs by GC/ECD			Preparation Method:	SW3510C/EPA600-ECD	
BFE1147-BS3	1000 mL / 1.00 mL	SW8081B	BFE1147	SFF0056	AE20143
BFE1147-BS4	1000 mL / 1.00 mL	SW8081B	BFE1147	SFF0056	AE20143
BFE1147-MS1	1070 mL / 1.00 mL	SW8081B	BFE1147	SFF0056	AE20143
BFE1147-MS2		SW8081B	BFE1147	SFF0059	AC20077
BFE1147-MSD1	1070 mL / 1.00 mL	SW8081B	BFE1147	SFF0056	AE20143
BFE1147-MSD2		SW8081B	BFE1147	SFF0059	AC20077
BFE1147-BLK1	1000 mL / 1.00 mL	SW8082A	BFE1147	SFF0056	AE20143
BFE1147-BS1		SW8082A	BFE1147	SFF0056	AE20143
BFE1147-BS2	1000 mL / 1.00 mL	SW8082A	BFE1147	SFF0059	AC20077
BFE1147-BS3		SW8082A	BFE1147	SFF0056	AE20143
BFE1147-BS4		SW8082A	BFE1147	SFF0056	AE20143
BFE1147-MS1		SW8082A	BFE1147	SFF0056	AE20143
BFE1147-MS2	1070 mL / 1.00 mL	SW8082A	BFE1147	SFF0059	AC20077
BFE1147-MSD1		SW8082A	BFE1147	SFF0056	AE20143
BFE1147-MSD2	1070 mL / 1.00 mL	SW8082A	BFE1147	SFF0059	AC20077

Sample ID	Preparation Factors Initial / Final	Method	Batch ID	Sequence ID	Calibration ID
Semivolatile Organic Compounds by GCMS			Preparation Method:	SW3580A-MS	
BFF0013-BLK1	1000 mL / 1.00 mL	SW8270E	BFF0013	SFF0089	AE20006
BFF0013-BS1	1000 mL / 1.00 mL	SW8270E	BFF0013	SFF0089	AE20006
BFF0013-MS1	1070 mL / 1.00 mL	SW8270E	BFF0013	SFF0089	AE20006
BFF0013-MSD1	1070 mL / 1.00 mL	SW8270E	BFF0013	SFF0089	AE20006
BFF0088-BLK1	1000 mL / 1.00 mL	SW8270E	BFF0088	SFF0213	AE20006
BFF0088-BS1	1000 mL / 1.00 mL	SW8270E	BFF0088	SFF0213	AE20006
BFF0088-MS1	1030 mL / 1.00 mL	SW8270E	BFF0088	SFF0188	AC20134
BFF0088-MSD1	1030 mL / 1.00 mL	SW8270E	BFF0088	SFF0188	AC20134

Sample ID	Preparation Factors Initial / Final	Method	Batch ID	Sequence ID	Calibration ID
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Volatile Organic Compounds by GCMS			Preparation Method:	SW5030B-MS	
BFF0032-BLK1	5.00 mL / 5.00 mL	SW8260D	BFF0032	SFF0038	AE20157
BFF0032-BS1	5.00 mL / 5.00 mL	SW8260D	BFF0032	SFF0038	AE20157
BFF0032-DUP1	5.00 mL / 5.00 mL	SW8260D	BFF0032	SFF0038	AE20157
BFF0032-MS1	5.00 mL / 5.00 mL	SW8260D	BFF0032	SFF0038	AE20157
BFF0033-BLK1	5.00 mL / 5.00 mL	SW8260D	BFF0033	SFF0030	AE20066
BFF0033-BS1	5.00 mL / 5.00 mL	SW8260D	BFF0033	SFF0030	AE20066
BFF0033-MS1	5.00 mL / 5.00 mL	SW8260D	BFF0033	SFF0030	AE20066
BFF0033-MSD1	5.00 mL / 5.00 mL	SW8260D	BFF0033	SFF0030	AE20066

Sample ID	Preparation Factors Initial / Final	Method	Batch ID	Sequence ID	Calibration ID
Metals (Total) by EPA 6000/7000 Series Methods			Preparation Method:	SW7470A	
BFF0393-BLK1	20.0 mL / 20.0 mL	SW7470A	BFF0393	SFF0385	AF20056
BFF0393-BS1	20.0 mL / 20.0 mL	SW7470A	BFF0393	SFF0385	AF20056
BFF0393-MS1	20.0 mL / 20.0 mL	SW7470A	BFF0393	SFF0385	AF20056
BFF0393-MS2	20.0 mL / 20.0 mL	SW7470A	BFF0393	SFF0385	AF20056
BFF0393-MSD1	20.0 mL / 20.0 mL	SW7470A	BFF0393	SFF0385	AF20056
BFF0393-MSD2	20.0 mL / 20.0 mL	SW7470A	BFF0393	SFF0385	AF20056

Sample ID	Preparation Factors Initial / Final	Method	Batch ID	Sequence ID	Calibration ID
Micro-extractables by GC/ECD			Preparation Method:	SW8011	
BFF0301-BLK1	60.0 mL / 2.00 mL	SW8011	BFF0301	SFF0286	AE20047
BFF0301-BS1	60.0 mL / 2.00 mL	SW8011	BFF0301	SFF0286	AE20047
BFF0301-MS1	59.4 mL / 2.00 mL	SW8011	BFF0301	SFF0286	AE20047
BFF0301-MS2	59.8 mL / 2.00 mL	SW8011	BFF0301	SFF0286	AE20047
BFF0301-MSD1	59.6 mL / 2.00 mL	SW8011	BFF0301	SFF0286	AE20047
BFF0301-MSD2	59.1 mL / 2.00 mL	SW8011	BFF0301	SFF0286	AE20047

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Organochlorine Herbicides by GC/ECD			Preparation Method:	SW8151A/EPA600	
BFE1204-BLK1	900 mL / 5.00 mL	SW8151A	BFE1204	SFF0393	AD20156
BFE1204-BS1	900 mL / 5.00 mL	SW8151A	BFE1204	SFF0393	AD20156
BFE1204-MS1	900 mL / 5.00 mL	SW8151A	BFE1204	SFF0393	AD20156
BFE1204-MSD1	900 mL / 5.00 mL	SW8151A	BFE1204	SFF0393	AD20156
BFF0117-BLK1	900 mL / 5.00 mL	SW8151A	BFF0117	SFF0393	AD20156
BFF0117-BS1	900 mL / 5.00 mL	SW8151A	BFF0117	SFF0393	AD20156
BFF0117-MRL1	900 mL / 5.00 mL	SW8151A	BFF0117	SFF0915	AD20156
BFF0117-MRL2		SW8151A	BFF0117		
BFF0117-MS1	900 mL / 5.00 mL	SW8151A	BFF0117	SFF0393	AD20156
BFF0117-MSD1	900 mL / 5.00 mL	SW8151A	BFF0117	SFF0393	AD20156

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Certified Analyses included in this Report

Analyte	Certifications
<i>RSK175M in Non-Potable Water</i>	
Ethane	VELAP
Ethene	VELAP
Methane	VELAP
<i>SM22 2320B-2011 in Non-Potable Water</i>	
Alkalinity	VELAP,PADEP,WVDEP,NHDES,MADEP
<i>SW6020B in Non-Potable Water</i>	
Antimony	VELAP,NCDEQ,WVDEP,NHDES
Arsenic	VELAP,WVDEP,NHDES
Barium	VELAP,WVDEP,NHDES
Beryllium	VELAP,WVDEP,NHDES
Cadmium	VELAP,WVDEP,NHDES
Chromium	VELAP,WVDEP,NHDES
Cobalt	VELAP,WVDEP,NHDES
Copper	VELAP,WVDEP,NHDES
Lead	VELAP,WVDEP,NHDES
Nickel	VELAP,WVDEP
Selenium	VELAP,WVDEP,NHDES
Silver	VELAP,WVDEP,NHDES
Thallium	VELAP,WVDEP,NHDES
Tin	VELAP,WVDEP
Vanadium	VELAP,WVDEP,NHDES
Zinc	VELAP,WVDEP,NHDES
<i>SW7470A in Non-Potable Water</i>	
Mercury	VELAP,NCDEQ,WVDEP,NHDES
<i>SW8011 in Non-Potable Water</i>	

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Certified Analyses included in this Report

Analyte	Certifications
1,2-Dibromoethane (EDB)	VELAP,NCDEQ
1,2,3-Trichloropropane	VELAP,NCDEQ
1,2-Dibromo-3-chloropropane (DBCP)	VELAP,NCDEQ
SW8081B in Non-Potable Water	
4,4'-DDD	NCDEQ,VELAP,WVDEP,PADEP,NHDES
4,4'-DDE	NCDEQ,VELAP,WVDEP,PADEP,NHDES
4,4'-DDT	NCDEQ,VELAP,WVDEP,PADEP,NHDES
Aldrin	NCDEQ,VELAP,WVDEP,PADEP,NHDES
alpha-BHC	NCDEQ,VELAP,WVDEP,PADEP,NHDES
alpha-Chlordane	NCDEQ,VELAP,WVDEP,PADEP,NHDES
beta-BHC	NCDEQ,VELAP,WVDEP,PADEP,NHDES
Chlordane	NCDEQ,VELAP,WVDEP,PADEP,NHDES
delta-BHC	NCDEQ,VELAP,WVDEP,PADEP,NHDES
Dieldrin	NCDEQ,VELAP,WVDEP,PADEP,NHDES
Endosulfan I	NCDEQ,VELAP,WVDEP,PADEP,NHDES
Endosulfan II	NCDEQ,VELAP,WVDEP,PADEP,NHDES
Endosulfan sulfate	NCDEQ,VELAP,WVDEP,PADEP,NHDES
Endrin	NCDEQ,VELAP,WVDEP,PADEP,NHDES
Endrin aldehyde	NCDEQ,VELAP,WVDEP,PADEP,NHDES
gamma-BHC (Lindane)	NCDEQ,VELAP,WVDEP,PADEP,NHDES
gamma-Chlordane	NCDEQ,VELAP,WVDEP,PADEP,NHDES
Heptachlor	NCDEQ,VELAP,WVDEP,PADEP,NHDES
Heptachlor epoxide	NCDEQ,VELAP,WVDEP,PADEP,NHDES
Methoxychlor	NCDEQ,VELAP,WVDEP,PADEP,NHDES
Toxaphene	NCDEQ,VELAP,WVDEP,PADEP,NHDES
SW8082A in Non-Potable Water	
PCB as Aroclor 1016	VELAP,PADEP,NCDEQ,WVDEP,NHDES
PCB as Aroclor 1221	VELAP,PADEP,NCDEQ,WVDEP,NHDES

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Analyte	Certifications
PCB as Aroclor 1232	VELAP,PADEP,NCDEQ,WVDEP,NHDES
PCB as Aroclor 1242	VELAP,PADEP,NCDEQ,WVDEP,NHDES
PCB as Aroclor 1248	VELAP,PADEP,NCDEQ,WVDEP,NHDES
PCB as Aroclor 1254	VELAP,PADEP,NCDEQ,WVDEP,NHDES
PCB as Aroclor 1260	VELAP,PADEP,NCDEQ,WVDEP,NHDES
SW8151A in Non-Potable Water	
2,4,5-T	VELAP,PADEP,NCDEQ,WVDEP
2,4,5-TP (Silvex)	VELAP,PADEP,NCDEQ,WVDEP
2,4-D	VELAP,PADEP,NCDEQ,WVDEP
Dinoseb	VELAP,PADEP,NCDEQ,WVDEP
Pentachlorophenol	VELAP,PADEP,NCDEQ,WVDEP
SW8260D in Non-Potable Water	
1,1,1,2-Tetrachloroethane	NCDEQ,WVDEP,VELAP
1,1,1-Trichloroethane	NCDEQ,WVDEP,VELAP
1,1,2,2-Tetrachloroethane	NCDEQ,WVDEP,VELAP
1,1,2-Trichloroethane	NCDEQ,WVDEP,VELAP
1,1-Dichloroethane	NCDEQ,WVDEP,VELAP
1,1-Dichloroethylene	NCDEQ,WVDEP,VELAP
1,1-Dichloropropene	NCDEQ,WVDEP,VELAP
1,2,3-Trichloropropane	NCDEQ,WVDEP,VELAP
1,2,4-Trichlorobenzene	NCDEQ,WVDEP,VELAP
1,2-Dichlorobenzene	NCDEQ,WVDEP,VELAP
1,2-Dichloroethane	NCDEQ,WVDEP,VELAP
1,2-Dichloropropane	NCDEQ,WVDEP,VELAP
1,3-Dichlorobenzene	NCDEQ,WVDEP,VELAP
1,3-Dichloropropane	NCDEQ,WVDEP,VELAP
1,4-Dichlorobenzene	NCDEQ,WVDEP,VELAP
2,2-Dichloropropane	NCDEQ,WVDEP,VELAP

Certificate of Analysis

Client Name: SCS Engineers-Winchester
 Client Site I.D.: City of Bristol 1st Semi-Annual 2022
 Submitted To: Jennifer Robb

Date Issued: 7/12/2022 2:25:23PM

Certified Analyses included in this Report

Analyte	Certifications
2-Butanone (MEK)	NCDEQ, WVDEP, VELAP
2-Hexanone (MBK)	NCDEQ, WVDEP, VELAP
4-Methyl-2-pentanone (MIBK)	NCDEQ, WVDEP, VELAP
Acetone	NCDEQ, WVDEP, VELAP
Acetonitrile	NCDEQ, WVDEP, VELAP
Acrolein	NCDEQ, WVDEP, VELAP
Acrylonitrile	NCDEQ, WVDEP, VELAP
Allyl chloride	NCDEQ, WVDEP, VELAP
Benzene	NCDEQ, WVDEP, VELAP
Bromochloromethane	NCDEQ, WVDEP, VELAP
Bromodichloromethane	NCDEQ, WVDEP, VELAP
Bromoform	NCDEQ, WVDEP, VELAP
Bromomethane	NCDEQ, WVDEP, VELAP
Carbon disulfide	NCDEQ, WVDEP, VELAP
Carbon tetrachloride	NCDEQ, WVDEP, VELAP
Chlorobenzene	NCDEQ, WVDEP, VELAP
Chloroethane	NCDEQ, WVDEP, VELAP
Chloroform	NCDEQ, WVDEP, VELAP
Chloromethane	NCDEQ, WVDEP, VELAP
Chloroprene	NCDEQ, WVDEP, VELAP
cis-1,2-Dichloroethylene	NCDEQ, WVDEP, VELAP
cis-1,3-Dichloropropene	NCDEQ, WVDEP, VELAP
Dibromochloromethane	NCDEQ, WVDEP, VELAP
Dibromomethane	NCDEQ, WVDEP, VELAP
Dichlorodifluoromethane	NCDEQ, WVDEP, VELAP
Ethyl methacrylate	NCDEQ, WVDEP, VELAP
Ethylbenzene	NCDEQ, WVDEP, VELAP
Iodomethane	NCDEQ, WVDEP, VELAP

Certificate of Analysis

Client Name: SCS Engineers-Winchester
 Client Site I.D.: City of Bristol 1st Semi-Annual 2022
 Submitted To: Jennifer Robb

Date Issued: 7/12/2022 2:25:23PM

Certified Analyses included in this Report

Analyte	Certifications
Isobutyl Alcohol	NCDEQ, WVDEP, VELAP
m+p-Xylenes	NCDEQ, WVDEP, VELAP
Methacrylonitrile	NCDEQ, WVDEP, VELAP
Methyl methacrylate	NCDEQ, WVDEP, VELAP
Methylene chloride	NCDEQ, WVDEP, VELAP
Naphthalene	NCDEQ, WVDEP, VELAP
o-Xylene	NCDEQ, WVDEP, VELAP
Propionitrile	NCDEQ, WVDEP, VELAP
Styrene	NCDEQ, WVDEP, VELAP
Tetrachloroethylene (PCE)	NCDEQ, WVDEP, VELAP
Toluene	NCDEQ, WVDEP, VELAP
trans-1,2-Dichloroethylene	NCDEQ, WVDEP, VELAP
trans-1,3-Dichloropropene	NCDEQ, WVDEP, VELAP
trans-1,4-Dichloro-2-butene	NCDEQ, WVDEP, VELAP
Trichloroethylene	NCDEQ, WVDEP, VELAP
Trichlorofluoromethane	NCDEQ, WVDEP, VELAP
Vinyl acetate	NCDEQ, WVDEP, VELAP
Vinyl chloride	NCDEQ, WVDEP, VELAP
Xylenes, Total	NCDEQ, WVDEP, VELAP

SW8270E in Non-Potable Water

1,2,4,5-Tetrachlorobenzene	VELAP, NCDEQ, WVDEP
1,3,5-Trinitrobenzene	VELAP, NCDEQ, WVDEP
1,3-Dinitrobenzene	VELAP, NCDEQ, WVDEP
1,4-Naphthoquinone	VELAP, NCDEQ, WVDEP
1-Naphthylamine	VELAP, NCDEQ, WVDEP
2,3,4,6-Tetrachlorophenol	VELAP, NCDEQ, WVDEP
2,4,5-Trichlorophenol	VELAP, NCDEQ, WVDEP
2,4,6-Trichlorophenol	VELAP, NCDEQ, WVDEP

Certificate of Analysis

Client Name: SCS Engineers-Winchester
 Client Site I.D.: City of Bristol 1st Semi-Annual 2022
 Submitted To: Jennifer Robb

Date Issued: 7/12/2022 2:25:23PM

Certified Analyses included in this Report

Analyte	Certifications
2,4-Dichlorophenol	VELAP,NCDEQ,WVDEP
2,4-Dimethylphenol	VELAP,NCDEQ,WVDEP
2,4-Dinitrophenol	VELAP,NCDEQ,WVDEP
2,4-Dinitrotoluene	VELAP,NCDEQ,WVDEP
2,6-Dichlorophenol	VELAP,NCDEQ,WVDEP
2,6-Dinitrotoluene	VELAP,NCDEQ,WVDEP
2-Acetylaminofluorene	VELAP,NCDEQ,WVDEP
2-Chloronaphthalene	VELAP,NCDEQ,WVDEP
2-Chlorophenol	VELAP,NCDEQ,WVDEP
2-Methylnaphthalene	VELAP,NCDEQ,WVDEP
2-Naphthylamine	VELAP,NCDEQ,WVDEP
2-Nitroaniline	VELAP,NCDEQ,WVDEP
2-Nitrophenol	VELAP,NCDEQ,WVDEP
3,3'-Dichlorobenzidine	VELAP,NCDEQ,WVDEP
3,3'-Dimethylbenzidine	VELAP,NCDEQ,WVDEP
3-Methylcholanthrene	VELAP,NCDEQ,WVDEP
3-Nitroaniline	VELAP,NCDEQ,WVDEP
4,6-Dinitro-2-methylphenol	VELAP,NCDEQ,WVDEP
4-Aminobiphenyl	VELAP,NCDEQ,WVDEP
4-Bromophenyl phenyl ether	VELAP,NCDEQ,WVDEP
4-Chloroaniline	VELAP,NCDEQ,WVDEP
4-Chlorophenyl phenyl ether	VELAP,NCDEQ,WVDEP
4-Nitroaniline	VELAP,NCDEQ,WVDEP
4-Nitrophenol	VELAP,NCDEQ,WVDEP
5-Nitro-o-toluidine	VELAP,NCDEQ,WVDEP
7,12-Dimethylbenz (a) anthracene	VELAP,NCDEQ,WVDEP
Acenaphthene	VELAP,NCDEQ,WVDEP
Acenaphthylene	VELAP,NCDEQ,WVDEP

Certificate of Analysis

Client Name: SCS Engineers-Winchester
 Client Site I.D.: City of Bristol 1st Semi-Annual 2022
 Submitted To: Jennifer Robb

Date Issued: 7/12/2022 2:25:23PM

Certified Analyses included in this Report

Analyte	Certifications
Acetophenone	VELAP,NCDEQ,WVDEP
Anthracene	VELAP,NCDEQ,WVDEP
Benzo (a) anthracene	VELAP,NCDEQ,WVDEP
Benzo (a) pyrene	VELAP,NCDEQ,WVDEP
Benzo (b) fluoranthene	VELAP,NCDEQ,WVDEP
Benzo (g,h,i) perylene	VELAP,NCDEQ,WVDEP
Benzo (k) fluoranthene	VELAP,NCDEQ,WVDEP
Benzyl alcohol	VELAP,NCDEQ,WVDEP
bis (2-Chloroethoxy) methane	VELAP,NCDEQ,WVDEP
bis (2-Chloroethyl) ether	VELAP,NCDEQ,WVDEP
2,2'-Oxybis (1-chloropropane)	VELAP,NCDEQ,WVDEP
bis (2-Ethylhexyl) phthalate	VELAP,NCDEQ,WVDEP
Butyl benzyl phthalate	VELAP,NCDEQ,WVDEP
Chlorobenzilate	VELAP,NCDEQ,WVDEP
Chrysene	VELAP,NCDEQ,WVDEP
Diallate	VELAP,NCDEQ,WVDEP
Dibenz (a,h) anthracene	VELAP,NCDEQ,WVDEP
Dibenzofuran	VELAP,NCDEQ,WVDEP
Diethyl phthalate	VELAP,NCDEQ,WVDEP
Dimethoate	VELAP,NCDEQ,WVDEP
Dimethyl phthalate	VELAP,NCDEQ,WVDEP
Di-n-butyl phthalate	VELAP,NCDEQ,WVDEP
Di-n-octyl phthalate	VELAP,NCDEQ,WVDEP
Diphenylamine	VELAP,NCDEQ,WVDEP
Disulfoton	VELAP,NCDEQ,WVDEP
Ethyl methanesulfonate	VELAP,NCDEQ,WVDEP
Ethyl parathion	VELAP,NCDEQ,WVDEP
Famphur	VELAP,NCDEQ,WVDEP

Certificate of Analysis

Client Name: SCS Engineers-Winchester
 Client Site I.D.: City of Bristol 1st Semi-Annual 2022
 Submitted To: Jennifer Robb

Date Issued: 7/12/2022 2:25:23PM

Certified Analyses included in this Report

Analyte	Certifications
Fluoranthene	VELAP,NCDEQ,WVDEP
Fluorene	VELAP,NCDEQ,WVDEP
Hexachlorobenzene	VELAP,NCDEQ,WVDEP
Hexachlorobutadiene	VELAP,NCDEQ,WVDEP
Hexachlorocyclopentadiene	VELAP,NCDEQ,WVDEP
Hexachloroethane	VELAP,NCDEQ,WVDEP
Hexachloropropene	VELAP,NCDEQ,WVDEP
Indeno (1,2,3-cd) pyrene	VELAP,NCDEQ,WVDEP
Isodrin	VELAP,NCDEQ,WVDEP
Isophorone	VELAP,NCDEQ,WVDEP
Isosafrole	VELAP,NCDEQ,WVDEP
Kepone	VELAP,NCDEQ,WVDEP
m+p-Cresols	VELAP,NCDEQ,WVDEP
Methapyrilene	VELAP,NCDEQ,WVDEP
Methyl methanesulfonate	VELAP,NCDEQ,WVDEP
Methyl parathion	VELAP,NCDEQ,WVDEP
Nitrobenzene	VELAP,NCDEQ,WVDEP
n-Nitrosodiethylamine	VELAP,NCDEQ,WVDEP
n-Nitrosodimethylamine	VELAP,NCDEQ,WVDEP
n-Nitrosodi-n-butylamine	VELAP,NCDEQ,WVDEP
n-Nitrosodi-n-propylamine	VELAP,NCDEQ,WVDEP
n-Nitrosodiphenylamine	VELAP,NCDEQ,WVDEP
n-Nitrosomethylethylamine	VELAP,NCDEQ,WVDEP
n-Nitrosopiperidine	VELAP,NCDEQ,WVDEP
n-Nitrosopyrrolidine	VELAP,NCDEQ,WVDEP
o,o,o-Triethyl phosphorothioate	VELAP,NCDEQ,WVDEP
o,o-Diethyl o-2-pyrazinyl phosphorothioate	VELAP,NCDEQ,WVDEP
o+m+p-Cresols	VELAP,WVDEP

Certificate of Analysis

Client Name: SCS Engineers-Winchester
 Client Site I.D.: City of Bristol 1st Semi-Annual 2022
 Submitted To: Jennifer Robb

Date Issued: 7/12/2022 2:25:23PM

Certified Analyses included in this Report

Analyte	Certifications
o-Cresol	VELAP,NCDEQ,WVDEP
o-Toluidine	VELAP,NCDEQ,WVDEP
p-(Dimethylamino) azobenzene	VELAP,NCDEQ,WVDEP
p-Chloro-m-cresol	VELAP,NCDEQ,WVDEP
Pentachlorobenzene	VELAP,NCDEQ,WVDEP
Pentachloronitrobenzene (quintozene)	VELAP,NCDEQ,WVDEP
Phenacetin	VELAP,NCDEQ,WVDEP
Phenanthrene	VELAP,NCDEQ,WVDEP
Phenol	VELAP,NCDEQ,WVDEP
Phorate	VELAP,NCDEQ,WVDEP
p-Phenylenediamine	VELAP,NCDEQ,WVDEP
Pronamide	VELAP,NCDEQ,WVDEP
Pyrene	VELAP,NCDEQ,WVDEP
Safrole	VELAP,NCDEQ,WVDEP
SW9012B in Non-Potable Water	
Cyanide	VELAP,WVDEP
SW9056A in Non-Potable Water	
Chloride	VELAP
SW9215 in Non-Potable Water	
Sulfide	VELAP

Certificate of Analysis

Client Name: SCS Engineers-Winchester
Client Site I.D.: City of Bristol 1st Semi-Annual 2022
Submitted To: Jennifer Robb

Date Issued: 7/12/2022 2:25:23PM

Code	Description	Laboratory ID	Expires
MADEP	Massachusetts DEP	M-VA913	06/30/2022
MdDOE	Maryland DE Drinking Water	341	12/31/2022
NC	North Carolina DENR	495	07/31/2022
NCDEQ	North Carolina DEQ	495	12/31/2022
NCDOH	North Carolina Department of Health	51714	07/31/2022
NJDEP	NELAP-New Jersey DEP	VA015	06/30/2022
NYDOH	New York DOH Drinking Water	12096	04/01/2023
PADEP	NELAP-Pennsylvania Certificate #007	68-03503	10/31/2022
VELAP	NELAP-Virginia Certificate #11900	460021	06/14/2023
WVDEP	West Virginia DEP	350	11/30/2022

Certificate of Analysis

Client Name: SCS Engineers-Winchester
Client Site I.D.: City of Bristol 1st Semi-Annual 2022
Submitted To: Jennifer Robb

Date Issued: 7/12/2022 2:25:23PM

Qualifiers and Definitions

B	Blank contamination. The recorded result is associated with a contaminated blank.
C	Continuing calibration verification response for this analyte is outside specifications.
Cl	Residual Chlorine or other oxidizing agent was detected in the container used to analyze this sample.
J	The reported result is an estimated value.
L	LCS recovery is outside of established acceptance limits
M	Matrix spike recovery is outside established acceptance limits
P	Duplicate analysis does not meet the acceptance criteria for precision
pH	The container used to analyze this sample had a pH measurement of greater than 2 s.u.
S	Surrogate recovery was outside acceptance criteria
RPD	Relative Percent Difference
Qual	Qualifiers
-RE	Denotes sample was re-analyzed
LOD	Limit of Detection
BLOD	Below Limit of Detection
LOQ	Limit of Quantitation
DF	Dilution Factor
TIC	Tentatively Identified Compounds are compounds that are identified by comparing the analyte mass spectral pattern with the NIST spectral library. A TIC spectral match is reported when the pattern is at least 75% consistent with the published pattern. Compound concentrations are estimated and are calculated using an internal standard response factor of 1.
PCBs, Total	Total PCBs are defined as the sum of detected Aroclors 1016, 1221, 1232, 1248, 1254, 1260, 1262, and 1268.

CHAIN OF CUSTODY

PAGE 1 OF 1

COMPANY NAME: SCS Engineers	INVOICE TO: SCS Reston	Project Name: City of Bristol 1st Semi-Annual
CONTACT: Jennifer Robb	INVOICE CONTACT: Jennifer Robb	Site Name:
ADDRESS: 296 Victory Road, Winchester, VA 22602	INVOICE ADDRESS:	PROJECT NUMBER: 02218208.07 TI
PHONE #: (703) 471-6150	INVOICE PHONE #:	P.O. #:
FAX #: (703) 471-6676	EMAIL: jrobb@scsengineers.com	Pretreatment Program:
Is sample for compliance reporting? YES Va	Is sample from a chlorinated supply? YES NO	PWS I.D. #:
SAMPLER NAME (PRINT): L. HOWARD M. NGUYEN	SAMPLER SIGNATURE: <i>[Signature]</i>	Turn Around Time: 10 Day(s)

Matrix Codes: WW=Waste Water GW=Ground Water DW=Drinking Water S=Soil/Solids OR=Organic A=Air WP=Wipe OT=Other

CLIENT SAMPLE I.D.	Grab	Composite	Field Filtered (Dissolved Metals)	Composite Start Date	Composite Start Time	Grab Date or Composite Stop Date	Grab Time or Composite Stop Time	Time Preserved	Matrix (See Codes)	Number of Containers	ANALYSIS / (PRESERVATIVE)							COMMENTS				
											VSWMR Table 3.1A	VOC Table 3.1A/EDB 8011	Chloride	Alkalinity	MEE	Hg	Bis (2-ethylhexyl) phthalate					
																	VSWMR TABLE 3.1B					
1) TRIP BLANK	X					051922	1220		DI	6		X										
2) MW-205 B/M/S/MSIX						052522	1424		GW	51			X	X	X							
3) FIELD BLANK	X					↓	1500		DI	17			X	X	X							
4) MW-211 A	X					↓	1819		GW	12	X		X	X	X	X	X					
5) MW-206 B	X					052622	1225		GW	11	X		X	X	X							
6) MW-211 B	X					↓	1355		GW	12	X		X	X	X	X	X					
7) MW-108	X					↓	1810		GW	17			X	X	X							
8) MW-108 DUPLICATE						↓	1910		GW	17			X	X	X							
9)																						
10)																						

RECEIVED: DATE / TIME	RECEIVED: DATE / TIME	QC Data Package	LAB USE ONLY	COOLER TEMP 3.0 °C
052722 1500 LCN	MM 5/27/22 LCN	Level I <input type="checkbox"/>	271 Sealed Ice	
LCN	mm 5/27/22 1630	Level II <input checked="" type="checkbox"/>		SCS-W 22E1463
		Level III <input type="checkbox"/>		1st Semi-Annual 2022
		Level IV <input type="checkbox"/>		Recd: 05/27/2022 Due: 06/13/2022

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INITIALS
 formerly Air, Water & Soil Laboratories

CHAIN OF CUSTODY

PAGE | OF |

COMPANY NAME: SCS Engineers	INVOICE TO: SCS Reston	Project Name: City of Bristol 1st Semi-Annual
CONTACT: Jennifer Robb	INVOICE CONTACT: Jennifer Robb	Site Name:
ADDRESS: 296 Victory Road, Winchester, VA 22602	INVOICE ADDRESS:	PROJECT NUMBER: 02218708.07 T1
PHONE #: (703) 471-6150	INVOICE PHONE #:	P.O. #:
FAX #: (703) 471-6676	EMAIL: jrobb@scsengineers.com	Pretreatment Program:

Is sample for compliance reporting? **YES** Va Is sample from a chlorinated supply? YES **NO** PWS I.D. #:

SAMPLER NAME (PRINT): *L. HOWARD* SAMPLER SIGNATURE: *[Signature]* Turn Around Time: 10 Day(s)

Matrix Codes: WW=Waste Water GW=Ground Water DW=Drinking Water S=Soil/Solids OR=Organic A=Air WP=Wipe OT=Other

CLIENT SAMPLE I.D.	Grab	Composite	Field Filtered (Dissolved Metals)	Composite Start Date	Composite Start Time	Grab Date or Composite Stop Date	Grab Time or Composite Stop Time	Time Preserved	Matrix (See Codes)	Number of Containers	ANALYSIS / (PRESERVATIVE)							COMMENTS				
											VSWMR Table 3.1A	VOC Table 3.1A/EEDB 8011	Chloride	Alkalinity	MEE	Hg	Bis (2-ethyhexyl) phthalate					
																	VSWMR TABLE 3.1B					
1) TRIP BLANK	X					5/19/22	270		DI	6		X										
2) MW-205 B/MS/108	X					052722	1424		GW	1			X	X	X							
3) FIELD BLANK	X					↓	1500		DI	1			X	X	X							
4) MW-211A	X					↓	1719	1809	GW	12	X		X	X	X	X					(MN) 052722	
5) MW-200 B	X					052622	1225		GW	11	X		X	X	X						01310	
6) MW-211 B	X					↓	1355		GW	12	X		X	X	X	X						
7) MW-108	X					↓	1810		GW	7			X	X	X						X	
8) MW-108 Duplicate	X					↓	1910		GW	7			X	X	X						X	
9)																						

INQUIRED: <i>[Signature]</i> DATE / TIME: 052722 @ 1500	RECEIVED: <i>LCN</i> DATE / TIME: 5/27/22 1630	QC Data Package	LAB USE ONLY	COOLER TEMP <i>3.0</i> °C
INQUIRED: <i>LCN</i> DATE / TIME:	RECEIVED: <i>mm</i> 5/27/22 1630	Level I <input type="checkbox"/>	271	SCS-W 1st Semi-Annual 2022 Recd: 05/27/2022 Due: 06/13/2022
INQUIRED: DATE / TIME:	RECEIVED: DATE / TIME:	Level II <input checked="" type="checkbox"/>	sealed	
INQUIRED: DATE / TIME:	RECEIVED: DATE / TIME:	Level III <input type="checkbox"/>	ice	
INQUIRED: DATE / TIME:	RECEIVED: DATE / TIME:	Level IV <input type="checkbox"/>		

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Sample Preservation Log

Order ID: 22E1463

Date Performed: 5/31/22

Analyst Performing Check: MNM

Sample ID	Container ID	Metals		Cyanide		Sulfide		Ammonia		TKN		Phos, Tot		NO3+NO2		DRO		Pesticide (8081/808/808) PCB DW only		SVOC (824/827/828)			CrVI **		Pass/POB (808) / SVOC(825)							
		pH as Received		pH as Received		pH as Received		pH as Received		pH as Received		pH as Received		pH as Received		pH as Received		pH as Received		Received	Received	Received	Received	Received	Received	Received	Received	Received	Received	Received	Received	
		< 2	Other	> 12	Other	> 8	Other	< 1	Other	< 2	Other	< 2	Other	< 2	Other	< 2	Other	< 2	Other	+	-	+	-	+	-	+	-	< 1	Other	Other	Other	Other
2	G			/																												
2	D	/																														
2	T																															
2	W					/																										
2	AD			/																												
2	AE			/																												
2	AF			/																												
2	AG			/																												
2	AL	/																														
2	AM	/																														
3	C			/																												
3	H	/																														
3	K			/																												
3	L																															
4	E	/																														

NaOH ID: _____ HNO₃ ID: _____ GrVI preserved date/time: _____ Analyst Init: _____
 * pH must be adjusted between 9.3 - 9.7
 H₂SO₄ ID: _____ Na₂S₂O₈ ID: _____ Buffer Sol'n ID: _____
 HCL ID: _____ Na₂SO₃ ID: _____ 1N NaOH ID: _____ 8N NaOH: _____

Metals were received with pH = 4. HNO₃ was added at 1029 on 31 May 2022 by MNM in the Log-In room to bring pH = <2.

**W.Va only certifies DISS CrVI and not T CrVI as an approved analyte under 40CFR136 for waste water.



Sample Preservation Log

Order ID: 22E1463

Date Performed: 5/31/22

Analyst Performing Check: MNM

Sample ID	Container ID	Metals		Cyanide		Sulfide		Ammonia		TKN		Phos, Tot		NO3+NO2		DRO		Pesticide (8081/808/808) PGB DW only		BVOG (824/827 6/825)			CrVI * **		PseVPOB (808) / BVOG(825)										
		pH as Received	Fixed pH	pH as Received	Fixed pH	pH as Received	Fixed pH	pH as Received	Fixed pH	pH as Received	Fixed pH	pH as Received	Fixed pH	pH as Received	Fixed pH	pH as Received	Fixed pH	pH as Received	Fixed pH	Received Res. Cl	final + or -	Received Res. Cl	final + or -	Yanobred pH	Fixed pH	pH as Received	Fixed pH	pH as Received	Fixed pH	pH as Received	Fixed pH				
																																<2 Other	>12 Other	>8 Other	<2 Other
4	I																																		
5	H																																		
6	E																																		
6	I																																		
7	C																																		
7	J		4 <2																																
7	M																																		
7	N																																		
8	C																																		
8	J		4 <2																																
8	M																																		
8	N																																		

NaOH ID: _____ HNO3 ID: _____ CrVI preserved date/time: _____ Analyst I
 H2SO4 ID: _____ Na2S2O3 ID: _____ * pH must be adjusted between 9.3 - 9.7 Buffer Sol'n ID: _____
 HCL ID: _____ Na2SO4 ID: _____ 1N NaOH ID: _____ 8N NaOH

Metals were received with pH = 4. HNO3 was added at 1029 on 31 May 2022 by MNM in the Log-In room to bring pH = <2.

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*W.Va only certifies DIS3 CrVI and not T CrVI as an approved analyte under 40CFR136 for waste water.

Certificate of Analysis

Client Name: SCS Engineers-Winchester
Client Site I.D.: City of Bristol 1st Semi-Annual 2022
Submitted To: Jennifer Robb

Date Issued: 7/12/2022 2:25:23PM

Certificate of Analysis

Client Name: SCS Engineers-Winchester
Client Site I.D.: City of Bristol 1st Semi-Annual 2022
Submitted To: Jennifer Robb

Date Issued: 7/12/2022 2:25:23PM

Laboratory Order ID: 22E1463

Sample Conditions Checklist

Samples Received at:	3.00°C
How were samples received?	Logistics Courier
Were Custody Seals used? If so, were they received intact?	Yes
Are the custody papers filled out completely and correctly?	Yes
Do all bottle labels agree with custody papers?	Yes
Is the temperature blank or representative sample within acceptable limits or received on ice, and recently taken?	Yes
Are all samples within holding time for requested laboratory tests?	Yes
Is a sufficient amount of sample provided to perform the tests included?	Yes
Are all samples in appropriate containers for the analyses requested?	Yes
Were volatile organic containers received?	Yes
Are all volatile organic and TOX containers free of headspace?	Yes
Is a trip blank provided for each VOC sample set? VOC sample sets include EPA8011, EPA504, EPA8260, EPA624, EPA8015 GRO, EPA8021, EPA524, and RSK-175.	Yes
Are all samples received appropriately preserved? Note that metals containers do not require field preservation but lab preservation may delay analysis.	Yes



1941 Reymet Road • Richmond, Virginia 23237 • Tel: (804)-358-8295 Fax: (804)-358-8297

Certificate of Analysis

Final Report

Laboratory Order ID 22L0423

Client Name: SCS Engineers-Winchester
296 Victory Road
Winchester, VA 22602

Date Received: December 8, 2022 8:00
Date Issued: December 30, 2022 11:56
Project Number: 02218208.07 T1
Purchase Order:

Submitted To: Jennifer Robb

Client Site I.D.: City of Bristol 2nd Semi-Annual

Enclosed are the results of analyses for samples received by the laboratory on 12/08/2022 08:00. If you have any questions concerning this report, please feel free to contact the laboratory.

Sincerely,

Ted Soyars
Technical Director

End Notes:

The test results listed in this report relate only to the samples submitted to the laboratory and as received by the Laboratory.

Unless otherwise noted, the test results for solid materials are calculated on a wet weight basis. Analyses for pH, dissolved oxygen, temperature, residual chlorine and sulfite that are performed in the laboratory do not meet NELAC requirements due to extremely short holding times. These analyses should be performed in the field. The results of field analyses performed by the Sampler included in the Certificate of Analysis are done so at the client's request and are not included in the laboratory's fields of certification nor have they been audited for adherence to a reference method or procedure.

The signature on the final report certifies that these results conform to all applicable NELAC standards unless otherwise specified. For a complete list of the Laboratory's NELAC certified parameters please contact customer service.

This report shall not be reproduced except in full without the expressed and written approval of an authorized representative of Enthalpy Analytical.

Analysis Detects Report

 Client Name: SCS Engineers-Winchester
 Client Site ID: City of Bristol 2nd Semi-Annual
 Submitted To: Jennifer Robb

Date Issued: 12/30/2022 11:56:27AM

Laboratory Sample ID: 22L0423-01
Client Sample ID: MW-104B

Parameter	Samp ID	Reference Method	Sample Results	Qual	LOD	LOQ	Dil. Factor	Units
Barium	01	SW6020B	26.8		1.00	5.00	1	ug/L
Cobalt	01	SW6020B	0.998	J	0.200	1.00	1	ug/L
Nickel	01	SW6020B	1.421		1.000	1.000	1	ug/L
Tin	01RE1	SW6020B	1.13		1.00	1.00	1	ug/L

Laboratory Sample ID: 22L0423-02
Client Sample ID: MW-104A

Parameter	Samp ID	Reference Method	Sample Results	Qual	LOD	LOQ	Dil. Factor	Units
Arsenic	02	SW6020B	6.5		0.50	1.0	1	ug/L
Barium	02	SW6020B	67.2		1.00	5.00	1	ug/L
Cobalt	02	SW6020B	1.15		0.200	1.00	1	ug/L
Nickel	02	SW6020B	1.693		1.000	1.000	1	ug/L
Tin	02RE2	SW6020B	1.16		1.00	1.00	1	ug/L

Laboratory Sample ID: 22L0423-03
Client Sample ID: MW-106A

Parameter	Samp ID	Reference Method	Sample Results	Qual	LOD	LOQ	Dil. Factor	Units
Arsenic	03	SW6020B	3.4		0.50	1.0	1	ug/L
Barium	03RE1	SW6020B	274		10.0	50.0	10	ug/L
Cobalt	03	SW6020B	5.44		0.200	1.00	1	ug/L
Nickel	03	SW6020B	7.568		1.000	1.000	1	ug/L
Tin	03RE2	SW6020B	1.50		1.00	1.00	1	ug/L
1,1-Dichloroethane	03	SW8260D	1.02		0.60	1.00	1	ug/L
cis-1,2-Dichloroethylene	03	SW8260D	0.67	J	0.40	1.00	1	ug/L

Analysis Detects Report

Client Name: SCS Engineers-Winchester
 Client Site ID: City of Bristol 2nd Semi-Annual
 Submitted To: Jennifer Robb

Date Issued: 12/30/2022 11:56:27AM

Laboratory Sample ID: 22L0423-04 **Client Sample ID: MW-101**

Parameter	Samp ID	Reference Method	Sample Results	Qual	LOD	LOQ	Dil. Factor	Units
Arsenic	04	SW6020B	0.69	J	0.50	1.0	1	ug/L
Barium	04	SW6020B	83.2		1.00	5.00	1	ug/L
Cobalt	04	SW6020B	2.10		0.200	1.00	1	ug/L
Copper	04	SW6020B	1.66		0.300	1.00	1	ug/L
Nickel	04	SW6020B	3.502		1.000	1.000	1	ug/L
Zinc	04	SW6020B	3.03	J	2.50	5.00	1	ug/L

Laboratory Sample ID: 22L0423-05 **Client Sample ID: MW-205B**

Parameter	Samp ID	Reference Method	Sample Results	Qual	LOD	LOQ	Dil. Factor	Units
Barium	05	SW6020B	103		1.00	5.00	1	ug/L

Laboratory Sample ID: 22L0423-06 **Client Sample ID: MW-206A**

Parameter	Samp ID	Reference Method	Sample Results	Qual	LOD	LOQ	Dil. Factor	Units
Barium	06	SW6020B	80.3		1.00	5.00	1	ug/L
Chromium	06	SW6020B	3.66		0.600	1.00	1	ug/L
Cobalt	06	SW6020B	0.895	J	0.200	1.00	1	ug/L
Copper	06	SW6020B	0.969	J	0.300	1.00	1	ug/L
Nickel	06	SW6020B	26.62		1.000	1.000	1	ug/L
Silver	06	SW6020B	0.394	J	0.0600	1.00	1	ug/L
Zinc	06	SW6020B	6.52		2.50	5.00	1	ug/L

Analysis Detects Report

Client Name: SCS Engineers-Winchester
 Client Site ID: City of Bristol 2nd Semi-Annual
 Submitted To: Jennifer Robb

Date Issued: 12/30/2022 11:56:27AM

Laboratory Sample ID: 22L0423-07 **Client Sample ID: MW-206B**

Parameter	Samp ID	Reference Method	Sample Results	Qual	LOD	LOQ	Dil. Factor	Units
Arsenic	07	SW6020B	0.53	J	0.50	1.0	1	ug/L
Barium	07	SW6020B	170		1.00	5.00	1	ug/L
Cobalt	07	SW6020B	1.13		0.200	1.00	1	ug/L
Copper	07	SW6020B	0.634	J	0.300	1.00	1	ug/L
Nickel	07	SW6020B	2.544		1.000	1.000	1	ug/L
Zinc	07	SW6020B	5.07		2.50	5.00	1	ug/L

Laboratory Sample ID: 22L0423-08 **Client Sample ID: MW-211A**

Parameter	Samp ID	Reference Method	Sample Results	Qual	LOD	LOQ	Dil. Factor	Units
Barium	08	SW6020B	47.6		1.00	5.00	1	ug/L
Copper	08	SW6020B	0.390	J	0.300	1.00	1	ug/L
Silver	08	SW6020B	0.107	J	0.0600	1.00	1	ug/L

Laboratory Sample ID: 22L0423-09 **Client Sample ID: MW-211B**

Parameter	Samp ID	Reference Method	Sample Results	Qual	LOD	LOQ	Dil. Factor	Units
Barium	09	SW6020B	97.6		1.00	5.00	1	ug/L
Silver	09	SW6020B	0.0722	J	0.0600	1.00	1	ug/L
Zinc	09	SW6020B	6.51		2.50	5.00	1	ug/L

Analysis Detects Report

Client Name: SCS Engineers-Winchester
 Client Site ID: City of Bristol 2nd Semi-Annual
 Submitted To: Jennifer Robb

Date Issued: 12/30/2022 11:56:27AM

Laboratory Sample ID: 22L0423-10 **Client Sample ID: MW-106B**

Parameter	Samp ID	Reference Method	Sample Results	Qual	LOD	LOQ	Dil. Factor	Units
Barium	10	SW6020B	92.2		1.00	5.00	1	ug/L
Cobalt	10	SW6020B	0.264	J	0.200	1.00	1	ug/L

Laboratory Sample ID: 22L0423-11 **Client Sample ID: MW-210A**

Parameter	Samp ID	Reference Method	Sample Results	Qual	LOD	LOQ	Dil. Factor	Units
Arsenic	11	SW6020B	8.2		0.50	1.0	1	ug/L
Barium	11	SW6020B	35.3		1.00	5.00	1	ug/L
Nickel	11	SW6020B	2.794		1.000	1.000	1	ug/L
Silver	11	SW6020B	0.190	J	0.0600	1.00	1	ug/L

Laboratory Sample ID: 22L0423-12 **Client Sample ID: MW-210B**

Parameter	Samp ID	Reference Method	Sample Results	Qual	LOD	LOQ	Dil. Factor	Units
Barium	12	SW6020B	70.3		1.00	5.00	1	ug/L
Chromium	12	SW6020B	0.677	J	0.600	1.00	1	ug/L
Nickel	12	SW6020B	2.629		1.000	1.000	1	ug/L

Analysis Detects Report

Client Name: SCS Engineers-Winchester
 Client Site ID: City of Bristol 2nd Semi-Annual
 Submitted To: Jennifer Robb

Date Issued: 12/30/2022 11:56:27AM

Laboratory Sample ID: 22L0423-13 Client Sample ID: MW-108

Parameter	Samp ID	Reference Method	Sample Results	Qual	LOD	LOQ	Dil. Factor	Units
Arsenic	13	SW6020B	12		0.50	1.0	1	ug/L
Barium	13RE1	SW6020B	743		10.0	50.0	10	ug/L
Cadmium	13	SW6020B	0.563	J	0.100	1.00	1	ug/L
Chromium	13	SW6020B	1.81		0.600	1.00	1	ug/L
Cobalt	13	SW6020B	27.8		0.200	1.00	1	ug/L
Copper	13	SW6020B	0.904	J	0.300	1.00	1	ug/L
Lead	13	SW6020B	1.5		1.0	1.0	1	ug/L
Mercury	13	SW7470A	0.00125		0.00020	0.00020	1	mg/L
Nickel	13	SW6020B	22.52		1.000	1.000	1	ug/L
Zinc	13	SW6020B	96.1		2.50	5.00	1	ug/L
1,1-Dichloroethane	13	SW8260D	5.19		0.60	1.00	1	ug/L
1,4-Dichlorobenzene	13	SW8260D	1.65		0.40	1.00	1	ug/L
Benzene	13	SW8260D	39.3		0.40	1.00	1	ug/L
Chlorobenzene	13	SW8260D	1.25		0.40	1.00	1	ug/L
cis-1,2-Dichloroethylene	13	SW8260D	44.8		0.40	1.00	1	ug/L
Vinyl chloride	13	SW8260D	11.9		0.50	0.50	1	ug/L
Methane	13	RSK175M	2280		1.5	5.0	1	ug/L
Alkalinity	13	SM22 2320B-2011	647		5.0	5.0	1	mg/L
Chloride	13	EPA300.0 R2.1	37.0		5.0	10.0	10	mg/L

Analysis Detects Report

 Client Name: SCS Engineers-Winchester
 Client Site ID: City of Bristol 2nd Semi-Annual
 Submitted To: Jennifer Robb

Date Issued: 12/30/2022 11:56:27AM

Laboratory Sample ID: 22L0423-14 Client Sample ID: GC Outfall

Parameter	Samp ID	Reference Method	Sample Results	Qual	LOD	LOQ	Dil. Factor	Units
Antimony	14RE1	SW6020B	5.4		1.0	1.0	1	ug/L
Arsenic	14	SW6020B	270		5.0	10	10	ug/L
Barium	14	SW6020B	1060		10.0	50.0	10	ug/L
Chromium	14	SW6020B	111		6.00	10.0	10	ug/L
Cobalt	14	SW6020B	9.44	J	2.00	10.0	10	ug/L
Copper	14	SW6020B	69.8		3.00	10.0	10	ug/L
Nickel	14	SW6020B	23.53		10.00	10.00	10	ug/L
Tin	14RE2	SW6020B	4.02		1.00	1.00	1	ug/L
Vanadium	14	SW6020B	88.6		25.0	50.0	10	ug/L
Zinc	14	SW6020B	85.8		25.0	50.0	10	ug/L
1,2-Dichlorobenzene	14	SW8260D	1.62		0.40	1.00	1	ug/L
1,4-Dichlorobenzene	14	SW8260D	26.2		0.40	1.00	1	ug/L
2-Butanone (MEK)	14RE1	SW8260D	442		30.0	100	10	ug/L
4-Methyl-2-pentanone (MIBK)	14	SW8260D	47.3		1.50	5.00	1	ug/L
Acetone	14RE1	SW8260D	506		70.0	100	10	ug/L
Acrylonitrile	14	SW8260D	4.00	J	1.70	5.00	1	ug/L
Benzene	14RE1	SW8260D	710		4.00	10.0	10	ug/L
Chlorobenzene	14	SW8260D	5.53		0.40	1.00	1	ug/L
cis-1,2-Dichloroethylene	14	SW8260D	0.73	J	0.40	1.00	1	ug/L
Ethylbenzene	14	SW8260D	91.5		0.40	1.00	1	ug/L
m+p-Xylenes	14	SW8260D	55.4		0.60	2.00	1	ug/L
o-Xylene	14	SW8260D	35.0		0.40	1.00	1	ug/L
Toluene	14	SW8260D	44.8		0.50	1.00	1	ug/L
Xylenes, Total	14	SW8260D	90.4		1.00	3.00	1	ug/L
Phenol	14	SW8270E	143		23.4	93.5	10	ug/L
Methane	14	RSK175M	349		1.5	5.0	1	ug/L
Alkalinity	14	SM22 2320B-2011	2200		5.0	5.0	1	mg/L

Analysis Detects Report

Client Name: SCS Engineers-Winchester
 Client Site ID: City of Bristol 2nd Semi-Annual
 Submitted To: Jennifer Robb

Date Issued: 12/30/2022 11:56:27AM

Laboratory Sample ID: **22L0423-14** Client Sample ID: **GC Outfall**

Parameter	Samp ID	Reference Method	Sample Results	Qual	LOD	LOQ	Dil. Factor	Units
Chloride	14	EPA300.0 R2.1	1740		50.0	100	100	mg/L

Analysis Detects Report

 Client Name: SCS Engineers-Winchester
 Client Site ID: City of Bristol 2nd Semi-Annual
 Submitted To: Jennifer Robb

Date Issued: 12/30/2022 11:56:27AM

Laboratory Sample ID: 22L0423-15 Client Sample ID: GC Outfall Duplicate

Parameter	Samp ID	Reference Method	Sample Results	Qual	LOD	LOQ	Dil. Factor	Units
Antimony	15RE1	SW6020B	8.0		1.0	1.0	1	ug/L
Arsenic	15	SW6020B	290		5.0	10	10	ug/L
Barium	15	SW6020B	1060		10.0	50.0	10	ug/L
Chromium	15	SW6020B	111		6.00	10.0	10	ug/L
Cobalt	15	SW6020B	8.98	J	2.00	10.0	10	ug/L
Copper	15	SW6020B	76.6		3.00	10.0	10	ug/L
Nickel	15	SW6020B	21.95		10.00	10.00	10	ug/L
Tin	15RE3	SW6020B	3.72		1.00	1.00	1	ug/L
Vanadium	15	SW6020B	88.3		25.0	50.0	10	ug/L
Zinc	15RE1	SW6020B	46.2		2.50	5.00	1	ug/L
1,2-Dichlorobenzene	15	SW8260D	1.44		0.40	1.00	1	ug/L
1,4-Dichlorobenzene	15	SW8260D	23.5		0.40	1.00	1	ug/L
2-Butanone (MEK)	15	SW8260D	287		3.00	10.0	1	ug/L
4-Methyl-2-pentanone (MIBK)	15	SW8260D	35.5		1.50	5.00	1	ug/L
Acetone	15RE1	SW8260D	391		70.0	100	10	ug/L
Benzene	15RE1	SW8260D	414		4.00	10.0	10	ug/L
Chlorobenzene	15	SW8260D	5.11		0.40	1.00	1	ug/L
Chloroform	15	SW8260D	2.43		0.50	0.50	1	ug/L
cis-1,2-Dichloroethylene	15	SW8260D	0.72	J	0.40	1.00	1	ug/L
Ethylbenzene	15	SW8260D	79.3		0.40	1.00	1	ug/L
m+p-Xylenes	15	SW8260D	48.5		0.60	2.00	1	ug/L
o-Xylene	15	SW8260D	29.8		0.40	1.00	1	ug/L
Toluene	15	SW8260D	38.0		0.50	1.00	1	ug/L
Xylenes, Total	15	SW8260D	78.2		1.00	3.00	1	ug/L
Phenol	15	SW8270E	140		23.4	93.5	10	ug/L
Methane	15	RSK175M	300		1.5	5.0	1	ug/L
Alkalinity	15	SM22 2320B-2011	2060		5.0	5.0	1	mg/L

Analysis Detects Report

Client Name: SCS Engineers-Winchester
 Client Site ID: City of Bristol 2nd Semi-Annual
 Submitted To: Jennifer Robb

Date Issued: 12/30/2022 11:56:27AM

Laboratory Sample ID: 22L0423-15 **Client Sample ID: GC Outfall Duplicate**

Parameter	Samp ID	Reference Method	Sample Results	Qual	LOD	LOQ	Dil. Factor	Units
Chloride	15	EPA300.0 R2.1	1630		50.0	100	100	mg/L

Laboratory Sample ID: 22L0423-16 **Client Sample ID: Field Blank**

Parameter	Samp ID	Reference Method	Sample Results	Qual	LOD	LOQ	Dil. Factor	Units
Acetone	16	SW8260D	11.5		7.00	10.0	1	ug/L

Note that this report is not the "Certificate of Analysis". This report only lists the target analytes that displayed concentrations that exceeded the detection limit specified for that analyte. For a complete listing of all analytes requested and the results of the analysis see the "Certificate of Analysis".

Certificate of Analysis

Client Name: SCS Engineers-Winchester
 Client Site I.D.: City of Bristol 2nd Semi-Annual
 Submitted To: Jennifer Robb

Date Issued: 12/30/2022 11:56:27AM

ANALYTICAL REPORT FOR SAMPLES

Sample ID	Laboratory ID	Matrix	Date Sampled	Date Received
MW-104B	22L0423-01	Ground Water	12/05/2022 14:56	12/08/2022 08:00
MW-104A	22L0423-02	Ground Water	12/05/2022 12:21	12/08/2022 08:00
MW-106A	22L0423-03	Ground Water	12/06/2022 12:46	12/08/2022 08:00
MW-101	22L0423-04	Ground Water	12/06/2022 14:03	12/08/2022 08:00
MW-205B	22L0423-05	Ground Water	12/06/2022 15:00	12/08/2022 08:00
MW-206A	22L0423-06	Ground Water	12/05/2022 10:49	12/08/2022 08:00
MW-206B	22L0423-07	Ground Water	12/05/2022 11:50	12/08/2022 08:00
MW-211A	22L0423-08	Ground Water	12/06/2022 11:33	12/08/2022 08:00
MW-211B	22L0423-09	Ground Water	12/06/2022 11:49	12/08/2022 08:00
MW-106B	22L0423-10	Ground Water	12/06/2022 13:15	12/08/2022 08:00
MW-210A	22L0423-11	Ground Water	12/07/2022 09:24	12/08/2022 08:00
MW-210B	22L0423-12	Ground Water	12/07/2022 09:39	12/08/2022 08:00
MW-108	22L0423-13	Ground Water	12/05/2022 14:35	12/08/2022 08:00
GC Outfall	22L0423-14	Ground Water	12/06/2022 10:30	12/08/2022 08:00
GC Outfall Duplicate	22L0423-15	Ground Water	12/06/2022 10:45	12/08/2022 08:00
Field Blank	22L0423-16	Ground Water	12/06/2022 13:01	12/08/2022 08:00
Trip Blank	22L0423-17	Non-Potable Water	11/29/2022 11:00	12/08/2022 08:00

Samples 22L0423-14 and -15 do not meet the MCL for bis(2-ethylhexyl) phthalate due to dilutions made necessary by matrix interference.

The Certificate of Analysis is being re-issued on 12/30/22 to reflect revised Sb, Be, Cd, Tl and bis (2-ethylhexyl) phthalate data

Certificate of Analysis

 Client Name: SCS Engineers-Winchester
 Client Site I.D.: City of Bristol 2nd Semi-Annual
 Submitted To: Jennifer Robb

Date Issued: 12/30/2022 11:56:27AM

Client Sample ID: MW-104B

Laboratory Sample ID: 22L0423-01

Parameter	Samp ID	CAS	Reference Method	Sample Prep Date/Time	Analyzed Date/Time	Sample Results	Qual	LOD	LOQ	DF	Units	Analyst
Metals (Total) by EPA 6000/7000 Series Methods												
Silver	01	7440-22-4	SW6020B	12/12/2022 12:30	12/18/2022 20:19	BLOD		0.0600	1.00	1	ug/L	MWL
Arsenic	01	7440-38-2	SW6020B	12/12/2022 12:30	12/18/2022 20:19	BLOD		0.50	1.0	1	ug/L	MWL
Barium	01	7440-39-3	SW6020B	12/12/2022 12:30	12/18/2022 20:19	26.8		1.00	5.00	1	ug/L	MWL
Beryllium	01	7440-41-7	SW6020B	12/12/2022 12:30	12/18/2022 20:19	BLOD		0.200	1.00	1	ug/L	MWL
Cadmium	01	7440-43-9	SW6020B	12/12/2022 12:30	12/18/2022 20:19	BLOD		0.100	1.00	1	ug/L	MWL
Cobalt	01	7440-48-4	SW6020B	12/12/2022 12:30	12/18/2022 20:19	0.998	J	0.200	1.00	1	ug/L	MWL
Chromium	01	7440-47-3	SW6020B	12/12/2022 12:30	12/18/2022 20:19	BLOD		0.600	1.00	1	ug/L	MWL
Copper	01	7440-50-8	SW6020B	12/12/2022 12:30	12/18/2022 20:19	BLOD		0.300	1.00	1	ug/L	MWL
Mercury	01	7439-97-6	SW7470A	12/15/2022 09:15	12/15/2022 15:14	BLOD		0.00020	0.00020	1	mg/L	ACM
Nickel	01	7440-02-0	SW6020B	12/12/2022 12:30	12/18/2022 20:19	1.421		1.000	1.000	1	ug/L	MWL
Lead	01	7439-92-1	SW6020B	12/12/2022 12:30	12/18/2022 20:19	BLOD		1.0	1.0	1	ug/L	MWL
Antimony	01	7440-36-0	SW6020B	12/12/2022 12:30	12/18/2022 20:19	BLOD		1.0	1.0	1	ug/L	MWL
Selenium	01	7782-49-2	SW6020B	12/12/2022 12:30	12/18/2022 20:19	BLOD		0.850	1.00	1	ug/L	MWL
Tin	01RE1	7440-31-5	SW6020B	12/12/2022 10:30	12/20/2022 14:20	1.13		1.00	1.00	1	ug/L	MWL
Thallium	01	7440-28-0	SW6020B	12/12/2022 12:30	12/18/2022 20:19	BLOD		1.0	1.0	1	ug/L	MWL
Vanadium	01	7440-62-2	SW6020B	12/12/2022 12:30	12/18/2022 20:19	BLOD		2.50	5.00	1	ug/L	MWL
Zinc	01	7440-66-6	SW6020B	12/12/2022 12:30	12/18/2022 20:19	BLOD		2.50	5.00	1	ug/L	MWL
Volatile Organic Compounds by GCMS												
1,1,1,2-Tetrachloroethane	01	630-20-6	SW8260D	12/09/2022 14:45	12/09/2022 14:45	BLOD		0.40	0.40	1	ug/L	BMR
1,1,1-Trichloroethane	01	71-55-6	SW8260D	12/09/2022 14:45	12/09/2022 14:45	BLOD		0.60	1.00	1	ug/L	BMR
1,1,2,2-Tetrachloroethane	01	79-34-5	SW8260D	12/09/2022 14:45	12/09/2022 14:45	BLOD		0.30	0.40	1	ug/L	BMR
1,1,2-Trichloroethane	01	79-00-5	SW8260D	12/09/2022 14:45	12/09/2022 14:45	BLOD		0.50	1.00	1	ug/L	BMR
1,1-Dichloroethane	01	75-34-3	SW8260D	12/09/2022 14:45	12/09/2022 14:45	BLOD		0.60	1.00	1	ug/L	BMR
1,1-Dichloroethylene	01	75-35-4	SW8260D	12/09/2022 14:45	12/09/2022 14:45	BLOD		0.70	1.00	1	ug/L	BMR

Certificate of Analysis

Client Name: SCS Engineers-Winchester
 Client Site I.D.: City of Bristol 2nd Semi-Annual
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Date Issued: 12/30/2022 11:56:27AM

Client Sample ID: MW-104B

Laboratory Sample ID: 22L0423-01

Parameter	Samp ID	CAS	Reference Method	Sample Prep Date/Time	Analyzed Date/Time	Sample Results	Qual	LOD	LOQ	DF	Units	Analyst
Volatile Organic Compounds by GCMS												
1,2,3-Trichloropropane	01	96-18-4	SW8260D	12/09/2022 14:45	12/09/2022 14:45	BLOD		0.40	1.00	1	ug/L	BMR
1,2-Dichlorobenzene	01	95-50-1	SW8260D	12/09/2022 14:45	12/09/2022 14:45	BLOD		0.40	1.00	1	ug/L	BMR
1,2-Dichloroethane	01	107-06-2	SW8260D	12/09/2022 14:45	12/09/2022 14:45	BLOD		0.70	1.00	1	ug/L	BMR
1,2-Dichloropropane	01	78-87-5	SW8260D	12/09/2022 14:45	12/09/2022 14:45	BLOD		0.40	1.00	1	ug/L	BMR
1,4-Dichlorobenzene	01	106-46-7	SW8260D	12/09/2022 14:45	12/09/2022 14:45	BLOD		0.40	1.00	1	ug/L	BMR
2-Butanone (MEK)	01	78-93-3	SW8260D	12/09/2022 14:45	12/09/2022 14:45	BLOD		3.00	10.0	1	ug/L	BMR
2-Hexanone (MBK)	01	591-78-6	SW8260D	12/09/2022 14:45	12/09/2022 14:45	BLOD		2.20	5.00	1	ug/L	BMR
4-Methyl-2-pentanone (MIBK)	01	108-10-1	SW8260D	12/09/2022 14:45	12/09/2022 14:45	BLOD		1.50	5.00	1	ug/L	BMR
Acetone	01	67-64-1	SW8260D	12/09/2022 14:45	12/09/2022 14:45	BLOD		7.00	10.0	1	ug/L	BMR
Acrylonitrile	01	107-13-1	SW8260D	12/09/2022 14:45	12/09/2022 14:45	BLOD		1.70	5.00	1	ug/L	BMR
Benzene	01	71-43-2	SW8260D	12/09/2022 14:45	12/09/2022 14:45	BLOD		0.40	1.00	1	ug/L	BMR
Bromochloromethane	01	74-97-5	SW8260D	12/09/2022 14:45	12/09/2022 14:45	BLOD		0.50	1.00	1	ug/L	BMR
Bromodichloromethane	01	75-27-4	SW8260D	12/09/2022 14:45	12/09/2022 14:45	BLOD		0.40	0.50	1	ug/L	BMR
Bromoform	01	75-25-2	SW8260D	12/09/2022 14:45	12/09/2022 14:45	BLOD		0.40	1.00	1	ug/L	BMR
Bromomethane	01	74-83-9	SW8260D	12/09/2022 14:45	12/09/2022 14:45	BLOD		0.80	1.00	1	ug/L	BMR
Carbon disulfide	01	75-15-0	SW8260D	12/09/2022 14:45	12/09/2022 14:45	BLOD		5.00	10.0	1	ug/L	BMR
Carbon tetrachloride	01	56-23-5	SW8260D	12/09/2022 14:45	12/09/2022 14:45	BLOD		0.50	1.00	1	ug/L	BMR
Chlorobenzene	01	108-90-7	SW8260D	12/09/2022 14:45	12/09/2022 14:45	BLOD		0.40	1.00	1	ug/L	BMR
Chloroethane	01	75-00-3	SW8260D	12/09/2022 14:45	12/09/2022 14:45	BLOD		0.70	1.00	1	ug/L	BMR
Chloroform	01	67-66-3	SW8260D	12/09/2022 14:45	12/09/2022 14:45	BLOD		0.50	0.50	1	ug/L	BMR
Chloromethane	01	74-87-3	SW8260D	12/09/2022 14:45	12/09/2022 14:45	BLOD		0.95	1.00	1	ug/L	BMR
cis-1,2-Dichloroethylene	01	156-59-2	SW8260D	12/09/2022 14:45	12/09/2022 14:45	BLOD		0.40	1.00	1	ug/L	BMR
cis-1,3-Dichloropropene	01	10061-01-5	SW8260D	12/09/2022 14:45	12/09/2022 14:45	BLOD		0.30	1.00	1	ug/L	BMR
Dibromochloromethane	01	124-48-1	SW8260D	12/09/2022 14:45	12/09/2022 14:45	BLOD		0.35	0.50	1	ug/L	BMR

Certificate of Analysis

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Client Sample ID: MW-104B

Laboratory Sample ID: 22L0423-01

Parameter	Samp ID	CAS	Reference Method	Sample Prep Date/Time	Analyzed Date/Time	Sample Results	Qual	LOD	LOQ	DF	Units	Analyst
Volatile Organic Compounds by GCMS												
Dibromomethane	01	74-95-3	SW8260D	12/09/2022 14:45	12/09/2022 14:45	BLOD		0.40	1.00	1	ug/L	BMR
Ethylbenzene	01	100-41-4	SW8260D	12/09/2022 14:45	12/09/2022 14:45	BLOD		0.40	1.00	1	ug/L	BMR
Iodomethane	01	74-88-4	SW8260D	12/09/2022 14:45	12/09/2022 14:45	BLOD		6.00	10.0	1	ug/L	BMR
m+p-Xylenes	01	179601-23-1	SW8260D	12/09/2022 14:45	12/09/2022 14:45	BLOD		0.60	2.00	1	ug/L	BMR
Methylene chloride	01	75-09-2	SW8260D	12/09/2022 14:45	12/09/2022 14:45	BLOD		4.00	4.00	1	ug/L	BMR
o-Xylene	01	95-47-6	SW8260D	12/09/2022 14:45	12/09/2022 14:45	BLOD		0.40	1.00	1	ug/L	BMR
Styrene	01	100-42-5	SW8260D	12/09/2022 14:45	12/09/2022 14:45	BLOD		0.40	1.00	1	ug/L	BMR
Tetrachloroethylene (PCE)	01	127-18-4	SW8260D	12/09/2022 14:45	12/09/2022 14:45	BLOD		0.40	1.00	1	ug/L	BMR
Toluene	01	108-88-3	SW8260D	12/09/2022 14:45	12/09/2022 14:45	BLOD		0.50	1.00	1	ug/L	BMR
trans-1,2-Dichloroethylene	01	156-60-5	SW8260D	12/09/2022 14:45	12/09/2022 14:45	BLOD		0.60	1.00	1	ug/L	BMR
trans-1,3-Dichloropropene	01	10061-02-6	SW8260D	12/09/2022 14:45	12/09/2022 14:45	BLOD		0.30	1.00	1	ug/L	BMR
trans-1,4-Dichloro-2-butene	01	110-57-6	SW8260D	12/09/2022 14:45	12/09/2022 14:45	BLOD		1.00	4.00	1	ug/L	BMR
Trichloroethylene	01	79-01-6	SW8260D	12/09/2022 14:45	12/09/2022 14:45	BLOD		0.40	1.00	1	ug/L	BMR
Trichlorofluoromethane	01	75-69-4	SW8260D	12/09/2022 14:45	12/09/2022 14:45	BLOD		0.80	1.00	1	ug/L	BMR
Vinyl acetate	01	108-05-4	SW8260D	12/09/2022 14:45	12/09/2022 14:45	BLOD		2.00	10.0	1	ug/L	BMR
Vinyl chloride	01	75-01-4	SW8260D	12/09/2022 14:45	12/09/2022 14:45	BLOD		0.50	0.50	1	ug/L	BMR
Xylenes, Total	01	1330-20-7	SW8260D	12/09/2022 14:45	12/09/2022 14:45	BLOD		1.00	3.00	1	ug/L	BMR
<i>Surr: 1,2-Dichloroethane-d4 (Surr)</i>	01	106 %	70-120	12/09/2022 14:45	12/09/2022 14:45							
<i>Surr: 4-Bromofluorobenzene (Surr)</i>	01	96.7 %	75-120	12/09/2022 14:45	12/09/2022 14:45							
<i>Surr: Dibromofluoromethane (Surr)</i>	01	97.3 %	70-130	12/09/2022 14:45	12/09/2022 14:45							
<i>Surr: Toluene-d8 (Surr)</i>	01	98.9 %	70-130	12/09/2022 14:45	12/09/2022 14:45							
Dichlorodifluoromethane	01	75-71-8	SW8260D	12/09/2022 14:45	12/09/2022 14:45	BLOD		0.95	1.00	1	ug/L	BMR
<i>Surr: 1,2-Dichloroethane-d4 (Surr)</i>	01	106 %	70-120	12/09/2022 14:45	12/09/2022 14:45							
<i>Surr: 4-Bromofluorobenzene (Surr)</i>	01	96.7 %	75-120	12/09/2022 14:45	12/09/2022 14:45							

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Laboratory Sample ID: 22L0423-01

Parameter	Samp ID	CAS	Reference Method	Sample Prep Date/Time	Analyzed Date/Time	Sample Results	Qual	LOD	LOQ	DF	Units	Analyst
Volatile Organic Compounds by GCMS												
Surr: Dibromofluoromethane (Surr)	01	97.3 %	70-130	12/09/2022 14:45	12/09/2022 14:45							
Surr: Toluene-d8 (Surr)	01	98.9 %	70-130	12/09/2022 14:45	12/09/2022 14:45							

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Semivolatile Organic Compounds by GCMS												
bis (2-Ethylhexyl) phthalate	01	117-81-7	SW8270E	12/09/2022 10:02	12/12/2022 16:11	BLOD		4.67	5.00	1	ug/L	MGG
Diethyl phthalate	01	84-66-2	SW8270E	12/09/2022 10:02	12/12/2022 16:11	BLOD		2.80	10.0	1	ug/L	MGG
Di-n-butyl phthalate	01	84-74-2	SW8270E	12/09/2022 10:02	12/12/2022 16:11	BLOD		3.74	10.0	1	ug/L	MGG
Phenol	01	108-95-2	SW8270E	12/09/2022 10:02	12/12/2022 16:11	BLOD		2.34	10.0	1	ug/L	MGG
<i>Surr: 2,4,6-Tribromophenol (Surr)</i>	<i>01</i>	<i>87.2 %</i>	<i>10-86</i>	<i>12/09/2022 10:02</i>	<i>12/12/2022 16:11</i>							<i>S</i>
<i>Surr: 2-Fluorobiphenyl (Surr)</i>	<i>01</i>	<i>179 %</i>	<i>9-87</i>	<i>12/09/2022 10:02</i>	<i>12/12/2022 16:11</i>							<i>S</i>
<i>Surr: 2-Fluorophenol (Surr)</i>	<i>01</i>	<i>65.9 %</i>	<i>10-52</i>	<i>12/09/2022 10:02</i>	<i>12/12/2022 16:11</i>							<i>S</i>
<i>Surr: Nitrobenzene-d5 (Surr)</i>	<i>01</i>	<i>144 %</i>	<i>10-98.5</i>	<i>12/09/2022 10:02</i>	<i>12/12/2022 16:11</i>							<i>S</i>
<i>Surr: Phenol-d5 (Surr)</i>	<i>01</i>	<i>52.5 %</i>	<i>5-33</i>	<i>12/09/2022 10:02</i>	<i>12/12/2022 16:11</i>							<i>S</i>
<i>Surr: p-Terphenyl-d14 (Surr)</i>	<i>01</i>	<i>121 %</i>	<i>27-133</i>	<i>12/09/2022 10:02</i>	<i>12/12/2022 16:11</i>							<i>S</i>

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Parameter	Samp ID	CAS	Reference Method	Sample Prep Date/Time	Analyzed Date/Time	Sample Results	Qual	LOD	LOQ	DF	Units	Analyst
Organochlorine Herbicides by GC/ECD												
2,4,5-TP (Silvex)	01	93-72-1	SW8151A	12/12/2022 14:15	12/16/2022 15:42	BLOD		0.107	0.500	1	ug/L	LBH2
2,4-D	01	94-75-7	SW8151A	12/12/2022 14:15	12/16/2022 15:42	BLOD		0.200	0.500	1	ug/L	LBH2
Surr: DCAA (Surr)	01	94.6 %	48.5-134	12/12/2022 14:15	12/16/2022 15:42							

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Parameter	Samp ID	CAS	Reference Method	Sample Prep Date/Time	Analyzed Date/Time	Sample Results	Qual	LOD	LOQ	DF	Units	Analyst
Micro-extractables by GC/ECD												
1,2-Dibromoethane (EDB)	01	106-93-4	SW8011	12/12/2022 12:25	12/12/2022 20:17	BLOD		0.008	0.010	1	ug/L	LBH2
1,2,3-Trichloropropane	01	96-18-4	SW8011	12/12/2022 12:25	12/12/2022 20:17	BLOD		0.009	0.010	1	ug/L	LBH2
1,2-Dibromo-3-chloropropane (DBCP)	01	96-12-8	SW8011	12/12/2022 12:25	12/12/2022 20:17	BLOD		0.005	0.010	1	ug/L	LBH2

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Parameter	Samp ID	CAS	Reference Method	Sample Prep Date/Time	Analyzed Date/Time	Sample Results	Qual	LOD	LOQ	DF	Units	Analyst
Wet Chemistry Analysis												
Cyanide	01	57-12-5	SW9012B	12/14/2022 13:42	12/14/2022 13:42	BLOD	CI	0.01	0.01	1	mg/L	MKS
Sulfide	01	18496-25-8	SW9215	12/09/2022 14:14	12/09/2022 14:14	BLOD		0.80	1.00	1	mg/L	AAL

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Client Sample ID: MW-104A

Laboratory Sample ID: 22L0423-02

Parameter	Samp ID	CAS	Reference Method	Sample Prep Date/Time	Analyzed Date/Time	Sample Results	Qual	LOD	LOQ	DF	Units	Analyst
Metals (Total) by EPA 6000/7000 Series Methods												
Silver	02	7440-22-4	SW6020B	12/12/2022 12:30	12/18/2022 20:22	BLOD		0.0600	1.00	1	ug/L	MWL
Arsenic	02	7440-38-2	SW6020B	12/12/2022 12:30	12/18/2022 20:22	6.5		0.50	1.0	1	ug/L	MWL
Barium	02	7440-39-3	SW6020B	12/12/2022 12:30	12/18/2022 20:22	67.2		1.00	5.00	1	ug/L	MWL
Beryllium	02	7440-41-7	SW6020B	12/12/2022 12:30	12/18/2022 20:22	BLOD		0.200	1.00	1	ug/L	MWL
Cadmium	02	7440-43-9	SW6020B	12/12/2022 12:30	12/18/2022 20:22	BLOD		0.100	1.00	1	ug/L	MWL
Cobalt	02	7440-48-4	SW6020B	12/12/2022 12:30	12/18/2022 20:22	1.15		0.200	1.00	1	ug/L	MWL
Chromium	02	7440-47-3	SW6020B	12/12/2022 12:30	12/18/2022 20:22	BLOD		0.600	1.00	1	ug/L	MWL
Copper	02	7440-50-8	SW6020B	12/12/2022 12:30	12/18/2022 20:22	BLOD		0.300	1.00	1	ug/L	MWL
Mercury	02	7439-97-6	SW7470A	12/15/2022 09:15	12/15/2022 15:16	BLOD		0.00020	0.00020	1	mg/L	ACM
Nickel	02	7440-02-0	SW6020B	12/12/2022 12:30	12/18/2022 20:22	1.693		1.000	1.000	1	ug/L	MWL
Lead	02	7439-92-1	SW6020B	12/12/2022 12:30	12/18/2022 20:22	BLOD		1.0	1.0	1	ug/L	MWL
Antimony	02	7440-36-0	SW6020B	12/12/2022 12:30	12/18/2022 20:22	BLOD		1.0	1.0	1	ug/L	MWL
Selenium	02	7782-49-2	SW6020B	12/12/2022 12:30	12/18/2022 20:22	BLOD		0.850	1.00	1	ug/L	MWL
Tin	02RE2	7440-31-5	SW6020B	12/12/2022 10:30	12/20/2022 14:23	1.16		1.00	1.00	1	ug/L	MWL
Thallium	02	7440-28-0	SW6020B	12/12/2022 12:30	12/18/2022 20:22	BLOD		1.0	1.0	1	ug/L	MWL
Vanadium	02	7440-62-2	SW6020B	12/12/2022 12:30	12/18/2022 20:22	BLOD		2.50	5.00	1	ug/L	MWL
Zinc	02	7440-66-6	SW6020B	12/12/2022 12:30	12/18/2022 20:22	BLOD		2.50	5.00	1	ug/L	MWL

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Client Sample ID: MW-104A

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Parameter	Samp ID	CAS	Reference Method	Sample Prep Date/Time	Analyzed Date/Time	Sample Results	Qual	LOD	LOQ	DF	Units	Analyst
Volatile Organic Compounds by GCMS												
1,1,1,2-Tetrachloroethane	02	630-20-6	SW8260D	12/09/2022 15:10	12/09/2022 15:10	BLOD		0.40	0.40	1	ug/L	BMR
1,1,1-Trichloroethane	02	71-55-6	SW8260D	12/09/2022 15:10	12/09/2022 15:10	BLOD		0.60	1.00	1	ug/L	BMR
1,1,2,2-Tetrachloroethane	02	79-34-5	SW8260D	12/09/2022 15:10	12/09/2022 15:10	BLOD		0.30	0.40	1	ug/L	BMR
1,1,2-Trichloroethane	02	79-00-5	SW8260D	12/09/2022 15:10	12/09/2022 15:10	BLOD		0.50	1.00	1	ug/L	BMR
1,1-Dichloroethane	02	75-34-3	SW8260D	12/09/2022 15:10	12/09/2022 15:10	BLOD		0.60	1.00	1	ug/L	BMR
1,1-Dichloroethylene	02	75-35-4	SW8260D	12/09/2022 15:10	12/09/2022 15:10	BLOD		0.70	1.00	1	ug/L	BMR
1,2,3-Trichloropropane	02	96-18-4	SW8260D	12/09/2022 15:10	12/09/2022 15:10	BLOD		0.40	1.00	1	ug/L	BMR
1,2-Dichlorobenzene	02	95-50-1	SW8260D	12/09/2022 15:10	12/09/2022 15:10	BLOD		0.40	1.00	1	ug/L	BMR
1,2-Dichloroethane	02	107-06-2	SW8260D	12/09/2022 15:10	12/09/2022 15:10	BLOD		0.70	1.00	1	ug/L	BMR
1,2-Dichloropropane	02	78-87-5	SW8260D	12/09/2022 15:10	12/09/2022 15:10	BLOD		0.40	1.00	1	ug/L	BMR
1,4-Dichlorobenzene	02	106-46-7	SW8260D	12/09/2022 15:10	12/09/2022 15:10	BLOD		0.40	1.00	1	ug/L	BMR
2-Butanone (MEK)	02	78-93-3	SW8260D	12/09/2022 15:10	12/09/2022 15:10	BLOD		3.00	10.0	1	ug/L	BMR
2-Hexanone (MBK)	02	591-78-6	SW8260D	12/09/2022 15:10	12/09/2022 15:10	BLOD		2.20	5.00	1	ug/L	BMR
4-Methyl-2-pentanone (MIBK)	02	108-10-1	SW8260D	12/09/2022 15:10	12/09/2022 15:10	BLOD		1.50	5.00	1	ug/L	BMR
Acetone	02	67-64-1	SW8260D	12/09/2022 15:10	12/09/2022 15:10	BLOD		7.00	10.0	1	ug/L	BMR
Acrylonitrile	02	107-13-1	SW8260D	12/09/2022 15:10	12/09/2022 15:10	BLOD		1.70	5.00	1	ug/L	BMR
Benzene	02	71-43-2	SW8260D	12/09/2022 15:10	12/09/2022 15:10	BLOD		0.40	1.00	1	ug/L	BMR
Bromochloromethane	02	74-97-5	SW8260D	12/09/2022 15:10	12/09/2022 15:10	BLOD		0.50	1.00	1	ug/L	BMR
Bromodichloromethane	02	75-27-4	SW8260D	12/09/2022 15:10	12/09/2022 15:10	BLOD		0.40	0.50	1	ug/L	BMR
Bromoform	02	75-25-2	SW8260D	12/09/2022 15:10	12/09/2022 15:10	BLOD		0.40	1.00	1	ug/L	BMR
Bromomethane	02	74-83-9	SW8260D	12/09/2022 15:10	12/09/2022 15:10	BLOD		0.80	1.00	1	ug/L	BMR
Carbon disulfide	02	75-15-0	SW8260D	12/09/2022 15:10	12/09/2022 15:10	BLOD		5.00	10.0	1	ug/L	BMR
Carbon tetrachloride	02	56-23-5	SW8260D	12/09/2022 15:10	12/09/2022 15:10	BLOD		0.50	1.00	1	ug/L	BMR
Chlorobenzene	02	108-90-7	SW8260D	12/09/2022 15:10	12/09/2022 15:10	BLOD		0.40	1.00	1	ug/L	BMR

Certificate of Analysis

Client Name: SCS Engineers-Winchester
 Client Site I.D.: City of Bristol 2nd Semi-Annual
 Submitted To: Jennifer Robb

Date Issued: 12/30/2022 11:56:27AM

Client Sample ID: MW-104A

Laboratory Sample ID: 22L0423-02

Parameter	Samp ID	CAS	Reference Method	Sample Prep Date/Time	Analyzed Date/Time	Sample Results	Qual	LOD	LOQ	DF	Units	Analyst
Volatile Organic Compounds by GCMS												
Chloroethane	02	75-00-3	SW8260D	12/09/2022 15:10	12/09/2022 15:10	BLOD		0.70	1.00	1	ug/L	BMR
Chloroform	02	67-66-3	SW8260D	12/09/2022 15:10	12/09/2022 15:10	BLOD		0.50	0.50	1	ug/L	BMR
Chloromethane	02	74-87-3	SW8260D	12/09/2022 15:10	12/09/2022 15:10	BLOD		0.95	1.00	1	ug/L	BMR
cis-1,2-Dichloroethylene	02	156-59-2	SW8260D	12/09/2022 15:10	12/09/2022 15:10	BLOD		0.40	1.00	1	ug/L	BMR
cis-1,3-Dichloropropene	02	10061-01-5	SW8260D	12/09/2022 15:10	12/09/2022 15:10	BLOD		0.30	1.00	1	ug/L	BMR
Dibromochloromethane	02	124-48-1	SW8260D	12/09/2022 15:10	12/09/2022 15:10	BLOD		0.35	0.50	1	ug/L	BMR
Dibromomethane	02	74-95-3	SW8260D	12/09/2022 15:10	12/09/2022 15:10	BLOD		0.40	1.00	1	ug/L	BMR
Ethylbenzene	02	100-41-4	SW8260D	12/09/2022 15:10	12/09/2022 15:10	BLOD		0.40	1.00	1	ug/L	BMR
Iodomethane	02	74-88-4	SW8260D	12/09/2022 15:10	12/09/2022 15:10	BLOD		6.00	10.0	1	ug/L	BMR
m+p-Xylenes	02	179601-23-1	SW8260D	12/09/2022 15:10	12/09/2022 15:10	BLOD		0.60	2.00	1	ug/L	BMR
Methylene chloride	02	75-09-2	SW8260D	12/09/2022 15:10	12/09/2022 15:10	BLOD		4.00	4.00	1	ug/L	BMR
o-Xylene	02	95-47-6	SW8260D	12/09/2022 15:10	12/09/2022 15:10	BLOD		0.40	1.00	1	ug/L	BMR
Styrene	02	100-42-5	SW8260D	12/09/2022 15:10	12/09/2022 15:10	BLOD		0.40	1.00	1	ug/L	BMR
Tetrachloroethylene (PCE)	02	127-18-4	SW8260D	12/09/2022 15:10	12/09/2022 15:10	BLOD		0.40	1.00	1	ug/L	BMR
Toluene	02	108-88-3	SW8260D	12/09/2022 15:10	12/09/2022 15:10	BLOD		0.50	1.00	1	ug/L	BMR
trans-1,2-Dichloroethylene	02	156-60-5	SW8260D	12/09/2022 15:10	12/09/2022 15:10	BLOD		0.60	1.00	1	ug/L	BMR
trans-1,3-Dichloropropene	02	10061-02-6	SW8260D	12/09/2022 15:10	12/09/2022 15:10	BLOD		0.30	1.00	1	ug/L	BMR
trans-1,4-Dichloro-2-butene	02	110-57-6	SW8260D	12/09/2022 15:10	12/09/2022 15:10	BLOD		1.00	4.00	1	ug/L	BMR
Trichloroethylene	02	79-01-6	SW8260D	12/09/2022 15:10	12/09/2022 15:10	BLOD		0.40	1.00	1	ug/L	BMR
Trichlorofluoromethane	02	75-69-4	SW8260D	12/09/2022 15:10	12/09/2022 15:10	BLOD		0.80	1.00	1	ug/L	BMR
Vinyl acetate	02	108-05-4	SW8260D	12/09/2022 15:10	12/09/2022 15:10	BLOD		2.00	10.0	1	ug/L	BMR
Vinyl chloride	02	75-01-4	SW8260D	12/09/2022 15:10	12/09/2022 15:10	BLOD		0.50	0.50	1	ug/L	BMR
Xylenes, Total	02	1330-20-7	SW8260D	12/09/2022 15:10	12/09/2022 15:10	BLOD		1.00	3.00	1	ug/L	BMR

Certificate of Analysis

Client Name: SCS Engineers-Winchester

Date Issued: 12/30/2022 11:56:27AM

Client Site I.D.: City of Bristol 2nd Semi-Annual

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Client Sample ID: MW-104A

Laboratory Sample ID: 22L0423-02

Parameter	Samp ID	CAS	Reference Method	Sample Prep Date/Time	Analyzed Date/Time	Sample Results	Qual	LOD	LOQ	DF	Units	Analyst
Volatile Organic Compounds by GCMS												
Surr: 1,2-Dichloroethane-d4 (Surr)	02	104 %	70-120	12/09/2022 15:10	12/09/2022 15:10							
Surr: 4-Bromofluorobenzene (Surr)	02	95.5 %	75-120	12/09/2022 15:10	12/09/2022 15:10							
Surr: Dibromofluoromethane (Surr)	02	96.7 %	70-130	12/09/2022 15:10	12/09/2022 15:10							
Surr: Toluene-d8 (Surr)	02	98.9 %	70-130	12/09/2022 15:10	12/09/2022 15:10							
Dichlorodifluoromethane	02	75-71-8	SW8260D	12/09/2022 15:10	12/09/2022 15:10	BLOD		0.95	1.00	1	ug/L	BMR
Surr: 1,2-Dichloroethane-d4 (Surr)	02	104 %	70-120	12/09/2022 15:10	12/09/2022 15:10							
Surr: 4-Bromofluorobenzene (Surr)	02	95.5 %	75-120	12/09/2022 15:10	12/09/2022 15:10							
Surr: Dibromofluoromethane (Surr)	02	96.7 %	70-130	12/09/2022 15:10	12/09/2022 15:10							
Surr: Toluene-d8 (Surr)	02	98.9 %	70-130	12/09/2022 15:10	12/09/2022 15:10							

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Parameter	Samp ID	CAS	Reference Method	Sample Prep Date/Time	Analyzed Date/Time	Sample Results	Qual	LOD	LOQ	DF	Units	Analyst
Semivolatile Organic Compounds by GCMS												
bis (2-Ethylhexyl) phthalate	02	117-81-7	SW8270E	12/09/2022 10:02	12/12/2022 16:46	BLOD		4.67	5.00	1	ug/L	MGG
Diethyl phthalate	02	84-66-2	SW8270E	12/09/2022 10:02	12/12/2022 16:46	BLOD		2.80	10.0	1	ug/L	MGG
Di-n-butyl phthalate	02	84-74-2	SW8270E	12/09/2022 10:02	12/12/2022 16:46	BLOD		3.74	10.0	1	ug/L	MGG
Phenol	02	108-95-2	SW8270E	12/09/2022 10:02	12/12/2022 16:46	BLOD		2.34	10.0	1	ug/L	MGG
<i>Surr: 2,4,6-Tribromophenol (Surr)</i>	02	99.8 %	10-86	12/09/2022 10:02	12/12/2022 16:46							S
<i>Surr: 2-Fluorobiphenyl (Surr)</i>	02	111 %	9-87	12/09/2022 10:02	12/12/2022 16:46							S
<i>Surr: 2-Fluorophenol (Surr)</i>	02	46.4 %	10-52	12/09/2022 10:02	12/12/2022 16:46							
<i>Surr: Nitrobenzene-d5 (Surr)</i>	02	105 %	10-98.5	12/09/2022 10:02	12/12/2022 16:46							S
<i>Surr: Phenol-d5 (Surr)</i>	02	34.5 %	5-33	12/09/2022 10:02	12/12/2022 16:46							S
<i>Surr: p-Terphenyl-d14 (Surr)</i>	02	85.3 %	27-133	12/09/2022 10:02	12/12/2022 16:46							

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Parameter	Samp ID	CAS	Reference Method	Sample Prep Date/Time	Analyzed Date/Time	Sample Results	Qual	LOD	LOQ	DF	Units	Analyst
Organochlorine Herbicides by GC/ECD												
2,4,5-TP (Silvex)	02	93-72-1	SW8151A	12/12/2022 14:15	12/16/2022 16:07	BLOD		0.107	0.500	1	ug/L	LBH2
2,4-D	02	94-75-7	SW8151A	12/12/2022 14:15	12/16/2022 16:07	BLOD		0.200	0.500	1	ug/L	LBH2
Surr: DCAA (Surr)	02	87.2 %	48.5-134	12/12/2022 14:15	12/16/2022 16:07							

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Parameter	Samp ID	CAS	Reference Method	Sample Prep Date/Time	Analyzed Date/Time	Sample Results	Qual	LOD	LOQ	DF	Units	Analyst
Micro-extractables by GC/ECD												
1,2-Dibromoethane (EDB)	02	106-93-4	SW8011	12/12/2022 12:25	12/12/2022 20:39	BLOD		0.008	0.010	1	ug/L	LBH2
1,2,3-Trichloropropane	02	96-18-4	SW8011	12/12/2022 12:25	12/12/2022 20:39	BLOD		0.009	0.010	1	ug/L	LBH2
1,2-Dibromo-3-chloropropane (DBCP)	02	96-12-8	SW8011	12/12/2022 12:25	12/12/2022 20:39	BLOD		0.005	0.010	1	ug/L	LBH2

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Laboratory Sample ID: 22L0423-02

Parameter	Samp ID	CAS	Reference Method	Sample Prep Date/Time	Analyzed Date/Time	Sample Results	Qual	LOD	LOQ	DF	Units	Analyst
Wet Chemistry Analysis												
Cyanide	02	57-12-5	SW9012B	12/14/2022 13:42	12/14/2022 13:42	BLOD	CI	0.01	0.01	1	mg/L	MKS
Sulfide	02	18496-25-8	SW9215	12/09/2022 14:14	12/09/2022 14:14	BLOD		0.80	1.00	1	mg/L	AAL

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Client Sample ID: MW-106A

Laboratory Sample ID: 22L0423-03

Parameter	Samp ID	CAS	Reference Method	Sample Prep Date/Time	Analyzed Date/Time	Sample Results	Qual	LOD	LOQ	DF	Units	Analyst
Metals (Total) by EPA 6000/7000 Series Methods												
Silver	03	7440-22-4	SW6020B	12/12/2022 12:30	12/18/2022 20:25	BLOD		0.0600	1.00	1	ug/L	MWL
Arsenic	03	7440-38-2	SW6020B	12/12/2022 12:30	12/18/2022 20:25	3.4		0.50	1.0	1	ug/L	MWL
Barium	03RE1	7440-39-3	SW6020B	12/12/2022 12:30	12/19/2022 12:39	274		10.0	50.0	10	ug/L	MWL
Beryllium	03	7440-41-7	SW6020B	12/12/2022 12:30	12/18/2022 20:25	BLOD		0.200	1.00	1	ug/L	MWL
Cadmium	03	7440-43-9	SW6020B	12/12/2022 12:30	12/18/2022 20:25	BLOD		0.100	1.00	1	ug/L	MWL
Cobalt	03	7440-48-4	SW6020B	12/12/2022 12:30	12/18/2022 20:25	5.44		0.200	1.00	1	ug/L	MWL
Chromium	03	7440-47-3	SW6020B	12/12/2022 12:30	12/18/2022 20:25	BLOD		0.600	1.00	1	ug/L	MWL
Copper	03	7440-50-8	SW6020B	12/12/2022 12:30	12/18/2022 20:25	BLOD		0.300	1.00	1	ug/L	MWL
Mercury	03	7439-97-6	SW7470A	12/15/2022 09:15	12/15/2022 15:19	BLOD		0.00020	0.00020	1	mg/L	ACM
Nickel	03	7440-02-0	SW6020B	12/12/2022 12:30	12/18/2022 20:25	7.568		1.000	1.000	1	ug/L	MWL
Lead	03	7439-92-1	SW6020B	12/12/2022 12:30	12/18/2022 20:25	BLOD		1.0	1.0	1	ug/L	MWL
Antimony	03	7440-36-0	SW6020B	12/12/2022 12:30	12/18/2022 20:25	BLOD		1.0	1.0	1	ug/L	MWL
Selenium	03	7782-49-2	SW6020B	12/12/2022 12:30	12/18/2022 20:25	BLOD		0.850	1.00	1	ug/L	MWL
Tin	03RE2	7440-31-5	SW6020B	12/12/2022 10:30	12/20/2022 14:26	1.50		1.00	1.00	1	ug/L	MWL
Thallium	03	7440-28-0	SW6020B	12/12/2022 12:30	12/18/2022 20:25	BLOD		1.0	1.0	1	ug/L	MWL
Vanadium	03	7440-62-2	SW6020B	12/12/2022 12:30	12/18/2022 20:25	BLOD		2.50	5.00	1	ug/L	MWL
Zinc	03	7440-66-6	SW6020B	12/12/2022 12:30	12/18/2022 20:25	BLOD		2.50	5.00	1	ug/L	MWL

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Client Sample ID: MW-106A

Laboratory Sample ID: 22L0423-03

Parameter	Samp ID	CAS	Reference Method	Sample Prep Date/Time	Analyzed Date/Time	Sample Results	Qual	LOD	LOQ	DF	Units	Analyst
Volatile Organic Compounds by GCMS												
1,1,1,2-Tetrachloroethane	03	630-20-6	SW8260D	12/09/2022 15:36	12/09/2022 15:36	BLOD		0.40	0.40	1	ug/L	BMR
1,1,1-Trichloroethane	03	71-55-6	SW8260D	12/09/2022 15:36	12/09/2022 15:36	BLOD		0.60	1.00	1	ug/L	BMR
1,1,2,2-Tetrachloroethane	03	79-34-5	SW8260D	12/09/2022 15:36	12/09/2022 15:36	BLOD		0.30	0.40	1	ug/L	BMR
1,1,2-Trichloroethane	03	79-00-5	SW8260D	12/09/2022 15:36	12/09/2022 15:36	BLOD		0.50	1.00	1	ug/L	BMR
1,1-Dichloroethane	03	75-34-3	SW8260D	12/09/2022 15:36	12/09/2022 15:36	1.02		0.60	1.00	1	ug/L	BMR
1,1-Dichloroethylene	03	75-35-4	SW8260D	12/09/2022 15:36	12/09/2022 15:36	BLOD		0.70	1.00	1	ug/L	BMR
1,2,3-Trichloropropane	03	96-18-4	SW8260D	12/09/2022 15:36	12/09/2022 15:36	BLOD		0.40	1.00	1	ug/L	BMR
1,2-Dichlorobenzene	03	95-50-1	SW8260D	12/09/2022 15:36	12/09/2022 15:36	BLOD		0.40	1.00	1	ug/L	BMR
1,2-Dichloroethane	03	107-06-2	SW8260D	12/09/2022 15:36	12/09/2022 15:36	BLOD		0.70	1.00	1	ug/L	BMR
1,2-Dichloropropane	03	78-87-5	SW8260D	12/09/2022 15:36	12/09/2022 15:36	BLOD		0.40	1.00	1	ug/L	BMR
1,4-Dichlorobenzene	03	106-46-7	SW8260D	12/09/2022 15:36	12/09/2022 15:36	BLOD		0.40	1.00	1	ug/L	BMR
2-Butanone (MEK)	03	78-93-3	SW8260D	12/09/2022 15:36	12/09/2022 15:36	BLOD		3.00	10.0	1	ug/L	BMR
2-Hexanone (MBK)	03	591-78-6	SW8260D	12/09/2022 15:36	12/09/2022 15:36	BLOD		2.20	5.00	1	ug/L	BMR
4-Methyl-2-pentanone (MIBK)	03	108-10-1	SW8260D	12/09/2022 15:36	12/09/2022 15:36	BLOD		1.50	5.00	1	ug/L	BMR
Acetone	03	67-64-1	SW8260D	12/09/2022 15:36	12/09/2022 15:36	BLOD		7.00	10.0	1	ug/L	BMR
Acrylonitrile	03	107-13-1	SW8260D	12/09/2022 15:36	12/09/2022 15:36	BLOD		1.70	5.00	1	ug/L	BMR
Benzene	03	71-43-2	SW8260D	12/09/2022 15:36	12/09/2022 15:36	BLOD		0.40	1.00	1	ug/L	BMR
Bromochloromethane	03	74-97-5	SW8260D	12/09/2022 15:36	12/09/2022 15:36	BLOD		0.50	1.00	1	ug/L	BMR
Bromodichloromethane	03	75-27-4	SW8260D	12/09/2022 15:36	12/09/2022 15:36	BLOD		0.40	0.50	1	ug/L	BMR
Bromoform	03	75-25-2	SW8260D	12/09/2022 15:36	12/09/2022 15:36	BLOD		0.40	1.00	1	ug/L	BMR
Bromomethane	03	74-83-9	SW8260D	12/09/2022 15:36	12/09/2022 15:36	BLOD		0.80	1.00	1	ug/L	BMR
Carbon disulfide	03	75-15-0	SW8260D	12/09/2022 15:36	12/09/2022 15:36	BLOD		5.00	10.0	1	ug/L	BMR
Carbon tetrachloride	03	56-23-5	SW8260D	12/09/2022 15:36	12/09/2022 15:36	BLOD		0.50	1.00	1	ug/L	BMR
Chlorobenzene	03	108-90-7	SW8260D	12/09/2022 15:36	12/09/2022 15:36	BLOD		0.40	1.00	1	ug/L	BMR

Certificate of Analysis

 Client Name: SCS Engineers-Winchester
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Date Issued: 12/30/2022 11:56:27AM

Client Sample ID: MW-106A

Laboratory Sample ID: 22L0423-03

Parameter	Samp ID	CAS	Reference Method	Sample Prep Date/Time	Analyzed Date/Time	Sample Results	Qual	LOD	LOQ	DF	Units	Analyst
Volatile Organic Compounds by GCMS												
Chloroethane	03	75-00-3	SW8260D	12/09/2022 15:36	12/09/2022 15:36	BLOD		0.70	1.00	1	ug/L	BMR
Chloroform	03	67-66-3	SW8260D	12/09/2022 15:36	12/09/2022 15:36	BLOD		0.50	0.50	1	ug/L	BMR
Chloromethane	03	74-87-3	SW8260D	12/09/2022 15:36	12/09/2022 15:36	BLOD		0.95	1.00	1	ug/L	BMR
cis-1,2-Dichloroethylene	03	156-59-2	SW8260D	12/09/2022 15:36	12/09/2022 15:36	0.67	J	0.40	1.00	1	ug/L	BMR
cis-1,3-Dichloropropene	03	10061-01-5	SW8260D	12/09/2022 15:36	12/09/2022 15:36	BLOD		0.30	1.00	1	ug/L	BMR
Dibromochloromethane	03	124-48-1	SW8260D	12/09/2022 15:36	12/09/2022 15:36	BLOD		0.35	0.50	1	ug/L	BMR
Dibromomethane	03	74-95-3	SW8260D	12/09/2022 15:36	12/09/2022 15:36	BLOD		0.40	1.00	1	ug/L	BMR
Ethylbenzene	03	100-41-4	SW8260D	12/09/2022 15:36	12/09/2022 15:36	BLOD		0.40	1.00	1	ug/L	BMR
Iodomethane	03	74-88-4	SW8260D	12/09/2022 15:36	12/09/2022 15:36	BLOD		6.00	10.0	1	ug/L	BMR
m+p-Xylenes	03	179601-23-1	SW8260D	12/09/2022 15:36	12/09/2022 15:36	BLOD		0.60	2.00	1	ug/L	BMR
Methylene chloride	03	75-09-2	SW8260D	12/09/2022 15:36	12/09/2022 15:36	BLOD		4.00	4.00	1	ug/L	BMR
o-Xylene	03	95-47-6	SW8260D	12/09/2022 15:36	12/09/2022 15:36	BLOD		0.40	1.00	1	ug/L	BMR
Styrene	03	100-42-5	SW8260D	12/09/2022 15:36	12/09/2022 15:36	BLOD		0.40	1.00	1	ug/L	BMR
Tetrachloroethylene (PCE)	03	127-18-4	SW8260D	12/09/2022 15:36	12/09/2022 15:36	BLOD		0.40	1.00	1	ug/L	BMR
Toluene	03	108-88-3	SW8260D	12/09/2022 15:36	12/09/2022 15:36	BLOD		0.50	1.00	1	ug/L	BMR
trans-1,2-Dichloroethylene	03	156-60-5	SW8260D	12/09/2022 15:36	12/09/2022 15:36	BLOD		0.60	1.00	1	ug/L	BMR
trans-1,3-Dichloropropene	03	10061-02-6	SW8260D	12/09/2022 15:36	12/09/2022 15:36	BLOD		0.30	1.00	1	ug/L	BMR
trans-1,4-Dichloro-2-butene	03	110-57-6	SW8260D	12/09/2022 15:36	12/09/2022 15:36	BLOD		1.00	4.00	1	ug/L	BMR
Trichloroethylene	03	79-01-6	SW8260D	12/09/2022 15:36	12/09/2022 15:36	BLOD		0.40	1.00	1	ug/L	BMR
Trichlorofluoromethane	03	75-69-4	SW8260D	12/09/2022 15:36	12/09/2022 15:36	BLOD		0.80	1.00	1	ug/L	BMR
Vinyl acetate	03	108-05-4	SW8260D	12/09/2022 15:36	12/09/2022 15:36	BLOD		2.00	10.0	1	ug/L	BMR
Vinyl chloride	03	75-01-4	SW8260D	12/09/2022 15:36	12/09/2022 15:36	BLOD		0.50	0.50	1	ug/L	BMR
Xylenes, Total	03	1330-20-7	SW8260D	12/09/2022 15:36	12/09/2022 15:36	BLOD		1.00	3.00	1	ug/L	BMR

Certificate of Analysis

Client Name: SCS Engineers-Winchester
 Client Site I.D.: City of Bristol 2nd Semi-Annual
 Submitted To: Jennifer Robb

Date Issued: 12/30/2022 11:56:27AM

Client Sample ID: MW-106A

Laboratory Sample ID: 22L0423-03

Parameter	Samp ID	CAS	Reference Method	Sample Prep Date/Time	Analyzed Date/Time	Sample Results	Qual	LOD	LOQ	DF	Units	Analyst
Volatile Organic Compounds by GCMS												
Surr: 1,2-Dichloroethane-d4 (Surr)	03	105 %	70-120	12/09/2022 15:36	12/09/2022 15:36							
Surr: 4-Bromofluorobenzene (Surr)	03	95.2 %	75-120	12/09/2022 15:36	12/09/2022 15:36							
Surr: Dibromofluoromethane (Surr)	03	96.7 %	70-130	12/09/2022 15:36	12/09/2022 15:36							
Surr: Toluene-d8 (Surr)	03	100 %	70-130	12/09/2022 15:36	12/09/2022 15:36							
Dichlorodifluoromethane	03	75-71-8	SW8260D	12/09/2022 15:36	12/09/2022 15:36	BLOD		0.95	1.00	1	ug/L	BMR
Surr: 1,2-Dichloroethane-d4 (Surr)	03	105 %	70-120	12/09/2022 15:36	12/09/2022 15:36							
Surr: 4-Bromofluorobenzene (Surr)	03	95.2 %	75-120	12/09/2022 15:36	12/09/2022 15:36							
Surr: Dibromofluoromethane (Surr)	03	96.7 %	70-130	12/09/2022 15:36	12/09/2022 15:36							
Surr: Toluene-d8 (Surr)	03	100 %	70-130	12/09/2022 15:36	12/09/2022 15:36							

Certificate of Analysis

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Client Sample ID: MW-106A

Laboratory Sample ID: 22L0423-03

Parameter	Samp ID	CAS	Reference Method	Sample Prep Date/Time	Analyzed Date/Time	Sample Results	Qual	LOD	LOQ	DF	Units	Analyst
Semivolatile Organic Compounds by GCMS												
bis (2-Ethylhexyl) phthalate	03	117-81-7	SW8270E	12/09/2022 10:02	12/12/2022 17:20	BLOD		4.67	5.00	1	ug/L	MGG
Diethyl phthalate	03	84-66-2	SW8270E	12/09/2022 10:02	12/12/2022 17:20	BLOD		2.80	10.0	1	ug/L	MGG
Di-n-butyl phthalate	03	84-74-2	SW8270E	12/09/2022 10:02	12/12/2022 17:20	BLOD		3.74	10.0	1	ug/L	MGG
Phenol	03	108-95-2	SW8270E	12/09/2022 10:02	12/12/2022 17:20	BLOD		2.34	10.0	1	ug/L	MGG
<i>Surr: 2,4,6-Tribromophenol (Surr)</i>	03	104 %	10-86	12/09/2022 10:02	12/12/2022 17:20							S
<i>Surr: 2-Fluorobiphenyl (Surr)</i>	03	99.4 %	9-87	12/09/2022 10:02	12/12/2022 17:20							S
<i>Surr: 2-Fluorophenol (Surr)</i>	03	42.5 %	10-52	12/09/2022 10:02	12/12/2022 17:20							
<i>Surr: Nitrobenzene-d5 (Surr)</i>	03	93.0 %	10-98.5	12/09/2022 10:02	12/12/2022 17:20							
<i>Surr: Phenol-d5 (Surr)</i>	03	30.4 %	5-33	12/09/2022 10:02	12/12/2022 17:20							
<i>Surr: p-Terphenyl-d14 (Surr)</i>	03	99.6 %	27-133	12/09/2022 10:02	12/12/2022 17:20							

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Laboratory Sample ID: 22L0423-03

Parameter	Samp ID	CAS	Reference Method	Sample Prep Date/Time	Analyzed Date/Time	Sample Results	Qual	LOD	LOQ	DF	Units	Analyst
Organochlorine Herbicides by GC/ECD												
2,4,5-TP (Silvex)	03	93-72-1	SW8151A	12/13/2022 14:00	12/16/2022 17:51	BLOD		0.107	0.500	1	ug/L	LBH2
2,4-D	03	94-75-7	SW8151A	12/13/2022 14:00	12/16/2022 17:51	BLOD		0.200	0.500	1	ug/L	LBH2
Surr: DCAA (Surr)	03	90.7 %	48.5-134	12/13/2022 14:00	12/16/2022 17:51							

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Laboratory Sample ID: 22L0423-03

Parameter	Samp ID	CAS	Reference Method	Sample Prep Date/Time	Analyzed Date/Time	Sample Results	Qual	LOD	LOQ	DF	Units	Analyst
Micro-extractables by GC/ECD												
1,2-Dibromoethane (EDB)	03	106-93-4	SW8011	12/12/2022 12:25	12/12/2022 21:01	BLOD		0.008	0.010	1	ug/L	LBH2
1,2,3-Trichloropropane	03	96-18-4	SW8011	12/12/2022 12:25	12/12/2022 21:01	BLOD		0.009	0.010	1	ug/L	LBH2
1,2-Dibromo-3-chloropropane (DBCP)	03	96-12-8	SW8011	12/12/2022 12:25	12/12/2022 21:01	BLOD		0.005	0.010	1	ug/L	LBH2

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Laboratory Sample ID: 22L0423-03

Parameter	Samp ID	CAS	Reference Method	Sample Prep Date/Time	Analyzed Date/Time	Sample Results	Qual	LOD	LOQ	DF	Units	Analyst
Wet Chemistry Analysis												
Cyanide	03	57-12-5	SW9012B	12/14/2022 13:42	12/14/2022 13:42	BLOD	CI	0.01	0.01	1	mg/L	MKS
Sulfide	03	18496-25-8	SW9215	12/09/2022 14:14	12/09/2022 14:14	BLOD		0.80	1.00	1	mg/L	AAL

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Client Sample ID: MW-101

Laboratory Sample ID: 22L0423-04

Parameter	Samp ID	CAS	Reference Method	Sample Prep Date/Time	Analyzed Date/Time	Sample Results	Qual	LOD	LOQ	DF	Units	Analyst
Metals (Total) by EPA 6000/7000 Series Methods												
Silver	04	7440-22-4	SW6020B	12/12/2022 12:30	12/18/2022 20:28	BLOD		0.0600	1.00	1	ug/L	MWL
Arsenic	04	7440-38-2	SW6020B	12/12/2022 12:30	12/18/2022 20:28	0.69	J	0.50	1.0	1	ug/L	MWL
Barium	04	7440-39-3	SW6020B	12/12/2022 12:30	12/18/2022 20:28	83.2		1.00	5.00	1	ug/L	MWL
Beryllium	04	7440-41-7	SW6020B	12/12/2022 12:30	12/18/2022 20:28	BLOD		0.200	1.00	1	ug/L	MWL
Cadmium	04	7440-43-9	SW6020B	12/12/2022 12:30	12/18/2022 20:28	BLOD		0.100	1.00	1	ug/L	MWL
Cobalt	04	7440-48-4	SW6020B	12/12/2022 12:30	12/18/2022 20:28	2.10		0.200	1.00	1	ug/L	MWL
Chromium	04	7440-47-3	SW6020B	12/12/2022 12:30	12/18/2022 20:28	BLOD		0.600	1.00	1	ug/L	MWL
Copper	04	7440-50-8	SW6020B	12/12/2022 12:30	12/18/2022 20:28	1.66		0.300	1.00	1	ug/L	MWL
Mercury	04	7439-97-6	SW7470A	12/15/2022 09:15	12/15/2022 15:31	BLOD		0.00020	0.00020	1	mg/L	ACM
Nickel	04	7440-02-0	SW6020B	12/12/2022 12:30	12/18/2022 20:28	3.502		1.000	1.000	1	ug/L	MWL
Lead	04	7439-92-1	SW6020B	12/12/2022 12:30	12/18/2022 20:28	BLOD		1.0	1.0	1	ug/L	MWL
Antimony	04	7440-36-0	SW6020B	12/12/2022 12:30	12/18/2022 20:28	BLOD		1.0	1.0	1	ug/L	MWL
Selenium	04	7782-49-2	SW6020B	12/12/2022 12:30	12/18/2022 20:28	BLOD		0.850	1.00	1	ug/L	MWL
Tin	04RE1	7440-31-5	SW6020B	12/12/2022 10:30	12/20/2022 14:41	BLOD		1.00	1.00	1	ug/L	MWL
Thallium	04	7440-28-0	SW6020B	12/12/2022 12:30	12/18/2022 20:28	BLOD		1.0	1.0	1	ug/L	MWL
Vanadium	04	7440-62-2	SW6020B	12/12/2022 12:30	12/18/2022 20:28	BLOD		2.50	5.00	1	ug/L	MWL
Zinc	04	7440-66-6	SW6020B	12/12/2022 12:30	12/18/2022 20:28	3.03	J	2.50	5.00	1	ug/L	MWL

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Client Sample ID: MW-101

Laboratory Sample ID: 22L0423-04

Parameter	Samp ID	CAS	Reference Method	Sample Prep Date/Time	Analyzed Date/Time	Sample Results	Qual	LOD	LOQ	DF	Units	Analyst
Volatile Organic Compounds by GCMS												
1,1,1,2-Tetrachloroethane	04	630-20-6	SW8260D	12/09/2022 16:01	12/09/2022 16:01	BLOD		0.40	0.40	1	ug/L	BMR
1,1,1-Trichloroethane	04	71-55-6	SW8260D	12/09/2022 16:01	12/09/2022 16:01	BLOD		0.60	1.00	1	ug/L	BMR
1,1,1,2-Tetrachloroethane	04	79-34-5	SW8260D	12/09/2022 16:01	12/09/2022 16:01	BLOD		0.30	0.40	1	ug/L	BMR
1,1,2-Trichloroethane	04	79-00-5	SW8260D	12/09/2022 16:01	12/09/2022 16:01	BLOD		0.50	1.00	1	ug/L	BMR
1,1-Dichloroethane	04	75-34-3	SW8260D	12/09/2022 16:01	12/09/2022 16:01	BLOD		0.60	1.00	1	ug/L	BMR
1,1-Dichloroethylene	04	75-35-4	SW8260D	12/09/2022 16:01	12/09/2022 16:01	BLOD		0.70	1.00	1	ug/L	BMR
1,2,3-Trichloropropane	04	96-18-4	SW8260D	12/09/2022 16:01	12/09/2022 16:01	BLOD		0.40	1.00	1	ug/L	BMR
1,2-Dichlorobenzene	04	95-50-1	SW8260D	12/09/2022 16:01	12/09/2022 16:01	BLOD		0.40	1.00	1	ug/L	BMR
1,2-Dichloroethane	04	107-06-2	SW8260D	12/09/2022 16:01	12/09/2022 16:01	BLOD		0.70	1.00	1	ug/L	BMR
1,2-Dichloropropane	04	78-87-5	SW8260D	12/09/2022 16:01	12/09/2022 16:01	BLOD		0.40	1.00	1	ug/L	BMR
1,4-Dichlorobenzene	04	106-46-7	SW8260D	12/09/2022 16:01	12/09/2022 16:01	BLOD		0.40	1.00	1	ug/L	BMR
2-Butanone (MEK)	04	78-93-3	SW8260D	12/09/2022 16:01	12/09/2022 16:01	BLOD		3.00	10.0	1	ug/L	BMR
2-Hexanone (MBK)	04	591-78-6	SW8260D	12/09/2022 16:01	12/09/2022 16:01	BLOD		2.20	5.00	1	ug/L	BMR
4-Methyl-2-pentanone (MIBK)	04	108-10-1	SW8260D	12/09/2022 16:01	12/09/2022 16:01	BLOD		1.50	5.00	1	ug/L	BMR
Acetone	04	67-64-1	SW8260D	12/09/2022 16:01	12/09/2022 16:01	BLOD		7.00	10.0	1	ug/L	BMR
Acrylonitrile	04	107-13-1	SW8260D	12/09/2022 16:01	12/09/2022 16:01	BLOD		1.70	5.00	1	ug/L	BMR
Benzene	04	71-43-2	SW8260D	12/09/2022 16:01	12/09/2022 16:01	BLOD		0.40	1.00	1	ug/L	BMR
Bromochloromethane	04	74-97-5	SW8260D	12/09/2022 16:01	12/09/2022 16:01	BLOD		0.50	1.00	1	ug/L	BMR
Bromodichloromethane	04	75-27-4	SW8260D	12/09/2022 16:01	12/09/2022 16:01	BLOD		0.40	0.50	1	ug/L	BMR
Bromoform	04	75-25-2	SW8260D	12/09/2022 16:01	12/09/2022 16:01	BLOD		0.40	1.00	1	ug/L	BMR
Bromomethane	04	74-83-9	SW8260D	12/09/2022 16:01	12/09/2022 16:01	BLOD		0.80	1.00	1	ug/L	BMR
Carbon disulfide	04	75-15-0	SW8260D	12/09/2022 16:01	12/09/2022 16:01	BLOD		5.00	10.0	1	ug/L	BMR
Carbon tetrachloride	04	56-23-5	SW8260D	12/09/2022 16:01	12/09/2022 16:01	BLOD		0.50	1.00	1	ug/L	BMR
Chlorobenzene	04	108-90-7	SW8260D	12/09/2022 16:01	12/09/2022 16:01	BLOD		0.40	1.00	1	ug/L	BMR

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Date Issued: 12/30/2022 11:56:27AM

Client Sample ID: MW-101

Laboratory Sample ID: 22L0423-04

Parameter	Samp ID	CAS	Reference Method	Sample Prep Date/Time	Analyzed Date/Time	Sample Results	Qual	LOD	LOQ	DF	Units	Analyst
Volatile Organic Compounds by GCMS												
Chloroethane	04	75-00-3	SW8260D	12/09/2022 16:01	12/09/2022 16:01	BLOD		0.70	1.00	1	ug/L	BMR
Chloroform	04	67-66-3	SW8260D	12/09/2022 16:01	12/09/2022 16:01	BLOD		0.50	0.50	1	ug/L	BMR
Chloromethane	04	74-87-3	SW8260D	12/09/2022 16:01	12/09/2022 16:01	BLOD		0.95	1.00	1	ug/L	BMR
cis-1,2-Dichloroethylene	04	156-59-2	SW8260D	12/09/2022 16:01	12/09/2022 16:01	BLOD		0.40	1.00	1	ug/L	BMR
cis-1,3-Dichloropropene	04	10061-01-5	SW8260D	12/09/2022 16:01	12/09/2022 16:01	BLOD		0.30	1.00	1	ug/L	BMR
Dibromochloromethane	04	124-48-1	SW8260D	12/09/2022 16:01	12/09/2022 16:01	BLOD		0.35	0.50	1	ug/L	BMR
Dibromomethane	04	74-95-3	SW8260D	12/09/2022 16:01	12/09/2022 16:01	BLOD		0.40	1.00	1	ug/L	BMR
Ethylbenzene	04	100-41-4	SW8260D	12/09/2022 16:01	12/09/2022 16:01	BLOD		0.40	1.00	1	ug/L	BMR
Iodomethane	04	74-88-4	SW8260D	12/09/2022 16:01	12/09/2022 16:01	BLOD		6.00	10.0	1	ug/L	BMR
m+p-Xylenes	04	179601-23-1	SW8260D	12/09/2022 16:01	12/09/2022 16:01	BLOD		0.60	2.00	1	ug/L	BMR
Methylene chloride	04	75-09-2	SW8260D	12/09/2022 16:01	12/09/2022 16:01	BLOD		4.00	4.00	1	ug/L	BMR
o-Xylene	04	95-47-6	SW8260D	12/09/2022 16:01	12/09/2022 16:01	BLOD		0.40	1.00	1	ug/L	BMR
Styrene	04	100-42-5	SW8260D	12/09/2022 16:01	12/09/2022 16:01	BLOD		0.40	1.00	1	ug/L	BMR
Tetrachloroethylene (PCE)	04	127-18-4	SW8260D	12/09/2022 16:01	12/09/2022 16:01	BLOD		0.40	1.00	1	ug/L	BMR
Toluene	04	108-88-3	SW8260D	12/09/2022 16:01	12/09/2022 16:01	BLOD		0.50	1.00	1	ug/L	BMR
trans-1,2-Dichloroethylene	04	156-60-5	SW8260D	12/09/2022 16:01	12/09/2022 16:01	BLOD		0.60	1.00	1	ug/L	BMR
trans-1,3-Dichloropropene	04	10061-02-6	SW8260D	12/09/2022 16:01	12/09/2022 16:01	BLOD		0.30	1.00	1	ug/L	BMR
trans-1,4-Dichloro-2-butene	04	110-57-6	SW8260D	12/09/2022 16:01	12/09/2022 16:01	BLOD		1.00	4.00	1	ug/L	BMR
Trichloroethylene	04	79-01-6	SW8260D	12/09/2022 16:01	12/09/2022 16:01	BLOD		0.40	1.00	1	ug/L	BMR
Trichlorofluoromethane	04	75-69-4	SW8260D	12/09/2022 16:01	12/09/2022 16:01	BLOD		0.80	1.00	1	ug/L	BMR
Vinyl acetate	04	108-05-4	SW8260D	12/09/2022 16:01	12/09/2022 16:01	BLOD		2.00	10.0	1	ug/L	BMR
Vinyl chloride	04	75-01-4	SW8260D	12/09/2022 16:01	12/09/2022 16:01	BLOD		0.50	0.50	1	ug/L	BMR
Xylenes, Total	04	1330-20-7	SW8260D	12/09/2022 16:01	12/09/2022 16:01	BLOD		1.00	3.00	1	ug/L	BMR

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Parameter	Samp ID	CAS	Reference Method	Sample Prep Date/Time	Analyzed Date/Time	Sample Results	Qual	LOD	LOQ	DF	Units	Analyst
Volatile Organic Compounds by GCMS												
Surr: 1,2-Dichloroethane-d4 (Surr)	04	101 %	70-120	12/09/2022 16:01	12/09/2022 16:01							
Surr: 4-Bromofluorobenzene (Surr)	04	98.7 %	75-120	12/09/2022 16:01	12/09/2022 16:01							
Surr: Dibromofluoromethane (Surr)	04	96.6 %	70-130	12/09/2022 16:01	12/09/2022 16:01							
Surr: Toluene-d8 (Surr)	04	99.0 %	70-130	12/09/2022 16:01	12/09/2022 16:01							
Dichlorodifluoromethane	04	75-71-8	SW8260D	12/09/2022 16:01	12/09/2022 16:01	BLOD		0.95	1.00	1	ug/L	BMR
Surr: 1,2-Dichloroethane-d4 (Surr)	04	101 %	70-120	12/09/2022 16:01	12/09/2022 16:01							
Surr: 4-Bromofluorobenzene (Surr)	04	98.7 %	75-120	12/09/2022 16:01	12/09/2022 16:01							
Surr: Dibromofluoromethane (Surr)	04	96.6 %	70-130	12/09/2022 16:01	12/09/2022 16:01							
Surr: Toluene-d8 (Surr)	04	99.0 %	70-130	12/09/2022 16:01	12/09/2022 16:01							

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Parameter	Samp ID	CAS	Reference Method	Sample Prep Date/Time	Analyzed Date/Time	Sample Results	Qual	LOD	LOQ	DF	Units	Analyst
Semivolatle Organic Compounds by GCMS												
bis (2-Ethylhexyl) phthalate	04	117-81-7	SW8270E	12/09/2022 10:02	12/12/2022 17:55	BLOD		4.67	5.00	1	ug/L	MGG
Diethyl phthalate	04	84-66-2	SW8270E	12/09/2022 10:02	12/12/2022 17:55	BLOD		2.80	10.0	1	ug/L	MGG
Di-n-butyl phthalate	04	84-74-2	SW8270E	12/09/2022 10:02	12/12/2022 17:55	BLOD		3.74	10.0	1	ug/L	MGG
Phenol	04	108-95-2	SW8270E	12/09/2022 10:02	12/12/2022 17:55	BLOD		2.34	10.0	1	ug/L	MGG
<i>Surr: 2,4,6-Tribromophenol (Surr)</i>	04	75.4 %	10-86	12/09/2022 10:02	12/12/2022 17:55							
<i>Surr: 2-Fluorobiphenyl (Surr)</i>	04	68.2 %	9-87	12/09/2022 10:02	12/12/2022 17:55							
<i>Surr: 2-Fluorophenol (Surr)</i>	04	33.9 %	10-52	12/09/2022 10:02	12/12/2022 17:55							
<i>Surr: Nitrobenzene-d5 (Surr)</i>	04	73.3 %	10-98.5	12/09/2022 10:02	12/12/2022 17:55							
<i>Surr: Phenol-d5 (Surr)</i>	04	23.5 %	5-33	12/09/2022 10:02	12/12/2022 17:55							
<i>Surr: p-Terphenyl-d14 (Surr)</i>	04	76.2 %	27-133	12/09/2022 10:02	12/12/2022 17:55							

Certificate of Analysis

Client Name: SCS Engineers-Winchester

Date Issued: 12/30/2022 11:56:27AM

Client Site I.D.: City of Bristol 2nd Semi-Annual

Submitted To: Jennifer Robb

Client Sample ID: MW-101

Laboratory Sample ID: 22L0423-04

Parameter	Samp ID	CAS	Reference Method	Sample Prep Date/Time	Analyzed Date/Time	Sample Results	Qual	LOD	LOQ	DF	Units	Analyst
Organochlorine Herbicides by GC/ECD												
2,4,5-TP (Silvex)	04	93-72-1	SW8151A	12/13/2022 14:00	12/16/2022 18:17	BLOD		0.107	0.500	1	ug/L	LBH2
2,4-D	04	94-75-7	SW8151A	12/13/2022 14:00	12/16/2022 18:17	BLOD		0.200	0.500	1	ug/L	LBH2
Surr: DCAA (Surr)	04	131 %	48.5-134	12/13/2022 14:00	12/16/2022 18:17							

Certificate of Analysis

Client Name: SCS Engineers-Winchester

Date Issued: 12/30/2022 11:56:27AM

Client Site I.D.: City of Bristol 2nd Semi-Annual

Submitted To: Jennifer Robb

Client Sample ID: MW-101

Laboratory Sample ID: 22L0423-04

Parameter	Samp ID	CAS	Reference Method	Sample Prep Date/Time	Analyzed Date/Time	Sample Results	Qual	LOD	LOQ	DF	Units	Analyst
Micro-extractables by GC/ECD												
1,2-Dibromoethane (EDB)	04	106-93-4	SW8011	12/12/2022 12:25	12/12/2022 21:22	BLOD		0.008	0.010	1	ug/L	LBH2
1,2,3-Trichloropropane	04	96-18-4	SW8011	12/12/2022 12:25	12/12/2022 21:22	BLOD		0.009	0.010	1	ug/L	LBH2
1,2-Dibromo-3-chloropropane (DBCP)	04	96-12-8	SW8011	12/12/2022 12:25	12/12/2022 21:22	BLOD		0.005	0.010	1	ug/L	LBH2

Certificate of Analysis

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Client Site I.D.: City of Bristol 2nd Semi-Annual

Submitted To: Jennifer Robb

Client Sample ID: MW-101

Laboratory Sample ID: 22L0423-04

Parameter	Samp ID	CAS	Reference Method	Sample Prep Date/Time	Analyzed Date/Time	Sample Results	Qual	LOD	LOQ	DF	Units	Analyst
Wet Chemistry Analysis												
Cyanide	04	57-12-5	SW9012B	12/15/2022 12:39	12/15/2022 12:39	BLOD	CI	0.01	0.01	1	mg/L	MKS
Sulfide	04	18496-25-8	SW9215	12/09/2022 14:14	12/09/2022 14:14	BLOD		0.80	1.00	1	mg/L	AAL

Certificate of Analysis

 Client Name: SCS Engineers-Winchester
 Client Site I.D.: City of Bristol 2nd Semi-Annual
 Submitted To: Jennifer Robb

Date Issued: 12/30/2022 11:56:27AM

Client Sample ID: MW-205B

Laboratory Sample ID: 22L0423-05

Parameter	Samp ID	CAS	Reference Method	Sample Prep Date/Time	Analyzed Date/Time	Sample Results	Qual	LOD	LOQ	DF	Units	Analyst
Metals (Total) by EPA 6000/7000 Series Methods												
Silver	05	7440-22-4	SW6020B	12/12/2022 12:30	12/18/2022 20:31	BLOD		0.0600	1.00	1	ug/L	MWL
Arsenic	05	7440-38-2	SW6020B	12/12/2022 12:30	12/18/2022 20:31	BLOD		0.50	1.0	1	ug/L	MWL
Barium	05	7440-39-3	SW6020B	12/12/2022 12:30	12/18/2022 20:31	103		1.00	5.00	1	ug/L	MWL
Beryllium	05	7440-41-7	SW6020B	12/12/2022 12:30	12/18/2022 20:31	BLOD		0.200	1.00	1	ug/L	MWL
Cadmium	05	7440-43-9	SW6020B	12/12/2022 12:30	12/18/2022 20:31	BLOD		0.100	1.00	1	ug/L	MWL
Cobalt	05	7440-48-4	SW6020B	12/12/2022 12:30	12/18/2022 20:31	BLOD		0.200	1.00	1	ug/L	MWL
Chromium	05	7440-47-3	SW6020B	12/12/2022 12:30	12/18/2022 20:31	BLOD		0.600	1.00	1	ug/L	MWL
Copper	05	7440-50-8	SW6020B	12/12/2022 12:30	12/18/2022 20:31	BLOD		0.300	1.00	1	ug/L	MWL
Mercury	05	7439-97-6	SW7470A	12/15/2022 09:15	12/15/2022 15:33	BLOD		0.00020	0.00020	1	mg/L	ACM
Nickel	05	7440-02-0	SW6020B	12/12/2022 12:30	12/18/2022 20:31	BLOD		1.000	1.000	1	ug/L	MWL
Lead	05	7439-92-1	SW6020B	12/12/2022 12:30	12/18/2022 20:31	BLOD		1.0	1.0	1	ug/L	MWL
Antimony	05	7440-36-0	SW6020B	12/12/2022 12:30	12/18/2022 20:31	BLOD		1.0	1.0	1	ug/L	MWL
Selenium	05	7782-49-2	SW6020B	12/12/2022 12:30	12/18/2022 20:31	BLOD		0.850	1.00	1	ug/L	MWL
Tin	05RE1	7440-31-5	SW6020B	12/12/2022 10:30	12/20/2022 14:44	BLOD		1.00	1.00	1	ug/L	MWL
Thallium	05	7440-28-0	SW6020B	12/12/2022 12:30	12/18/2022 20:31	BLOD		1.0	1.0	1	ug/L	MWL
Vanadium	05	7440-62-2	SW6020B	12/12/2022 12:30	12/18/2022 20:31	BLOD		2.50	5.00	1	ug/L	MWL
Zinc	05	7440-66-6	SW6020B	12/12/2022 12:30	12/18/2022 20:31	BLOD		2.50	5.00	1	ug/L	MWL

Certificate of Analysis

Client Name: SCS Engineers-Winchester
 Client Site I.D.: City of Bristol 2nd Semi-Annual
 Submitted To: Jennifer Robb

Date Issued: 12/30/2022 11:56:27AM

Client Sample ID: MW-205B

Laboratory Sample ID: 22L0423-05

Parameter	Samp ID	CAS	Reference Method	Sample Prep Date/Time	Analyzed Date/Time	Sample Results	Qual	LOD	LOQ	DF	Units	Analyst
Volatile Organic Compounds by GCMS												
1,1,1,2-Tetrachloroethane	05	630-20-6	SW8260D	12/09/2022 16:27	12/09/2022 16:27	BLOD		0.40	0.40	1	ug/L	BMR
1,1,1-Trichloroethane	05	71-55-6	SW8260D	12/09/2022 16:27	12/09/2022 16:27	BLOD		0.60	1.00	1	ug/L	BMR
1,1,1,2-Tetrachloroethane	05	79-34-5	SW8260D	12/09/2022 16:27	12/09/2022 16:27	BLOD		0.30	0.40	1	ug/L	BMR
1,1,2-Trichloroethane	05	79-00-5	SW8260D	12/09/2022 16:27	12/09/2022 16:27	BLOD		0.50	1.00	1	ug/L	BMR
1,1-Dichloroethane	05	75-34-3	SW8260D	12/09/2022 16:27	12/09/2022 16:27	BLOD		0.60	1.00	1	ug/L	BMR
1,1-Dichloroethylene	05	75-35-4	SW8260D	12/09/2022 16:27	12/09/2022 16:27	BLOD		0.70	1.00	1	ug/L	BMR
1,2,3-Trichloropropane	05	96-18-4	SW8260D	12/09/2022 16:27	12/09/2022 16:27	BLOD		0.40	1.00	1	ug/L	BMR
1,2-Dichlorobenzene	05	95-50-1	SW8260D	12/09/2022 16:27	12/09/2022 16:27	BLOD		0.40	1.00	1	ug/L	BMR
1,2-Dichloroethane	05	107-06-2	SW8260D	12/09/2022 16:27	12/09/2022 16:27	BLOD		0.70	1.00	1	ug/L	BMR
1,2-Dichloropropane	05	78-87-5	SW8260D	12/09/2022 16:27	12/09/2022 16:27	BLOD		0.40	1.00	1	ug/L	BMR
1,4-Dichlorobenzene	05	106-46-7	SW8260D	12/09/2022 16:27	12/09/2022 16:27	BLOD		0.40	1.00	1	ug/L	BMR
2-Butanone (MEK)	05	78-93-3	SW8260D	12/09/2022 16:27	12/09/2022 16:27	BLOD		3.00	10.0	1	ug/L	BMR
2-Hexanone (MBK)	05	591-78-6	SW8260D	12/09/2022 16:27	12/09/2022 16:27	BLOD		2.20	5.00	1	ug/L	BMR
4-Methyl-2-pentanone (MIBK)	05	108-10-1	SW8260D	12/09/2022 16:27	12/09/2022 16:27	BLOD		1.50	5.00	1	ug/L	BMR
Acetone	05	67-64-1	SW8260D	12/09/2022 16:27	12/09/2022 16:27	BLOD		7.00	10.0	1	ug/L	BMR
Acrylonitrile	05	107-13-1	SW8260D	12/09/2022 16:27	12/09/2022 16:27	BLOD		1.70	5.00	1	ug/L	BMR
Benzene	05	71-43-2	SW8260D	12/09/2022 16:27	12/09/2022 16:27	BLOD		0.40	1.00	1	ug/L	BMR
Bromochloromethane	05	74-97-5	SW8260D	12/09/2022 16:27	12/09/2022 16:27	BLOD		0.50	1.00	1	ug/L	BMR
Bromodichloromethane	05	75-27-4	SW8260D	12/09/2022 16:27	12/09/2022 16:27	BLOD		0.40	0.50	1	ug/L	BMR
Bromoform	05	75-25-2	SW8260D	12/09/2022 16:27	12/09/2022 16:27	BLOD		0.40	1.00	1	ug/L	BMR
Bromomethane	05	74-83-9	SW8260D	12/09/2022 16:27	12/09/2022 16:27	BLOD		0.80	1.00	1	ug/L	BMR
Carbon disulfide	05	75-15-0	SW8260D	12/09/2022 16:27	12/09/2022 16:27	BLOD		5.00	10.0	1	ug/L	BMR
Carbon tetrachloride	05	56-23-5	SW8260D	12/09/2022 16:27	12/09/2022 16:27	BLOD		0.50	1.00	1	ug/L	BMR
Chlorobenzene	05	108-90-7	SW8260D	12/09/2022 16:27	12/09/2022 16:27	BLOD		0.40	1.00	1	ug/L	BMR

Certificate of Analysis

 Client Name: SCS Engineers-Winchester
 Client Site I.D.: City of Bristol 2nd Semi-Annual
 Submitted To: Jennifer Robb

Date Issued: 12/30/2022 11:56:27AM

Client Sample ID: MW-205B

Laboratory Sample ID: 22L0423-05

Parameter	Samp ID	CAS	Reference Method	Sample Prep Date/Time	Analyzed Date/Time	Sample Results	Qual	LOD	LOQ	DF	Units	Analyst
Volatile Organic Compounds by GCMS												
Chloroethane	05	75-00-3	SW8260D	12/09/2022 16:27	12/09/2022 16:27	BLOD		0.70	1.00	1	ug/L	BMR
Chloroform	05	67-66-3	SW8260D	12/09/2022 16:27	12/09/2022 16:27	BLOD		0.50	0.50	1	ug/L	BMR
Chloromethane	05	74-87-3	SW8260D	12/09/2022 16:27	12/09/2022 16:27	BLOD		0.95	1.00	1	ug/L	BMR
cis-1,2-Dichloroethylene	05	156-59-2	SW8260D	12/09/2022 16:27	12/09/2022 16:27	BLOD		0.40	1.00	1	ug/L	BMR
cis-1,3-Dichloropropene	05	10061-01-5	SW8260D	12/09/2022 16:27	12/09/2022 16:27	BLOD		0.30	1.00	1	ug/L	BMR
Dibromochloromethane	05	124-48-1	SW8260D	12/09/2022 16:27	12/09/2022 16:27	BLOD		0.35	0.50	1	ug/L	BMR
Dibromomethane	05	74-95-3	SW8260D	12/09/2022 16:27	12/09/2022 16:27	BLOD		0.40	1.00	1	ug/L	BMR
Ethylbenzene	05	100-41-4	SW8260D	12/09/2022 16:27	12/09/2022 16:27	BLOD		0.40	1.00	1	ug/L	BMR
Iodomethane	05	74-88-4	SW8260D	12/09/2022 16:27	12/09/2022 16:27	BLOD		6.00	10.0	1	ug/L	BMR
m+p-Xylenes	05	179601-23-1	SW8260D	12/09/2022 16:27	12/09/2022 16:27	BLOD		0.60	2.00	1	ug/L	BMR
Methylene chloride	05	75-09-2	SW8260D	12/09/2022 16:27	12/09/2022 16:27	BLOD		4.00	4.00	1	ug/L	BMR
o-Xylene	05	95-47-6	SW8260D	12/09/2022 16:27	12/09/2022 16:27	BLOD		0.40	1.00	1	ug/L	BMR
Styrene	05	100-42-5	SW8260D	12/09/2022 16:27	12/09/2022 16:27	BLOD		0.40	1.00	1	ug/L	BMR
Tetrachloroethylene (PCE)	05	127-18-4	SW8260D	12/09/2022 16:27	12/09/2022 16:27	BLOD		0.40	1.00	1	ug/L	BMR
Toluene	05	108-88-3	SW8260D	12/09/2022 16:27	12/09/2022 16:27	BLOD		0.50	1.00	1	ug/L	BMR
trans-1,2-Dichloroethylene	05	156-60-5	SW8260D	12/09/2022 16:27	12/09/2022 16:27	BLOD		0.60	1.00	1	ug/L	BMR
trans-1,3-Dichloropropene	05	10061-02-6	SW8260D	12/09/2022 16:27	12/09/2022 16:27	BLOD		0.30	1.00	1	ug/L	BMR
trans-1,4-Dichloro-2-butene	05	110-57-6	SW8260D	12/09/2022 16:27	12/09/2022 16:27	BLOD		1.00	4.00	1	ug/L	BMR
Trichloroethylene	05	79-01-6	SW8260D	12/09/2022 16:27	12/09/2022 16:27	BLOD		0.40	1.00	1	ug/L	BMR
Trichlorofluoromethane	05	75-69-4	SW8260D	12/09/2022 16:27	12/09/2022 16:27	BLOD		0.80	1.00	1	ug/L	BMR
Vinyl acetate	05	108-05-4	SW8260D	12/09/2022 16:27	12/09/2022 16:27	BLOD		2.00	10.0	1	ug/L	BMR
Vinyl chloride	05	75-01-4	SW8260D	12/09/2022 16:27	12/09/2022 16:27	BLOD		0.50	0.50	1	ug/L	BMR
Xylenes, Total	05	1330-20-7	SW8260D	12/09/2022 16:27	12/09/2022 16:27	BLOD		1.00	3.00	1	ug/L	BMR

Certificate of Analysis

Client Name: SCS Engineers-Winchester
 Client Site I.D.: City of Bristol 2nd Semi-Annual
 Submitted To: Jennifer Robb

Date Issued: 12/30/2022 11:56:27AM

Client Sample ID: MW-205B

Laboratory Sample ID: 22L0423-05

Parameter	Samp ID	CAS	Reference Method	Sample Prep Date/Time	Analyzed Date/Time	Sample Results	Qual	LOD	LOQ	DF	Units	Analyst
Volatile Organic Compounds by GCMS												
Surr: 1,2-Dichloroethane-d4 (Surr)	05	106 %	70-120	12/09/2022 16:27	12/09/2022 16:27							
Surr: 4-Bromofluorobenzene (Surr)	05	93.6 %	75-120	12/09/2022 16:27	12/09/2022 16:27							
Surr: Dibromofluoromethane (Surr)	05	99.4 %	70-130	12/09/2022 16:27	12/09/2022 16:27							
Surr: Toluene-d8 (Surr)	05	99.0 %	70-130	12/09/2022 16:27	12/09/2022 16:27							
Dichlorodifluoromethane	05	75-71-8	SW8260D	12/09/2022 16:27	12/09/2022 16:27	BLOD		0.95	1.00	1	ug/L	BMR
Surr: 1,2-Dichloroethane-d4 (Surr)	05	106 %	70-120	12/09/2022 16:27	12/09/2022 16:27							
Surr: 4-Bromofluorobenzene (Surr)	05	93.6 %	75-120	12/09/2022 16:27	12/09/2022 16:27							
Surr: Dibromofluoromethane (Surr)	05	99.4 %	70-130	12/09/2022 16:27	12/09/2022 16:27							
Surr: Toluene-d8 (Surr)	05	99.0 %	70-130	12/09/2022 16:27	12/09/2022 16:27							

Certificate of Analysis

 Client Name: SCS Engineers-Winchester
 Client Site I.D.: City of Bristol 2nd Semi-Annual
 Submitted To: Jennifer Robb

Date Issued: 12/30/2022 11:56:27AM

Client Sample ID: MW-205B

Laboratory Sample ID: 22L0423-05

Parameter	Samp ID	CAS	Reference Method	Sample Prep Date/Time	Analyzed Date/Time	Sample Results	Qual	LOD	LOQ	DF	Units	Analyst
Semivolatle Organic Compounds by GCMS												
bis (2-Ethylhexyl) phthalate	05	117-81-7	SW8270E	12/12/2022 08:50	12/12/2022 20:53	BLOD		4.67	5.00	1	ug/L	MGG
Diethyl phthalate	05	84-66-2	SW8270E	12/12/2022 08:50	12/12/2022 20:53	BLOD		2.80	10.0	1	ug/L	MGG
Di-n-butyl phthalate	05	84-74-2	SW8270E	12/12/2022 08:50	12/12/2022 20:53	BLOD		3.74	10.0	1	ug/L	MGG
Phenol	05	108-95-2	SW8270E	12/12/2022 08:50	12/12/2022 20:53	BLOD		2.34	10.0	1	ug/L	MGG
<i>Surr: 2,4,6-Tribromophenol (Surr)</i>	<i>05</i>	<i>55.4 %</i>	<i>10-86</i>	<i>12/12/2022 08:50</i>	<i>12/12/2022 20:53</i>							
<i>Surr: 2-Fluorobiphenyl (Surr)</i>	<i>05</i>	<i>59.0 %</i>	<i>9-87</i>	<i>12/12/2022 08:50</i>	<i>12/12/2022 20:53</i>							
<i>Surr: 2-Fluorophenol (Surr)</i>	<i>05</i>	<i>35.2 %</i>	<i>10-52</i>	<i>12/12/2022 08:50</i>	<i>12/12/2022 20:53</i>							
<i>Surr: Nitrobenzene-d5 (Surr)</i>	<i>05</i>	<i>65.7 %</i>	<i>10-98.5</i>	<i>12/12/2022 08:50</i>	<i>12/12/2022 20:53</i>							
<i>Surr: Phenol-d5 (Surr)</i>	<i>05</i>	<i>23.0 %</i>	<i>5-33</i>	<i>12/12/2022 08:50</i>	<i>12/12/2022 20:53</i>							
<i>Surr: p-Terphenyl-d14 (Surr)</i>	<i>05</i>	<i>74.1 %</i>	<i>27-133</i>	<i>12/12/2022 08:50</i>	<i>12/12/2022 20:53</i>							

Certificate of Analysis

Client Name: SCS Engineers-Winchester

Date Issued: 12/30/2022 11:56:27AM

Client Site I.D.: City of Bristol 2nd Semi-Annual

Submitted To: Jennifer Robb

Client Sample ID: MW-205B

Laboratory Sample ID: 22L0423-05

Parameter	Samp ID	CAS	Reference Method	Sample Prep Date/Time	Analyzed Date/Time	Sample Results	Qual	LOD	LOQ	DF	Units	Analyst
Organochlorine Herbicides by GC/ECD												
2,4,5-TP (Silvex)	05	93-72-1	SW8151A	12/13/2022 14:00	12/16/2022 18:42	BLOD		0.107	0.500	1	ug/L	LBH2
2,4-D	05	94-75-7	SW8151A	12/13/2022 14:00	12/16/2022 18:42	BLOD		0.200	0.500	1	ug/L	LBH2
Surr: DCAA (Surr)	05	96.7 %	48.5-134	12/13/2022 14:00	12/16/2022 18:42							

Certificate of Analysis

Client Name: SCS Engineers-Winchester

Date Issued: 12/30/2022 11:56:27AM

Client Site I.D.: City of Bristol 2nd Semi-Annual

Submitted To: Jennifer Robb

Client Sample ID: MW-205B

Laboratory Sample ID: 22L0423-05

Parameter	Samp ID	CAS	Reference Method	Sample Prep Date/Time	Analyzed Date/Time	Sample Results	Qual	LOD	LOQ	DF	Units	Analyst
Micro-extractables by GC/ECD												
1,2-Dibromoethane (EDB)	05	106-93-4	SW8011	12/12/2022 12:25	12/12/2022 21:44	BLOD		0.008	0.010	1	ug/L	LBH2
1,2,3-Trichloropropane	05	96-18-4	SW8011	12/12/2022 12:25	12/12/2022 21:44	BLOD		0.009	0.010	1	ug/L	LBH2
1,2-Dibromo-3-chloropropane (DBCP)	05	96-12-8	SW8011	12/12/2022 12:25	12/12/2022 21:44	BLOD		0.005	0.010	1	ug/L	LBH2

Certificate of Analysis

Client Name: SCS Engineers-Winchester

Date Issued: 12/30/2022 11:56:27AM

Client Site I.D.: City of Bristol 2nd Semi-Annual

Submitted To: Jennifer Robb

Client Sample ID: MW-205B

Laboratory Sample ID: 22L0423-05

Parameter	Samp ID	CAS	Reference Method	Sample Prep Date/Time	Analyzed Date/Time	Sample Results	Qual	LOD	LOQ	DF	Units	Analyst
Wet Chemistry Analysis												
Cyanide	05	57-12-5	SW9012B	12/15/2022 12:39	12/15/2022 12:39	BLOD		0.01	0.01	1	mg/L	MKS
Sulfide	05	18496-25-8	SW9215	12/09/2022 14:14	12/09/2022 14:14	BLOD		0.80	1.00	1	mg/L	AAL

Certificate of Analysis

Client Name: SCS Engineers-Winchester
 Client Site I.D.: City of Bristol 2nd Semi-Annual
 Submitted To: Jennifer Robb

Date Issued: 12/30/2022 11:56:27AM

Client Sample ID: MW-206A

Laboratory Sample ID: 22L0423-06

Parameter	Samp ID	CAS	Reference Method	Sample Prep Date/Time	Analyzed Date/Time	Sample Results	Qual	LOD	LOQ	DF	Units	Analyst
Metals (Total) by EPA 6000/7000 Series Methods												
Silver	06	7440-22-4	SW6020B	12/12/2022 12:30	12/18/2022 20:34	0.394	J	0.0600	1.00	1	ug/L	MWL
Arsenic	06	7440-38-2	SW6020B	12/12/2022 12:30	12/18/2022 20:34	BLOD		0.50	1.0	1	ug/L	MWL
Barium	06	7440-39-3	SW6020B	12/12/2022 12:30	12/18/2022 20:34	80.3		1.00	5.00	1	ug/L	MWL
Beryllium	06	7440-41-7	SW6020B	12/12/2022 12:30	12/18/2022 20:34	BLOD		0.200	1.00	1	ug/L	MWL
Cadmium	06	7440-43-9	SW6020B	12/12/2022 12:30	12/18/2022 20:34	BLOD		0.100	1.00	1	ug/L	MWL
Cobalt	06	7440-48-4	SW6020B	12/12/2022 12:30	12/18/2022 20:34	0.895	J	0.200	1.00	1	ug/L	MWL
Chromium	06	7440-47-3	SW6020B	12/12/2022 12:30	12/18/2022 20:34	3.66		0.600	1.00	1	ug/L	MWL
Copper	06	7440-50-8	SW6020B	12/12/2022 12:30	12/18/2022 20:34	0.969	J	0.300	1.00	1	ug/L	MWL
Nickel	06	7440-02-0	SW6020B	12/12/2022 12:30	12/18/2022 20:34	26.62		1.000	1.000	1	ug/L	MWL
Lead	06	7439-92-1	SW6020B	12/12/2022 12:30	12/18/2022 20:34	BLOD		1.0	1.0	1	ug/L	MWL
Antimony	06	7440-36-0	SW6020B	12/12/2022 12:30	12/18/2022 20:34	BLOD		1.0	1.0	1	ug/L	MWL
Selenium	06	7782-49-2	SW6020B	12/12/2022 12:30	12/18/2022 20:34	BLOD		0.850	1.00	1	ug/L	MWL
Thallium	06	7440-28-0	SW6020B	12/12/2022 12:30	12/18/2022 20:34	BLOD		1.0	1.0	1	ug/L	MWL
Vanadium	06	7440-62-2	SW6020B	12/12/2022 12:30	12/18/2022 20:34	BLOD		2.50	5.00	1	ug/L	MWL
Zinc	06	7440-66-6	SW6020B	12/12/2022 12:30	12/18/2022 20:34	6.52		2.50	5.00	1	ug/L	MWL

Certificate of Analysis

Client Name: SCS Engineers-Winchester
 Client Site I.D.: City of Bristol 2nd Semi-Annual
 Submitted To: Jennifer Robb

Date Issued: 12/30/2022 11:56:27AM

Client Sample ID: MW-206A

Laboratory Sample ID: 22L0423-06

Parameter	Samp ID	CAS	Reference Method	Sample Prep Date/Time	Analyzed Date/Time	Sample Results	Qual	LOD	LOQ	DF	Units	Analyst
Volatile Organic Compounds by GCMS												
1,1,1,2-Tetrachloroethane	06	630-20-6	SW8260D	12/09/2022 16:52	12/09/2022 16:52	BLOD		0.40	0.40	1	ug/L	BMR
1,1,1-Trichloroethane	06	71-55-6	SW8260D	12/09/2022 16:52	12/09/2022 16:52	BLOD		0.60	1.00	1	ug/L	BMR
1,1,2,2-Tetrachloroethane	06	79-34-5	SW8260D	12/09/2022 16:52	12/09/2022 16:52	BLOD		0.30	0.40	1	ug/L	BMR
1,1,2-Trichloroethane	06	79-00-5	SW8260D	12/09/2022 16:52	12/09/2022 16:52	BLOD		0.50	1.00	1	ug/L	BMR
1,1-Dichloroethane	06	75-34-3	SW8260D	12/09/2022 16:52	12/09/2022 16:52	BLOD		0.60	1.00	1	ug/L	BMR
1,1-Dichloroethylene	06	75-35-4	SW8260D	12/09/2022 16:52	12/09/2022 16:52	BLOD		0.70	1.00	1	ug/L	BMR
1,2,3-Trichloropropane	06	96-18-4	SW8260D	12/09/2022 16:52	12/09/2022 16:52	BLOD		0.40	1.00	1	ug/L	BMR
1,2-Dichlorobenzene	06	95-50-1	SW8260D	12/09/2022 16:52	12/09/2022 16:52	BLOD		0.40	1.00	1	ug/L	BMR
1,2-Dichloroethane	06	107-06-2	SW8260D	12/09/2022 16:52	12/09/2022 16:52	BLOD		0.70	1.00	1	ug/L	BMR
1,2-Dichloropropane	06	78-87-5	SW8260D	12/09/2022 16:52	12/09/2022 16:52	BLOD		0.40	1.00	1	ug/L	BMR
1,4-Dichlorobenzene	06	106-46-7	SW8260D	12/09/2022 16:52	12/09/2022 16:52	BLOD		0.40	1.00	1	ug/L	BMR
2-Butanone (MEK)	06	78-93-3	SW8260D	12/09/2022 16:52	12/09/2022 16:52	BLOD		3.00	10.0	1	ug/L	BMR
2-Hexanone (MBK)	06	591-78-6	SW8260D	12/09/2022 16:52	12/09/2022 16:52	BLOD		2.20	5.00	1	ug/L	BMR
4-Methyl-2-pentanone (MIBK)	06	108-10-1	SW8260D	12/09/2022 16:52	12/09/2022 16:52	BLOD		1.50	5.00	1	ug/L	BMR
Acetone	06	67-64-1	SW8260D	12/09/2022 16:52	12/09/2022 16:52	BLOD		7.00	10.0	1	ug/L	BMR
Acrylonitrile	06	107-13-1	SW8260D	12/09/2022 16:52	12/09/2022 16:52	BLOD		1.70	5.00	1	ug/L	BMR
Benzene	06	71-43-2	SW8260D	12/09/2022 16:52	12/09/2022 16:52	BLOD		0.40	1.00	1	ug/L	BMR
Bromochloromethane	06	74-97-5	SW8260D	12/09/2022 16:52	12/09/2022 16:52	BLOD		0.50	1.00	1	ug/L	BMR
Bromodichloromethane	06	75-27-4	SW8260D	12/09/2022 16:52	12/09/2022 16:52	BLOD		0.40	0.50	1	ug/L	BMR
Bromoform	06	75-25-2	SW8260D	12/09/2022 16:52	12/09/2022 16:52	BLOD		0.40	1.00	1	ug/L	BMR
Bromomethane	06	74-83-9	SW8260D	12/09/2022 16:52	12/09/2022 16:52	BLOD		0.80	1.00	1	ug/L	BMR
Carbon disulfide	06	75-15-0	SW8260D	12/09/2022 16:52	12/09/2022 16:52	BLOD		5.00	10.0	1	ug/L	BMR
Carbon tetrachloride	06	56-23-5	SW8260D	12/09/2022 16:52	12/09/2022 16:52	BLOD		0.50	1.00	1	ug/L	BMR
Chlorobenzene	06	108-90-7	SW8260D	12/09/2022 16:52	12/09/2022 16:52	BLOD		0.40	1.00	1	ug/L	BMR

Certificate of Analysis

 Client Name: SCS Engineers-Winchester
 Client Site I.D.: City of Bristol 2nd Semi-Annual
 Submitted To: Jennifer Robb

Date Issued: 12/30/2022 11:56:27AM

Client Sample ID: MW-206A

Laboratory Sample ID: 22L0423-06

Parameter	Samp ID	CAS	Reference Method	Sample Prep Date/Time	Analyzed Date/Time	Sample Results	Qual	LOD	LOQ	DF	Units	Analyst
Volatile Organic Compounds by GCMS												
Chloroethane	06	75-00-3	SW8260D	12/09/2022 16:52	12/09/2022 16:52	BLOD		0.70	1.00	1	ug/L	BMR
Chloroform	06	67-66-3	SW8260D	12/09/2022 16:52	12/09/2022 16:52	BLOD		0.50	0.50	1	ug/L	BMR
Chloromethane	06	74-87-3	SW8260D	12/09/2022 16:52	12/09/2022 16:52	BLOD		0.95	1.00	1	ug/L	BMR
cis-1,2-Dichloroethylene	06	156-59-2	SW8260D	12/09/2022 16:52	12/09/2022 16:52	BLOD		0.40	1.00	1	ug/L	BMR
cis-1,3-Dichloropropene	06	10061-01-5	SW8260D	12/09/2022 16:52	12/09/2022 16:52	BLOD		0.30	1.00	1	ug/L	BMR
Dibromochloromethane	06	124-48-1	SW8260D	12/09/2022 16:52	12/09/2022 16:52	BLOD		0.35	0.50	1	ug/L	BMR
Dibromomethane	06	74-95-3	SW8260D	12/09/2022 16:52	12/09/2022 16:52	BLOD		0.40	1.00	1	ug/L	BMR
Ethylbenzene	06	100-41-4	SW8260D	12/09/2022 16:52	12/09/2022 16:52	BLOD		0.40	1.00	1	ug/L	BMR
Iodomethane	06	74-88-4	SW8260D	12/09/2022 16:52	12/09/2022 16:52	BLOD		6.00	10.0	1	ug/L	BMR
m+p-Xylenes	06	179601-23-1	SW8260D	12/09/2022 16:52	12/09/2022 16:52	BLOD		0.60	2.00	1	ug/L	BMR
Methylene chloride	06	75-09-2	SW8260D	12/09/2022 16:52	12/09/2022 16:52	BLOD		4.00	4.00	1	ug/L	BMR
o-Xylene	06	95-47-6	SW8260D	12/09/2022 16:52	12/09/2022 16:52	BLOD		0.40	1.00	1	ug/L	BMR
Styrene	06	100-42-5	SW8260D	12/09/2022 16:52	12/09/2022 16:52	BLOD		0.40	1.00	1	ug/L	BMR
Tetrachloroethylene (PCE)	06	127-18-4	SW8260D	12/09/2022 16:52	12/09/2022 16:52	BLOD		0.40	1.00	1	ug/L	BMR
Toluene	06	108-88-3	SW8260D	12/09/2022 16:52	12/09/2022 16:52	BLOD		0.50	1.00	1	ug/L	BMR
trans-1,2-Dichloroethylene	06	156-60-5	SW8260D	12/09/2022 16:52	12/09/2022 16:52	BLOD		0.60	1.00	1	ug/L	BMR
trans-1,3-Dichloropropene	06	10061-02-6	SW8260D	12/09/2022 16:52	12/09/2022 16:52	BLOD		0.30	1.00	1	ug/L	BMR
trans-1,4-Dichloro-2-butene	06	110-57-6	SW8260D	12/09/2022 16:52	12/09/2022 16:52	BLOD		1.00	4.00	1	ug/L	BMR
Trichloroethylene	06	79-01-6	SW8260D	12/09/2022 16:52	12/09/2022 16:52	BLOD		0.40	1.00	1	ug/L	BMR
Trichlorofluoromethane	06	75-69-4	SW8260D	12/09/2022 16:52	12/09/2022 16:52	BLOD		0.80	1.00	1	ug/L	BMR
Vinyl acetate	06	108-05-4	SW8260D	12/09/2022 16:52	12/09/2022 16:52	BLOD		2.00	10.0	1	ug/L	BMR
Vinyl chloride	06	75-01-4	SW8260D	12/09/2022 16:52	12/09/2022 16:52	BLOD		0.50	0.50	1	ug/L	BMR
Xylenes, Total	06	1330-20-7	SW8260D	12/09/2022 16:52	12/09/2022 16:52	BLOD		1.00	3.00	1	ug/L	BMR

Certificate of Analysis

Client Name: SCS Engineers-Winchester

Date Issued: 12/30/2022 11:56:27AM

Client Site I.D.: City of Bristol 2nd Semi-Annual

Submitted To: Jennifer Robb

Client Sample ID: MW-206A

Laboratory Sample ID: 22L0423-06

Parameter	Samp ID	CAS	Reference Method	Sample Prep Date/Time	Analyzed Date/Time	Sample Results	Qual	LOD	LOQ	DF	Units	Analyst
Volatile Organic Compounds by GCMS												
Surr: 1,2-Dichloroethane-d4 (Surr)	06	105 %	70-120	12/09/2022 16:52	12/09/2022 16:52							
Surr: 4-Bromofluorobenzene (Surr)	06	96.6 %	75-120	12/09/2022 16:52	12/09/2022 16:52							
Surr: Dibromofluoromethane (Surr)	06	96.7 %	70-130	12/09/2022 16:52	12/09/2022 16:52							
Surr: Toluene-d8 (Surr)	06	99.8 %	70-130	12/09/2022 16:52	12/09/2022 16:52							

Certificate of Analysis

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Date Issued: 12/30/2022 11:56:27AM

Client Site I.D.: City of Bristol 2nd Semi-Annual

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Client Sample ID: MW-206A

Laboratory Sample ID: 22L0423-06

Parameter	Samp ID	CAS	Reference Method	Sample Prep Date/Time	Analyzed Date/Time	Sample Results	Qual	LOD	LOQ	DF	Units	Analyst
Micro-extractables by GC/ECD												
1,2-Dibromoethane (EDB)	06	106-93-4	SW8011	12/12/2022 12:25	12/12/2022 22:06	BLOD		0.008	0.010	1	ug/L	LBH2
1,2,3-Trichloropropane	06	96-18-4	SW8011	12/12/2022 12:25	12/12/2022 22:06	BLOD		0.009	0.010	1	ug/L	LBH2
1,2-Dibromo-3-chloropropane (DBCP)	06	96-12-8	SW8011	12/12/2022 12:25	12/12/2022 22:06	BLOD		0.005	0.010	1	ug/L	LBH2

Certificate of Analysis

Client Name: SCS Engineers-Winchester
 Client Site I.D.: City of Bristol 2nd Semi-Annual
 Submitted To: Jennifer Robb

Date Issued: 12/30/2022 11:56:27AM

Client Sample ID: MW-206B

Laboratory Sample ID: 22L0423-07

Parameter	Samp ID	CAS	Reference Method	Sample Prep Date/Time	Analyzed Date/Time	Sample Results	Qual	LOD	LOQ	DF	Units	Analyst
Metals (Total) by EPA 6000/7000 Series Methods												
Silver	07	7440-22-4	SW6020B	12/12/2022 12:30	12/18/2022 20:37	BLOD		0.0600	1.00	1	ug/L	MWL
Arsenic	07	7440-38-2	SW6020B	12/12/2022 12:30	12/18/2022 20:37	0.53	J	0.50	1.0	1	ug/L	MWL
Barium	07	7440-39-3	SW6020B	12/12/2022 12:30	12/18/2022 20:37	170		1.00	5.00	1	ug/L	MWL
Beryllium	07	7440-41-7	SW6020B	12/12/2022 12:30	12/18/2022 20:37	BLOD		0.200	1.00	1	ug/L	MWL
Cadmium	07	7440-43-9	SW6020B	12/12/2022 12:30	12/18/2022 20:37	BLOD		0.100	1.00	1	ug/L	MWL
Cobalt	07	7440-48-4	SW6020B	12/12/2022 12:30	12/18/2022 20:37	1.13		0.200	1.00	1	ug/L	MWL
Chromium	07	7440-47-3	SW6020B	12/12/2022 12:30	12/18/2022 20:37	BLOD		0.600	1.00	1	ug/L	MWL
Copper	07	7440-50-8	SW6020B	12/12/2022 12:30	12/18/2022 20:37	0.634	J	0.300	1.00	1	ug/L	MWL
Nickel	07	7440-02-0	SW6020B	12/12/2022 12:30	12/18/2022 20:37	2.544		1.000	1.000	1	ug/L	MWL
Lead	07	7439-92-1	SW6020B	12/12/2022 12:30	12/18/2022 20:37	BLOD		1.0	1.0	1	ug/L	MWL
Antimony	07	7440-36-0	SW6020B	12/12/2022 12:30	12/18/2022 20:37	BLOD		1.0	1.0	1	ug/L	MWL
Selenium	07	7782-49-2	SW6020B	12/12/2022 12:30	12/18/2022 20:37	BLOD		0.850	1.00	1	ug/L	MWL
Thallium	07	7440-28-0	SW6020B	12/12/2022 12:30	12/18/2022 20:37	BLOD		1.0	1.0	1	ug/L	MWL
Vanadium	07	7440-62-2	SW6020B	12/12/2022 12:30	12/18/2022 20:37	BLOD		2.50	5.00	1	ug/L	MWL
Zinc	07	7440-66-6	SW6020B	12/12/2022 12:30	12/18/2022 20:37	5.07		2.50	5.00	1	ug/L	MWL

Certificate of Analysis

Client Name: SCS Engineers-Winchester
 Client Site I.D.: City of Bristol 2nd Semi-Annual
 Submitted To: Jennifer Robb

Date Issued: 12/30/2022 11:56:27AM

Client Sample ID: MW-206B

Laboratory Sample ID: 22L0423-07

Parameter	Samp ID	CAS	Reference Method	Sample Prep Date/Time	Analyzed Date/Time	Sample Results	Qual	LOD	LOQ	DF	Units	Analyst
Volatile Organic Compounds by GCMS												
1,1,1,2-Tetrachloroethane	07	630-20-6	SW8260D	12/09/2022 17:18	12/09/2022 17:18	BLOD		0.40	0.40	1	ug/L	BMR
1,1,1-Trichloroethane	07	71-55-6	SW8260D	12/09/2022 17:18	12/09/2022 17:18	BLOD		0.60	1.00	1	ug/L	BMR
1,1,2,2-Tetrachloroethane	07	79-34-5	SW8260D	12/09/2022 17:18	12/09/2022 17:18	BLOD		0.30	0.40	1	ug/L	BMR
1,1,2-Trichloroethane	07	79-00-5	SW8260D	12/09/2022 17:18	12/09/2022 17:18	BLOD		0.50	1.00	1	ug/L	BMR
1,1-Dichloroethane	07	75-34-3	SW8260D	12/09/2022 17:18	12/09/2022 17:18	BLOD		0.60	1.00	1	ug/L	BMR
1,1-Dichloroethylene	07	75-35-4	SW8260D	12/09/2022 17:18	12/09/2022 17:18	BLOD		0.70	1.00	1	ug/L	BMR
1,2,3-Trichloropropane	07	96-18-4	SW8260D	12/09/2022 17:18	12/09/2022 17:18	BLOD		0.40	1.00	1	ug/L	BMR
1,2-Dichlorobenzene	07	95-50-1	SW8260D	12/09/2022 17:18	12/09/2022 17:18	BLOD		0.40	1.00	1	ug/L	BMR
1,2-Dichloroethane	07	107-06-2	SW8260D	12/09/2022 17:18	12/09/2022 17:18	BLOD		0.70	1.00	1	ug/L	BMR
1,2-Dichloropropane	07	78-87-5	SW8260D	12/09/2022 17:18	12/09/2022 17:18	BLOD		0.40	1.00	1	ug/L	BMR
1,4-Dichlorobenzene	07	106-46-7	SW8260D	12/09/2022 17:18	12/09/2022 17:18	BLOD		0.40	1.00	1	ug/L	BMR
2-Butanone (MEK)	07	78-93-3	SW8260D	12/09/2022 17:18	12/09/2022 17:18	BLOD		3.00	10.0	1	ug/L	BMR
2-Hexanone (MBK)	07	591-78-6	SW8260D	12/09/2022 17:18	12/09/2022 17:18	BLOD		2.20	5.00	1	ug/L	BMR
4-Methyl-2-pentanone (MIBK)	07	108-10-1	SW8260D	12/09/2022 17:18	12/09/2022 17:18	BLOD		1.50	5.00	1	ug/L	BMR
Acetone	07	67-64-1	SW8260D	12/09/2022 17:18	12/09/2022 17:18	BLOD		7.00	10.0	1	ug/L	BMR
Acrylonitrile	07	107-13-1	SW8260D	12/09/2022 17:18	12/09/2022 17:18	BLOD		1.70	5.00	1	ug/L	BMR
Benzene	07	71-43-2	SW8260D	12/09/2022 17:18	12/09/2022 17:18	BLOD		0.40	1.00	1	ug/L	BMR
Bromochloromethane	07	74-97-5	SW8260D	12/09/2022 17:18	12/09/2022 17:18	BLOD		0.50	1.00	1	ug/L	BMR
Bromodichloromethane	07	75-27-4	SW8260D	12/09/2022 17:18	12/09/2022 17:18	BLOD		0.40	0.50	1	ug/L	BMR
Bromoform	07	75-25-2	SW8260D	12/09/2022 17:18	12/09/2022 17:18	BLOD		0.40	1.00	1	ug/L	BMR
Bromomethane	07	74-83-9	SW8260D	12/09/2022 17:18	12/09/2022 17:18	BLOD		0.80	1.00	1	ug/L	BMR
Carbon disulfide	07	75-15-0	SW8260D	12/09/2022 17:18	12/09/2022 17:18	BLOD		5.00	10.0	1	ug/L	BMR
Carbon tetrachloride	07	56-23-5	SW8260D	12/09/2022 17:18	12/09/2022 17:18	BLOD		0.50	1.00	1	ug/L	BMR
Chlorobenzene	07	108-90-7	SW8260D	12/09/2022 17:18	12/09/2022 17:18	BLOD		0.40	1.00	1	ug/L	BMR

Certificate of Analysis

 Client Name: SCS Engineers-Winchester
 Client Site I.D.: City of Bristol 2nd Semi-Annual
 Submitted To: Jennifer Robb

Date Issued: 12/30/2022 11:56:27AM

Client Sample ID: MW-206B

Laboratory Sample ID: 22L0423-07

Parameter	Samp ID	CAS	Reference Method	Sample Prep Date/Time	Analyzed Date/Time	Sample Results	Qual	LOD	LOQ	DF	Units	Analyst
Volatile Organic Compounds by GCMS												
Chloroethane	07	75-00-3	SW8260D	12/09/2022 17:18	12/09/2022 17:18	BLOD		0.70	1.00	1	ug/L	BMR
Chloroform	07	67-66-3	SW8260D	12/09/2022 17:18	12/09/2022 17:18	BLOD		0.50	0.50	1	ug/L	BMR
Chloromethane	07	74-87-3	SW8260D	12/09/2022 17:18	12/09/2022 17:18	BLOD		0.95	1.00	1	ug/L	BMR
cis-1,2-Dichloroethylene	07	156-59-2	SW8260D	12/09/2022 17:18	12/09/2022 17:18	BLOD		0.40	1.00	1	ug/L	BMR
cis-1,3-Dichloropropene	07	10061-01-5	SW8260D	12/09/2022 17:18	12/09/2022 17:18	BLOD		0.30	1.00	1	ug/L	BMR
Dibromochloromethane	07	124-48-1	SW8260D	12/09/2022 17:18	12/09/2022 17:18	BLOD		0.35	0.50	1	ug/L	BMR
Dibromomethane	07	74-95-3	SW8260D	12/09/2022 17:18	12/09/2022 17:18	BLOD		0.40	1.00	1	ug/L	BMR
Ethylbenzene	07	100-41-4	SW8260D	12/09/2022 17:18	12/09/2022 17:18	BLOD		0.40	1.00	1	ug/L	BMR
Iodomethane	07	74-88-4	SW8260D	12/09/2022 17:18	12/09/2022 17:18	BLOD		6.00	10.0	1	ug/L	BMR
m+p-Xylenes	07	179601-23-1	SW8260D	12/09/2022 17:18	12/09/2022 17:18	BLOD		0.60	2.00	1	ug/L	BMR
Methylene chloride	07	75-09-2	SW8260D	12/09/2022 17:18	12/09/2022 17:18	BLOD		4.00	4.00	1	ug/L	BMR
o-Xylene	07	95-47-6	SW8260D	12/09/2022 17:18	12/09/2022 17:18	BLOD		0.40	1.00	1	ug/L	BMR
Styrene	07	100-42-5	SW8260D	12/09/2022 17:18	12/09/2022 17:18	BLOD		0.40	1.00	1	ug/L	BMR
Tetrachloroethylene (PCE)	07	127-18-4	SW8260D	12/09/2022 17:18	12/09/2022 17:18	BLOD		0.40	1.00	1	ug/L	BMR
Toluene	07	108-88-3	SW8260D	12/09/2022 17:18	12/09/2022 17:18	BLOD		0.50	1.00	1	ug/L	BMR
trans-1,2-Dichloroethylene	07	156-60-5	SW8260D	12/09/2022 17:18	12/09/2022 17:18	BLOD		0.60	1.00	1	ug/L	BMR
trans-1,3-Dichloropropene	07	10061-02-6	SW8260D	12/09/2022 17:18	12/09/2022 17:18	BLOD		0.30	1.00	1	ug/L	BMR
trans-1,4-Dichloro-2-butene	07	110-57-6	SW8260D	12/09/2022 17:18	12/09/2022 17:18	BLOD		1.00	4.00	1	ug/L	BMR
Trichloroethylene	07	79-01-6	SW8260D	12/09/2022 17:18	12/09/2022 17:18	BLOD		0.40	1.00	1	ug/L	BMR
Trichlorofluoromethane	07	75-69-4	SW8260D	12/09/2022 17:18	12/09/2022 17:18	BLOD		0.80	1.00	1	ug/L	BMR
Vinyl acetate	07	108-05-4	SW8260D	12/09/2022 17:18	12/09/2022 17:18	BLOD		2.00	10.0	1	ug/L	BMR
Vinyl chloride	07	75-01-4	SW8260D	12/09/2022 17:18	12/09/2022 17:18	BLOD		0.50	0.50	1	ug/L	BMR
Xylenes, Total	07	1330-20-7	SW8260D	12/09/2022 17:18	12/09/2022 17:18	BLOD		1.00	3.00	1	ug/L	BMR

Certificate of Analysis

Client Name: SCS Engineers-Winchester

Date Issued: 12/30/2022 11:56:27AM

Client Site I.D.: City of Bristol 2nd Semi-Annual

Submitted To: Jennifer Robb

Client Sample ID: MW-206B

Laboratory Sample ID: 22L0423-07

Parameter	Samp ID	CAS	Reference Method	Sample Prep Date/Time	Analyzed Date/Time	Sample Results	Qual	LOD	LOQ	DF	Units	Analyst
Volatile Organic Compounds by GCMS												
Surr: 1,2-Dichloroethane-d4 (Surr)	07	103 %	70-120	12/09/2022 17:18	12/09/2022 17:18							
Surr: 4-Bromofluorobenzene (Surr)	07	97.2 %	75-120	12/09/2022 17:18	12/09/2022 17:18							
Surr: Dibromofluoromethane (Surr)	07	97.5 %	70-130	12/09/2022 17:18	12/09/2022 17:18							
Surr: Toluene-d8 (Surr)	07	100 %	70-130	12/09/2022 17:18	12/09/2022 17:18							

Certificate of Analysis

Client Name: SCS Engineers-Winchester
 Client Site I.D.: City of Bristol 2nd Semi-Annual
 Submitted To: Jennifer Robb

Date Issued: 12/30/2022 11:56:27AM

Client Sample ID: MW-206B

Laboratory Sample ID: 22L0423-07

Parameter	Samp ID	CAS	Reference Method	Sample Prep Date/Time	Analyzed Date/Time	Sample Results	Qual	LOD	LOQ	DF	Units	Analyst
Micro-extractables by GC/ECD												
1,2-Dibromoethane (EDB)	07	106-93-4	SW8011	12/12/2022 12:25	12/12/2022 22:28	BLOD		0.008	0.010	1	ug/L	LBH2
1,2,3-Trichloropropane	07	96-18-4	SW8011	12/12/2022 12:25	12/12/2022 22:28	BLOD		0.009	0.010	1	ug/L	LBH2
1,2-Dibromo-3-chloropropane (DBCP)	07	96-12-8	SW8011	12/12/2022 12:25	12/12/2022 22:28	BLOD		0.005	0.010	1	ug/L	LBH2

Certificate of Analysis

 Client Name: SCS Engineers-Winchester
 Client Site I.D.: City of Bristol 2nd Semi-Annual
 Submitted To: Jennifer Robb

Date Issued: 12/30/2022 11:56:27AM

Client Sample ID: MW-211A

Laboratory Sample ID: 22L0423-08

Parameter	Samp ID	CAS	Reference Method	Sample Prep Date/Time	Analyzed Date/Time	Sample Results	Qual	LOD	LOQ	DF	Units	Analyst
Metals (Total) by EPA 6000/7000 Series Methods												
Silver	08	7440-22-4	SW6020B	12/12/2022 12:30	12/18/2022 20:40	0.107	J	0.0600	1.00	1	ug/L	MWL
Arsenic	08	7440-38-2	SW6020B	12/12/2022 12:30	12/18/2022 20:40	BLOD		0.50	1.0	1	ug/L	MWL
Barium	08	7440-39-3	SW6020B	12/12/2022 12:30	12/18/2022 20:40	47.6		1.00	5.00	1	ug/L	MWL
Beryllium	08	7440-41-7	SW6020B	12/12/2022 12:30	12/18/2022 20:40	BLOD		0.200	1.00	1	ug/L	MWL
Cadmium	08	7440-43-9	SW6020B	12/12/2022 12:30	12/18/2022 20:40	BLOD		0.100	1.00	1	ug/L	MWL
Cobalt	08	7440-48-4	SW6020B	12/12/2022 12:30	12/18/2022 20:40	BLOD		0.200	1.00	1	ug/L	MWL
Chromium	08	7440-47-3	SW6020B	12/12/2022 12:30	12/18/2022 20:40	BLOD		0.600	1.00	1	ug/L	MWL
Copper	08	7440-50-8	SW6020B	12/12/2022 12:30	12/18/2022 20:40	0.390	J	0.300	1.00	1	ug/L	MWL
Nickel	08	7440-02-0	SW6020B	12/12/2022 12:30	12/18/2022 20:40	BLOD		1.000	1.000	1	ug/L	MWL
Lead	08	7439-92-1	SW6020B	12/12/2022 12:30	12/18/2022 20:40	BLOD		1.0	1.0	1	ug/L	MWL
Antimony	08	7440-36-0	SW6020B	12/12/2022 12:30	12/18/2022 20:40	BLOD		1.0	1.0	1	ug/L	MWL
Selenium	08	7782-49-2	SW6020B	12/12/2022 12:30	12/18/2022 20:40	BLOD		0.850	1.00	1	ug/L	MWL
Thallium	08	7440-28-0	SW6020B	12/12/2022 12:30	12/18/2022 20:40	BLOD		1.0	1.0	1	ug/L	MWL
Vanadium	08	7440-62-2	SW6020B	12/12/2022 12:30	12/18/2022 20:40	BLOD		2.50	5.00	1	ug/L	MWL
Zinc	08	7440-66-6	SW6020B	12/12/2022 12:30	12/18/2022 20:40	BLOD		2.50	5.00	1	ug/L	MWL

Certificate of Analysis

Client Name: SCS Engineers-Winchester
 Client Site I.D.: City of Bristol 2nd Semi-Annual
 Submitted To: Jennifer Robb

Date Issued: 12/30/2022 11:56:27AM

Client Sample ID: MW-211A

Laboratory Sample ID: 22L0423-08

Parameter	Samp ID	CAS	Reference Method	Sample Prep Date/Time	Analyzed Date/Time	Sample Results	Qual	LOD	LOQ	DF	Units	Analyst
Volatile Organic Compounds by GCMS												
1,1,1,2-Tetrachloroethane	08	630-20-6	SW8260D	12/09/2022 17:44	12/09/2022 17:44	BLOD		0.40	0.40	1	ug/L	BMR
1,1,1-Trichloroethane	08	71-55-6	SW8260D	12/09/2022 17:44	12/09/2022 17:44	BLOD		0.60	1.00	1	ug/L	BMR
1,1,1,2-Tetrachloroethane	08	79-34-5	SW8260D	12/09/2022 17:44	12/09/2022 17:44	BLOD		0.30	0.40	1	ug/L	BMR
1,1,2-Trichloroethane	08	79-00-5	SW8260D	12/09/2022 17:44	12/09/2022 17:44	BLOD		0.50	1.00	1	ug/L	BMR
1,1-Dichloroethane	08	75-34-3	SW8260D	12/09/2022 17:44	12/09/2022 17:44	BLOD		0.60	1.00	1	ug/L	BMR
1,1-Dichloroethylene	08	75-35-4	SW8260D	12/09/2022 17:44	12/09/2022 17:44	BLOD		0.70	1.00	1	ug/L	BMR
1,2,3-Trichloropropane	08	96-18-4	SW8260D	12/09/2022 17:44	12/09/2022 17:44	BLOD		0.40	1.00	1	ug/L	BMR
1,2-Dichlorobenzene	08	95-50-1	SW8260D	12/09/2022 17:44	12/09/2022 17:44	BLOD		0.40	1.00	1	ug/L	BMR
1,2-Dichloroethane	08	107-06-2	SW8260D	12/09/2022 17:44	12/09/2022 17:44	BLOD		0.70	1.00	1	ug/L	BMR
1,2-Dichloropropane	08	78-87-5	SW8260D	12/09/2022 17:44	12/09/2022 17:44	BLOD		0.40	1.00	1	ug/L	BMR
1,4-Dichlorobenzene	08	106-46-7	SW8260D	12/09/2022 17:44	12/09/2022 17:44	BLOD		0.40	1.00	1	ug/L	BMR
2-Butanone (MEK)	08	78-93-3	SW8260D	12/09/2022 17:44	12/09/2022 17:44	BLOD		3.00	10.0	1	ug/L	BMR
2-Hexanone (MBK)	08	591-78-6	SW8260D	12/09/2022 17:44	12/09/2022 17:44	BLOD		2.20	5.00	1	ug/L	BMR
4-Methyl-2-pentanone (MIBK)	08	108-10-1	SW8260D	12/09/2022 17:44	12/09/2022 17:44	BLOD		1.50	5.00	1	ug/L	BMR
Acetone	08	67-64-1	SW8260D	12/09/2022 17:44	12/09/2022 17:44	BLOD		7.00	10.0	1	ug/L	BMR
Acrylonitrile	08	107-13-1	SW8260D	12/09/2022 17:44	12/09/2022 17:44	BLOD		1.70	5.00	1	ug/L	BMR
Benzene	08	71-43-2	SW8260D	12/09/2022 17:44	12/09/2022 17:44	BLOD		0.40	1.00	1	ug/L	BMR
Bromochloromethane	08	74-97-5	SW8260D	12/09/2022 17:44	12/09/2022 17:44	BLOD		0.50	1.00	1	ug/L	BMR
Bromodichloromethane	08	75-27-4	SW8260D	12/09/2022 17:44	12/09/2022 17:44	BLOD		0.40	0.50	1	ug/L	BMR
Bromoform	08	75-25-2	SW8260D	12/09/2022 17:44	12/09/2022 17:44	BLOD		0.40	1.00	1	ug/L	BMR
Bromomethane	08	74-83-9	SW8260D	12/09/2022 17:44	12/09/2022 17:44	BLOD		0.80	1.00	1	ug/L	BMR
Carbon disulfide	08	75-15-0	SW8260D	12/09/2022 17:44	12/09/2022 17:44	BLOD		5.00	10.0	1	ug/L	BMR
Carbon tetrachloride	08	56-23-5	SW8260D	12/09/2022 17:44	12/09/2022 17:44	BLOD		0.50	1.00	1	ug/L	BMR
Chlorobenzene	08	108-90-7	SW8260D	12/09/2022 17:44	12/09/2022 17:44	BLOD		0.40	1.00	1	ug/L	BMR

Certificate of Analysis

 Client Name: SCS Engineers-Winchester
 Client Site I.D.: City of Bristol 2nd Semi-Annual
 Submitted To: Jennifer Robb

Date Issued: 12/30/2022 11:56:27AM

Client Sample ID: MW-211A

Laboratory Sample ID: 22L0423-08

Parameter	Samp ID	CAS	Reference Method	Sample Prep Date/Time	Analyzed Date/Time	Sample Results	Qual	LOD	LOQ	DF	Units	Analyst
Volatile Organic Compounds by GCMS												
Chloroethane	08	75-00-3	SW8260D	12/09/2022 17:44	12/09/2022 17:44	BLOD		0.70	1.00	1	ug/L	BMR
Chloroform	08	67-66-3	SW8260D	12/09/2022 17:44	12/09/2022 17:44	BLOD		0.50	0.50	1	ug/L	BMR
Chloromethane	08	74-87-3	SW8260D	12/09/2022 17:44	12/09/2022 17:44	BLOD		0.95	1.00	1	ug/L	BMR
cis-1,2-Dichloroethylene	08	156-59-2	SW8260D	12/09/2022 17:44	12/09/2022 17:44	BLOD		0.40	1.00	1	ug/L	BMR
cis-1,3-Dichloropropene	08	10061-01-5	SW8260D	12/09/2022 17:44	12/09/2022 17:44	BLOD		0.30	1.00	1	ug/L	BMR
Dibromochloromethane	08	124-48-1	SW8260D	12/09/2022 17:44	12/09/2022 17:44	BLOD		0.35	0.50	1	ug/L	BMR
Dibromomethane	08	74-95-3	SW8260D	12/09/2022 17:44	12/09/2022 17:44	BLOD		0.40	1.00	1	ug/L	BMR
Ethylbenzene	08	100-41-4	SW8260D	12/09/2022 17:44	12/09/2022 17:44	BLOD		0.40	1.00	1	ug/L	BMR
Iodomethane	08	74-88-4	SW8260D	12/09/2022 17:44	12/09/2022 17:44	BLOD		6.00	10.0	1	ug/L	BMR
m+p-Xylenes	08	179601-23-1	SW8260D	12/09/2022 17:44	12/09/2022 17:44	BLOD		0.60	2.00	1	ug/L	BMR
Methylene chloride	08	75-09-2	SW8260D	12/09/2022 17:44	12/09/2022 17:44	BLOD		4.00	4.00	1	ug/L	BMR
o-Xylene	08	95-47-6	SW8260D	12/09/2022 17:44	12/09/2022 17:44	BLOD		0.40	1.00	1	ug/L	BMR
Styrene	08	100-42-5	SW8260D	12/09/2022 17:44	12/09/2022 17:44	BLOD		0.40	1.00	1	ug/L	BMR
Tetrachloroethylene (PCE)	08	127-18-4	SW8260D	12/09/2022 17:44	12/09/2022 17:44	BLOD		0.40	1.00	1	ug/L	BMR
Toluene	08	108-88-3	SW8260D	12/09/2022 17:44	12/09/2022 17:44	BLOD		0.50	1.00	1	ug/L	BMR
trans-1,2-Dichloroethylene	08	156-60-5	SW8260D	12/09/2022 17:44	12/09/2022 17:44	BLOD		0.60	1.00	1	ug/L	BMR
trans-1,3-Dichloropropene	08	10061-02-6	SW8260D	12/09/2022 17:44	12/09/2022 17:44	BLOD		0.30	1.00	1	ug/L	BMR
trans-1,4-Dichloro-2-butene	08	110-57-6	SW8260D	12/09/2022 17:44	12/09/2022 17:44	BLOD		1.00	4.00	1	ug/L	BMR
Trichloroethylene	08	79-01-6	SW8260D	12/09/2022 17:44	12/09/2022 17:44	BLOD		0.40	1.00	1	ug/L	BMR
Trichlorofluoromethane	08	75-69-4	SW8260D	12/09/2022 17:44	12/09/2022 17:44	BLOD		0.80	1.00	1	ug/L	BMR
Vinyl acetate	08	108-05-4	SW8260D	12/09/2022 17:44	12/09/2022 17:44	BLOD		2.00	10.0	1	ug/L	BMR
Vinyl chloride	08	75-01-4	SW8260D	12/09/2022 17:44	12/09/2022 17:44	BLOD		0.50	0.50	1	ug/L	BMR
Xylenes, Total	08	1330-20-7	SW8260D	12/09/2022 17:44	12/09/2022 17:44	BLOD		1.00	3.00	1	ug/L	BMR

Certificate of Analysis

Client Name: SCS Engineers-Winchester

Date Issued: 12/30/2022 11:56:27AM

Client Site I.D.: City of Bristol 2nd Semi-Annual

Submitted To: Jennifer Robb

Client Sample ID: MW-211A

Laboratory Sample ID: 22L0423-08

Parameter	Samp ID	CAS	Reference Method	Sample Prep Date/Time	Analyzed Date/Time	Sample Results	Qual	LOD	LOQ	DF	Units	Analyst
Volatile Organic Compounds by GCMS												
Surr: 1,2-Dichloroethane-d4 (Surr)	08	105 %	70-120	12/09/2022 17:44	12/09/2022 17:44							
Surr: 4-Bromofluorobenzene (Surr)	08	93.0 %	75-120	12/09/2022 17:44	12/09/2022 17:44							
Surr: Dibromofluoromethane (Surr)	08	108 %	70-130	12/09/2022 17:44	12/09/2022 17:44							
Surr: Toluene-d8 (Surr)	08	98.2 %	70-130	12/09/2022 17:44	12/09/2022 17:44							

Certificate of Analysis

Client Name: SCS Engineers-Winchester
 Client Site I.D.: City of Bristol 2nd Semi-Annual
 Submitted To: Jennifer Robb

Date Issued: 12/30/2022 11:56:27AM

Client Sample ID: MW-211A

Laboratory Sample ID: 22L0423-08

Parameter	Samp ID	CAS	Reference Method	Sample Prep Date/Time	Analyzed Date/Time	Sample Results	Qual	LOD	LOQ	DF	Units	Analyst
Micro-extractables by GC/ECD												
1,2-Dibromoethane (EDB)	08	106-93-4	SW8011	12/12/2022 12:25	12/12/2022 22:50	BLOD		0.008	0.010	1	ug/L	LBH2
1,2,3-Trichloropropane	08	96-18-4	SW8011	12/12/2022 12:25	12/12/2022 22:50	BLOD		0.009	0.010	1	ug/L	LBH2
1,2-Dibromo-3-chloropropane (DBCP)	08	96-12-8	SW8011	12/12/2022 12:25	12/12/2022 22:50	BLOD		0.005	0.010	1	ug/L	LBH2

Certificate of Analysis

Client Name: SCS Engineers-Winchester
 Client Site I.D.: City of Bristol 2nd Semi-Annual
 Submitted To: Jennifer Robb

Date Issued: 12/30/2022 11:56:27AM

Client Sample ID: MW-211B

Laboratory Sample ID: 22L0423-09

Parameter	Samp ID	CAS	Reference Method	Sample Prep Date/Time	Analyzed Date/Time	Sample Results	Qual	LOD	LOQ	DF	Units	Analyst
Metals (Total) by EPA 6000/7000 Series Methods												
Silver	09	7440-22-4	SW6020B	12/12/2022 12:30	12/18/2022 20:43	0.0722	J	0.0600	1.00	1	ug/L	MWL
Arsenic	09	7440-38-2	SW6020B	12/12/2022 12:30	12/18/2022 20:43	BLOD		0.50	1.0	1	ug/L	MWL
Barium	09	7440-39-3	SW6020B	12/12/2022 12:30	12/18/2022 20:43	97.6		1.00	5.00	1	ug/L	MWL
Beryllium	09	7440-41-7	SW6020B	12/12/2022 12:30	12/18/2022 20:43	BLOD		0.200	1.00	1	ug/L	MWL
Cadmium	09	7440-43-9	SW6020B	12/12/2022 12:30	12/18/2022 20:43	BLOD		0.100	1.00	1	ug/L	MWL
Cobalt	09	7440-48-4	SW6020B	12/12/2022 12:30	12/18/2022 20:43	BLOD		0.200	1.00	1	ug/L	MWL
Chromium	09	7440-47-3	SW6020B	12/12/2022 12:30	12/18/2022 20:43	BLOD		0.600	1.00	1	ug/L	MWL
Copper	09	7440-50-8	SW6020B	12/12/2022 12:30	12/18/2022 20:43	BLOD		0.300	1.00	1	ug/L	MWL
Nickel	09	7440-02-0	SW6020B	12/12/2022 12:30	12/18/2022 20:43	BLOD		1.000	1.000	1	ug/L	MWL
Lead	09	7439-92-1	SW6020B	12/12/2022 12:30	12/18/2022 20:43	BLOD		1.0	1.0	1	ug/L	MWL
Antimony	09	7440-36-0	SW6020B	12/12/2022 12:30	12/18/2022 20:43	BLOD		1.0	1.0	1	ug/L	MWL
Selenium	09	7782-49-2	SW6020B	12/12/2022 12:30	12/18/2022 20:43	BLOD		0.850	1.00	1	ug/L	MWL
Thallium	09	7440-28-0	SW6020B	12/12/2022 12:30	12/18/2022 20:43	BLOD		1.0	1.0	1	ug/L	MWL
Vanadium	09	7440-62-2	SW6020B	12/12/2022 12:30	12/18/2022 20:43	BLOD		2.50	5.00	1	ug/L	MWL
Zinc	09	7440-66-6	SW6020B	12/12/2022 12:30	12/18/2022 20:43	6.51		2.50	5.00	1	ug/L	MWL

Certificate of Analysis

Client Name: SCS Engineers-Winchester
 Client Site I.D.: City of Bristol 2nd Semi-Annual
 Submitted To: Jennifer Robb

Date Issued: 12/30/2022 11:56:27AM

Client Sample ID: MW-211B

Laboratory Sample ID: 22L0423-09

Parameter	Samp ID	CAS	Reference Method	Sample Prep Date/Time	Analyzed Date/Time	Sample Results	Qual	LOD	LOQ	DF	Units	Analyst
Volatile Organic Compounds by GCMS												
1,1,1,2-Tetrachloroethane	09	630-20-6	SW8260D	12/09/2022 18:09	12/09/2022 18:09	BLOD		0.40	0.40	1	ug/L	BMR
1,1,1-Trichloroethane	09	71-55-6	SW8260D	12/09/2022 18:09	12/09/2022 18:09	BLOD		0.60	1.00	1	ug/L	BMR
1,1,1,2-Tetrachloroethane	09	79-34-5	SW8260D	12/09/2022 18:09	12/09/2022 18:09	BLOD		0.30	0.40	1	ug/L	BMR
1,1,2-Trichloroethane	09	79-00-5	SW8260D	12/09/2022 18:09	12/09/2022 18:09	BLOD		0.50	1.00	1	ug/L	BMR
1,1-Dichloroethane	09	75-34-3	SW8260D	12/09/2022 18:09	12/09/2022 18:09	BLOD		0.60	1.00	1	ug/L	BMR
1,1-Dichloroethylene	09	75-35-4	SW8260D	12/09/2022 18:09	12/09/2022 18:09	BLOD		0.70	1.00	1	ug/L	BMR
1,2,3-Trichloropropane	09	96-18-4	SW8260D	12/09/2022 18:09	12/09/2022 18:09	BLOD		0.40	1.00	1	ug/L	BMR
1,2-Dichlorobenzene	09	95-50-1	SW8260D	12/09/2022 18:09	12/09/2022 18:09	BLOD		0.40	1.00	1	ug/L	BMR
1,2-Dichloroethane	09	107-06-2	SW8260D	12/09/2022 18:09	12/09/2022 18:09	BLOD		0.70	1.00	1	ug/L	BMR
1,2-Dichloropropane	09	78-87-5	SW8260D	12/09/2022 18:09	12/09/2022 18:09	BLOD		0.40	1.00	1	ug/L	BMR
1,4-Dichlorobenzene	09	106-46-7	SW8260D	12/09/2022 18:09	12/09/2022 18:09	BLOD		0.40	1.00	1	ug/L	BMR
2-Butanone (MEK)	09	78-93-3	SW8260D	12/09/2022 18:09	12/09/2022 18:09	BLOD		3.00	10.0	1	ug/L	BMR
2-Hexanone (MBK)	09	591-78-6	SW8260D	12/09/2022 18:09	12/09/2022 18:09	BLOD		2.20	5.00	1	ug/L	BMR
4-Methyl-2-pentanone (MIBK)	09	108-10-1	SW8260D	12/09/2022 18:09	12/09/2022 18:09	BLOD		1.50	5.00	1	ug/L	BMR
Acetone	09	67-64-1	SW8260D	12/09/2022 18:09	12/09/2022 18:09	BLOD		7.00	10.0	1	ug/L	BMR
Acrylonitrile	09	107-13-1	SW8260D	12/09/2022 18:09	12/09/2022 18:09	BLOD		1.70	5.00	1	ug/L	BMR
Benzene	09	71-43-2	SW8260D	12/09/2022 18:09	12/09/2022 18:09	BLOD		0.40	1.00	1	ug/L	BMR
Bromochloromethane	09	74-97-5	SW8260D	12/09/2022 18:09	12/09/2022 18:09	BLOD		0.50	1.00	1	ug/L	BMR
Bromodichloromethane	09	75-27-4	SW8260D	12/09/2022 18:09	12/09/2022 18:09	BLOD		0.40	0.50	1	ug/L	BMR
Bromoform	09	75-25-2	SW8260D	12/09/2022 18:09	12/09/2022 18:09	BLOD		0.40	1.00	1	ug/L	BMR
Bromomethane	09	74-83-9	SW8260D	12/09/2022 18:09	12/09/2022 18:09	BLOD		0.80	1.00	1	ug/L	BMR
Carbon disulfide	09	75-15-0	SW8260D	12/09/2022 18:09	12/09/2022 18:09	BLOD		5.00	10.0	1	ug/L	BMR
Carbon tetrachloride	09	56-23-5	SW8260D	12/09/2022 18:09	12/09/2022 18:09	BLOD		0.50	1.00	1	ug/L	BMR
Chlorobenzene	09	108-90-7	SW8260D	12/09/2022 18:09	12/09/2022 18:09	BLOD		0.40	1.00	1	ug/L	BMR

Certificate of Analysis

 Client Name: SCS Engineers-Winchester
 Client Site I.D.: City of Bristol 2nd Semi-Annual
 Submitted To: Jennifer Robb

Date Issued: 12/30/2022 11:56:27AM

Client Sample ID: MW-211B

Laboratory Sample ID: 22L0423-09

Parameter	Samp ID	CAS	Reference Method	Sample Prep Date/Time	Analyzed Date/Time	Sample Results	Qual	LOD	LOQ	DF	Units	Analyst
Volatile Organic Compounds by GCMS												
Chloroethane	09	75-00-3	SW8260D	12/09/2022 18:09	12/09/2022 18:09	BLOD		0.70	1.00	1	ug/L	BMR
Chloroform	09	67-66-3	SW8260D	12/09/2022 18:09	12/09/2022 18:09	BLOD		0.50	0.50	1	ug/L	BMR
Chloromethane	09	74-87-3	SW8260D	12/09/2022 18:09	12/09/2022 18:09	BLOD		0.95	1.00	1	ug/L	BMR
cis-1,2-Dichloroethylene	09	156-59-2	SW8260D	12/09/2022 18:09	12/09/2022 18:09	BLOD		0.40	1.00	1	ug/L	BMR
cis-1,3-Dichloropropene	09	10061-01-5	SW8260D	12/09/2022 18:09	12/09/2022 18:09	BLOD		0.30	1.00	1	ug/L	BMR
Dibromochloromethane	09	124-48-1	SW8260D	12/09/2022 18:09	12/09/2022 18:09	BLOD		0.35	0.50	1	ug/L	BMR
Dibromomethane	09	74-95-3	SW8260D	12/09/2022 18:09	12/09/2022 18:09	BLOD		0.40	1.00	1	ug/L	BMR
Ethylbenzene	09	100-41-4	SW8260D	12/09/2022 18:09	12/09/2022 18:09	BLOD		0.40	1.00	1	ug/L	BMR
Iodomethane	09	74-88-4	SW8260D	12/09/2022 18:09	12/09/2022 18:09	BLOD		6.00	10.0	1	ug/L	BMR
m+p-Xylenes	09	179601-23-1	SW8260D	12/09/2022 18:09	12/09/2022 18:09	BLOD		0.60	2.00	1	ug/L	BMR
Methylene chloride	09	75-09-2	SW8260D	12/09/2022 18:09	12/09/2022 18:09	BLOD		4.00	4.00	1	ug/L	BMR
o-Xylene	09	95-47-6	SW8260D	12/09/2022 18:09	12/09/2022 18:09	BLOD		0.40	1.00	1	ug/L	BMR
Styrene	09	100-42-5	SW8260D	12/09/2022 18:09	12/09/2022 18:09	BLOD		0.40	1.00	1	ug/L	BMR
Tetrachloroethylene (PCE)	09	127-18-4	SW8260D	12/09/2022 18:09	12/09/2022 18:09	BLOD		0.40	1.00	1	ug/L	BMR
Toluene	09	108-88-3	SW8260D	12/09/2022 18:09	12/09/2022 18:09	BLOD		0.50	1.00	1	ug/L	BMR
trans-1,2-Dichloroethylene	09	156-60-5	SW8260D	12/09/2022 18:09	12/09/2022 18:09	BLOD		0.60	1.00	1	ug/L	BMR
trans-1,3-Dichloropropene	09	10061-02-6	SW8260D	12/09/2022 18:09	12/09/2022 18:09	BLOD		0.30	1.00	1	ug/L	BMR
trans-1,4-Dichloro-2-butene	09	110-57-6	SW8260D	12/09/2022 18:09	12/09/2022 18:09	BLOD		1.00	4.00	1	ug/L	BMR
Trichloroethylene	09	79-01-6	SW8260D	12/09/2022 18:09	12/09/2022 18:09	BLOD		0.40	1.00	1	ug/L	BMR
Trichlorofluoromethane	09	75-69-4	SW8260D	12/09/2022 18:09	12/09/2022 18:09	BLOD		0.80	1.00	1	ug/L	BMR
Vinyl acetate	09	108-05-4	SW8260D	12/09/2022 18:09	12/09/2022 18:09	BLOD		2.00	10.0	1	ug/L	BMR
Vinyl chloride	09	75-01-4	SW8260D	12/09/2022 18:09	12/09/2022 18:09	BLOD		0.50	0.50	1	ug/L	BMR
Xylenes, Total	09	1330-20-7	SW8260D	12/09/2022 18:09	12/09/2022 18:09	BLOD		1.00	3.00	1	ug/L	BMR

Certificate of Analysis

Client Name: SCS Engineers-Winchester

Date Issued: 12/30/2022 11:56:27AM

Client Site I.D.: City of Bristol 2nd Semi-Annual

Submitted To: Jennifer Robb

Client Sample ID: MW-211B

Laboratory Sample ID: 22L0423-09

Parameter	Samp ID	CAS	Reference Method	Sample Prep Date/Time	Analyzed Date/Time	Sample Results	Qual	LOD	LOQ	DF	Units	Analyst
Volatile Organic Compounds by GCMS												
Surr: 1,2-Dichloroethane-d4 (Surr)	09	104 %	70-120	12/09/2022 18:09	12/09/2022 18:09							
Surr: 4-Bromofluorobenzene (Surr)	09	96.4 %	75-120	12/09/2022 18:09	12/09/2022 18:09							
Surr: Dibromofluoromethane (Surr)	09	98.0 %	70-130	12/09/2022 18:09	12/09/2022 18:09							
Surr: Toluene-d8 (Surr)	09	98.3 %	70-130	12/09/2022 18:09	12/09/2022 18:09							

Certificate of Analysis

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Laboratory Sample ID: 22L0423-09

Parameter	Samp ID	CAS	Reference Method	Sample Prep Date/Time	Analyzed Date/Time	Sample Results	Qual	LOD	LOQ	DF	Units	Analyst
Micro-extractables by GC/ECD												
1,2-Dibromoethane (EDB)	09	106-93-4	SW8011	12/12/2022 12:25	12/12/2022 23:12	BLOD		0.008	0.010	1	ug/L	LBH2
1,2,3-Trichloropropane	09	96-18-4	SW8011	12/12/2022 12:25	12/12/2022 23:12	BLOD		0.009	0.010	1	ug/L	LBH2
1,2-Dibromo-3-chloropropane (DBCP)	09	96-12-8	SW8011	12/12/2022 12:25	12/12/2022 23:12	BLOD		0.005	0.010	1	ug/L	LBH2

Certificate of Analysis

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 Client Site I.D.: City of Bristol 2nd Semi-Annual
 Submitted To: Jennifer Robb

Date Issued: 12/30/2022 11:56:27AM

Client Sample ID: MW-106B

Laboratory Sample ID: 22L0423-10

Parameter	Samp ID	CAS	Reference Method	Sample Prep Date/Time	Analyzed Date/Time	Sample Results	Qual	LOD	LOQ	DF	Units	Analyst
Metals (Total) by EPA 6000/7000 Series Methods												
Silver	10	7440-22-4	SW6020B	12/12/2022 12:30	12/18/2022 20:58	BLOD		0.0600	1.00	1	ug/L	MWL
Arsenic	10	7440-38-2	SW6020B	12/12/2022 12:30	12/18/2022 20:58	BLOD		0.50	1.0	1	ug/L	MWL
Barium	10	7440-39-3	SW6020B	12/12/2022 12:30	12/18/2022 20:58	92.2		1.00	5.00	1	ug/L	MWL
Beryllium	10	7440-41-7	SW6020B	12/12/2022 12:30	12/18/2022 20:58	BLOD		0.200	1.00	1	ug/L	MWL
Cadmium	10	7440-43-9	SW6020B	12/12/2022 12:30	12/18/2022 20:58	BLOD		0.100	1.00	1	ug/L	MWL
Cobalt	10	7440-48-4	SW6020B	12/12/2022 12:30	12/18/2022 20:58	0.264	J	0.200	1.00	1	ug/L	MWL
Chromium	10	7440-47-3	SW6020B	12/12/2022 12:30	12/18/2022 20:58	BLOD		0.600	1.00	1	ug/L	MWL
Copper	10	7440-50-8	SW6020B	12/12/2022 12:30	12/18/2022 20:58	BLOD		0.300	1.00	1	ug/L	MWL
Nickel	10	7440-02-0	SW6020B	12/12/2022 12:30	12/18/2022 20:58	BLOD		1.000	1.000	1	ug/L	MWL
Lead	10	7439-92-1	SW6020B	12/12/2022 12:30	12/18/2022 20:58	BLOD		1.0	1.0	1	ug/L	MWL
Antimony	10	7440-36-0	SW6020B	12/12/2022 12:30	12/18/2022 20:58	BLOD		1.0	1.0	1	ug/L	MWL
Selenium	10	7782-49-2	SW6020B	12/12/2022 12:30	12/18/2022 20:58	BLOD		0.850	1.00	1	ug/L	MWL
Thallium	10	7440-28-0	SW6020B	12/12/2022 12:30	12/18/2022 20:58	BLOD		1.0	1.0	1	ug/L	MWL
Vanadium	10	7440-62-2	SW6020B	12/12/2022 12:30	12/18/2022 20:58	BLOD		2.50	5.00	1	ug/L	MWL
Zinc	10	7440-66-6	SW6020B	12/12/2022 12:30	12/18/2022 20:58	BLOD		2.50	5.00	1	ug/L	MWL

Certificate of Analysis

Client Name: SCS Engineers-Winchester
 Client Site I.D.: City of Bristol 2nd Semi-Annual
 Submitted To: Jennifer Robb

Date Issued: 12/30/2022 11:56:27AM

Client Sample ID: MW-106B

Laboratory Sample ID: 22L0423-10

Parameter	Samp ID	CAS	Reference Method	Sample Prep Date/Time	Analyzed Date/Time	Sample Results	Qual	LOD	LOQ	DF	Units	Analyst
Volatile Organic Compounds by GCMS												
1,1,1,2-Tetrachloroethane	10	630-20-6	SW8260D	12/09/2022 18:35	12/09/2022 18:35	BLOD		0.40	0.40	1	ug/L	BMR
1,1,1-Trichloroethane	10	71-55-6	SW8260D	12/09/2022 18:35	12/09/2022 18:35	BLOD		0.60	1.00	1	ug/L	BMR
1,1,1,2-Tetrachloroethane	10	79-34-5	SW8260D	12/09/2022 18:35	12/09/2022 18:35	BLOD		0.30	0.40	1	ug/L	BMR
1,1,2-Trichloroethane	10	79-00-5	SW8260D	12/09/2022 18:35	12/09/2022 18:35	BLOD		0.50	1.00	1	ug/L	BMR
1,1-Dichloroethane	10	75-34-3	SW8260D	12/09/2022 18:35	12/09/2022 18:35	BLOD		0.60	1.00	1	ug/L	BMR
1,1-Dichloroethylene	10	75-35-4	SW8260D	12/09/2022 18:35	12/09/2022 18:35	BLOD		0.70	1.00	1	ug/L	BMR
1,2,3-Trichloropropane	10	96-18-4	SW8260D	12/09/2022 18:35	12/09/2022 18:35	BLOD		0.40	1.00	1	ug/L	BMR
1,2-Dichlorobenzene	10	95-50-1	SW8260D	12/09/2022 18:35	12/09/2022 18:35	BLOD		0.40	1.00	1	ug/L	BMR
1,2-Dichloroethane	10	107-06-2	SW8260D	12/09/2022 18:35	12/09/2022 18:35	BLOD		0.70	1.00	1	ug/L	BMR
1,2-Dichloropropane	10	78-87-5	SW8260D	12/09/2022 18:35	12/09/2022 18:35	BLOD		0.40	1.00	1	ug/L	BMR
1,4-Dichlorobenzene	10	106-46-7	SW8260D	12/09/2022 18:35	12/09/2022 18:35	BLOD		0.40	1.00	1	ug/L	BMR
2-Butanone (MEK)	10	78-93-3	SW8260D	12/09/2022 18:35	12/09/2022 18:35	BLOD		3.00	10.0	1	ug/L	BMR
2-Hexanone (MBK)	10	591-78-6	SW8260D	12/09/2022 18:35	12/09/2022 18:35	BLOD		2.20	5.00	1	ug/L	BMR
4-Methyl-2-pentanone (MIBK)	10	108-10-1	SW8260D	12/09/2022 18:35	12/09/2022 18:35	BLOD		1.50	5.00	1	ug/L	BMR
Acetone	10	67-64-1	SW8260D	12/09/2022 18:35	12/09/2022 18:35	BLOD		7.00	10.0	1	ug/L	BMR
Acrylonitrile	10	107-13-1	SW8260D	12/09/2022 18:35	12/09/2022 18:35	BLOD		1.70	5.00	1	ug/L	BMR
Benzene	10	71-43-2	SW8260D	12/09/2022 18:35	12/09/2022 18:35	BLOD		0.40	1.00	1	ug/L	BMR
Bromochloromethane	10	74-97-5	SW8260D	12/09/2022 18:35	12/09/2022 18:35	BLOD		0.50	1.00	1	ug/L	BMR
Bromodichloromethane	10	75-27-4	SW8260D	12/09/2022 18:35	12/09/2022 18:35	BLOD		0.40	0.50	1	ug/L	BMR
Bromoform	10	75-25-2	SW8260D	12/09/2022 18:35	12/09/2022 18:35	BLOD		0.40	1.00	1	ug/L	BMR
Bromomethane	10	74-83-9	SW8260D	12/09/2022 18:35	12/09/2022 18:35	BLOD		0.80	1.00	1	ug/L	BMR
Carbon disulfide	10	75-15-0	SW8260D	12/09/2022 18:35	12/09/2022 18:35	BLOD		5.00	10.0	1	ug/L	BMR
Carbon tetrachloride	10	56-23-5	SW8260D	12/09/2022 18:35	12/09/2022 18:35	BLOD		0.50	1.00	1	ug/L	BMR
Chlorobenzene	10	108-90-7	SW8260D	12/09/2022 18:35	12/09/2022 18:35	BLOD		0.40	1.00	1	ug/L	BMR

Certificate of Analysis

 Client Name: SCS Engineers-Winchester
 Client Site I.D.: City of Bristol 2nd Semi-Annual
 Submitted To: Jennifer Robb

Date Issued: 12/30/2022 11:56:27AM

Client Sample ID: MW-106B

Laboratory Sample ID: 22L0423-10

Parameter	Samp ID	CAS	Reference Method	Sample Prep Date/Time	Analyzed Date/Time	Sample Results	Qual	LOD	LOQ	DF	Units	Analyst
Volatile Organic Compounds by GCMS												
Chloroethane	10	75-00-3	SW8260D	12/09/2022 18:35	12/09/2022 18:35	BLOD		0.70	1.00	1	ug/L	BMR
Chloroform	10	67-66-3	SW8260D	12/09/2022 18:35	12/09/2022 18:35	BLOD		0.50	0.50	1	ug/L	BMR
Chloromethane	10	74-87-3	SW8260D	12/09/2022 18:35	12/09/2022 18:35	BLOD		0.95	1.00	1	ug/L	BMR
cis-1,2-Dichloroethylene	10	156-59-2	SW8260D	12/09/2022 18:35	12/09/2022 18:35	BLOD		0.40	1.00	1	ug/L	BMR
cis-1,3-Dichloropropene	10	10061-01-5	SW8260D	12/09/2022 18:35	12/09/2022 18:35	BLOD		0.30	1.00	1	ug/L	BMR
Dibromochloromethane	10	124-48-1	SW8260D	12/09/2022 18:35	12/09/2022 18:35	BLOD		0.35	0.50	1	ug/L	BMR
Dibromomethane	10	74-95-3	SW8260D	12/09/2022 18:35	12/09/2022 18:35	BLOD		0.40	1.00	1	ug/L	BMR
Ethylbenzene	10	100-41-4	SW8260D	12/09/2022 18:35	12/09/2022 18:35	BLOD		0.40	1.00	1	ug/L	BMR
Iodomethane	10	74-88-4	SW8260D	12/09/2022 18:35	12/09/2022 18:35	BLOD		6.00	10.0	1	ug/L	BMR
m+p-Xylenes	10	179601-23-1	SW8260D	12/09/2022 18:35	12/09/2022 18:35	BLOD		0.60	2.00	1	ug/L	BMR
Methylene chloride	10	75-09-2	SW8260D	12/09/2022 18:35	12/09/2022 18:35	BLOD		4.00	4.00	1	ug/L	BMR
o-Xylene	10	95-47-6	SW8260D	12/09/2022 18:35	12/09/2022 18:35	BLOD		0.40	1.00	1	ug/L	BMR
Styrene	10	100-42-5	SW8260D	12/09/2022 18:35	12/09/2022 18:35	BLOD		0.40	1.00	1	ug/L	BMR
Tetrachloroethylene (PCE)	10	127-18-4	SW8260D	12/09/2022 18:35	12/09/2022 18:35	BLOD		0.40	1.00	1	ug/L	BMR
Toluene	10	108-88-3	SW8260D	12/09/2022 18:35	12/09/2022 18:35	BLOD		0.50	1.00	1	ug/L	BMR
trans-1,2-Dichloroethylene	10	156-60-5	SW8260D	12/09/2022 18:35	12/09/2022 18:35	BLOD		0.60	1.00	1	ug/L	BMR
trans-1,3-Dichloropropene	10	10061-02-6	SW8260D	12/09/2022 18:35	12/09/2022 18:35	BLOD		0.30	1.00	1	ug/L	BMR
trans-1,4-Dichloro-2-butene	10	110-57-6	SW8260D	12/09/2022 18:35	12/09/2022 18:35	BLOD		1.00	4.00	1	ug/L	BMR
Trichloroethylene	10	79-01-6	SW8260D	12/09/2022 18:35	12/09/2022 18:35	BLOD		0.40	1.00	1	ug/L	BMR
Trichlorofluoromethane	10	75-69-4	SW8260D	12/09/2022 18:35	12/09/2022 18:35	BLOD		0.80	1.00	1	ug/L	BMR
Vinyl acetate	10	108-05-4	SW8260D	12/09/2022 18:35	12/09/2022 18:35	BLOD		2.00	10.0	1	ug/L	BMR
Vinyl chloride	10	75-01-4	SW8260D	12/09/2022 18:35	12/09/2022 18:35	BLOD		0.50	0.50	1	ug/L	BMR
Xylenes, Total	10	1330-20-7	SW8260D	12/09/2022 18:35	12/09/2022 18:35	BLOD		1.00	3.00	1	ug/L	BMR

Certificate of Analysis

Client Name: SCS Engineers-Winchester

Date Issued: 12/30/2022 11:56:27AM

Client Site I.D.: City of Bristol 2nd Semi-Annual

Submitted To: Jennifer Robb

Client Sample ID: MW-106B

Laboratory Sample ID: 22L0423-10

Parameter	Samp ID	CAS	Reference Method	Sample Prep Date/Time	Analyzed Date/Time	Sample Results	Qual	LOD	LOQ	DF	Units	Analyst
Volatile Organic Compounds by GCMS												
Surr: 1,2-Dichloroethane-d4 (Surr)	10	107 %	70-120	12/09/2022 18:35	12/09/2022 18:35							
Surr: 4-Bromofluorobenzene (Surr)	10	95.6 %	75-120	12/09/2022 18:35	12/09/2022 18:35							
Surr: Dibromofluoromethane (Surr)	10	108 %	70-130	12/09/2022 18:35	12/09/2022 18:35							
Surr: Toluene-d8 (Surr)	10	101 %	70-130	12/09/2022 18:35	12/09/2022 18:35							

Certificate of Analysis

Client Name: SCS Engineers-Winchester
 Client Site I.D.: City of Bristol 2nd Semi-Annual
 Submitted To: Jennifer Robb

Date Issued: 12/30/2022 11:56:27AM

Client Sample ID: MW-106B

Laboratory Sample ID: 22L0423-10

Parameter	Samp ID	CAS	Reference Method	Sample Prep Date/Time	Analyzed Date/Time	Sample Results	Qual	LOD	LOQ	DF	Units	Analyst
Micro-extractables by GC/ECD												
1,2-Dibromoethane (EDB)	10	106-93-4	SW8011	12/12/2022 12:25	12/12/2022 23:33	BLOD		0.008	0.010	1	ug/L	LBH2
1,2,3-Trichloropropane	10	96-18-4	SW8011	12/12/2022 12:25	12/12/2022 23:33	BLOD		0.009	0.010	1	ug/L	LBH2
1,2-Dibromo-3-chloropropane (DBCP)	10	96-12-8	SW8011	12/12/2022 12:25	12/12/2022 23:33	BLOD		0.005	0.010	1	ug/L	LBH2

Certificate of Analysis

Client Name: SCS Engineers-Winchester
 Client Site I.D.: City of Bristol 2nd Semi-Annual
 Submitted To: Jennifer Robb

Date Issued: 12/30/2022 11:56:27AM

Client Sample ID: MW-210A

Laboratory Sample ID: 22L0423-11

Parameter	Samp ID	CAS	Reference Method	Sample Prep Date/Time	Analyzed Date/Time	Sample Results	Qual	LOD	LOQ	DF	Units	Analyst
Metals (Total) by EPA 6000/7000 Series Methods												
Silver	11	7440-22-4	SW6020B	12/12/2022 12:30	12/18/2022 21:01	0.190	J	0.0600	1.00	1	ug/L	MWL
Arsenic	11	7440-38-2	SW6020B	12/12/2022 12:30	12/18/2022 21:01	8.2		0.50	1.0	1	ug/L	MWL
Barium	11	7440-39-3	SW6020B	12/12/2022 12:30	12/18/2022 21:01	35.3		1.00	5.00	1	ug/L	MWL
Beryllium	11	7440-41-7	SW6020B	12/12/2022 12:30	12/18/2022 21:01	BLOD		0.200	1.00	1	ug/L	MWL
Cadmium	11	7440-43-9	SW6020B	12/12/2022 12:30	12/18/2022 21:01	BLOD		0.100	1.00	1	ug/L	MWL
Cobalt	11	7440-48-4	SW6020B	12/12/2022 12:30	12/18/2022 21:01	BLOD		0.200	1.00	1	ug/L	MWL
Chromium	11	7440-47-3	SW6020B	12/12/2022 12:30	12/18/2022 21:01	BLOD		0.600	1.00	1	ug/L	MWL
Copper	11	7440-50-8	SW6020B	12/12/2022 12:30	12/18/2022 21:01	BLOD		0.300	1.00	1	ug/L	MWL
Nickel	11	7440-02-0	SW6020B	12/12/2022 12:30	12/18/2022 21:01	2.794		1.000	1.000	1	ug/L	MWL
Lead	11	7439-92-1	SW6020B	12/12/2022 12:30	12/18/2022 21:01	BLOD		1.0	1.0	1	ug/L	MWL
Antimony	11	7440-36-0	SW6020B	12/12/2022 12:30	12/18/2022 21:01	BLOD		1.0	1.0	1	ug/L	MWL
Selenium	11	7782-49-2	SW6020B	12/12/2022 12:30	12/18/2022 21:01	BLOD		0.850	1.00	1	ug/L	MWL
Thallium	11	7440-28-0	SW6020B	12/12/2022 12:30	12/18/2022 21:01	BLOD		1.0	1.0	1	ug/L	MWL
Vanadium	11	7440-62-2	SW6020B	12/12/2022 12:30	12/18/2022 21:01	BLOD		2.50	5.00	1	ug/L	MWL
Zinc	11	7440-66-6	SW6020B	12/12/2022 12:30	12/18/2022 21:01	BLOD		2.50	5.00	1	ug/L	MWL

Certificate of Analysis

Client Name: SCS Engineers-Winchester
 Client Site I.D.: City of Bristol 2nd Semi-Annual
 Submitted To: Jennifer Robb

Date Issued: 12/30/2022 11:56:27AM

Client Sample ID: MW-210A

Laboratory Sample ID: 22L0423-11

Parameter	Samp ID	CAS	Reference Method	Sample Prep Date/Time	Analyzed Date/Time	Sample Results	Qual	LOD	LOQ	DF	Units	Analyst
Volatile Organic Compounds by GCMS												
1,1,1,2-Tetrachloroethane	11	630-20-6	SW8260D	12/09/2022 19:00	12/09/2022 19:00	BLOD		0.40	0.40	1	ug/L	BMR
1,1,1-Trichloroethane	11	71-55-6	SW8260D	12/09/2022 19:00	12/09/2022 19:00	BLOD		0.60	1.00	1	ug/L	BMR
1,1,2,2-Tetrachloroethane	11	79-34-5	SW8260D	12/09/2022 19:00	12/09/2022 19:00	BLOD		0.30	0.40	1	ug/L	BMR
1,1,2-Trichloroethane	11	79-00-5	SW8260D	12/09/2022 19:00	12/09/2022 19:00	BLOD		0.50	1.00	1	ug/L	BMR
1,1-Dichloroethane	11	75-34-3	SW8260D	12/09/2022 19:00	12/09/2022 19:00	BLOD		0.60	1.00	1	ug/L	BMR
1,1-Dichloroethylene	11	75-35-4	SW8260D	12/09/2022 19:00	12/09/2022 19:00	BLOD		0.70	1.00	1	ug/L	BMR
1,2,3-Trichloropropane	11	96-18-4	SW8260D	12/09/2022 19:00	12/09/2022 19:00	BLOD		0.40	1.00	1	ug/L	BMR
1,2-Dichlorobenzene	11	95-50-1	SW8260D	12/09/2022 19:00	12/09/2022 19:00	BLOD		0.40	1.00	1	ug/L	BMR
1,2-Dichloroethane	11	107-06-2	SW8260D	12/09/2022 19:00	12/09/2022 19:00	BLOD		0.70	1.00	1	ug/L	BMR
1,2-Dichloropropane	11	78-87-5	SW8260D	12/09/2022 19:00	12/09/2022 19:00	BLOD		0.40	1.00	1	ug/L	BMR
1,4-Dichlorobenzene	11	106-46-7	SW8260D	12/09/2022 19:00	12/09/2022 19:00	BLOD		0.40	1.00	1	ug/L	BMR
2-Butanone (MEK)	11	78-93-3	SW8260D	12/09/2022 19:00	12/09/2022 19:00	BLOD		3.00	10.0	1	ug/L	BMR
2-Hexanone (MBK)	11	591-78-6	SW8260D	12/09/2022 19:00	12/09/2022 19:00	BLOD		2.20	5.00	1	ug/L	BMR
4-Methyl-2-pentanone (MIBK)	11	108-10-1	SW8260D	12/09/2022 19:00	12/09/2022 19:00	BLOD		1.50	5.00	1	ug/L	BMR
Acetone	11	67-64-1	SW8260D	12/09/2022 19:00	12/09/2022 19:00	BLOD		7.00	10.0	1	ug/L	BMR
Acrylonitrile	11	107-13-1	SW8260D	12/09/2022 19:00	12/09/2022 19:00	BLOD		1.70	5.00	1	ug/L	BMR
Benzene	11	71-43-2	SW8260D	12/09/2022 19:00	12/09/2022 19:00	BLOD		0.40	1.00	1	ug/L	BMR
Bromochloromethane	11	74-97-5	SW8260D	12/09/2022 19:00	12/09/2022 19:00	BLOD		0.50	1.00	1	ug/L	BMR
Bromodichloromethane	11	75-27-4	SW8260D	12/09/2022 19:00	12/09/2022 19:00	BLOD		0.40	0.50	1	ug/L	BMR
Bromoform	11	75-25-2	SW8260D	12/09/2022 19:00	12/09/2022 19:00	BLOD		0.40	1.00	1	ug/L	BMR
Bromomethane	11	74-83-9	SW8260D	12/09/2022 19:00	12/09/2022 19:00	BLOD		0.80	1.00	1	ug/L	BMR
Carbon disulfide	11	75-15-0	SW8260D	12/09/2022 19:00	12/09/2022 19:00	BLOD		5.00	10.0	1	ug/L	BMR
Carbon tetrachloride	11	56-23-5	SW8260D	12/09/2022 19:00	12/09/2022 19:00	BLOD		0.50	1.00	1	ug/L	BMR
Chlorobenzene	11	108-90-7	SW8260D	12/09/2022 19:00	12/09/2022 19:00	BLOD		0.40	1.00	1	ug/L	BMR

Certificate of Analysis

 Client Name: SCS Engineers-Winchester
 Client Site I.D.: City of Bristol 2nd Semi-Annual
 Submitted To: Jennifer Robb

Date Issued: 12/30/2022 11:56:27AM

Client Sample ID: MW-210A

Laboratory Sample ID: 22L0423-11

Parameter	Samp ID	CAS	Reference Method	Sample Prep Date/Time	Analyzed Date/Time	Sample Results	Qual	LOD	LOQ	DF	Units	Analyst
Volatile Organic Compounds by GCMS												
Chloroethane	11	75-00-3	SW8260D	12/09/2022 19:00	12/09/2022 19:00	BLOD		0.70	1.00	1	ug/L	BMR
Chloroform	11	67-66-3	SW8260D	12/09/2022 19:00	12/09/2022 19:00	BLOD		0.50	0.50	1	ug/L	BMR
Chloromethane	11	74-87-3	SW8260D	12/09/2022 19:00	12/09/2022 19:00	BLOD		0.95	1.00	1	ug/L	BMR
cis-1,2-Dichloroethylene	11	156-59-2	SW8260D	12/09/2022 19:00	12/09/2022 19:00	BLOD		0.40	1.00	1	ug/L	BMR
cis-1,3-Dichloropropene	11	10061-01-5	SW8260D	12/09/2022 19:00	12/09/2022 19:00	BLOD		0.30	1.00	1	ug/L	BMR
Dibromochloromethane	11	124-48-1	SW8260D	12/09/2022 19:00	12/09/2022 19:00	BLOD		0.35	0.50	1	ug/L	BMR
Dibromomethane	11	74-95-3	SW8260D	12/09/2022 19:00	12/09/2022 19:00	BLOD		0.40	1.00	1	ug/L	BMR
Ethylbenzene	11	100-41-4	SW8260D	12/09/2022 19:00	12/09/2022 19:00	BLOD		0.40	1.00	1	ug/L	BMR
Iodomethane	11	74-88-4	SW8260D	12/09/2022 19:00	12/09/2022 19:00	BLOD		6.00	10.0	1	ug/L	BMR
m+p-Xylenes	11	179601-23-1	SW8260D	12/09/2022 19:00	12/09/2022 19:00	BLOD		0.60	2.00	1	ug/L	BMR
Methylene chloride	11	75-09-2	SW8260D	12/09/2022 19:00	12/09/2022 19:00	BLOD		4.00	4.00	1	ug/L	BMR
o-Xylene	11	95-47-6	SW8260D	12/09/2022 19:00	12/09/2022 19:00	BLOD		0.40	1.00	1	ug/L	BMR
Styrene	11	100-42-5	SW8260D	12/09/2022 19:00	12/09/2022 19:00	BLOD		0.40	1.00	1	ug/L	BMR
Tetrachloroethylene (PCE)	11	127-18-4	SW8260D	12/09/2022 19:00	12/09/2022 19:00	BLOD		0.40	1.00	1	ug/L	BMR
Toluene	11	108-88-3	SW8260D	12/09/2022 19:00	12/09/2022 19:00	BLOD		0.50	1.00	1	ug/L	BMR
trans-1,2-Dichloroethylene	11	156-60-5	SW8260D	12/09/2022 19:00	12/09/2022 19:00	BLOD		0.60	1.00	1	ug/L	BMR
trans-1,3-Dichloropropene	11	10061-02-6	SW8260D	12/09/2022 19:00	12/09/2022 19:00	BLOD		0.30	1.00	1	ug/L	BMR
trans-1,4-Dichloro-2-butene	11	110-57-6	SW8260D	12/09/2022 19:00	12/09/2022 19:00	BLOD		1.00	4.00	1	ug/L	BMR
Trichloroethylene	11	79-01-6	SW8260D	12/09/2022 19:00	12/09/2022 19:00	BLOD		0.40	1.00	1	ug/L	BMR
Trichlorofluoromethane	11	75-69-4	SW8260D	12/09/2022 19:00	12/09/2022 19:00	BLOD		0.80	1.00	1	ug/L	BMR
Vinyl acetate	11	108-05-4	SW8260D	12/09/2022 19:00	12/09/2022 19:00	BLOD		2.00	10.0	1	ug/L	BMR
Vinyl chloride	11	75-01-4	SW8260D	12/09/2022 19:00	12/09/2022 19:00	BLOD		0.50	0.50	1	ug/L	BMR
Xylenes, Total	11	1330-20-7	SW8260D	12/09/2022 19:00	12/09/2022 19:00	BLOD		1.00	3.00	1	ug/L	BMR

Certificate of Analysis

Client Name: SCS Engineers-Winchester

Date Issued: 12/30/2022 11:56:27AM

Client Site I.D.: City of Bristol 2nd Semi-Annual

Submitted To: Jennifer Robb

Client Sample ID: MW-210A

Laboratory Sample ID: 22L0423-11

Parameter	Samp ID	CAS	Reference Method	Sample Prep Date/Time	Analyzed Date/Time	Sample Results	Qual	LOD	LOQ	DF	Units	Analyst
Volatile Organic Compounds by GCMS												
Surr: 1,2-Dichloroethane-d4 (Surr)	11	104 %	70-120	12/09/2022 19:00	12/09/2022 19:00							
Surr: 4-Bromofluorobenzene (Surr)	11	96.9 %	75-120	12/09/2022 19:00	12/09/2022 19:00							
Surr: Dibromofluoromethane (Surr)	11	99.2 %	70-130	12/09/2022 19:00	12/09/2022 19:00							
Surr: Toluene-d8 (Surr)	11	99.5 %	70-130	12/09/2022 19:00	12/09/2022 19:00							

Certificate of Analysis

Client Name: SCS Engineers-Winchester
 Client Site I.D.: City of Bristol 2nd Semi-Annual
 Submitted To: Jennifer Robb

Date Issued: 12/30/2022 11:56:27AM

Client Sample ID: MW-210A

Laboratory Sample ID: 22L0423-11

Parameter	Samp ID	CAS	Reference Method	Sample Prep Date/Time	Analyzed Date/Time	Sample Results	Qual	LOD	LOQ	DF	Units	Analyst
Micro-extractables by GC/ECD												
1,2-Dibromoethane (EDB)	11	106-93-4	SW8011	12/12/2022 12:25	12/12/2022 23:55	BLOD		0.008	0.010	1	ug/L	LBH2
1,2,3-Trichloropropane	11	96-18-4	SW8011	12/12/2022 12:25	12/12/2022 23:55	BLOD		0.009	0.010	1	ug/L	LBH2
1,2-Dibromo-3-chloropropane (DBCP)	11	96-12-8	SW8011	12/12/2022 12:25	12/12/2022 23:55	BLOD		0.005	0.010	1	ug/L	LBH2

Certificate of Analysis

 Client Name: SCS Engineers-Winchester
 Client Site I.D.: City of Bristol 2nd Semi-Annual
 Submitted To: Jennifer Robb

Date Issued: 12/30/2022 11:56:27AM

Client Sample ID: MW-210B

Laboratory Sample ID: 22L0423-12

Parameter	Samp ID	CAS	Reference Method	Sample Prep Date/Time	Analyzed Date/Time	Sample Results	Qual	LOD	LOQ	DF	Units	Analyst
Metals (Total) by EPA 6000/7000 Series Methods												
Silver	12	7440-22-4	SW6020B	12/12/2022 12:30	12/18/2022 21:04	BLOD		0.0600	1.00	1	ug/L	MWL
Arsenic	12	7440-38-2	SW6020B	12/12/2022 12:30	12/18/2022 21:04	BLOD		0.50	1.0	1	ug/L	MWL
Barium	12	7440-39-3	SW6020B	12/12/2022 12:30	12/18/2022 21:04	70.3		1.00	5.00	1	ug/L	MWL
Beryllium	12	7440-41-7	SW6020B	12/12/2022 12:30	12/18/2022 21:04	BLOD		0.200	1.00	1	ug/L	MWL
Cadmium	12	7440-43-9	SW6020B	12/12/2022 12:30	12/18/2022 21:04	BLOD		0.100	1.00	1	ug/L	MWL
Cobalt	12	7440-48-4	SW6020B	12/12/2022 12:30	12/18/2022 21:04	BLOD		0.200	1.00	1	ug/L	MWL
Chromium	12	7440-47-3	SW6020B	12/12/2022 12:30	12/18/2022 21:04	0.677	J	0.600	1.00	1	ug/L	MWL
Copper	12	7440-50-8	SW6020B	12/12/2022 12:30	12/18/2022 21:04	BLOD		0.300	1.00	1	ug/L	MWL
Nickel	12	7440-02-0	SW6020B	12/12/2022 12:30	12/18/2022 21:04	2.629		1.000	1.000	1	ug/L	MWL
Lead	12	7439-92-1	SW6020B	12/12/2022 12:30	12/18/2022 21:04	BLOD		1.0	1.0	1	ug/L	MWL
Antimony	12	7440-36-0	SW6020B	12/12/2022 12:30	12/18/2022 21:04	BLOD		1.0	1.0	1	ug/L	MWL
Selenium	12	7782-49-2	SW6020B	12/12/2022 12:30	12/18/2022 21:04	BLOD		0.850	1.00	1	ug/L	MWL
Thallium	12	7440-28-0	SW6020B	12/12/2022 12:30	12/18/2022 21:04	BLOD		1.0	1.0	1	ug/L	MWL
Vanadium	12	7440-62-2	SW6020B	12/12/2022 12:30	12/18/2022 21:04	BLOD		2.50	5.00	1	ug/L	MWL
Zinc	12	7440-66-6	SW6020B	12/12/2022 12:30	12/18/2022 21:04	BLOD		2.50	5.00	1	ug/L	MWL

Certificate of Analysis

Client Name: SCS Engineers-Winchester
 Client Site I.D.: City of Bristol 2nd Semi-Annual
 Submitted To: Jennifer Robb

Date Issued: 12/30/2022 11:56:27AM

Client Sample ID: MW-210B

Laboratory Sample ID: 22L0423-12

Parameter	Samp ID	CAS	Reference Method	Sample Prep Date/Time	Analyzed Date/Time	Sample Results	Qual	LOD	LOQ	DF	Units	Analyst
Volatile Organic Compounds by GCMS												
1,1,1,2-Tetrachloroethane	12	630-20-6	SW8260D	12/09/2022 19:26	12/09/2022 19:26	BLOD		0.40	0.40	1	ug/L	BMR
1,1,1-Trichloroethane	12	71-55-6	SW8260D	12/09/2022 19:26	12/09/2022 19:26	BLOD		0.60	1.00	1	ug/L	BMR
1,1,2,2-Tetrachloroethane	12	79-34-5	SW8260D	12/09/2022 19:26	12/09/2022 19:26	BLOD		0.30	0.40	1	ug/L	BMR
1,1,2-Trichloroethane	12	79-00-5	SW8260D	12/09/2022 19:26	12/09/2022 19:26	BLOD		0.50	1.00	1	ug/L	BMR
1,1-Dichloroethane	12	75-34-3	SW8260D	12/09/2022 19:26	12/09/2022 19:26	BLOD		0.60	1.00	1	ug/L	BMR
1,1-Dichloroethylene	12	75-35-4	SW8260D	12/09/2022 19:26	12/09/2022 19:26	BLOD		0.70	1.00	1	ug/L	BMR
1,2,3-Trichloropropane	12	96-18-4	SW8260D	12/09/2022 19:26	12/09/2022 19:26	BLOD		0.40	1.00	1	ug/L	BMR
1,2-Dichlorobenzene	12	95-50-1	SW8260D	12/09/2022 19:26	12/09/2022 19:26	BLOD		0.40	1.00	1	ug/L	BMR
1,2-Dichloroethane	12	107-06-2	SW8260D	12/09/2022 19:26	12/09/2022 19:26	BLOD		0.70	1.00	1	ug/L	BMR
1,2-Dichloropropane	12	78-87-5	SW8260D	12/09/2022 19:26	12/09/2022 19:26	BLOD		0.40	1.00	1	ug/L	BMR
1,4-Dichlorobenzene	12	106-46-7	SW8260D	12/09/2022 19:26	12/09/2022 19:26	BLOD		0.40	1.00	1	ug/L	BMR
2-Butanone (MEK)	12	78-93-3	SW8260D	12/09/2022 19:26	12/09/2022 19:26	BLOD		3.00	10.0	1	ug/L	BMR
2-Hexanone (MBK)	12	591-78-6	SW8260D	12/09/2022 19:26	12/09/2022 19:26	BLOD		2.20	5.00	1	ug/L	BMR
4-Methyl-2-pentanone (MIBK)	12	108-10-1	SW8260D	12/09/2022 19:26	12/09/2022 19:26	BLOD		1.50	5.00	1	ug/L	BMR
Acetone	12	67-64-1	SW8260D	12/09/2022 19:26	12/09/2022 19:26	BLOD		7.00	10.0	1	ug/L	BMR
Acrylonitrile	12	107-13-1	SW8260D	12/09/2022 19:26	12/09/2022 19:26	BLOD		1.70	5.00	1	ug/L	BMR
Benzene	12	71-43-2	SW8260D	12/09/2022 19:26	12/09/2022 19:26	BLOD		0.40	1.00	1	ug/L	BMR
Bromochloromethane	12	74-97-5	SW8260D	12/09/2022 19:26	12/09/2022 19:26	BLOD		0.50	1.00	1	ug/L	BMR
Bromodichloromethane	12	75-27-4	SW8260D	12/09/2022 19:26	12/09/2022 19:26	BLOD		0.40	0.50	1	ug/L	BMR
Bromoform	12	75-25-2	SW8260D	12/09/2022 19:26	12/09/2022 19:26	BLOD		0.40	1.00	1	ug/L	BMR
Bromomethane	12	74-83-9	SW8260D	12/09/2022 19:26	12/09/2022 19:26	BLOD		0.80	1.00	1	ug/L	BMR
Carbon disulfide	12	75-15-0	SW8260D	12/09/2022 19:26	12/09/2022 19:26	BLOD		5.00	10.0	1	ug/L	BMR
Carbon tetrachloride	12	56-23-5	SW8260D	12/09/2022 19:26	12/09/2022 19:26	BLOD		0.50	1.00	1	ug/L	BMR
Chlorobenzene	12	108-90-7	SW8260D	12/09/2022 19:26	12/09/2022 19:26	BLOD		0.40	1.00	1	ug/L	BMR

Certificate of Analysis

 Client Name: SCS Engineers-Winchester
 Client Site I.D.: City of Bristol 2nd Semi-Annual
 Submitted To: Jennifer Robb

Date Issued: 12/30/2022 11:56:27AM

Client Sample ID: MW-210B

Laboratory Sample ID: 22L0423-12

Parameter	Samp ID	CAS	Reference Method	Sample Prep Date/Time	Analyzed Date/Time	Sample Results	Qual	LOD	LOQ	DF	Units	Analyst
Volatile Organic Compounds by GCMS												
Chloroethane	12	75-00-3	SW8260D	12/09/2022 19:26	12/09/2022 19:26	BLOD		0.70	1.00	1	ug/L	BMR
Chloroform	12	67-66-3	SW8260D	12/09/2022 19:26	12/09/2022 19:26	BLOD		0.50	0.50	1	ug/L	BMR
Chloromethane	12	74-87-3	SW8260D	12/09/2022 19:26	12/09/2022 19:26	BLOD		0.95	1.00	1	ug/L	BMR
cis-1,2-Dichloroethylene	12	156-59-2	SW8260D	12/09/2022 19:26	12/09/2022 19:26	BLOD		0.40	1.00	1	ug/L	BMR
cis-1,3-Dichloropropene	12	10061-01-5	SW8260D	12/09/2022 19:26	12/09/2022 19:26	BLOD		0.30	1.00	1	ug/L	BMR
Dibromochloromethane	12	124-48-1	SW8260D	12/09/2022 19:26	12/09/2022 19:26	BLOD		0.35	0.50	1	ug/L	BMR
Dibromomethane	12	74-95-3	SW8260D	12/09/2022 19:26	12/09/2022 19:26	BLOD		0.40	1.00	1	ug/L	BMR
Ethylbenzene	12	100-41-4	SW8260D	12/09/2022 19:26	12/09/2022 19:26	BLOD		0.40	1.00	1	ug/L	BMR
Iodomethane	12	74-88-4	SW8260D	12/09/2022 19:26	12/09/2022 19:26	BLOD		6.00	10.0	1	ug/L	BMR
m+p-Xylenes	12	179601-23-1	SW8260D	12/09/2022 19:26	12/09/2022 19:26	BLOD		0.60	2.00	1	ug/L	BMR
Methylene chloride	12	75-09-2	SW8260D	12/09/2022 19:26	12/09/2022 19:26	BLOD		4.00	4.00	1	ug/L	BMR
o-Xylene	12	95-47-6	SW8260D	12/09/2022 19:26	12/09/2022 19:26	BLOD		0.40	1.00	1	ug/L	BMR
Styrene	12	100-42-5	SW8260D	12/09/2022 19:26	12/09/2022 19:26	BLOD		0.40	1.00	1	ug/L	BMR
Tetrachloroethylene (PCE)	12	127-18-4	SW8260D	12/09/2022 19:26	12/09/2022 19:26	BLOD		0.40	1.00	1	ug/L	BMR
Toluene	12	108-88-3	SW8260D	12/09/2022 19:26	12/09/2022 19:26	BLOD		0.50	1.00	1	ug/L	BMR
trans-1,2-Dichloroethylene	12	156-60-5	SW8260D	12/09/2022 19:26	12/09/2022 19:26	BLOD		0.60	1.00	1	ug/L	BMR
trans-1,3-Dichloropropene	12	10061-02-6	SW8260D	12/09/2022 19:26	12/09/2022 19:26	BLOD		0.30	1.00	1	ug/L	BMR
trans-1,4-Dichloro-2-butene	12	110-57-6	SW8260D	12/09/2022 19:26	12/09/2022 19:26	BLOD		1.00	4.00	1	ug/L	BMR
Trichloroethylene	12	79-01-6	SW8260D	12/09/2022 19:26	12/09/2022 19:26	BLOD		0.40	1.00	1	ug/L	BMR
Trichlorofluoromethane	12	75-69-4	SW8260D	12/09/2022 19:26	12/09/2022 19:26	BLOD		0.80	1.00	1	ug/L	BMR
Vinyl acetate	12	108-05-4	SW8260D	12/09/2022 19:26	12/09/2022 19:26	BLOD		2.00	10.0	1	ug/L	BMR
Vinyl chloride	12	75-01-4	SW8260D	12/09/2022 19:26	12/09/2022 19:26	BLOD		0.50	0.50	1	ug/L	BMR
Xylenes, Total	12	1330-20-7	SW8260D	12/09/2022 19:26	12/09/2022 19:26	BLOD		1.00	3.00	1	ug/L	BMR

Certificate of Analysis

Client Name: SCS Engineers-Winchester

Date Issued: 12/30/2022 11:56:27AM

Client Site I.D.: City of Bristol 2nd Semi-Annual

Submitted To: Jennifer Robb

Client Sample ID: MW-210B

Laboratory Sample ID: 22L0423-12

Parameter	Samp ID	CAS	Reference Method	Sample Prep Date/Time	Analyzed Date/Time	Sample Results	Qual	LOD	LOQ	DF	Units	Analyst
Volatile Organic Compounds by GCMS												
Surr: 1,2-Dichloroethane-d4 (Surr)	12	103 %	70-120	12/09/2022 19:26	12/09/2022 19:26							
Surr: 4-Bromofluorobenzene (Surr)	12	96.8 %	75-120	12/09/2022 19:26	12/09/2022 19:26							
Surr: Dibromofluoromethane (Surr)	12	101 %	70-130	12/09/2022 19:26	12/09/2022 19:26							
Surr: Toluene-d8 (Surr)	12	98.1 %	70-130	12/09/2022 19:26	12/09/2022 19:26							

Certificate of Analysis

Client Name: SCS Engineers-Winchester

Date Issued: 12/30/2022 11:56:27AM

Client Site I.D.: City of Bristol 2nd Semi-Annual

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Client Sample ID: MW-210B

Laboratory Sample ID: 22L0423-12

Parameter	Samp ID	CAS	Reference Method	Sample Prep Date/Time	Analyzed Date/Time	Sample Results	Qual	LOD	LOQ	DF	Units	Analyst
Micro-extractables by GC/ECD												
1,2-Dibromoethane (EDB)	12	106-93-4	SW8011	12/12/2022 12:25	12/13/2022 00:17	BLOD		0.008	0.010	1	ug/L	LBH2
1,2,3-Trichloropropane	12	96-18-4	SW8011	12/12/2022 12:25	12/13/2022 00:17	BLOD		0.009	0.010	1	ug/L	LBH2
1,2-Dibromo-3-chloropropane (DBCP)	12	96-12-8	SW8011	12/12/2022 12:25	12/13/2022 00:17	BLOD		0.005	0.010	1	ug/L	LBH2

Certificate of Analysis

 Client Name: SCS Engineers-Winchester
 Client Site I.D.: City of Bristol 2nd Semi-Annual
 Submitted To: Jennifer Robb

Date Issued: 12/30/2022 11:56:27AM

Client Sample ID: MW-108

Laboratory Sample ID: 22L0423-13

Parameter	Samp ID	CAS	Reference Method	Sample Prep Date/Time	Analyzed Date/Time	Sample Results	Qual	LOD	LOQ	DF	Units	Analyst
Metals (Total) by EPA 6000/7000 Series Methods												
Silver	13	7440-22-4	SW6020B	12/12/2022 12:30	12/18/2022 21:07	BLOD		0.0600	1.00	1	ug/L	MWL
Arsenic	13	7440-38-2	SW6020B	12/12/2022 12:30	12/18/2022 21:07	12		0.50	1.0	1	ug/L	MWL
Barium	13RE1	7440-39-3	SW6020B	12/12/2022 12:30	12/19/2022 12:42	743		10.0	50.0	10	ug/L	MWL
Beryllium	13	7440-41-7	SW6020B	12/12/2022 12:30	12/18/2022 21:07	BLOD		0.200	1.00	1	ug/L	MWL
Cadmium	13	7440-43-9	SW6020B	12/12/2022 12:30	12/18/2022 21:07	0.563	J	0.100	1.00	1	ug/L	MWL
Cobalt	13	7440-48-4	SW6020B	12/12/2022 12:30	12/18/2022 21:07	27.8		0.200	1.00	1	ug/L	MWL
Chromium	13	7440-47-3	SW6020B	12/12/2022 12:30	12/18/2022 21:07	1.81		0.600	1.00	1	ug/L	MWL
Copper	13	7440-50-8	SW6020B	12/12/2022 12:30	12/18/2022 21:07	0.904	J	0.300	1.00	1	ug/L	MWL
Mercury	13	7439-97-6	SW7470A	12/15/2022 09:15	12/15/2022 15:36	0.00125		0.00020	0.00020	1	mg/L	ACM
Nickel	13	7440-02-0	SW6020B	12/12/2022 12:30	12/18/2022 21:07	22.52		1.000	1.000	1	ug/L	MWL
Lead	13	7439-92-1	SW6020B	12/12/2022 12:30	12/18/2022 21:07	1.5		1.0	1.0	1	ug/L	MWL
Antimony	13	7440-36-0	SW6020B	12/12/2022 12:30	12/18/2022 21:07	BLOD		1.0	1.0	1	ug/L	MWL
Selenium	13	7782-49-2	SW6020B	12/12/2022 12:30	12/18/2022 21:07	BLOD		0.850	1.00	1	ug/L	MWL
Tin	13RE2	7440-31-5	SW6020B	12/12/2022 10:30	12/20/2022 14:47	BLOD		1.00	1.00	1	ug/L	MWL
Thallium	13	7440-28-0	SW6020B	12/12/2022 12:30	12/18/2022 21:07	BLOD		1.0	1.0	1	ug/L	MWL
Vanadium	13	7440-62-2	SW6020B	12/12/2022 12:30	12/18/2022 21:07	BLOD		2.50	5.00	1	ug/L	MWL
Zinc	13	7440-66-6	SW6020B	12/12/2022 12:30	12/18/2022 21:07	96.1		2.50	5.00	1	ug/L	MWL

Certificate of Analysis

 Client Name: SCS Engineers-Winchester
 Client Site I.D.: City of Bristol 2nd Semi-Annual
 Submitted To: Jennifer Robb

Date Issued: 12/30/2022 11:56:27AM

Client Sample ID: MW-108

Laboratory Sample ID: 22L0423-13

Parameter	Samp ID	CAS	Reference Method	Sample Prep Date/Time	Analyzed Date/Time	Sample Results	Qual	LOD	LOQ	DF	Units	Analyst
Volatile Organic Compounds by GCMS												
1,1,1,2-Tetrachloroethane	13	630-20-6	SW8260D	12/09/2022 19:51	12/09/2022 19:51	BLOD		0.40	0.40	1	ug/L	BMR
1,1,1-Trichloroethane	13	71-55-6	SW8260D	12/09/2022 19:51	12/09/2022 19:51	BLOD		0.60	1.00	1	ug/L	BMR
1,1,2,2-Tetrachloroethane	13	79-34-5	SW8260D	12/09/2022 19:51	12/09/2022 19:51	BLOD		0.30	0.40	1	ug/L	BMR
1,1,2-Trichloroethane	13	79-00-5	SW8260D	12/09/2022 19:51	12/09/2022 19:51	BLOD		0.50	1.00	1	ug/L	BMR
1,1-Dichloroethane	13	75-34-3	SW8260D	12/09/2022 19:51	12/09/2022 19:51	5.19		0.60	1.00	1	ug/L	BMR
1,1-Dichloroethylene	13	75-35-4	SW8260D	12/09/2022 19:51	12/09/2022 19:51	BLOD		0.70	1.00	1	ug/L	BMR
1,2,3-Trichloropropane	13	96-18-4	SW8260D	12/09/2022 19:51	12/09/2022 19:51	BLOD		0.40	1.00	1	ug/L	BMR
1,2-Dichlorobenzene	13	95-50-1	SW8260D	12/09/2022 19:51	12/09/2022 19:51	BLOD		0.40	1.00	1	ug/L	BMR
1,2-Dichloroethane	13	107-06-2	SW8260D	12/09/2022 19:51	12/09/2022 19:51	BLOD		0.70	1.00	1	ug/L	BMR
1,2-Dichloropropane	13	78-87-5	SW8260D	12/09/2022 19:51	12/09/2022 19:51	BLOD		0.40	1.00	1	ug/L	BMR
1,4-Dichlorobenzene	13	106-46-7	SW8260D	12/09/2022 19:51	12/09/2022 19:51	1.65		0.40	1.00	1	ug/L	BMR
2-Butanone (MEK)	13	78-93-3	SW8260D	12/09/2022 19:51	12/09/2022 19:51	BLOD		3.00	10.0	1	ug/L	BMR
2-Hexanone (MBK)	13	591-78-6	SW8260D	12/09/2022 19:51	12/09/2022 19:51	BLOD		2.20	5.00	1	ug/L	BMR
4-Methyl-2-pentanone (MIBK)	13	108-10-1	SW8260D	12/09/2022 19:51	12/09/2022 19:51	BLOD		1.50	5.00	1	ug/L	BMR
Acetone	13	67-64-1	SW8260D	12/09/2022 19:51	12/09/2022 19:51	BLOD		7.00	10.0	1	ug/L	BMR
Acrylonitrile	13	107-13-1	SW8260D	12/09/2022 19:51	12/09/2022 19:51	BLOD		1.70	5.00	1	ug/L	BMR
Benzene	13	71-43-2	SW8260D	12/09/2022 19:51	12/09/2022 19:51	39.3		0.40	1.00	1	ug/L	BMR
Bromochloromethane	13	74-97-5	SW8260D	12/09/2022 19:51	12/09/2022 19:51	BLOD		0.50	1.00	1	ug/L	BMR
Bromodichloromethane	13	75-27-4	SW8260D	12/09/2022 19:51	12/09/2022 19:51	BLOD		0.40	0.50	1	ug/L	BMR
Bromoform	13	75-25-2	SW8260D	12/09/2022 19:51	12/09/2022 19:51	BLOD		0.40	1.00	1	ug/L	BMR
Bromomethane	13	74-83-9	SW8260D	12/09/2022 19:51	12/09/2022 19:51	BLOD		0.80	1.00	1	ug/L	BMR
Carbon disulfide	13	75-15-0	SW8260D	12/09/2022 19:51	12/09/2022 19:51	BLOD		5.00	10.0	1	ug/L	BMR
Carbon tetrachloride	13	56-23-5	SW8260D	12/09/2022 19:51	12/09/2022 19:51	BLOD		0.50	1.00	1	ug/L	BMR
Chlorobenzene	13	108-90-7	SW8260D	12/09/2022 19:51	12/09/2022 19:51	1.25		0.40	1.00	1	ug/L	BMR

Certificate of Analysis

Client Name: SCS Engineers-Winchester
 Client Site I.D.: City of Bristol 2nd Semi-Annual
 Submitted To: Jennifer Robb

Date Issued: 12/30/2022 11:56:27AM

Client Sample ID: MW-108

Laboratory Sample ID: 22L0423-13

Parameter	Samp ID	CAS	Reference Method	Sample Prep Date/Time	Analyzed Date/Time	Sample Results	Qual	LOD	LOQ	DF	Units	Analyst
Volatile Organic Compounds by GCMS												
Chloroethane	13	75-00-3	SW8260D	12/09/2022 19:51	12/09/2022 19:51	BLOD		0.70	1.00	1	ug/L	BMR
Chloroform	13	67-66-3	SW8260D	12/09/2022 19:51	12/09/2022 19:51	BLOD		0.50	0.50	1	ug/L	BMR
Chloromethane	13	74-87-3	SW8260D	12/09/2022 19:51	12/09/2022 19:51	BLOD		0.95	1.00	1	ug/L	BMR
cis-1,2-Dichloroethylene	13	156-59-2	SW8260D	12/09/2022 19:51	12/09/2022 19:51	44.8		0.40	1.00	1	ug/L	BMR
cis-1,3-Dichloropropene	13	10061-01-5	SW8260D	12/09/2022 19:51	12/09/2022 19:51	BLOD		0.30	1.00	1	ug/L	BMR
Dibromochloromethane	13	124-48-1	SW8260D	12/09/2022 19:51	12/09/2022 19:51	BLOD		0.35	0.50	1	ug/L	BMR
Dibromomethane	13	74-95-3	SW8260D	12/09/2022 19:51	12/09/2022 19:51	BLOD		0.40	1.00	1	ug/L	BMR
Ethylbenzene	13	100-41-4	SW8260D	12/09/2022 19:51	12/09/2022 19:51	BLOD		0.40	1.00	1	ug/L	BMR
Iodomethane	13	74-88-4	SW8260D	12/09/2022 19:51	12/09/2022 19:51	BLOD		6.00	10.0	1	ug/L	BMR
m+p-Xylenes	13	179601-23-1	SW8260D	12/09/2022 19:51	12/09/2022 19:51	BLOD		0.60	2.00	1	ug/L	BMR
Methylene chloride	13	75-09-2	SW8260D	12/09/2022 19:51	12/09/2022 19:51	BLOD		4.00	4.00	1	ug/L	BMR
o-Xylene	13	95-47-6	SW8260D	12/09/2022 19:51	12/09/2022 19:51	BLOD		0.40	1.00	1	ug/L	BMR
Styrene	13	100-42-5	SW8260D	12/09/2022 19:51	12/09/2022 19:51	BLOD		0.40	1.00	1	ug/L	BMR
Tetrachloroethylene (PCE)	13	127-18-4	SW8260D	12/09/2022 19:51	12/09/2022 19:51	BLOD		0.40	1.00	1	ug/L	BMR
Toluene	13	108-88-3	SW8260D	12/09/2022 19:51	12/09/2022 19:51	BLOD		0.50	1.00	1	ug/L	BMR
trans-1,2-Dichloroethylene	13	156-60-5	SW8260D	12/09/2022 19:51	12/09/2022 19:51	BLOD		0.60	1.00	1	ug/L	BMR
trans-1,3-Dichloropropene	13	10061-02-6	SW8260D	12/09/2022 19:51	12/09/2022 19:51	BLOD		0.30	1.00	1	ug/L	BMR
trans-1,4-Dichloro-2-butene	13	110-57-6	SW8260D	12/09/2022 19:51	12/09/2022 19:51	BLOD		1.00	4.00	1	ug/L	BMR
Trichloroethylene	13	79-01-6	SW8260D	12/09/2022 19:51	12/09/2022 19:51	BLOD		0.40	1.00	1	ug/L	BMR
Trichlorofluoromethane	13	75-69-4	SW8260D	12/09/2022 19:51	12/09/2022 19:51	BLOD		0.80	1.00	1	ug/L	BMR
Vinyl acetate	13	108-05-4	SW8260D	12/09/2022 19:51	12/09/2022 19:51	BLOD		2.00	10.0	1	ug/L	BMR
Vinyl chloride	13	75-01-4	SW8260D	12/09/2022 19:51	12/09/2022 19:51	11.9		0.50	0.50	1	ug/L	BMR
Xylenes, Total	13	1330-20-7	SW8260D	12/09/2022 19:51	12/09/2022 19:51	BLOD		1.00	3.00	1	ug/L	BMR

Certificate of Analysis

Client Name: SCS Engineers-Winchester
 Client Site I.D.: City of Bristol 2nd Semi-Annual
 Submitted To: Jennifer Robb

Date Issued: 12/30/2022 11:56:27AM

Client Sample ID: MW-108

Laboratory Sample ID: 22L0423-13

Parameter	Samp ID	CAS	Reference Method	Sample Prep Date/Time	Analyzed Date/Time	Sample Results	Qual	LOD	LOQ	DF	Units	Analyst
Volatile Organic Compounds by GCMS												
Surr: 1,2-Dichloroethane-d4 (Surr)	13	101 %	70-120	12/09/2022 19:51	12/09/2022 19:51							
Surr: 4-Bromofluorobenzene (Surr)	13	96.1 %	75-120	12/09/2022 19:51	12/09/2022 19:51							
Surr: Dibromofluoromethane (Surr)	13	95.2 %	70-130	12/09/2022 19:51	12/09/2022 19:51							
Surr: Toluene-d8 (Surr)	13	101 %	70-130	12/09/2022 19:51	12/09/2022 19:51							
Dichlorodifluoromethane	13	75-71-8	SW8260D	12/09/2022 19:51	12/09/2022 19:51	BLOD		0.95	1.00	1	ug/L	BMR
Surr: 1,2-Dichloroethane-d4 (Surr)	13	101 %	70-120	12/09/2022 19:51	12/09/2022 19:51							
Surr: 4-Bromofluorobenzene (Surr)	13	96.1 %	75-120	12/09/2022 19:51	12/09/2022 19:51							
Surr: Dibromofluoromethane (Surr)	13	95.2 %	70-130	12/09/2022 19:51	12/09/2022 19:51							
Surr: Toluene-d8 (Surr)	13	101 %	70-130	12/09/2022 19:51	12/09/2022 19:51							

Certificate of Analysis

Client Name: SCS Engineers-Winchester
 Client Site I.D.: City of Bristol 2nd Semi-Annual
 Submitted To: Jennifer Robb

Date Issued: 12/30/2022 11:56:27AM

Client Sample ID: MW-108

Laboratory Sample ID: 22L0423-13

Parameter	Samp ID	CAS	Reference Method	Sample Prep Date/Time	Analyzed Date/Time	Sample Results	Qual	LOD	LOQ	DF	Units	Analyst
Semivolatle Organic Compounds by GCMS												
bis (2-Ethylhexyl) phthalate	13	117-81-7	SW8270E	12/09/2022 10:02	12/12/2022 18:30	BLOD		4.67	5.00	1	ug/L	MGG
Diethyl phthalate	13	84-66-2	SW8270E	12/09/2022 10:02	12/12/2022 18:30	BLOD		2.80	10.0	1	ug/L	MGG
Di-n-butyl phthalate	13	84-74-2	SW8270E	12/09/2022 10:02	12/12/2022 18:30	BLOD		3.74	10.0	1	ug/L	MGG
Phenol	13	108-95-2	SW8270E	12/09/2022 10:02	12/12/2022 18:30	BLOD		2.34	10.0	1	ug/L	MGG
<i>Surr: 2,4,6-Tribromophenol (Surr)</i>	13	148 %	10-86	12/09/2022 10:02	12/12/2022 18:30							S
<i>Surr: 2-Fluorobiphenyl (Surr)</i>	13	144 %	9-87	12/09/2022 10:02	12/12/2022 18:30							S
<i>Surr: 2-Fluorophenol (Surr)</i>	13	56.9 %	10-52	12/09/2022 10:02	12/12/2022 18:30							S
<i>Surr: Nitrobenzene-d5 (Surr)</i>	13	116 %	10-98.5	12/09/2022 10:02	12/12/2022 18:30							S
<i>Surr: Phenol-d5 (Surr)</i>	13	43.8 %	5-33	12/09/2022 10:02	12/12/2022 18:30							S
<i>Surr: p-Terphenyl-d14 (Surr)</i>	13	147 %	27-133	12/09/2022 10:02	12/12/2022 18:30							S

Certificate of Analysis

Client Name: SCS Engineers-Winchester
 Client Site I.D.: City of Bristol 2nd Semi-Annual
 Submitted To: Jennifer Robb

Date Issued: 12/30/2022 11:56:27AM

Client Sample ID: MW-108

Laboratory Sample ID: 22L0423-13

Parameter	Samp ID	CAS	Reference Method	Sample Prep Date/Time	Analyzed Date/Time	Sample Results	Qual	LOD	LOQ	DF	Units	Analyst
Organochlorine Herbicides by GC/ECD												
2,4,5-TP (Silvex)	13	93-72-1	SW8151A	12/12/2022 14:15	12/16/2022 16:33	BLOD		0.107	0.500	1	ug/L	LBH2
2,4-D	13	94-75-7	SW8151A	12/12/2022 14:15	12/16/2022 16:33	BLOD		0.200	0.500	1	ug/L	LBH2
Surr: DCAA (Surr)	13	87.3 %	48.5-134	12/12/2022 14:15	12/16/2022 16:33							

Certificate of Analysis

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Client Sample ID: MW-108

Laboratory Sample ID: 22L0423-13

Parameter	Samp ID	CAS	Reference Method	Sample Prep Date/Time	Analyzed Date/Time	Sample Results	Qual	LOD	LOQ	DF	Units	Analyst
Micro-extractables by GC/ECD												
1,2-Dibromoethane (EDB)	13	106-93-4	SW8011	12/12/2022 12:25	12/13/2022 00:39	BLOD		0.008	0.010	1	ug/L	LBH2
1,2,3-Trichloropropane	13	96-18-4	SW8011	12/12/2022 12:25	12/13/2022 00:39	BLOD		0.009	0.010	1	ug/L	LBH2
1,2-Dibromo-3-chloropropane (DBCP)	13	96-12-8	SW8011	12/12/2022 12:25	12/13/2022 00:39	BLOD		0.005	0.010	1	ug/L	LBH2

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Client Sample ID: MW-108

Laboratory Sample ID: 22L0423-13

Parameter	Samp ID	CAS	Reference Method	Sample Prep Date/Time	Analyzed Date/Time	Sample Results	Qual	LOD	LOQ	DF	Units	Analyst
Head Space Analysis by GC												
Ethane	13	74-84-0	RSK175M	12/09/2022 15:15	12/09/2022 15:15	BLOD		1.5	5.0	1	ug/L	RJB
<i>Surr: Acetylene (Surr)</i>	13	146 %	70-130	12/09/2022 15:15	12/09/2022 15:15							S
Ethene	13	74-85-1	RSK175M	12/09/2022 15:15	12/09/2022 15:15	BLOD		1.5	5.0	1	ug/L	RJB
<i>Surr: Acetylene (Surr)</i>	13	146 %	70-130	12/09/2022 15:15	12/09/2022 15:15							S
Methane	13	74-82-8	RSK175M	12/09/2022 15:15	12/09/2022 15:15	2280		1.5	5.0	1	ug/L	RJB
<i>Surr: Acetylene (Surr)</i>	13	146 %	70-130	12/09/2022 15:15	12/09/2022 15:15							S

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Client Sample ID: MW-108

Laboratory Sample ID: 22L0423-13

Parameter	Samp ID	CAS	Reference Method	Sample Prep Date/Time	Analyzed Date/Time	Sample Results	Qual	LOD	LOQ	DF	Units	Analyst
Wet Chemistry Analysis												
Alkalinity	13	NA	SM22 2320B-2011	12/15/2022 18:25	12/15/2022 18:25	647		5.0	5.0	1	mg/L	JIW
Chloride	13	16887-00-6	EPA300.0 R2.1	12/12/2022 22:57	12/12/2022 22:57	37.0		5.0	10.0	10	mg/L	MGG
Cyanide	13	57-12-5	SW9012B	12/14/2022 13:42	12/14/2022 13:42	BLOD	CI	0.01	0.01	1	mg/L	MKS
Sulfide	13	18496-25-8	SW9215	12/09/2022 14:14	12/09/2022 14:14	BLOD		0.80	1.00	1	mg/L	AAL

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Client Sample ID: GC Outfall

Laboratory Sample ID: 22L0423-14

Parameter	Samp ID	CAS	Reference Method	Sample Prep Date/Time	Analyzed Date/Time	Sample Results	Qual	LOD	LOQ	DF	Units	Analyst
Metals (Total) by EPA 6000/7000 Series Methods												
Silver	14	7440-22-4	SW6020B	12/12/2022 12:30	12/18/2022 21:16	BLOD		0.600	10.0	10	ug/L	MWL
Arsenic	14	7440-38-2	SW6020B	12/12/2022 12:30	12/18/2022 21:16	270		5.0	10	10	ug/L	MWL
Barium	14	7440-39-3	SW6020B	12/12/2022 12:30	12/18/2022 21:16	1060		10.0	50.0	10	ug/L	MWL
Beryllium	14RE1	7440-41-7	SW6020B	12/12/2022 12:30	12/19/2022 12:45	BLOD		0.200	1.00	1	ug/L	MWL
Cadmium	14RE1	7440-43-9	SW6020B	12/12/2022 12:30	12/19/2022 12:45	BLOD		0.100	1.00	1	ug/L	MWL
Cobalt	14	7440-48-4	SW6020B	12/12/2022 12:30	12/18/2022 21:16	9.44	J	2.00	10.0	10	ug/L	MWL
Chromium	14	7440-47-3	SW6020B	12/12/2022 12:30	12/18/2022 21:16	111		6.00	10.0	10	ug/L	MWL
Copper	14	7440-50-8	SW6020B	12/12/2022 12:30	12/18/2022 21:16	69.8		3.00	10.0	10	ug/L	MWL
Mercury	14	7439-97-6	SW7470A	12/15/2022 09:15	12/15/2022 15:43	BLOD		0.00020	0.00020	1	mg/L	ACM
Nickel	14	7440-02-0	SW6020B	12/12/2022 12:30	12/18/2022 21:16	23.53		10.00	10.00	10	ug/L	MWL
Lead	14	7439-92-1	SW6020B	12/12/2022 12:30	12/18/2022 21:16	BLOD		10	10	10	ug/L	MWL
Antimony	14RE1	7440-36-0	SW6020B	12/12/2022 12:30	12/19/2022 12:45	5.4		1.0	1.0	1	ug/L	MWL
Selenium	14	7782-49-2	SW6020B	12/12/2022 12:30	12/18/2022 21:16	BLOD		8.50	10.0	10	ug/L	MWL
Tin	14RE2	7440-31-5	SW6020B	12/12/2022 10:30	12/20/2022 14:50	4.02		1.00	1.00	1	ug/L	MWL
Thallium	14RE1	7440-28-0	SW6020B	12/12/2022 12:30	12/19/2022 12:45	BLOD		1.0	1.0	1	ug/L	MWL
Vanadium	14	7440-62-2	SW6020B	12/12/2022 12:30	12/18/2022 21:16	88.6		25.0	50.0	10	ug/L	MWL
Zinc	14	7440-66-6	SW6020B	12/12/2022 12:30	12/18/2022 21:16	85.8		25.0	50.0	10	ug/L	MWL

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Client Sample ID: GC Outfall

Laboratory Sample ID: 22L0423-14

Parameter	Samp ID	CAS	Reference Method	Sample Prep Date/Time	Analyzed Date/Time	Sample Results	Qual	LOD	LOQ	DF	Units	Analyst
Volatile Organic Compounds by GCMS												
1,1,1,2-Tetrachloroethane	14	630-20-6	SW8260D	12/09/2022 20:42	12/09/2022 20:42	BLOD		0.40	0.40	1	ug/L	BMR
1,1,1-Trichloroethane	14	71-55-6	SW8260D	12/09/2022 20:42	12/09/2022 20:42	BLOD		0.60	1.00	1	ug/L	BMR
1,1,2,2-Tetrachloroethane	14	79-34-5	SW8260D	12/09/2022 20:42	12/09/2022 20:42	BLOD		0.30	0.40	1	ug/L	BMR
1,1,2-Trichloroethane	14	79-00-5	SW8260D	12/09/2022 20:42	12/09/2022 20:42	BLOD		0.50	1.00	1	ug/L	BMR
1,1-Dichloroethane	14	75-34-3	SW8260D	12/09/2022 20:42	12/09/2022 20:42	BLOD		0.60	1.00	1	ug/L	BMR
1,1-Dichloroethylene	14	75-35-4	SW8260D	12/09/2022 20:42	12/09/2022 20:42	BLOD		0.70	1.00	1	ug/L	BMR
1,2,3-Trichloropropane	14	96-18-4	SW8260D	12/09/2022 20:42	12/09/2022 20:42	BLOD		0.40	1.00	1	ug/L	BMR
1,2-Dichlorobenzene	14	95-50-1	SW8260D	12/09/2022 20:42	12/09/2022 20:42	1.62		0.40	1.00	1	ug/L	BMR
1,2-Dichloroethane	14	107-06-2	SW8260D	12/09/2022 20:42	12/09/2022 20:42	BLOD		0.70	1.00	1	ug/L	BMR
1,2-Dichloropropane	14	78-87-5	SW8260D	12/09/2022 20:42	12/09/2022 20:42	BLOD		0.40	1.00	1	ug/L	BMR
1,4-Dichlorobenzene	14	106-46-7	SW8260D	12/09/2022 20:42	12/09/2022 20:42	26.2		0.40	1.00	1	ug/L	BMR
2-Butanone (MEK)	14RE1	78-93-3	SW8260D	12/12/2022 16:27	12/12/2022 16:27	442		30.0	100	10	ug/L	RJB
2-Hexanone (MBK)	14	591-78-6	SW8260D	12/09/2022 20:42	12/09/2022 20:42	BLOD		2.20	5.00	1	ug/L	BMR
4-Methyl-2-pentanone (MIBK)	14	108-10-1	SW8260D	12/09/2022 20:42	12/09/2022 20:42	47.3		1.50	5.00	1	ug/L	BMR
Acetone	14RE1	67-64-1	SW8260D	12/12/2022 16:27	12/12/2022 16:27	506		70.0	100	10	ug/L	RJB
Acrylonitrile	14	107-13-1	SW8260D	12/09/2022 20:42	12/09/2022 20:42	4.00	J	1.70	5.00	1	ug/L	BMR
Benzene	14RE1	71-43-2	SW8260D	12/12/2022 16:27	12/12/2022 16:27	710		4.00	10.0	10	ug/L	RJB
Bromochloromethane	14	74-97-5	SW8260D	12/09/2022 20:42	12/09/2022 20:42	BLOD		0.50	1.00	1	ug/L	BMR
Bromodichloromethane	14	75-27-4	SW8260D	12/09/2022 20:42	12/09/2022 20:42	BLOD		0.40	0.50	1	ug/L	BMR
Bromoform	14	75-25-2	SW8260D	12/09/2022 20:42	12/09/2022 20:42	BLOD		0.40	1.00	1	ug/L	BMR
Bromomethane	14	74-83-9	SW8260D	12/09/2022 20:42	12/09/2022 20:42	BLOD		0.80	1.00	1	ug/L	BMR
Carbon disulfide	14	75-15-0	SW8260D	12/09/2022 20:42	12/09/2022 20:42	BLOD		5.00	10.0	1	ug/L	BMR
Carbon tetrachloride	14	56-23-5	SW8260D	12/09/2022 20:42	12/09/2022 20:42	BLOD		0.50	1.00	1	ug/L	BMR
Chlorobenzene	14	108-90-7	SW8260D	12/09/2022 20:42	12/09/2022 20:42	5.53		0.40	1.00	1	ug/L	BMR

Certificate of Analysis

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Date Issued: 12/30/2022 11:56:27AM

Client Sample ID: GC Outfall

Laboratory Sample ID: 22L0423-14

Parameter	Samp ID	CAS	Reference Method	Sample Prep Date/Time	Analyzed Date/Time	Sample Results	Qual	LOD	LOQ	DF	Units	Analyst
Volatile Organic Compounds by GCMS												
Chloroethane	14	75-00-3	SW8260D	12/09/2022 20:42	12/09/2022 20:42	BLOD		0.70	1.00	1	ug/L	BMR
Chloroform	14	67-66-3	SW8260D	12/09/2022 20:42	12/09/2022 20:42	BLOD		0.50	0.50	1	ug/L	BMR
Chloromethane	14	74-87-3	SW8260D	12/09/2022 20:42	12/09/2022 20:42	BLOD		0.95	1.00	1	ug/L	BMR
cis-1,2-Dichloroethylene	14	156-59-2	SW8260D	12/09/2022 20:42	12/09/2022 20:42	0.73	J	0.40	1.00	1	ug/L	BMR
cis-1,3-Dichloropropene	14	10061-01-5	SW8260D	12/09/2022 20:42	12/09/2022 20:42	BLOD		0.30	1.00	1	ug/L	BMR
Dibromochloromethane	14	124-48-1	SW8260D	12/09/2022 20:42	12/09/2022 20:42	BLOD		0.35	0.50	1	ug/L	BMR
Dibromomethane	14	74-95-3	SW8260D	12/09/2022 20:42	12/09/2022 20:42	BLOD		0.40	1.00	1	ug/L	BMR
Ethylbenzene	14	100-41-4	SW8260D	12/09/2022 20:42	12/09/2022 20:42	91.5		0.40	1.00	1	ug/L	BMR
Iodomethane	14	74-88-4	SW8260D	12/09/2022 20:42	12/09/2022 20:42	BLOD		6.00	10.0	1	ug/L	BMR
m+p-Xylenes	14	179601-23-1	SW8260D	12/09/2022 20:42	12/09/2022 20:42	55.4		0.60	2.00	1	ug/L	BMR
Methylene chloride	14	75-09-2	SW8260D	12/09/2022 20:42	12/09/2022 20:42	BLOD		4.00	4.00	1	ug/L	BMR
o-Xylene	14	95-47-6	SW8260D	12/09/2022 20:42	12/09/2022 20:42	35.0		0.40	1.00	1	ug/L	BMR
Styrene	14	100-42-5	SW8260D	12/09/2022 20:42	12/09/2022 20:42	BLOD		0.40	1.00	1	ug/L	BMR
Tetrachloroethylene (PCE)	14	127-18-4	SW8260D	12/09/2022 20:42	12/09/2022 20:42	BLOD		0.40	1.00	1	ug/L	BMR
Toluene	14	108-88-3	SW8260D	12/09/2022 20:42	12/09/2022 20:42	44.8		0.50	1.00	1	ug/L	BMR
trans-1,2-Dichloroethylene	14	156-60-5	SW8260D	12/09/2022 20:42	12/09/2022 20:42	BLOD		0.60	1.00	1	ug/L	BMR
trans-1,3-Dichloropropene	14	10061-02-6	SW8260D	12/09/2022 20:42	12/09/2022 20:42	BLOD		0.30	1.00	1	ug/L	BMR
trans-1,4-Dichloro-2-butene	14	110-57-6	SW8260D	12/09/2022 20:42	12/09/2022 20:42	BLOD		1.00	4.00	1	ug/L	BMR
Trichloroethylene	14	79-01-6	SW8260D	12/09/2022 20:42	12/09/2022 20:42	BLOD		0.40	1.00	1	ug/L	BMR
Trichlorofluoromethane	14	75-69-4	SW8260D	12/09/2022 20:42	12/09/2022 20:42	BLOD		0.80	1.00	1	ug/L	BMR
Vinyl acetate	14	108-05-4	SW8260D	12/09/2022 20:42	12/09/2022 20:42	BLOD		2.00	10.0	1	ug/L	BMR
Vinyl chloride	14	75-01-4	SW8260D	12/09/2022 20:42	12/09/2022 20:42	BLOD		0.50	0.50	1	ug/L	BMR
Xylenes, Total	14	1330-20-7	SW8260D	12/09/2022 20:42	12/09/2022 20:42	90.4		1.00	3.00	1	ug/L	BMR
<i>Surr: 1,2-Dichloroethane-d4 (Surr)</i>	14	96.2 %	70-120	12/09/2022 20:42	12/09/2022 20:42							

Certificate of Analysis

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Date Issued: 12/30/2022 11:56:27AM

Client Sample ID: GC Outfall

Laboratory Sample ID: 22L0423-14

Parameter	Samp ID	CAS	Reference Method	Sample Prep Date/Time	Analyzed Date/Time	Sample Results	Qual	LOD	LOQ	DF	Units	Analyst
Volatile Organic Compounds by GCMS												
Surr: 4-Bromofluorobenzene (Surr)	14		101 %	75-120	12/09/2022 20:42	12/09/2022 20:42						
Surr: Dibromofluoromethane (Surr)	14		101 %	70-130	12/09/2022 20:42	12/09/2022 20:42						
Surr: Toluene-d8 (Surr)	14		95.7 %	70-130	12/09/2022 20:42	12/09/2022 20:42						
Surr: 1,2-Dichloroethane-d4 (Surr)	14RE1		102 %	70-120	12/12/2022 16:27	12/12/2022 16:27						
Surr: 4-Bromofluorobenzene (Surr)	14RE1		97.1 %	75-120	12/12/2022 16:27	12/12/2022 16:27						
Surr: Dibromofluoromethane (Surr)	14RE1		100 %	70-130	12/12/2022 16:27	12/12/2022 16:27						
Surr: Toluene-d8 (Surr)	14RE1		98.6 %	70-130	12/12/2022 16:27	12/12/2022 16:27						
Dichlorodifluoromethane	14	75-71-8		SW8260D	12/09/2022 20:42	12/09/2022 20:42	BLOD	0.95	1.00	1	ug/L	BMR
Surr: 1,2-Dichloroethane-d4 (Surr)	14		96.2 %	70-120	12/09/2022 20:42	12/09/2022 20:42						
Surr: 4-Bromofluorobenzene (Surr)	14		101 %	75-120	12/09/2022 20:42	12/09/2022 20:42						
Surr: Dibromofluoromethane (Surr)	14		101 %	70-130	12/09/2022 20:42	12/09/2022 20:42						
Surr: Toluene-d8 (Surr)	14		95.7 %	70-130	12/09/2022 20:42	12/09/2022 20:42						

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Parameter	Samp ID	CAS	Reference Method	Sample Prep Date/Time	Analyzed Date/Time	Sample Results	Qual	LOD	LOQ	DF	Units	Analyst
Semivolatile Organic Compounds by GCMS												
bis (2-Ethylhexyl) phthalate	14	117-81-7	SW8270E	12/12/2022 08:50	12/12/2022 21:28	BLOD		23.4	23.4	10	ug/L	MGG
Diethyl phthalate	14	84-66-2	SW8270E	12/12/2022 08:50	12/12/2022 21:28	BLOD		28.0	93.5	10	ug/L	MGG
Di-n-butyl phthalate	14	84-74-2	SW8270E	12/12/2022 08:50	12/12/2022 21:28	BLOD		37.4	93.5	10	ug/L	MGG
Phenol	14	108-95-2	SW8270E	12/12/2022 08:50	12/12/2022 21:28	143		23.4	93.5	10	ug/L	MGG
<i>Surr: 2,4,6-Tribromophenol (Surr)</i>	14	102 %	10-86	12/12/2022 08:50	12/12/2022 21:28							DS
<i>Surr: 2-Fluorobiphenyl (Surr)</i>	14	76.8 %	9-87	12/12/2022 08:50	12/12/2022 21:28							DS
<i>Surr: 2-Fluorophenol (Surr)</i>	14	52.9 %	10-52	12/12/2022 08:50	12/12/2022 21:28							DS
<i>Surr: Nitrobenzene-d5 (Surr)</i>	14	110 %	10-98.5	12/12/2022 08:50	12/12/2022 21:28							DS
<i>Surr: Phenol-d5 (Surr)</i>	14	40.7 %	5-33	12/12/2022 08:50	12/12/2022 21:28							DS
<i>Surr: p-Terphenyl-d14 (Surr)</i>	14	92.8 %	27-133	12/12/2022 08:50	12/12/2022 21:28							DS

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Parameter	Samp ID	CAS	Reference Method	Sample Prep Date/Time	Analyzed Date/Time	Sample Results	Qual	LOD	LOQ	DF	Units	Analyst
Organochlorine Herbicides by GC/ECD												
2,4,5-TP (Silvex)	14	93-72-1	SW8151A	12/13/2022 14:00	12/19/2022 19:40	BLOD		0.428	2.00	4	ug/L	LBH2
2,4-D	14	94-75-7	SW8151A	12/13/2022 14:00	12/19/2022 19:40	BLOD		0.800	2.00	4	ug/L	LBH2
Surr: DCAA (Surr)	14	332 %	48.5-134	12/13/2022 14:00	12/19/2022 19:40							DS

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Parameter	Samp ID	CAS	Reference Method	Sample Prep Date/Time	Analyzed Date/Time	Sample Results	Qual	LOD	LOQ	DF	Units	Analyst
Micro-extractables by GC/ECD												
1,2-Dibromoethane (EDB)	14	106-93-4	SW8011	12/12/2022 12:25	12/13/2022 01:44	BLOD		0.008	0.010	1	ug/L	LBH2
1,2,3-Trichloropropane	14	96-18-4	SW8011	12/12/2022 12:25	12/13/2022 01:44	BLOD		0.009	0.010	1	ug/L	LBH2
1,2-Dibromo-3-chloropropane (DBCP)	14	96-12-8	SW8011	12/12/2022 12:25	12/13/2022 01:44	BLOD		0.005	0.010	1	ug/L	LBH2

Certificate of Analysis

Client Name: SCS Engineers-Winchester
 Client Site I.D.: City of Bristol 2nd Semi-Annual
 Submitted To: Jennifer Robb

Date Issued: 12/30/2022 11:56:27AM

Client Sample ID: GC Outfall

Laboratory Sample ID: 22L0423-14

Parameter	Samp ID	CAS	Reference Method	Sample Prep Date/Time	Analyzed Date/Time	Sample Results	Qual	LOD	LOQ	DF	Units	Analyst
Head Space Analysis by GC												
Ethane	14	74-84-0	RSK175M	12/09/2022 15:41	12/09/2022 15:41	BLOD		1.5	5.0	1	ug/L	RJB
<i>Surr: Acetylene (Surr)</i>	14	131 %	70-130	12/09/2022 15:41	12/09/2022 15:41							S
Ethene	14	74-85-1	RSK175M	12/09/2022 15:41	12/09/2022 15:41	BLOD		1.5	5.0	1	ug/L	RJB
<i>Surr: Acetylene (Surr)</i>	14	131 %	70-130	12/09/2022 15:41	12/09/2022 15:41							S
Methane	14	74-82-8	RSK175M	12/09/2022 15:41	12/09/2022 15:41	349		1.5	5.0	1	ug/L	RJB
<i>Surr: Acetylene (Surr)</i>	14	131 %	70-130	12/09/2022 15:41	12/09/2022 15:41							S

Certificate of Analysis

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Client Sample ID: GC Outfall

Laboratory Sample ID: 22L0423-14

Parameter	Samp ID	CAS	Reference Method	Sample Prep Date/Time	Analyzed Date/Time	Sample Results	Qual	LOD	LOQ	DF	Units	Analyst
Wet Chemistry Analysis												
Alkalinity	14	NA	SM22 2320B-2011	12/15/2022 18:25	12/15/2022 18:25	2200		5.0	5.0	1	mg/L	JIW
Chloride	14	16887-00-6	EPA300.0 R2.1	12/10/2022 01:59	12/10/2022 01:59	1740		50.0	100	100	mg/L	ADG
Cyanide	14	57-12-5	SW9012B	12/15/2022 12:39	12/15/2022 12:39	BLOD		0.01	0.01	1	mg/L	MKS
Sulfide	14	18496-25-8	SW9215	12/09/2022 14:14	12/09/2022 14:14	BLOD		0.80	1.00	1	mg/L	AAL

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Client Sample ID: GC Outfall Duplicate

Laboratory Sample ID: 22L0423-15

Parameter	Samp ID	CAS	Reference Method	Sample Prep Date/Time	Analyzed Date/Time	Sample Results	Qual	LOD	LOQ	DF	Units	Analyst
Metals (Total) by EPA 6000/7000 Series Methods												
Silver	15	7440-22-4	SW6020B	12/12/2022 12:30	12/18/2022 21:18	BLOD		0.600	10.0	10	ug/L	MWL
Arsenic	15	7440-38-2	SW6020B	12/12/2022 12:30	12/18/2022 21:18	290		5.0	10	10	ug/L	MWL
Barium	15	7440-39-3	SW6020B	12/12/2022 12:30	12/18/2022 21:18	1060		10.0	50.0	10	ug/L	MWL
Beryllium	15RE1	7440-41-7	SW6020B	12/12/2022 12:30	12/19/2022 12:48	BLOD		0.200	1.00	1	ug/L	MWL
Cadmium	15RE1	7440-43-9	SW6020B	12/12/2022 12:30	12/19/2022 12:48	BLOD		0.100	1.00	1	ug/L	MWL
Cobalt	15	7440-48-4	SW6020B	12/12/2022 12:30	12/18/2022 21:18	8.98	J	2.00	10.0	10	ug/L	MWL
Chromium	15	7440-47-3	SW6020B	12/12/2022 12:30	12/18/2022 21:18	111		6.00	10.0	10	ug/L	MWL
Copper	15	7440-50-8	SW6020B	12/12/2022 12:30	12/18/2022 21:18	76.6		3.00	10.0	10	ug/L	MWL
Mercury	15	7439-97-6	SW7470A	12/15/2022 09:15	12/15/2022 15:46	BLOD		0.00020	0.00020	1	mg/L	ACM
Nickel	15	7440-02-0	SW6020B	12/12/2022 12:30	12/18/2022 21:18	21.95		10.00	10.00	10	ug/L	MWL
Lead	15	7439-92-1	SW6020B	12/12/2022 12:30	12/18/2022 21:18	BLOD		10	10	10	ug/L	MWL
Antimony	15RE1	7440-36-0	SW6020B	12/12/2022 12:30	12/19/2022 12:48	8.0		1.0	1.0	1	ug/L	MWL
Selenium	15	7782-49-2	SW6020B	12/12/2022 12:30	12/18/2022 21:18	BLOD		8.50	10.0	10	ug/L	MWL
Tin	15RE3	7440-31-5	SW6020B	12/12/2022 10:30	12/20/2022 14:55	3.72		1.00	1.00	1	ug/L	MWL
Thallium	15RE1	7440-28-0	SW6020B	12/12/2022 12:30	12/19/2022 12:48	BLOD		1.0	1.0	1	ug/L	MWL
Vanadium	15	7440-62-2	SW6020B	12/12/2022 12:30	12/18/2022 21:18	88.3		25.0	50.0	10	ug/L	MWL
Zinc	15RE1	7440-66-6	SW6020B	12/12/2022 12:30	12/19/2022 12:48	46.2		2.50	5.00	1	ug/L	MWL
Volatile Organic Compounds by GCMS												
1,1,1,2-Tetrachloroethane	15	630-20-6	SW8260D	12/09/2022 21:08	12/09/2022 21:08	BLOD		0.40	0.40	1	ug/L	BMR
1,1,1-Trichloroethane	15	71-55-6	SW8260D	12/09/2022 21:08	12/09/2022 21:08	BLOD		0.60	1.00	1	ug/L	BMR
1,1,2,2-Tetrachloroethane	15	79-34-5	SW8260D	12/09/2022 21:08	12/09/2022 21:08	BLOD		0.30	0.40	1	ug/L	BMR
1,1,2-Trichloroethane	15	79-00-5	SW8260D	12/09/2022 21:08	12/09/2022 21:08	BLOD		0.50	1.00	1	ug/L	BMR
1,1-Dichloroethane	15	75-34-3	SW8260D	12/09/2022 21:08	12/09/2022 21:08	BLOD		0.60	1.00	1	ug/L	BMR
1,1-Dichloroethylene	15	75-35-4	SW8260D	12/09/2022 21:08	12/09/2022 21:08	BLOD		0.70	1.00	1	ug/L	BMR

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Laboratory Sample ID: 22L0423-15

Parameter	Samp ID	CAS	Reference Method	Sample Prep Date/Time	Analyzed Date/Time	Sample Results	Qual	LOD	LOQ	DF	Units	Analyst
Volatile Organic Compounds by GCMS												
1,2,3-Trichloropropane	15	96-18-4	SW8260D	12/09/2022 21:08	12/09/2022 21:08	BLOD		0.40	1.00	1	ug/L	BMR
1,2-Dichlorobenzene	15	95-50-1	SW8260D	12/09/2022 21:08	12/09/2022 21:08	1.44		0.40	1.00	1	ug/L	BMR
1,2-Dichloroethane	15	107-06-2	SW8260D	12/09/2022 21:08	12/09/2022 21:08	BLOD		0.70	1.00	1	ug/L	BMR
1,2-Dichloropropane	15	78-87-5	SW8260D	12/09/2022 21:08	12/09/2022 21:08	BLOD		0.40	1.00	1	ug/L	BMR
1,4-Dichlorobenzene	15	106-46-7	SW8260D	12/09/2022 21:08	12/09/2022 21:08	23.5		0.40	1.00	1	ug/L	BMR
2-Butanone (MEK)	15	78-93-3	SW8260D	12/09/2022 21:08	12/09/2022 21:08	287		3.00	10.0	1	ug/L	BMR
2-Hexanone (MBK)	15	591-78-6	SW8260D	12/09/2022 21:08	12/09/2022 21:08	BLOD		2.20	5.00	1	ug/L	BMR
4-Methyl-2-pentanone (MIBK)	15	108-10-1	SW8260D	12/09/2022 21:08	12/09/2022 21:08	35.5		1.50	5.00	1	ug/L	BMR
Acetone	15RE1	67-64-1	SW8260D	12/12/2022 16:52	12/12/2022 16:52	391		70.0	100	10	ug/L	RJB
Acrylonitrile	15	107-13-1	SW8260D	12/09/2022 21:08	12/09/2022 21:08	BLOD		1.70	5.00	1	ug/L	BMR
Benzene	15RE1	71-43-2	SW8260D	12/12/2022 16:52	12/12/2022 16:52	414		4.00	10.0	10	ug/L	RJB
Bromochloromethane	15	74-97-5	SW8260D	12/09/2022 21:08	12/09/2022 21:08	BLOD		0.50	1.00	1	ug/L	BMR
Bromodichloromethane	15	75-27-4	SW8260D	12/09/2022 21:08	12/09/2022 21:08	BLOD		0.40	0.50	1	ug/L	BMR
Bromoform	15	75-25-2	SW8260D	12/09/2022 21:08	12/09/2022 21:08	BLOD		0.40	1.00	1	ug/L	BMR
Bromomethane	15	74-83-9	SW8260D	12/09/2022 21:08	12/09/2022 21:08	BLOD		0.80	1.00	1	ug/L	BMR
Carbon disulfide	15	75-15-0	SW8260D	12/09/2022 21:08	12/09/2022 21:08	BLOD		5.00	10.0	1	ug/L	BMR
Carbon tetrachloride	15	56-23-5	SW8260D	12/09/2022 21:08	12/09/2022 21:08	BLOD		0.50	1.00	1	ug/L	BMR
Chlorobenzene	15	108-90-7	SW8260D	12/09/2022 21:08	12/09/2022 21:08	5.11		0.40	1.00	1	ug/L	BMR
Chloroethane	15	75-00-3	SW8260D	12/09/2022 21:08	12/09/2022 21:08	BLOD		0.70	1.00	1	ug/L	BMR
Chloroform	15	67-66-3	SW8260D	12/09/2022 21:08	12/09/2022 21:08	2.43		0.50	0.50	1	ug/L	BMR
Chloromethane	15	74-87-3	SW8260D	12/09/2022 21:08	12/09/2022 21:08	BLOD		0.95	1.00	1	ug/L	BMR
cis-1,2-Dichloroethylene	15	156-59-2	SW8260D	12/09/2022 21:08	12/09/2022 21:08	0.72	J	0.40	1.00	1	ug/L	BMR
cis-1,3-Dichloropropene	15	10061-01-5	SW8260D	12/09/2022 21:08	12/09/2022 21:08	BLOD		0.30	1.00	1	ug/L	BMR
Dibromochloromethane	15	124-48-1	SW8260D	12/09/2022 21:08	12/09/2022 21:08	BLOD		0.35	0.50	1	ug/L	BMR

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Laboratory Sample ID: 22L0423-15

Parameter	Samp ID	CAS	Reference Method	Sample Prep Date/Time	Analyzed Date/Time	Sample Results	Qual	LOD	LOQ	DF	Units	Analyst
Volatile Organic Compounds by GCMS												
Dibromomethane	15	74-95-3	SW8260D	12/09/2022 21:08	12/09/2022 21:08	BLOD		0.40	1.00	1	ug/L	BMR
Ethylbenzene	15	100-41-4	SW8260D	12/09/2022 21:08	12/09/2022 21:08	79.3		0.40	1.00	1	ug/L	BMR
Iodomethane	15	74-88-4	SW8260D	12/09/2022 21:08	12/09/2022 21:08	BLOD		6.00	10.0	1	ug/L	BMR
m+p-Xylenes	15	179601-23-1	SW8260D	12/09/2022 21:08	12/09/2022 21:08	48.5		0.60	2.00	1	ug/L	BMR
Methylene chloride	15	75-09-2	SW8260D	12/09/2022 21:08	12/09/2022 21:08	BLOD		4.00	4.00	1	ug/L	BMR
o-Xylene	15	95-47-6	SW8260D	12/09/2022 21:08	12/09/2022 21:08	29.8		0.40	1.00	1	ug/L	BMR
Styrene	15	100-42-5	SW8260D	12/09/2022 21:08	12/09/2022 21:08	BLOD		0.40	1.00	1	ug/L	BMR
Tetrachloroethylene (PCE)	15	127-18-4	SW8260D	12/09/2022 21:08	12/09/2022 21:08	BLOD		0.40	1.00	1	ug/L	BMR
Toluene	15	108-88-3	SW8260D	12/09/2022 21:08	12/09/2022 21:08	38.0		0.50	1.00	1	ug/L	BMR
trans-1,2-Dichloroethylene	15	156-60-5	SW8260D	12/09/2022 21:08	12/09/2022 21:08	BLOD		0.60	1.00	1	ug/L	BMR
trans-1,3-Dichloropropene	15	10061-02-6	SW8260D	12/09/2022 21:08	12/09/2022 21:08	BLOD		0.30	1.00	1	ug/L	BMR
trans-1,4-Dichloro-2-butene	15	110-57-6	SW8260D	12/09/2022 21:08	12/09/2022 21:08	BLOD		1.00	4.00	1	ug/L	BMR
Trichloroethylene	15	79-01-6	SW8260D	12/09/2022 21:08	12/09/2022 21:08	BLOD		0.40	1.00	1	ug/L	BMR
Trichlorofluoromethane	15	75-69-4	SW8260D	12/09/2022 21:08	12/09/2022 21:08	BLOD		0.80	1.00	1	ug/L	BMR
Vinyl acetate	15	108-05-4	SW8260D	12/09/2022 21:08	12/09/2022 21:08	BLOD		2.00	10.0	1	ug/L	BMR
Vinyl chloride	15	75-01-4	SW8260D	12/09/2022 21:08	12/09/2022 21:08	BLOD		0.50	0.50	1	ug/L	BMR
Xylenes, Total	15	1330-20-7	SW8260D	12/09/2022 21:08	12/09/2022 21:08	78.2		1.00	3.00	1	ug/L	BMR
<i>Surr: 1,2-Dichloroethane-d4 (Surr)</i>	15	97.2 %	70-120	12/09/2022 21:08	12/09/2022 21:08							
<i>Surr: 4-Bromofluorobenzene (Surr)</i>	15	97.2 %	75-120	12/09/2022 21:08	12/09/2022 21:08							
<i>Surr: Dibromofluoromethane (Surr)</i>	15	92.7 %	70-130	12/09/2022 21:08	12/09/2022 21:08							
<i>Surr: Toluene-d8 (Surr)</i>	15	94.6 %	70-130	12/09/2022 21:08	12/09/2022 21:08							
<i>Surr: 1,2-Dichloroethane-d4 (Surr)</i>	15RE1	107 %	70-120	12/12/2022 16:52	12/12/2022 16:52							
<i>Surr: 4-Bromofluorobenzene (Surr)</i>	15RE1	98.4 %	75-120	12/12/2022 16:52	12/12/2022 16:52							
<i>Surr: Dibromofluoromethane (Surr)</i>	15RE1	96.6 %	70-130	12/12/2022 16:52	12/12/2022 16:52							

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Parameter	Samp ID	CAS	Reference Method	Sample Prep Date/Time	Analyzed Date/Time	Sample Results	Qual	LOD	LOQ	DF	Units	Analyst
Volatile Organic Compounds by GCMS												
Surr: Toluene-d8 (Surr)	15RE1	98.5 %	70-130	12/12/2022 16:52	12/12/2022 16:52							
Dichlorodifluoromethane	15	75-71-8	SW8260D	12/09/2022 21:08	12/09/2022 21:08	BLOD		0.95	1.00	1	ug/L	BMR
Surr: 1,2-Dichloroethane-d4 (Surr)	15	97.2 %	70-120	12/09/2022 21:08	12/09/2022 21:08							
Surr: 4-Bromofluorobenzene (Surr)	15	97.2 %	75-120	12/09/2022 21:08	12/09/2022 21:08							
Surr: Dibromofluoromethane (Surr)	15	92.7 %	70-130	12/09/2022 21:08	12/09/2022 21:08							
Surr: Toluene-d8 (Surr)	15	94.6 %	70-130	12/09/2022 21:08	12/09/2022 21:08							

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Parameter	Samp ID	CAS	Reference Method	Sample Prep Date/Time	Analyzed Date/Time	Sample Results	Qual	LOD	LOQ	DF	Units	Analyst
Semivolatile Organic Compounds by GCMS												
bis (2-Ethylhexyl) phthalate	15	117-81-7	SW8270E	12/12/2022 08:50	12/12/2022 22:04	BLOD		23.4	23.4	10	ug/L	MGG
Diethyl phthalate	15	84-66-2	SW8270E	12/12/2022 08:50	12/12/2022 22:04	BLOD		28.0	93.5	10	ug/L	MGG
Di-n-butyl phthalate	15	84-74-2	SW8270E	12/12/2022 08:50	12/12/2022 22:04	BLOD		37.4	93.5	10	ug/L	MGG
Phenol	15	108-95-2	SW8270E	12/12/2022 08:50	12/12/2022 22:04	140		23.4	93.5	10	ug/L	MGG
<i>Surr: 2,4,6-Tribromophenol (Surr)</i>	15	111 %	10-86	12/12/2022 08:50	12/12/2022 22:04							DS
<i>Surr: 2-Fluorobiphenyl (Surr)</i>	15	91.6 %	9-87	12/12/2022 08:50	12/12/2022 22:04							DS
<i>Surr: 2-Fluorophenol (Surr)</i>	15	62.9 %	10-52	12/12/2022 08:50	12/12/2022 22:04							DS
<i>Surr: Nitrobenzene-d5 (Surr)</i>	15	127 %	10-98.5	12/12/2022 08:50	12/12/2022 22:04							DS
<i>Surr: Phenol-d5 (Surr)</i>	15	45.9 %	5-33	12/12/2022 08:50	12/12/2022 22:04							DS
<i>Surr: p-Terphenyl-d14 (Surr)</i>	15	105 %	27-133	12/12/2022 08:50	12/12/2022 22:04							DS

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Parameter	Samp ID	CAS	Reference Method	Sample Prep Date/Time	Analyzed Date/Time	Sample Results	Qual	LOD	LOQ	DF	Units	Analyst
Organochlorine Herbicides by GC/ECD												
2,4,5-TP (Silvex)	15	93-72-1	SW8151A	12/13/2022 14:00	12/19/2022 20:06	BLOD		0.428	2.00	4	ug/L	LBH2
2,4-D	15	94-75-7	SW8151A	12/13/2022 14:00	12/19/2022 20:06	BLOD		0.800	2.00	4	ug/L	LBH2
Surr: DCAA (Surr)	15	340 %	48.5-134	12/13/2022 14:00	12/19/2022 20:06							DS

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Parameter	Samp ID	CAS	Reference Method	Sample Prep Date/Time	Analyzed Date/Time	Sample Results	Qual	LOD	LOQ	DF	Units	Analyst
Micro-extractables by GC/ECD												
1,2-Dibromoethane (EDB)	15	106-93-4	SW8011	12/12/2022 12:25	12/13/2022 02:06	BLOD		0.008	0.010	1	ug/L	LBH2
1,2,3-Trichloropropane	15	96-18-4	SW8011	12/12/2022 12:25	12/13/2022 02:06	BLOD		0.009	0.010	1	ug/L	LBH2
1,2-Dibromo-3-chloropropane (DBCP)	15	96-12-8	SW8011	12/12/2022 12:25	12/13/2022 02:06	BLOD		0.005	0.010	1	ug/L	LBH2

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Parameter	Samp ID	CAS	Reference Method	Sample Prep Date/Time	Analyzed Date/Time	Sample Results	Qual	LOD	LOQ	DF	Units	Analyst
Head Space Analysis by GC												
Ethane	15	74-84-0	RSK175M	12/09/2022 15:53	12/09/2022 15:53	BLOD		1.5	5.0	1	ug/L	RJB
<i>Surr: Acetylene (Surr)</i>	15	146 %	70-130	12/09/2022 15:53	12/09/2022 15:53							S
Ethene	15	74-85-1	RSK175M	12/09/2022 15:53	12/09/2022 15:53	BLOD		1.5	5.0	1	ug/L	RJB
<i>Surr: Acetylene (Surr)</i>	15	146 %	70-130	12/09/2022 15:53	12/09/2022 15:53							S
Methane	15	74-82-8	RSK175M	12/09/2022 15:53	12/09/2022 15:53	300		1.5	5.0	1	ug/L	RJB
<i>Surr: Acetylene (Surr)</i>	15	146 %	70-130	12/09/2022 15:53	12/09/2022 15:53							S

Certificate of Analysis

Client Name: SCS Engineers-Winchester
 Client Site I.D.: City of Bristol 2nd Semi-Annual
 Submitted To: Jennifer Robb

Date Issued: 12/30/2022 11:56:27AM

Client Sample ID: GC Outfall Duplicate

Laboratory Sample ID: 22L0423-15

Parameter	Samp ID	CAS	Reference Method	Sample Prep Date/Time	Analyzed Date/Time	Sample Results	Qual	LOD	LOQ	DF	Units	Analyst
Wet Chemistry Analysis												
Alkalinity	15	NA	SM22 2320B-2011	12/15/2022 18:25	12/15/2022 18:25	2060		5.0	5.0	1	mg/L	JIW
Chloride	15	16887-00-6	EPA300.0 R2.1	12/10/2022 02:24	12/10/2022 02:24	1630		50.0	100	100	mg/L	ADG
Cyanide	15	57-12-5	SW9012B	12/15/2022 12:39	12/15/2022 12:39	BLOD		0.01	0.01	1	mg/L	MKS
Sulfide	15	18496-25-8	SW9215	12/09/2022 14:14	12/09/2022 14:14	BLOD		0.80	1.00	1	mg/L	AAL

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Date Issued: 12/30/2022 11:56:27AM

Client Sample ID: Field Blank

Laboratory Sample ID: 22L0423-16

Parameter	Samp ID	CAS	Reference Method	Sample Prep Date/Time	Analyzed Date/Time	Sample Results	Qual	LOD	LOQ	DF	Units	Analyst
Metals (Total) by EPA 6000/7000 Series Methods												
Silver	16	7440-22-4	SW6020B	12/12/2022 12:30	12/18/2022 21:21	BLOD		0.0600	1.00	1	ug/L	MWL
Arsenic	16	7440-38-2	SW6020B	12/12/2022 12:30	12/18/2022 21:21	BLOD		0.50	1.0	1	ug/L	MWL
Barium	16	7440-39-3	SW6020B	12/12/2022 12:30	12/18/2022 21:21	BLOD		1.00	5.00	1	ug/L	MWL
Beryllium	16	7440-41-7	SW6020B	12/12/2022 12:30	12/18/2022 21:21	BLOD		0.200	1.00	1	ug/L	MWL
Cadmium	16	7440-43-9	SW6020B	12/12/2022 12:30	12/18/2022 21:21	BLOD		0.100	1.00	1	ug/L	MWL
Cobalt	16	7440-48-4	SW6020B	12/12/2022 12:30	12/18/2022 21:21	BLOD		0.200	1.00	1	ug/L	MWL
Chromium	16	7440-47-3	SW6020B	12/12/2022 12:30	12/18/2022 21:21	BLOD		0.600	1.00	1	ug/L	MWL
Copper	16	7440-50-8	SW6020B	12/12/2022 12:30	12/18/2022 21:21	BLOD		0.300	1.00	1	ug/L	MWL
Mercury	16	7439-97-6	SW7470A	12/15/2022 09:15	12/15/2022 15:48	BLOD		0.00020	0.00020	1	mg/L	ACM
Nickel	16	7440-02-0	SW6020B	12/12/2022 12:30	12/18/2022 21:21	BLOD		1.000	1.000	1	ug/L	MWL
Lead	16	7439-92-1	SW6020B	12/12/2022 12:30	12/18/2022 21:21	BLOD		1.0	1.0	1	ug/L	MWL
Antimony	16	7440-36-0	SW6020B	12/12/2022 12:30	12/18/2022 21:21	BLOD		1.0	1.0	1	ug/L	MWL
Selenium	16	7782-49-2	SW6020B	12/12/2022 12:30	12/18/2022 21:21	BLOD		0.850	1.00	1	ug/L	MWL
Tin	16RE2	7440-31-5	SW6020B	12/12/2022 10:30	12/20/2022 15:01	BLOD		1.00	1.00	1	ug/L	MWL
Thallium	16	7440-28-0	SW6020B	12/12/2022 12:30	12/18/2022 21:21	BLOD		1.0	1.0	1	ug/L	MWL
Vanadium	16	7440-62-2	SW6020B	12/12/2022 12:30	12/18/2022 21:21	BLOD		2.50	5.00	1	ug/L	MWL
Zinc	16	7440-66-6	SW6020B	12/12/2022 12:30	12/18/2022 21:21	BLOD		2.50	5.00	1	ug/L	MWL

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Laboratory Sample ID: 22L0423-16

Parameter	Samp ID	CAS	Reference Method	Sample Prep Date/Time	Analyzed Date/Time	Sample Results	Qual	LOD	LOQ	DF	Units	Analyst
Volatile Organic Compounds by GCMS												
1,1,1,2-Tetrachloroethane	16	630-20-6	SW8260D	12/09/2022 13:28	12/09/2022 13:28	BLOD		0.40	0.40	1	ug/L	BMR
1,1,1-Trichloroethane	16	71-55-6	SW8260D	12/09/2022 13:28	12/09/2022 13:28	BLOD		0.60	1.00	1	ug/L	BMR
1,1,2,2-Tetrachloroethane	16	79-34-5	SW8260D	12/09/2022 13:28	12/09/2022 13:28	BLOD		0.30	0.40	1	ug/L	BMR
1,1,2-Trichloroethane	16	79-00-5	SW8260D	12/09/2022 13:28	12/09/2022 13:28	BLOD		0.50	1.00	1	ug/L	BMR
1,1-Dichloroethane	16	75-34-3	SW8260D	12/09/2022 13:28	12/09/2022 13:28	BLOD		0.60	1.00	1	ug/L	BMR
1,1-Dichloroethylene	16	75-35-4	SW8260D	12/09/2022 13:28	12/09/2022 13:28	BLOD		0.70	1.00	1	ug/L	BMR
1,2,3-Trichloropropane	16	96-18-4	SW8260D	12/09/2022 13:28	12/09/2022 13:28	BLOD		0.40	1.00	1	ug/L	BMR
1,2-Dichlorobenzene	16	95-50-1	SW8260D	12/09/2022 13:28	12/09/2022 13:28	BLOD		0.40	1.00	1	ug/L	BMR
1,2-Dichloroethane	16	107-06-2	SW8260D	12/09/2022 13:28	12/09/2022 13:28	BLOD		0.70	1.00	1	ug/L	BMR
1,2-Dichloropropane	16	78-87-5	SW8260D	12/09/2022 13:28	12/09/2022 13:28	BLOD		0.40	1.00	1	ug/L	BMR
1,4-Dichlorobenzene	16	106-46-7	SW8260D	12/09/2022 13:28	12/09/2022 13:28	BLOD		0.40	1.00	1	ug/L	BMR
2-Butanone (MEK)	16	78-93-3	SW8260D	12/09/2022 13:28	12/09/2022 13:28	BLOD		3.00	10.0	1	ug/L	BMR
2-Hexanone (MBK)	16	591-78-6	SW8260D	12/09/2022 13:28	12/09/2022 13:28	BLOD		2.20	5.00	1	ug/L	BMR
4-Methyl-2-pentanone (MIBK)	16	108-10-1	SW8260D	12/09/2022 13:28	12/09/2022 13:28	BLOD		1.50	5.00	1	ug/L	BMR
Acetone	16	67-64-1	SW8260D	12/09/2022 13:28	12/09/2022 13:28	11.5		7.00	10.0	1	ug/L	BMR
Acrylonitrile	16	107-13-1	SW8260D	12/09/2022 13:28	12/09/2022 13:28	BLOD		1.70	5.00	1	ug/L	BMR
Benzene	16	71-43-2	SW8260D	12/09/2022 13:28	12/09/2022 13:28	BLOD		0.40	1.00	1	ug/L	BMR
Bromochloromethane	16	74-97-5	SW8260D	12/09/2022 13:28	12/09/2022 13:28	BLOD		0.50	1.00	1	ug/L	BMR
Bromodichloromethane	16	75-27-4	SW8260D	12/09/2022 13:28	12/09/2022 13:28	BLOD		0.40	0.50	1	ug/L	BMR
Bromoform	16	75-25-2	SW8260D	12/09/2022 13:28	12/09/2022 13:28	BLOD		0.40	1.00	1	ug/L	BMR
Bromomethane	16	74-83-9	SW8260D	12/09/2022 13:28	12/09/2022 13:28	BLOD		0.80	1.00	1	ug/L	BMR
Carbon disulfide	16	75-15-0	SW8260D	12/09/2022 13:28	12/09/2022 13:28	BLOD		5.00	10.0	1	ug/L	BMR
Carbon tetrachloride	16	56-23-5	SW8260D	12/09/2022 13:28	12/09/2022 13:28	BLOD		0.50	1.00	1	ug/L	BMR
Chlorobenzene	16	108-90-7	SW8260D	12/09/2022 13:28	12/09/2022 13:28	BLOD		0.40	1.00	1	ug/L	BMR

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Laboratory Sample ID: 22L0423-16

Parameter	Samp ID	CAS	Reference Method	Sample Prep Date/Time	Analyzed Date/Time	Sample Results	Qual	LOD	LOQ	DF	Units	Analyst
Volatile Organic Compounds by GCMS												
Chloroethane	16	75-00-3	SW8260D	12/09/2022 13:28	12/09/2022 13:28	BLOD		0.70	1.00	1	ug/L	BMR
Chloroform	16	67-66-3	SW8260D	12/09/2022 13:28	12/09/2022 13:28	BLOD		0.50	0.50	1	ug/L	BMR
Chloromethane	16	74-87-3	SW8260D	12/09/2022 13:28	12/09/2022 13:28	BLOD		0.95	1.00	1	ug/L	BMR
cis-1,2-Dichloroethylene	16	156-59-2	SW8260D	12/09/2022 13:28	12/09/2022 13:28	BLOD		0.40	1.00	1	ug/L	BMR
cis-1,3-Dichloropropene	16	10061-01-5	SW8260D	12/09/2022 13:28	12/09/2022 13:28	BLOD		0.30	1.00	1	ug/L	BMR
Dibromochloromethane	16	124-48-1	SW8260D	12/09/2022 13:28	12/09/2022 13:28	BLOD		0.35	0.50	1	ug/L	BMR
Dibromomethane	16	74-95-3	SW8260D	12/09/2022 13:28	12/09/2022 13:28	BLOD		0.40	1.00	1	ug/L	BMR
Ethylbenzene	16	100-41-4	SW8260D	12/09/2022 13:28	12/09/2022 13:28	BLOD		0.40	1.00	1	ug/L	BMR
Iodomethane	16	74-88-4	SW8260D	12/09/2022 13:28	12/09/2022 13:28	BLOD		6.00	10.0	1	ug/L	BMR
m+p-Xylenes	16	179601-23-1	SW8260D	12/09/2022 13:28	12/09/2022 13:28	BLOD		0.60	2.00	1	ug/L	BMR
Methylene chloride	16	75-09-2	SW8260D	12/09/2022 13:28	12/09/2022 13:28	BLOD		4.00	4.00	1	ug/L	BMR
o-Xylene	16	95-47-6	SW8260D	12/09/2022 13:28	12/09/2022 13:28	BLOD		0.40	1.00	1	ug/L	BMR
Styrene	16	100-42-5	SW8260D	12/09/2022 13:28	12/09/2022 13:28	BLOD		0.40	1.00	1	ug/L	BMR
Tetrachloroethylene (PCE)	16	127-18-4	SW8260D	12/09/2022 13:28	12/09/2022 13:28	BLOD		0.40	1.00	1	ug/L	BMR
Toluene	16	108-88-3	SW8260D	12/09/2022 13:28	12/09/2022 13:28	BLOD		0.50	1.00	1	ug/L	BMR
trans-1,2-Dichloroethylene	16	156-60-5	SW8260D	12/09/2022 13:28	12/09/2022 13:28	BLOD		0.60	1.00	1	ug/L	BMR
trans-1,3-Dichloropropene	16	10061-02-6	SW8260D	12/09/2022 13:28	12/09/2022 13:28	BLOD		0.30	1.00	1	ug/L	BMR
trans-1,4-Dichloro-2-butene	16	110-57-6	SW8260D	12/09/2022 13:28	12/09/2022 13:28	BLOD		1.00	4.00	1	ug/L	BMR
Trichloroethylene	16	79-01-6	SW8260D	12/09/2022 13:28	12/09/2022 13:28	BLOD		0.40	1.00	1	ug/L	BMR
Trichlorofluoromethane	16	75-69-4	SW8260D	12/09/2022 13:28	12/09/2022 13:28	BLOD		0.80	1.00	1	ug/L	BMR
Vinyl acetate	16	108-05-4	SW8260D	12/09/2022 13:28	12/09/2022 13:28	BLOD		2.00	10.0	1	ug/L	BMR
Vinyl chloride	16	75-01-4	SW8260D	12/09/2022 13:28	12/09/2022 13:28	BLOD		0.50	0.50	1	ug/L	BMR
Xylenes, Total	16	1330-20-7	SW8260D	12/09/2022 13:28	12/09/2022 13:28	BLOD		1.00	3.00	1	ug/L	BMR

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Client Sample ID: Field Blank

Laboratory Sample ID: 22L0423-16

Parameter	Samp ID	CAS	Reference Method	Sample Prep Date/Time	Analyzed Date/Time	Sample Results	Qual	LOD	LOQ	DF	Units	Analyst
Volatile Organic Compounds by GCMS												
Surr: 1,2-Dichloroethane-d4 (Surr)	16	103 %	70-120	12/09/2022 13:28	12/09/2022 13:28							
Surr: 4-Bromofluorobenzene (Surr)	16	94.6 %	75-120	12/09/2022 13:28	12/09/2022 13:28							
Surr: Dibromofluoromethane (Surr)	16	101 %	70-130	12/09/2022 13:28	12/09/2022 13:28							
Surr: Toluene-d8 (Surr)	16	99.6 %	70-130	12/09/2022 13:28	12/09/2022 13:28							
Dichlorodifluoromethane	16	75-71-8	SW8260D	12/09/2022 13:28	12/09/2022 13:28	BLOD		0.95	1.00	1	ug/L	BMR
Surr: 1,2-Dichloroethane-d4 (Surr)	16	103 %	70-120	12/09/2022 13:28	12/09/2022 13:28							
Surr: 4-Bromofluorobenzene (Surr)	16	94.6 %	75-120	12/09/2022 13:28	12/09/2022 13:28							
Surr: Dibromofluoromethane (Surr)	16	101 %	70-130	12/09/2022 13:28	12/09/2022 13:28							
Surr: Toluene-d8 (Surr)	16	99.6 %	70-130	12/09/2022 13:28	12/09/2022 13:28							

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Parameter	Samp ID	CAS	Reference Method	Sample Prep Date/Time	Analyzed Date/Time	Sample Results	Qual	LOD	LOQ	DF	Units	Analyst
Semivolatile Organic Compounds by GCMS												
bis (2-Ethylhexyl) phthalate	16	117-81-7	SW8270E	12/12/2022 08:50	12/12/2022 22:39	BLOD		4.67	5.00	1	ug/L	MGG
Diethyl phthalate	16	84-66-2	SW8270E	12/12/2022 08:50	12/12/2022 22:39	BLOD		2.80	10.0	1	ug/L	MGG
Di-n-butyl phthalate	16	84-74-2	SW8270E	12/12/2022 08:50	12/12/2022 22:39	BLOD		3.74	10.0	1	ug/L	MGG
Phenol	16	108-95-2	SW8270E	12/12/2022 08:50	12/12/2022 22:39	BLOD		2.34	10.0	1	ug/L	MGG
<i>Surr: 2,4,6-Tribromophenol (Surr)</i>	16	77.8 %	10-86	12/12/2022 08:50	12/12/2022 22:39							
<i>Surr: 2-Fluorobiphenyl (Surr)</i>	16	68.6 %	9-87	12/12/2022 08:50	12/12/2022 22:39							
<i>Surr: 2-Fluorophenol (Surr)</i>	16	38.6 %	10-52	12/12/2022 08:50	12/12/2022 22:39							
<i>Surr: Nitrobenzene-d5 (Surr)</i>	16	75.7 %	10-98.5	12/12/2022 08:50	12/12/2022 22:39							
<i>Surr: Phenol-d5 (Surr)</i>	16	26.1 %	5-33	12/12/2022 08:50	12/12/2022 22:39							
<i>Surr: p-Terphenyl-d14 (Surr)</i>	16	90.8 %	27-133	12/12/2022 08:50	12/12/2022 22:39							

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Parameter	Samp ID	CAS	Reference Method	Sample Prep Date/Time	Analyzed Date/Time	Sample Results	Qual	LOD	LOQ	DF	Units	Analyst
Organochlorine Herbicides by GC/ECD												
2,4,5-TP (Silvex)	16	93-72-1	SW8151A	12/13/2022 14:00	12/16/2022 19:08	BLOD		0.107	0.500	1	ug/L	LBH2
2,4-D	16	94-75-7	SW8151A	12/13/2022 14:00	12/16/2022 19:08	BLOD		0.200	0.500	1	ug/L	LBH2
Surr: DCAA (Surr)	16	99.0 %	48.5-134	12/13/2022 14:00	12/16/2022 19:08							

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Parameter	Samp ID	CAS	Reference Method	Sample Prep Date/Time	Analyzed Date/Time	Sample Results	Qual	LOD	LOQ	DF	Units	Analyst
Micro-extractables by GC/ECD												
1,2-Dibromoethane (EDB)	16	106-93-4	SW8011	12/12/2022 13:30	12/13/2022 05:00	BLOD		0.008	0.010	1	ug/L	LBH2
1,2,3-Trichloropropane	16	96-18-4	SW8011	12/12/2022 13:30	12/13/2022 05:00	BLOD		0.009	0.010	1	ug/L	LBH2
1,2-Dibromo-3-chloropropane (DBCP)	16	96-12-8	SW8011	12/12/2022 13:30	12/13/2022 05:00	BLOD		0.005	0.010	1	ug/L	LBH2

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Parameter	Samp ID	CAS	Reference Method	Sample Prep Date/Time	Analyzed Date/Time	Sample Results	Qual	LOD	LOQ	DF	Units	Analyst
Head Space Analysis by GC												
Ethane	16	74-84-0	RSK175M	12/09/2022 15:02	12/09/2022 15:02	BLOD		1.5	5.0	1	ug/L	RJB
<i>Surr: Acetylene (Surr)</i>	16	99.5 %	70-130	12/09/2022 15:02	12/09/2022 15:02							
Ethene	16	74-85-1	RSK175M	12/09/2022 15:02	12/09/2022 15:02	BLOD		1.5	5.0	1	ug/L	RJB
<i>Surr: Acetylene (Surr)</i>	16	99.5 %	70-130	12/09/2022 15:02	12/09/2022 15:02							
Methane	16	74-82-8	RSK175M	12/09/2022 15:02	12/09/2022 15:02	BLOD		1.5	5.0	1	ug/L	RJB
<i>Surr: Acetylene (Surr)</i>	16	99.5 %	70-130	12/09/2022 15:02	12/09/2022 15:02							

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Parameter	Samp ID	CAS	Reference Method	Sample Prep Date/Time	Analyzed Date/Time	Sample Results	Qual	LOD	LOQ	DF	Units	Analyst
Wet Chemistry Analysis												
Alkalinity	16	NA	SM22 2320B-2011	12/15/2022 18:25	12/15/2022 18:25	BLOD		5.0	5.0	1	mg/L	JIW
Chloride	16	16887-00-6	EPA300.0 R2.1	12/10/2022 02:48	12/10/2022 02:48	BLOD		0.5	1.0	1	mg/L	ADG
Cyanide	16	57-12-5	SW9012B	12/15/2022 12:39	12/15/2022 12:39	BLOD		0.01	0.01	1	mg/L	MKS
Sulfide	16	18496-25-8	SW9215	12/09/2022 14:14	12/09/2022 14:14	BLOD		0.80	1.00	1	mg/L	AAL

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Client Sample ID: Trip Blank

Laboratory Sample ID: 22L0423-17

Parameter	Samp ID	CAS	Reference Method	Sample Prep Date/Time	Analyzed Date/Time	Sample Results	Qual	LOD	LOQ	DF	Units	Analyst
Volatile Organic Compounds by GCMS												
1,1,1,2-Tetrachloroethane	17	630-20-6	SW8260D	12/09/2022 13:54	12/09/2022 13:54	BLOD		0.40	0.40	1	ug/L	BMR
1,1,1-Trichloroethane	17	71-55-6	SW8260D	12/09/2022 13:54	12/09/2022 13:54	BLOD		0.60	1.00	1	ug/L	BMR
1,1,2,2-Tetrachloroethane	17	79-34-5	SW8260D	12/09/2022 13:54	12/09/2022 13:54	BLOD		0.30	0.40	1	ug/L	BMR
1,1,2-Trichloroethane	17	79-00-5	SW8260D	12/09/2022 13:54	12/09/2022 13:54	BLOD		0.50	1.00	1	ug/L	BMR
1,1-Dichloroethane	17	75-34-3	SW8260D	12/09/2022 13:54	12/09/2022 13:54	BLOD		0.60	1.00	1	ug/L	BMR
1,1-Dichloroethylene	17	75-35-4	SW8260D	12/09/2022 13:54	12/09/2022 13:54	BLOD		0.70	1.00	1	ug/L	BMR
1,2,3-Trichloropropane	17	96-18-4	SW8260D	12/09/2022 13:54	12/09/2022 13:54	BLOD		0.40	1.00	1	ug/L	BMR
1,2-Dichlorobenzene	17	95-50-1	SW8260D	12/09/2022 13:54	12/09/2022 13:54	BLOD		0.40	1.00	1	ug/L	BMR
1,2-Dichloroethane	17	107-06-2	SW8260D	12/09/2022 13:54	12/09/2022 13:54	BLOD		0.70	1.00	1	ug/L	BMR
1,2-Dichloropropane	17	78-87-5	SW8260D	12/09/2022 13:54	12/09/2022 13:54	BLOD		0.40	1.00	1	ug/L	BMR
1,4-Dichlorobenzene	17	106-46-7	SW8260D	12/09/2022 13:54	12/09/2022 13:54	BLOD		0.40	1.00	1	ug/L	BMR
2-Butanone (MEK)	17	78-93-3	SW8260D	12/09/2022 13:54	12/09/2022 13:54	BLOD		3.00	10.0	1	ug/L	BMR
2-Hexanone (MBK)	17	591-78-6	SW8260D	12/09/2022 13:54	12/09/2022 13:54	BLOD		2.20	5.00	1	ug/L	BMR
4-Methyl-2-pentanone (MIBK)	17	108-10-1	SW8260D	12/09/2022 13:54	12/09/2022 13:54	BLOD		1.50	5.00	1	ug/L	BMR
Acetone	17	67-64-1	SW8260D	12/09/2022 13:54	12/09/2022 13:54	BLOD		7.00	10.0	1	ug/L	BMR
Acrylonitrile	17	107-13-1	SW8260D	12/09/2022 13:54	12/09/2022 13:54	BLOD		1.70	5.00	1	ug/L	BMR
Benzene	17	71-43-2	SW8260D	12/09/2022 13:54	12/09/2022 13:54	BLOD		0.40	1.00	1	ug/L	BMR
Bromochloromethane	17	74-97-5	SW8260D	12/09/2022 13:54	12/09/2022 13:54	BLOD		0.50	1.00	1	ug/L	BMR
Bromodichloromethane	17	75-27-4	SW8260D	12/09/2022 13:54	12/09/2022 13:54	BLOD		0.40	0.50	1	ug/L	BMR
Bromoform	17	75-25-2	SW8260D	12/09/2022 13:54	12/09/2022 13:54	BLOD		0.40	1.00	1	ug/L	BMR
Bromomethane	17	74-83-9	SW8260D	12/09/2022 13:54	12/09/2022 13:54	BLOD		0.80	1.00	1	ug/L	BMR
Carbon disulfide	17	75-15-0	SW8260D	12/09/2022 13:54	12/09/2022 13:54	BLOD		5.00	10.0	1	ug/L	BMR
Carbon tetrachloride	17	56-23-5	SW8260D	12/09/2022 13:54	12/09/2022 13:54	BLOD		0.50	1.00	1	ug/L	BMR
Chlorobenzene	17	108-90-7	SW8260D	12/09/2022 13:54	12/09/2022 13:54	BLOD		0.40	1.00	1	ug/L	BMR

Certificate of Analysis

 Client Name: SCS Engineers-Winchester
 Client Site I.D.: City of Bristol 2nd Semi-Annual
 Submitted To: Jennifer Robb

Date Issued: 12/30/2022 11:56:27AM

Client Sample ID: Trip Blank

Laboratory Sample ID: 22L0423-17

Parameter	Samp ID	CAS	Reference Method	Sample Prep Date/Time	Analyzed Date/Time	Sample Results	Qual	LOD	LOQ	DF	Units	Analyst
Volatile Organic Compounds by GCMS												
Chloroethane	17	75-00-3	SW8260D	12/09/2022 13:54	12/09/2022 13:54	BLOD		0.70	1.00	1	ug/L	BMR
Chloroform	17	67-66-3	SW8260D	12/09/2022 13:54	12/09/2022 13:54	BLOD		0.50	0.50	1	ug/L	BMR
Chloromethane	17	74-87-3	SW8260D	12/09/2022 13:54	12/09/2022 13:54	BLOD		0.95	1.00	1	ug/L	BMR
cis-1,2-Dichloroethylene	17	156-59-2	SW8260D	12/09/2022 13:54	12/09/2022 13:54	BLOD		0.40	1.00	1	ug/L	BMR
cis-1,3-Dichloropropene	17	10061-01-5	SW8260D	12/09/2022 13:54	12/09/2022 13:54	BLOD		0.30	1.00	1	ug/L	BMR
Dibromochloromethane	17	124-48-1	SW8260D	12/09/2022 13:54	12/09/2022 13:54	BLOD		0.35	0.50	1	ug/L	BMR
Dibromomethane	17	74-95-3	SW8260D	12/09/2022 13:54	12/09/2022 13:54	BLOD		0.40	1.00	1	ug/L	BMR
Ethylbenzene	17	100-41-4	SW8260D	12/09/2022 13:54	12/09/2022 13:54	BLOD		0.40	1.00	1	ug/L	BMR
Iodomethane	17	74-88-4	SW8260D	12/09/2022 13:54	12/09/2022 13:54	BLOD		6.00	10.0	1	ug/L	BMR
m+p-Xylenes	17	179601-23-1	SW8260D	12/09/2022 13:54	12/09/2022 13:54	BLOD		0.60	2.00	1	ug/L	BMR
Methylene chloride	17	75-09-2	SW8260D	12/09/2022 13:54	12/09/2022 13:54	BLOD		4.00	4.00	1	ug/L	BMR
o-Xylene	17	95-47-6	SW8260D	12/09/2022 13:54	12/09/2022 13:54	BLOD		0.40	1.00	1	ug/L	BMR
Styrene	17	100-42-5	SW8260D	12/09/2022 13:54	12/09/2022 13:54	BLOD		0.40	1.00	1	ug/L	BMR
Tetrachloroethylene (PCE)	17	127-18-4	SW8260D	12/09/2022 13:54	12/09/2022 13:54	BLOD		0.40	1.00	1	ug/L	BMR
Toluene	17	108-88-3	SW8260D	12/09/2022 13:54	12/09/2022 13:54	BLOD		0.50	1.00	1	ug/L	BMR
trans-1,2-Dichloroethylene	17	156-60-5	SW8260D	12/09/2022 13:54	12/09/2022 13:54	BLOD		0.60	1.00	1	ug/L	BMR
trans-1,3-Dichloropropene	17	10061-02-6	SW8260D	12/09/2022 13:54	12/09/2022 13:54	BLOD		0.30	1.00	1	ug/L	BMR
trans-1,4-Dichloro-2-butene	17	110-57-6	SW8260D	12/09/2022 13:54	12/09/2022 13:54	BLOD		1.00	4.00	1	ug/L	BMR
Trichloroethylene	17	79-01-6	SW8260D	12/09/2022 13:54	12/09/2022 13:54	BLOD		0.40	1.00	1	ug/L	BMR
Trichlorofluoromethane	17	75-69-4	SW8260D	12/09/2022 13:54	12/09/2022 13:54	BLOD		0.80	1.00	1	ug/L	BMR
Vinyl acetate	17	108-05-4	SW8260D	12/09/2022 13:54	12/09/2022 13:54	BLOD		2.00	10.0	1	ug/L	BMR
Vinyl chloride	17	75-01-4	SW8260D	12/09/2022 13:54	12/09/2022 13:54	BLOD		0.50	0.50	1	ug/L	BMR
Xylenes, Total	17	1330-20-7	SW8260D	12/09/2022 13:54	12/09/2022 13:54	BLOD		1.00	3.00	1	ug/L	BMR

Certificate of Analysis

Client Name: SCS Engineers-Winchester
 Client Site I.D.: City of Bristol 2nd Semi-Annual
 Submitted To: Jennifer Robb

Date Issued: 12/30/2022 11:56:27AM

Client Sample ID: Trip Blank

Laboratory Sample ID: 22L0423-17

Parameter	Samp ID	CAS	Reference Method	Sample Prep Date/Time	Analyzed Date/Time	Sample Results	Qual	LOD	LOQ	DF	Units	Analyst
Volatile Organic Compounds by GCMS												
Surr: 1,2-Dichloroethane-d4 (Surr)	17	111 %	70-120	12/09/2022 13:54	12/09/2022 13:54							
Surr: 4-Bromofluorobenzene (Surr)	17	98.7 %	75-120	12/09/2022 13:54	12/09/2022 13:54							
Surr: Dibromofluoromethane (Surr)	17	100 %	70-130	12/09/2022 13:54	12/09/2022 13:54							
Surr: Toluene-d8 (Surr)	17	101 %	70-130	12/09/2022 13:54	12/09/2022 13:54							
Dichlorodifluoromethane	17	75-71-8	SW8260D	12/09/2022 13:54	12/09/2022 13:54	BLOD		0.95	1.00	1	ug/L	BMR
Surr: 1,2-Dichloroethane-d4 (Surr)	17	111 %	70-120	12/09/2022 13:54	12/09/2022 13:54							
Surr: 4-Bromofluorobenzene (Surr)	17	98.7 %	75-120	12/09/2022 13:54	12/09/2022 13:54							
Surr: Dibromofluoromethane (Surr)	17	100 %	70-130	12/09/2022 13:54	12/09/2022 13:54							
Surr: Toluene-d8 (Surr)	17	101 %	70-130	12/09/2022 13:54	12/09/2022 13:54							

Certificate of Analysis

Client Name: SCS Engineers-Winchester

Date Issued: 12/30/2022 11:56:27AM

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Client Sample ID: Trip Blank

Laboratory Sample ID: 22L0423-17

Parameter	Samp ID	CAS	Reference Method	Sample Prep Date/Time	Analyzed Date/Time	Sample Results	Qual	LOD	LOQ	DF	Units	Analyst
Micro-extractables by GC/ECD												
1,2-Dibromoethane (EDB)	17	106-93-4	SW8011	12/12/2022 13:30	12/13/2022 05:22	BLOD		0.008	0.010	1	ug/L	LBH2
1,2,3-Trichloropropane	17	96-18-4	SW8011	12/12/2022 13:30	12/13/2022 05:22	BLOD		0.009	0.010	1	ug/L	LBH2
1,2-Dibromo-3-chloropropane (DBCP)	17	96-12-8	SW8011	12/12/2022 13:30	12/13/2022 05:22	BLOD		0.005	0.010	1	ug/L	LBH2

Certificate of Analysis

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Date Issued: 12/30/2022 11:56:27AM

Client Sample ID: Trip Blank

Laboratory Sample ID: 22L0423-17

Parameter	Samp ID	CAS	Reference Method	Sample Prep Date/Time	Analyzed Date/Time	Sample Results	Qual	LOD	LOQ	DF	Units	Analyst
Head Space Analysis by GC												
Ethane	17	74-84-0	RSK175M	12/09/2022 14:49	12/09/2022 14:49	BLOD		1.5	5.0	1	ug/L	RJB
<i>Surr: Acetylene (Surr)</i>	17	87.6 %	70-130	12/09/2022 14:49	12/09/2022 14:49							
Ethene	17	74-85-1	RSK175M	12/09/2022 14:49	12/09/2022 14:49	BLOD		1.5	5.0	1	ug/L	RJB
<i>Surr: Acetylene (Surr)</i>	17	87.6 %	70-130	12/09/2022 14:49	12/09/2022 14:49							
Methane	17	74-82-8	RSK175M	12/09/2022 14:49	12/09/2022 14:49	BLOD		1.5	5.0	1	ug/L	RJB
<i>Surr: Acetylene (Surr)</i>	17	87.6 %	70-130	12/09/2022 14:49	12/09/2022 14:49							

Certificate of Analysis

 Client Name: SCS Engineers-Winchester
 Client Site I.D.: City of Bristol 2nd Semi-Annual
 Submitted To: Jennifer Robb

Date Issued: 12/30/2022 11:56:27AM

Metals (Total) by EPA 6000/7000 Series Methods - Quality Control

Enthalpy Analytical

Analyte	Result	LOQ	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Qual
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Batch BFL0428 - EPA200.8 R5.4

Blank (BFL0428-BLK1)

Prepared: 12/12/2022 Analyzed: 12/18/2022

Antimony	ND	1.0	ug/L
Arsenic	ND	1.0	ug/L
Barium	ND	5.00	ug/L
Beryllium	ND	1.00	ug/L
Cadmium	ND	1.00	ug/L
Chromium	ND	1.00	ug/L
Cobalt	ND	1.00	ug/L
Copper	ND	1.00	ug/L
Lead	ND	1.0	ug/L
Nickel	ND	1.000	ug/L
Selenium	ND	1.00	ug/L
Silver	ND	1.00	ug/L
Thallium	ND	1.0	ug/L
Vanadium	ND	5.00	ug/L
Zinc	ND	5.00	ug/L

LCS (BFL0428-BS1)

Prepared: 12/12/2022 Analyzed: 12/18/2022

Antimony	52	1.0	ug/L	50.0	104	80-120
Arsenic	49	1.0	ug/L	50.0	98.3	80-120
Barium	50.5	5.00	ug/L	50.0	101	80-120
Beryllium	55.8	1.00	ug/L	50.0	112	80-120
Cadmium	50.3	1.00	ug/L	50.0	101	80-120
Chromium	51.2	1.00	ug/L	50.0	102	80-120
Cobalt	48.9	1.00	ug/L	50.0	97.8	80-120
Copper	50.1	1.00	ug/L	50.0	100	80-120

Certificate of Analysis

Client Name: SCS Engineers-Winchester
 Client Site I.D.: City of Bristol 2nd Semi-Annual
 Submitted To: Jennifer Robb

Date Issued: 12/30/2022 11:56:27AM

Metals (Total) by EPA 6000/7000 Series Methods - Quality Control

Enthalpy Analytical

Analyte	Result	LOQ	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Qual
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Batch BFL0428 - EPA200.8 R5.4

LCS (BFL0428-BS1)

Prepared: 12/12/2022 Analyzed: 12/18/2022

Lead	50	1.0	ug/L	50.0		101	80-120			
Nickel	49.02	1.000	ug/L	50.0		98.0	80-120			
Selenium	51.7	1.00	ug/L	50.0		103	80-120			
Silver	9.38	1.00	ug/L	10.0		93.8	80-120			E
Thallium	52	1.0	ug/L	50.0		104	80-120			
Vanadium	49.9	5.00	ug/L	50.0		99.7	80-120			
Zinc	52.2	5.00	ug/L	50.0		104	80-120			

Matrix Spike (BFL0428-MS1)

Source: 22L0423-13

Prepared: 12/12/2022 Analyzed: 12/18/2022

Antimony	52	1.0	ug/L	50.0	BLOD	103	75-125			
Arsenic	60	1.0	ug/L	50.0	12	95.6	75-125			
Barium	827	5.00	ug/L	50.0	787	80.8	75-125			M, E
Beryllium	46.2	1.00	ug/L	50.0	BLOD	92.4	75-125			
Cadmium	47.8	1.00	ug/L	50.0	0.563	94.4	75-125			
Chromium	49.4	1.00	ug/L	50.0	1.81	95.1	75-125			
Cobalt	74.2	1.00	ug/L	50.0	27.8	92.8	75-125			M
Copper	45.3	1.00	ug/L	50.0	0.904	88.8	75-125			
Lead	50	1.0	ug/L	50.0	1.5	96.6	75-125			
Nickel	67.04	1.000	ug/L	50.0	22.52	89.0	75-125			M
Selenium	45.2	1.00	ug/L	50.0	BLOD	90.4	75-125			
Silver	9.09	1.00	ug/L	10.0	BLOD	90.9	75-125			E
Thallium	51	1.0	ug/L	50.0	BLOD	102	75-125			
Vanadium	49.9	5.00	ug/L	50.0	BLOD	99.7	75-125			
Zinc	139	5.00	ug/L	50.0	96.1	85.5	75-125			M

Matrix Spike (BFL0428-MS2)

Source: 22L0423-16

Prepared: 12/12/2022 Analyzed: 12/18/2022

Certificate of Analysis

 Client Name: SCS Engineers-Winchester
 Client Site I.D.: City of Bristol 2nd Semi-Annual
 Submitted To: Jennifer Robb

Date Issued: 12/30/2022 11:56:27AM

Metals (Total) by EPA 6000/7000 Series Methods - Quality Control

Enthalpy Analytical

Analyte	Result	LOQ	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Qual
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Batch BFL0428 - EPA200.8 R5.4

Matrix Spike (BFL0428-MS2)

Source: 22L0423-16

Prepared: 12/12/2022 Analyzed: 12/18/2022

Antimony	52	1.0	ug/L	50.0	BLOD	104	75-125			
Arsenic	49	1.0	ug/L	50.0	BLOD	97.9	75-125			
Barium	51.9	5.00	ug/L	50.0	BLOD	104	75-125			
Beryllium	50.6	1.00	ug/L	50.0	BLOD	101	75-125			
Cadmium	49.5	1.00	ug/L	50.0	BLOD	99.0	75-125			
Chromium	48.6	1.00	ug/L	50.0	BLOD	97.3	75-125			
Cobalt	48.6	1.00	ug/L	50.0	BLOD	97.3	75-125			
Copper	48.7	1.00	ug/L	50.0	BLOD	97.4	75-125			
Lead	50	1.0	ug/L	50.0	BLOD	100	75-125			
Nickel	48.02	1.000	ug/L	50.0	BLOD	96.0	75-125			
Selenium	50.1	1.00	ug/L	50.0	BLOD	100	75-125			
Silver	9.52	1.00	ug/L	10.0	BLOD	95.2	75-125			E
Thallium	50	1.0	ug/L	50.0	BLOD	101	75-125			
Vanadium	48.4	5.00	ug/L	50.0	BLOD	96.7	75-125			
Zinc	51.1	5.00	ug/L	50.0	BLOD	102	75-125			

Matrix Spike Dup (BFL0428-MSD1)

Source: 22L0423-13

Prepared: 12/12/2022 Analyzed: 12/18/2022

Antimony	51	1.0	ug/L	50.0	BLOD	103	75-125	0.620	20	
Arsenic	59	1.0	ug/L	50.0	12	94.5	75-125	0.948	20	
Barium	831	5.00	ug/L	50.0	787	89.1	75-125	0.501	20	E
Beryllium	46.3	1.00	ug/L	50.0	BLOD	92.5	75-125	0.134	20	
Cadmium	48.0	1.00	ug/L	50.0	0.563	94.9	75-125	0.565	20	
Chromium	49.7	1.00	ug/L	50.0	1.81	95.9	75-125	0.758	20	
Cobalt	72.8	1.00	ug/L	50.0	27.8	90.0	75-125	1.92	20	
Copper	45.9	1.00	ug/L	50.0	0.904	89.9	75-125	1.27	20	

Certificate of Analysis

 Client Name: SCS Engineers-Winchester
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 Submitted To: Jennifer Robb

Date Issued: 12/30/2022 11:56:27AM

Metals (Total) by EPA 6000/7000 Series Methods - Quality Control

Enthalpy Analytical

Analyte	Result	LOQ	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Qual
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Batch BFL0428 - EPA200.8 R5.4

Matrix Spike Dup (BFL0428-MSD1)		Source: 22L0423-13			Prepared: 12/12/2022 Analyzed: 12/18/2022					
Lead	52	1.0	ug/L	50.0	1.5	100	75-125	3.47	20	
Nickel	66.64	1.000	ug/L	50.0	22.52	88.2	75-125	0.601	20	
Selenium	45.7	1.00	ug/L	50.0	BLOD	91.3	75-125	1.02	20	
Silver	9.24	1.00	ug/L	10.0	BLOD	92.4	75-125	1.55	20	E
Thallium	51	1.0	ug/L	50.0	BLOD	103	75-125	0.153	20	
Vanadium	49.8	5.00	ug/L	50.0	BLOD	99.5	75-125	0.220	20	
Zinc	137	5.00	ug/L	50.0	96.1	82.8	75-125	0.977	20	

Matrix Spike Dup (BFL0428-MSD2)		Source: 22L0423-16			Prepared: 12/12/2022 Analyzed: 12/18/2022					
Antimony	52	1.0	ug/L	50.0	BLOD	105	75-125	0.342	20	
Arsenic	49	1.0	ug/L	50.0	BLOD	98.7	75-125	0.881	20	
Barium	50.8	5.00	ug/L	50.0	BLOD	102	75-125	2.15	20	
Beryllium	54.7	1.00	ug/L	50.0	BLOD	109	75-125	7.93	20	
Cadmium	50.2	1.00	ug/L	50.0	BLOD	100	75-125	1.47	20	
Chromium	50.8	1.00	ug/L	50.0	BLOD	102	75-125	4.43	20	
Cobalt	48.3	1.00	ug/L	50.0	BLOD	96.6	75-125	0.720	20	
Copper	48.7	1.00	ug/L	50.0	BLOD	97.5	75-125	0.0287	20	
Lead	51	1.0	ug/L	50.0	BLOD	102	75-125	1.80	20	
Nickel	48.16	1.000	ug/L	50.0	BLOD	96.3	75-125	0.290	20	
Selenium	51.5	1.00	ug/L	50.0	BLOD	103	75-125	2.72	20	
Silver	9.40	1.00	ug/L	10.0	BLOD	94.0	75-125	1.37	20	E
Thallium	51	1.0	ug/L	50.0	BLOD	103	75-125	2.07	20	
Vanadium	49.4	5.00	ug/L	50.0	BLOD	98.7	75-125	2.07	20	
Zinc	51.5	5.00	ug/L	50.0	BLOD	103	75-125	0.916	20	

Batch BFL0592 - SW7470A

Certificate of Analysis

Client Name: SCS Engineers-Winchester
 Client Site I.D.: City of Bristol 2nd Semi-Annual
 Submitted To: Jennifer Robb

Date Issued: 12/30/2022 11:56:27AM

Metals (Total) by EPA 6000/7000 Series Methods - Quality Control

Enthalpy Analytical

Analyte	Result	LOQ	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Qual
Batch BFL0592 - SW7470A										
Blank (BFL0592-BLK1)				Prepared & Analyzed: 12/15/2022						
Mercury	ND	0.00020	mg/L							
LCS (BFL0592-BS1)				Prepared & Analyzed: 12/15/2022						
Mercury	0.00255	0.00020	mg/L	0.00250		102	80-120			
Matrix Spike (BFL0592-MS1)				Source: 22L0423-13 Prepared & Analyzed: 12/15/2022						
Mercury	0.00376	0.00020	mg/L	0.00250	0.00125	100	80-120			
Matrix Spike Dup (BFL0592-MSD1)				Source: 22L0423-13 Prepared & Analyzed: 12/15/2022						
Mercury	0.00387	0.00020	mg/L	0.00250	0.00125	105	80-120	2.88	20	
Batch BFL0762 - EPA200.8 R5.4										
Blank (BFL0762-BLK1)				Prepared & Analyzed: 12/20/2022						
Tin	ND	1.00	ug/L							
LCS (BFL0762-BS1)				Prepared & Analyzed: 12/20/2022						
Tin	56.3	1.00	ug/L	50.0		113	80-120			
Matrix Spike (BFL0762-MS1)				Source: 22L0205-10RE2 Prepared & Analyzed: 12/20/2022						
Tin	56.1	1.00	ug/L	50.0	BLOD	112	75-125			
Matrix Spike Dup (BFL0762-MSD1)				Source: 22L0205-10RE2 Prepared & Analyzed: 12/20/2022						
Tin	56.4	1.00	ug/L	50.0	BLOD	113	75-125	0.473	20	

Certificate of Analysis

Client Name: SCS Engineers-Winchester
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Volatile Organic Compounds by GCMS - Quality Control

Enthalpy Analytical

Analyte	Result	LOQ	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Qual
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Batch BFL0391 - SW5030B-MS

Blank (BFL0391-BLK1)

Prepared & Analyzed: 12/09/2022

1,1,1,2-Tetrachloroethane	ND	0.40	ug/L
1,1,1-Trichloroethane	ND	1.00	ug/L
1,1,2,2-Tetrachloroethane	ND	0.40	ug/L
1,1,2-Trichloroethane	ND	1.00	ug/L
1,1-Dichloroethane	ND	1.00	ug/L
1,1-Dichloroethylene	ND	1.00	ug/L
1,2,3-Trichloropropane	ND	1.00	ug/L
1,2-Dichlorobenzene	ND	1.00	ug/L
1,2-Dichloroethane	ND	1.00	ug/L
1,2-Dichloropropane	ND	1.00	ug/L
1,4-Dichlorobenzene	ND	1.00	ug/L
2-Butanone (MEK)	ND	10.0	ug/L
2-Hexanone (MBK)	ND	5.00	ug/L
4-Methyl-2-pentanone (MIBK)	ND	5.00	ug/L
Acetone	ND	10.0	ug/L
Acrylonitrile	ND	5.00	ug/L
Benzene	ND	1.00	ug/L
Bromochloromethane	ND	1.00	ug/L
Bromodichloromethane	ND	0.50	ug/L
Bromoform	ND	1.00	ug/L
Bromomethane	ND	1.00	ug/L
Carbon disulfide	ND	10.0	ug/L
Carbon tetrachloride	ND	1.00	ug/L
Chlorobenzene	ND	1.00	ug/L
Chloroethane	ND	1.00	ug/L

Certificate of Analysis

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Volatile Organic Compounds by GCMS - Quality Control

Enthalpy Analytical

Analyte	Result	LOQ	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Qual
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Batch BFL0391 - SW5030B-MS

Blank (BFL0391-BLK1)

Prepared & Analyzed: 12/09/2022

Chloroform	ND	0.50	ug/L							
Chloromethane	ND	1.00	ug/L							
cis-1,2-Dichloroethylene	ND	1.00	ug/L							
cis-1,3-Dichloropropene	ND	1.00	ug/L							
Dibromochloromethane	ND	0.50	ug/L							
Dibromomethane	ND	1.00	ug/L							
Dichlorodifluoromethane	ND	1.00	ug/L							
Ethylbenzene	ND	1.00	ug/L							
Iodomethane	ND	10.0	ug/L							
m+p-Xylenes	ND	2.00	ug/L							
Methylene chloride	ND	4.00	ug/L							
o-Xylene	ND	1.00	ug/L							
Styrene	ND	1.00	ug/L							
Tetrachloroethylene (PCE)	ND	1.00	ug/L							
Toluene	ND	1.00	ug/L							
trans-1,2-Dichloroethylene	ND	1.00	ug/L							
trans-1,3-Dichloropropene	ND	1.00	ug/L							
trans-1,4-Dichloro-2-butene	ND	4.00	ug/L							
Trichloroethylene	ND	1.00	ug/L							
Trichlorofluoromethane	ND	1.00	ug/L							
Vinyl acetate	ND	10.0	ug/L							
Vinyl chloride	ND	0.50	ug/L							
Xylenes, Total	ND	3.00	ug/L							
<hr/>										
<i>Surr: 1,2-Dichloroethane-d4 (Surr)</i>	<i>51.3</i>		ug/L	<i>50.0</i>		<i>103</i>	<i>70-120</i>			
<i>Surr: 4-Bromofluorobenzene (Surr)</i>	<i>47.9</i>		ug/L	<i>50.0</i>		<i>95.8</i>	<i>75-120</i>			

Certificate of Analysis

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Volatile Organic Compounds by GCMS - Quality Control

Enthalpy Analytical

Analyte	Result	LOQ	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Qual
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Batch BFL0391 - SW5030B-MS

Blank (BFL0391-BLK1)

Prepared & Analyzed: 12/09/2022

<i>Surr: Dibromofluoromethane (Surr)</i>	50.0		ug/L	50.0		100	70-130
<i>Surr: Toluene-d8 (Surr)</i>	49.9		ug/L	50.0		99.8	70-130

LCS (BFL0391-BS1)

Prepared & Analyzed: 12/09/2022

1,1,1,2-Tetrachloroethane	50.0	0.4	ug/L	50.0		99.9	80-130
1,1,1,2-Tetrachloroethane	50.0	0.4	ug/L	50.0		99.9	80-130
1,1,1-Trichloroethane	44.5	1	ug/L	50.0		89.0	65-130
1,1,1-Trichloroethane	44.5	1	ug/L	50.0		89.0	65-130
1,1,2,2-Tetrachloroethane	44.9	0.4	ug/L	50.0		89.7	65-130
1,1,2,2-Tetrachloroethane	44.9	0.4	ug/L	50.0		89.7	65-130
1,1,2-Trichloroethane	46.9	1	ug/L	50.0		93.7	75-125
1,1,2-Trichloroethane	46.9	1	ug/L	50.0		93.7	75-125
1,1-Dichloroethane	41.8	1	ug/L	50.0		83.5	70-135
1,1-Dichloroethane	41.8	1	ug/L	50.0		83.5	70-135
1,1-Dichloroethylene	37.1	1	ug/L	50.0		74.3	70-130
1,1-Dichloroethylene	37.1	1	ug/L	50.0		74.3	70-130
1,1-Dichloropropene	44.1	1	ug/L	50.0		88.2	75-135
1,2,3-Trichloropropane	45.2	1	ug/L	50.0		90.5	75-125
1,2,3-Trichloropropane	45.2	1	ug/L	50.0		90.5	75-125
1,2,4-Trichlorobenzene	51.8	1	ug/L	50.0		104	65-135
1,2-Dichlorobenzene	52.4	0.5	ug/L	50.0		105	70-120
1,2-Dichlorobenzene	52.4	0.5	ug/L	50.0		105	70-120
1,2-Dichloroethane	38.9	1	ug/L	50.0		77.8	70-130
1,2-Dichloroethane	38.9	1	ug/L	50.0		77.8	70-130
1,2-Dichloropropane	46.0	0.5	ug/L	50.0		92.1	75-125

Certificate of Analysis

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Volatile Organic Compounds by GCMS - Quality Control

Enthalpy Analytical

Analyte	Result	LOQ	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Qual
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Batch BFL0391 - SW5030B-MS

LCS (BFL0391-BS1)

Prepared & Analyzed: 12/09/2022

1,2-Dichloropropane	46.0	0.5	ug/L	50.0		92.1	75-125			
1,3-Dichlorobenzene	51.5	1	ug/L	50.0		103	75-125			
1,3-Dichloropropane	45.1	1	ug/L	50.0		90.1	75-125			
1,4-Dichlorobenzene	51.6	1	ug/L	50.0		103	75-125			
1,4-Dichlorobenzene	51.6	1	ug/L	50.0		103	75-125			
2,2-Dichloropropane	44.6	1	ug/L	50.0		89.1	70-135			
2-Butanone (MEK)	43.9	10	ug/L	50.0		87.9	30-150			
2-Butanone (MEK)	43.9	10	ug/L	50.0		87.9	30-150			
2-Hexanone (MBK)	49.6	5	ug/L	50.0		99.2	55-130			
2-Hexanone (MBK)	49.6	5	ug/L	50.0		99.2	55-130			
4-Methyl-2-pentanone (MIBK)	49.2	5	ug/L	50.0		98.3	60-135			
4-Methyl-2-pentanone (MIBK)	49.2	5	ug/L	50.0		98.3	60-135			
Acetone	39.6	10	ug/L	50.0		79.2	40-140			
Acetone	39.6	10	ug/L	50.0		79.2	40-140			
Acrylonitrile	234	5	ug/L	250		93.6	70-130			
Acrylonitrile	234	5	ug/L	250		93.6	70-130			
Benzene	45.6	1	ug/L	50.0		91.2	80-120			
Benzene	45.6	1	ug/L	50.0		91.2	80-120			
Bromochloromethane	49.6	1	ug/L	50.0		99.3	65-130			
Bromochloromethane	49.6	1	ug/L	50.0		99.3	65-130			
Bromodichloromethane	49.6	0.5	ug/L	50.0		99.1	75-120			
Bromodichloromethane	49.6	0.5	ug/L	50.0		99.1	75-120			
Bromoform	49.4	1	ug/L	50.0		98.8	70-130			
Bromoform	49.4	1	ug/L	50.0		98.8	70-130			
Bromomethane	40.9	1	ug/L	50.0		81.8	30-145			

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Volatile Organic Compounds by GCMS - Quality Control

Enthalpy Analytical

Analyte	Result	LOQ	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Qual
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Batch BFL0391 - SW5030B-MS

LCS (BFL0391-BS1)

Prepared & Analyzed: 12/09/2022

Bromomethane	40.9	1	ug/L	50.0		81.8	30-145			
Carbon disulfide	41.1	10	ug/L	50.0		82.1	35-160			
Carbon disulfide	41.1	10	ug/L	50.0		82.1	35-160			
Carbon tetrachloride	45.7	1	ug/L	50.0		91.4	65-140			
Carbon tetrachloride	45.7	1	ug/L	50.0		91.4	65-140			
Chlorobenzene	48.5	1	ug/L	50.0		97.0	80-120			
Chlorobenzene	48.5	1	ug/L	50.0		97.0	80-120			
Chloroethane	39.7	1	ug/L	50.0		79.4	60-135			
Chloroethane	39.7	1	ug/L	50.0		79.4	60-135			
Chloroform	39.0	0.5	ug/L	50.0		78.1	65-135			
Chloroform	39.0	0.5	ug/L	50.0		78.1	65-135			
Chloromethane	45.0	1	ug/L	50.0		89.9	40-125			
Chloromethane	45.0	1	ug/L	50.0		89.9	40-125			
cis-1,2-Dichloroethylene	39.0	1	ug/L	50.0		78.0	70-125			
cis-1,2-Dichloroethylene	39.0	1	ug/L	50.0		78.0	70-125			
cis-1,3-Dichloropropene	41.4	1	ug/L	50.0		82.7	70-130			
cis-1,3-Dichloropropene	41.4	1	ug/L	50.0		82.7	70-130			
Dibromochloromethane	47.0	0.5	ug/L	50.0		94.0	60-135			
Dibromochloromethane	47.0	0.5	ug/L	50.0		94.0	60-135			
Dibromomethane	42.9	1	ug/L	50.0		85.9	75-125			
Dibromomethane	42.9	1	ug/L	50.0		85.9	75-125			
Dichlorodifluoromethane	32.1	1	ug/L	50.0		64.1	30-155			
Ethylbenzene	51.8	1	ug/L	50.0		104	75-125			
Ethylbenzene	51.8	1	ug/L	50.0		104	75-125			
m+p-Xylenes	98.5	2	ug/L	100		98.5	75-130			

Certificate of Analysis

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Volatile Organic Compounds by GCMS - Quality Control

Enthalpy Analytical

Analyte	Result	LOQ	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Qual
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Batch BFL0391 - SW5030B-MS

LCS (BFL0391-BS1)

Prepared & Analyzed: 12/09/2022

m+p-Xylenes	98.5	2	ug/L	100		98.5	75-130			
Methylene chloride	42.0	4	ug/L	50.0		84.0	55-140			
Methylene chloride	42.0	4	ug/L	50.0		84.0	55-140			
o-Xylene	49.9	1	ug/L	50.0		99.7	80-120			
o-Xylene	49.9	1	ug/L	50.0		99.7	80-120			
Styrene	50.6	1	ug/L	50.0		101	65-135			
Styrene	50.6	1	ug/L	50.0		101	65-135			
Tetrachloroethylene (PCE)	79.7	1	ug/L	50.0		159	45-150			L
Tetrachloroethylene (PCE)	79.7	1	ug/L	50.0		159	45-150			L
Toluene	46.8	1	ug/L	50.0		93.6	75-120			
Toluene	46.8	1	ug/L	50.0		93.6	75-120			
trans-1,2-Dichloroethylene	39.5	1	ug/L	50.0		78.9	60-140			
trans-1,2-Dichloroethylene	39.5	1	ug/L	50.0		78.9	60-140			
trans-1,3-Dichloropropene	43.9	1	ug/L	50.0		87.9	55-140			
trans-1,3-Dichloropropene	43.9	1	ug/L	50.0		87.9	55-140			
Trichloroethylene	43.5	1	ug/L	50.0		87.0	70-125			
Trichloroethylene	43.5	1	ug/L	50.0		87.0	70-125			
Trichlorofluoromethane	45.7	1	ug/L	50.0		91.4	60-145			
Trichlorofluoromethane	45.7	1	ug/L	50.0		91.4	60-145			
Vinyl chloride	41.5	0.5	ug/L	50.0		83.0	50-145			
Vinyl chloride	41.5	0.5	ug/L	50.0		83.0	50-145			
<i>Surr: 1,2-Dichloroethane-d4 (Surr)</i>	<i>50.4</i>		<i>ug/L</i>	<i>50.0</i>		<i>101</i>	<i>70-120</i>			
<i>Surr: 4-Bromofluorobenzene (Surr)</i>	<i>49.2</i>		<i>ug/L</i>	<i>50.0</i>		<i>98.4</i>	<i>75-120</i>			
<i>Surr: Dibromofluoromethane (Surr)</i>	<i>46.9</i>		<i>ug/L</i>	<i>50.0</i>		<i>93.9</i>	<i>70-130</i>			
<i>Surr: Toluene-d8 (Surr)</i>	<i>51.4</i>		<i>ug/L</i>	<i>50.0</i>		<i>103</i>	<i>70-130</i>			

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Enthalpy Analytical

Analyte	Result	LOQ	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Qual
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Batch BFL0391 - SW5030B-MS

LCS (BFL0391-BS1)

Prepared & Analyzed: 12/09/2022

Matrix Spike (BFL0391-MS1)

Source: 22L0423-13

Prepared & Analyzed: 12/09/2022

1,1,1,2-Tetrachloroethane	50.3	0.4	ug/L	50.0	BLOD	101	80-130			
1,1,1,2-Tetrachloroethane	50.3	0.4	ug/L	50.0	BLOD	101	80-130			
1,1,1-Trichloroethane	50.6	1	ug/L	50.0	BLOD	101	65-130			
1,1,1-Trichloroethane	50.6	1	ug/L	50.0	BLOD	101	65-130			
1,1,2,2-Tetrachloroethane	46.0	0.4	ug/L	50.0	BLOD	92.1	65-130			
1,1,2,2-Tetrachloroethane	46.0	0.4	ug/L	50.0	BLOD	92.1	65-130			
1,1,2-Trichloroethane	47.1	1	ug/L	50.0	BLOD	94.3	75-125			
1,1,2-Trichloroethane	47.1	1	ug/L	50.0	BLOD	94.3	75-125			
1,1-Dichloroethane	53.9	1	ug/L	50.0	5.19	97.4	70-135			
1,1-Dichloroethane	53.9	1	ug/L	50.0	5.19	97.4	70-135			
1,1-Dichloroethylene	41.0	1	ug/L	50.0	BLOD	82.1	70-130			
1,1-Dichloroethylene	41.0	1	ug/L	50.0	BLOD	82.1	70-130			
1,1-Dichloropropene	49.9	1	ug/L	50.0	BLOD	99.8	75-135			
1,2,3-Trichloropropane	46.0	1	ug/L	50.0	BLOD	92.1	75-125			
1,2,3-Trichloropropane	46.0	1	ug/L	50.0	BLOD	92.1	75-125			
1,2,4-Trichlorobenzene	57.4	1	ug/L	50.0	BLOD	115	65-135			
1,2-Dichlorobenzene	52.8	0.5	ug/L	50.0	BLOD	106	70-120			
1,2-Dichlorobenzene	52.8	0.5	ug/L	50.0	BLOD	106	70-120			
1,2-Dichloroethane	40.2	1	ug/L	50.0	BLOD	80.4	70-130			
1,2-Dichloroethane	40.2	1	ug/L	50.0	BLOD	80.4	70-130			
1,2-Dichloropropane	45.8	0.5	ug/L	50.0	BLOD	91.6	75-125			
1,2-Dichloropropane	45.8	0.5	ug/L	50.0	BLOD	91.6	75-125			
1,3-Dichlorobenzene	52.2	1	ug/L	50.0	BLOD	104	75-125			

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Volatile Organic Compounds by GCMS - Quality Control

Enthalpy Analytical

Analyte	Result	LOQ	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Qual
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Batch BFL0391 - SW5030B-MS

Matrix Spike (BFL0391-MS1)

Source: 22L0423-13

Prepared & Analyzed: 12/09/2022

1,3-Dichloropropane	45.4	1	ug/L	50.0	BLOD	90.9	75-125			
1,4-Dichlorobenzene	52.5	1	ug/L	50.0	1.65	102	75-125			
1,4-Dichlorobenzene	52.5	1	ug/L	50.0	1.65	102	75-125			
2,2-Dichloropropane	48.2	1	ug/L	50.0	BLOD	96.4	70-135			
2-Butanone (MEK)	42.5	10	ug/L	50.0	BLOD	85.0	30-150			
2-Butanone (MEK)	42.5	10	ug/L	50.0	BLOD	85.0	30-150			
2-Hexanone (MBK)	46.4	5	ug/L	50.0	BLOD	92.8	55-130			
2-Hexanone (MBK)	46.4	5	ug/L	50.0	BLOD	92.8	55-130			
4-Methyl-2-pentanone (MIBK)	47.2	5	ug/L	50.0	BLOD	94.4	60-135			
4-Methyl-2-pentanone (MIBK)	47.2	5	ug/L	50.0	BLOD	94.4	60-135			
Acetone	44.4	10	ug/L	50.0	BLOD	79.8	40-140			
Acetone	44.4	10	ug/L	50.0	BLOD	79.8	40-140			
Acrylonitrile	237	5	ug/L	250	BLOD	94.8	70-130			
Acrylonitrile	237	5	ug/L	250	BLOD	94.8	70-130			
Benzene	84.4	1	ug/L	50.0	39.3	90.4	80-120			
Benzene	84.4	1	ug/L	50.0	39.3	90.4	80-120			
Bromochloromethane	48.8	1	ug/L	50.0	BLOD	97.6	65-130			
Bromochloromethane	48.8	1	ug/L	50.0	BLOD	97.6	65-130			
Bromodichloromethane	48.8	0.5	ug/L	50.0	BLOD	97.5	75-120			
Bromodichloromethane	48.8	0.5	ug/L	50.0	BLOD	97.5	75-120			
Bromoform	49.7	1	ug/L	50.0	BLOD	99.5	70-130			
Bromoform	49.7	1	ug/L	50.0	BLOD	99.5	70-130			
Bromomethane	35.8	1	ug/L	50.0	BLOD	71.5	30-145			
Bromomethane	35.8	1	ug/L	50.0	BLOD	71.5	30-145			
Carbon disulfide	43.6	10	ug/L	50.0	BLOD	87.1	35-160			

Certificate of Analysis

Client Name: SCS Engineers-Winchester
 Client Site I.D.: City of Bristol 2nd Semi-Annual
 Submitted To: Jennifer Robb

Date Issued: 12/30/2022 11:56:27AM

Volatile Organic Compounds by GCMS - Quality Control

Enthalpy Analytical

Analyte	Result	LOQ	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Qual
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Batch BFL0391 - SW5030B-MS

Matrix Spike (BFL0391-MS1)

Source: 22L0423-13

Prepared & Analyzed: 12/09/2022

Carbon disulfide	43.6	10	ug/L	50.0	BLOD	87.1	35-160			
Carbon tetrachloride	50.8	1	ug/L	50.0	BLOD	102	65-140			
Carbon tetrachloride	50.8	1	ug/L	50.0	BLOD	102	65-140			
Chlorobenzene	51.8	1	ug/L	50.0	1.25	101	80-120			
Chlorobenzene	51.8	1	ug/L	50.0	1.25	101	80-120			
Chloroethane	44.3	1	ug/L	50.0	BLOD	88.6	60-135			
Chloroethane	44.3	1	ug/L	50.0	BLOD	88.6	60-135			
Chloroform	40.1	0.5	ug/L	50.0	BLOD	80.1	65-135			
Chloroform	40.1	0.5	ug/L	50.0	BLOD	80.1	65-135			
Chloromethane	45.1	1	ug/L	50.0	BLOD	90.2	40-125			
Chloromethane	45.1	1	ug/L	50.0	BLOD	90.2	40-125			
cis-1,2-Dichloroethylene	90.0	1	ug/L	50.0	44.8	90.4	70-125			
cis-1,2-Dichloroethylene	90.0	1	ug/L	50.0	44.8	90.4	70-125			
cis-1,3-Dichloropropene	40.3	1	ug/L	50.0	BLOD	80.6	70-130			
cis-1,3-Dichloropropene	40.3	1	ug/L	50.0	BLOD	80.6	70-130			
Dibromochloromethane	46.1	0.5	ug/L	50.0	BLOD	92.1	60-135			
Dibromochloromethane	46.1	0.5	ug/L	50.0	BLOD	92.1	60-135			
Dibromomethane	48.1	1	ug/L	50.0	BLOD	96.3	75-125			
Dibromomethane	48.1	1	ug/L	50.0	BLOD	96.3	75-125			
Dichlorodifluoromethane	32.3	1	ug/L	50.0	BLOD	64.6	30-155			
Ethylbenzene	52.2	1	ug/L	50.0	BLOD	104	75-125			
Ethylbenzene	52.2	1	ug/L	50.0	BLOD	104	75-125			
m+p-Xylenes	100	2	ug/L	100	BLOD	100	75-130			
m+p-Xylenes	100	2	ug/L	100	BLOD	100	75-130			
Methylene chloride	41.7	4	ug/L	50.0	BLOD	83.4	55-140			

Certificate of Analysis

 Client Name: SCS Engineers-Winchester
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 Submitted To: Jennifer Robb

Date Issued: 12/30/2022 11:56:27AM

Volatile Organic Compounds by GCMS - Quality Control

Enthalpy Analytical

Analyte	Result	LOQ	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Qual
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Batch BFL0391 - SW5030B-MS

Matrix Spike (BFL0391-MS1)

Source: 22L0423-13

Prepared & Analyzed: 12/09/2022

Methylene chloride	41.7	4	ug/L	50.0	BLOD	83.4	55-140			
o-Xylene	51.3	1	ug/L	50.0	BLOD	103	80-120			
o-Xylene	51.3	1	ug/L	50.0	BLOD	103	80-120			
Styrene	51.5	1	ug/L	50.0	BLOD	103	65-135			
Styrene	51.5	1	ug/L	50.0	BLOD	103	65-135			
Tetrachloroethylene (PCE)	81.9	1	ug/L	50.0	BLOD	164	45-150			M
Tetrachloroethylene (PCE)	81.9	1	ug/L	50.0	BLOD	164	45-150			M
Toluene	46.6	1	ug/L	50.0	BLOD	92.4	75-120			
Toluene	46.6	1	ug/L	50.0	BLOD	92.4	75-120			
trans-1,2-Dichloroethylene	46.0	1	ug/L	50.0	BLOD	92.1	60-140			
trans-1,2-Dichloroethylene	46.0	1	ug/L	50.0	BLOD	92.1	60-140			
trans-1,3-Dichloropropene	42.8	1	ug/L	50.0	BLOD	85.6	55-140			
trans-1,3-Dichloropropene	42.8	1	ug/L	50.0	BLOD	85.6	55-140			
Trichloroethylene	45.5	1	ug/L	50.0	BLOD	91.0	70-125			
Trichloroethylene	45.5	1	ug/L	50.0	BLOD	91.0	70-125			
Trichlorofluoromethane	47.1	1	ug/L	50.0	BLOD	94.2	60-145			
Trichlorofluoromethane	47.1	1	ug/L	50.0	BLOD	94.2	60-145			
Vinyl chloride	51.3	0.5	ug/L	50.0	11.9	78.7	50-145			
Vinyl chloride	51.3	0.5	ug/L	50.0	11.9	78.7	50-145			
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Surr: 1,2-Dichloroethane-d4 (Surr)	52.1		ug/L	50.0		104	70-120			
Surr: 4-Bromofluorobenzene (Surr)	49.0		ug/L	50.0		98.0	75-120			
Surr: Dibromofluoromethane (Surr)	51.9		ug/L	50.0		104	70-130			
Surr: Toluene-d8 (Surr)	49.2		ug/L	50.0		98.5	70-130			

Matrix Spike Dup (BFL0391-MSD1)

Source: 22L0423-13

Prepared & Analyzed: 12/09/2022

Certificate of Analysis

 Client Name: SCS Engineers-Winchester
 Client Site I.D.: City of Bristol 2nd Semi-Annual
 Submitted To: Jennifer Robb

Date Issued: 12/30/2022 11:56:27AM

Volatile Organic Compounds by GCMS - Quality Control

Enthalpy Analytical

Analyte	Result	LOQ	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Qual
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Batch BFL0391 - SW5030B-MS

Matrix Spike Dup (BFL0391-MSD1)

Source: 22L0423-13

Prepared & Analyzed: 12/09/2022

1,1,1,2-Tetrachloroethane	51.1	0.4	ug/L	50.0	BLOD	102	80-130	1.46	30	
1,1,1,2-Tetrachloroethane	51.1	0.4	ug/L	50.0	BLOD	102	80-130	1.46	30	
1,1,1-Trichloroethane	45.8	1	ug/L	50.0	BLOD	91.7	65-130	9.97	30	
1,1,1-Trichloroethane	45.8	1	ug/L	50.0	BLOD	91.7	65-130	9.97	30	
1,1,2,2-Tetrachloroethane	46.9	0.4	ug/L	50.0	BLOD	93.8	65-130	1.83	30	
1,1,2,2-Tetrachloroethane	46.9	0.4	ug/L	50.0	BLOD	93.8	65-130	1.83	30	
1,1,2-Trichloroethane	46.1	1	ug/L	50.0	BLOD	92.2	75-125	2.27	30	
1,1,2-Trichloroethane	46.1	1	ug/L	50.0	BLOD	92.2	75-125	2.27	30	
1,1-Dichloroethane	51.0	1	ug/L	50.0	5.19	91.6	70-135	5.49	30	
1,1-Dichloroethane	51.0	1	ug/L	50.0	5.19	91.6	70-135	5.49	30	
1,1-Dichloroethylene	40.6	1	ug/L	50.0	BLOD	81.2	70-130	1.13	30	
1,1-Dichloroethylene	40.6	1	ug/L	50.0	BLOD	81.2	70-130	1.13	30	
1,1-Dichloropropene	45.2	1	ug/L	50.0	BLOD	90.5	75-135	9.84	30	
1,2,3-Trichloropropane	48.9	1	ug/L	50.0	BLOD	97.9	75-125	6.06	30	
1,2,3-Trichloropropane	48.9	1	ug/L	50.0	BLOD	97.9	75-125	6.06	30	
1,2,4-Trichlorobenzene	53.8	1	ug/L	50.0	BLOD	108	65-135	6.55	30	
1,2-Dichlorobenzene	51.4	0.5	ug/L	50.0	BLOD	103	70-120	2.76	30	
1,2-Dichlorobenzene	51.4	0.5	ug/L	50.0	BLOD	103	70-120	2.76	30	
1,2-Dichloroethane	38.7	1	ug/L	50.0	BLOD	77.3	70-130	3.93	30	
1,2-Dichloroethane	38.7	1	ug/L	50.0	BLOD	77.3	70-130	3.93	30	
1,2-Dichloropropane	44.5	0.5	ug/L	50.0	BLOD	89.0	75-125	2.86	30	
1,2-Dichloropropane	44.5	0.5	ug/L	50.0	BLOD	89.0	75-125	2.86	30	
1,3-Dichlorobenzene	50.9	1	ug/L	50.0	BLOD	102	75-125	2.54	30	
1,3-Dichloropropane	44.2	1	ug/L	50.0	BLOD	88.5	75-125	2.72	30	
1,4-Dichlorobenzene	51.3	1	ug/L	50.0	1.65	99.2	75-125	2.31	30	

Certificate of Analysis

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Volatile Organic Compounds by GCMS - Quality Control

Enthalpy Analytical

Analyte	Result	LOQ	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Qual
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Batch BFL0391 - SW5030B-MS

Matrix Spike Dup (BFL0391-MSD1)

Source: 22L0423-13

Prepared & Analyzed: 12/09/2022

1,4-Dichlorobenzene	51.3	1	ug/L	50.0	1.65	99.2	75-125	2.31	30	
2,2-Dichloropropane	45.2	1	ug/L	50.0	BLOD	90.4	70-135	6.47	30	
2-Butanone (MEK)	50.5	10	ug/L	50.0	BLOD	101	30-150	17.2	30	
2-Butanone (MEK)	50.5	10	ug/L	50.0	BLOD	101	30-150	17.2	30	
2-Hexanone (MBK)	57.7	5	ug/L	50.0	BLOD	115	55-130	21.6	30	
2-Hexanone (MBK)	57.7	5	ug/L	50.0	BLOD	115	55-130	21.6	30	
4-Methyl-2-pentanone (MIBK)	55.3	5	ug/L	50.0	BLOD	111	60-135	15.8	30	
4-Methyl-2-pentanone (MIBK)	55.3	5	ug/L	50.0	BLOD	111	60-135	15.8	30	
Acetone	49.0	10	ug/L	50.0	BLOD	89.0	40-140	9.86	30	
Acetone	49.0	10	ug/L	50.0	BLOD	89.0	40-140	9.86	30	
Acrylonitrile	249	5	ug/L	250	BLOD	99.8	70-130	5.07	30	
Acrylonitrile	249	5	ug/L	250	BLOD	99.8	70-130	5.07	30	
Benzene	82.8	1	ug/L	50.0	39.3	87.1	80-120	1.92	30	
Benzene	82.8	1	ug/L	50.0	39.3	87.1	80-120	1.92	30	
Bromochloromethane	40.6	1	ug/L	50.0	BLOD	81.3	65-130	18.3	30	
Bromochloromethane	40.6	1	ug/L	50.0	BLOD	81.3	65-130	18.3	30	
Bromodichloromethane	47.5	0.5	ug/L	50.0	BLOD	94.9	75-120	2.68	30	
Bromodichloromethane	47.5	0.5	ug/L	50.0	BLOD	94.9	75-120	2.68	30	
Bromoform	50.1	1	ug/L	50.0	BLOD	100	70-130	0.681	30	
Bromoform	50.1	1	ug/L	50.0	BLOD	100	70-130	0.681	30	
Bromomethane	40.8	1	ug/L	50.0	BLOD	81.6	30-145	13.2	30	
Bromomethane	40.8	1	ug/L	50.0	BLOD	81.6	30-145	13.2	30	
Carbon disulfide	47.4	10	ug/L	50.0	BLOD	94.8	35-160	8.40	30	
Carbon disulfide	47.4	10	ug/L	50.0	BLOD	94.8	35-160	8.40	30	
Carbon tetrachloride	48.8	1	ug/L	50.0	BLOD	97.5	65-140	4.14	30	

Certificate of Analysis

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Volatile Organic Compounds by GCMS - Quality Control

Enthalpy Analytical

Analyte	Result	LOQ	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Qual
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Batch BFL0391 - SW5030B-MS

Matrix Spike Dup (BFL0391-MSD1)

Source: 22L0423-13

Prepared & Analyzed: 12/09/2022

Carbon tetrachloride	48.8	1	ug/L	50.0	BLOD	97.5	65-140	4.14	30	
Chlorobenzene	51.0	1	ug/L	50.0	1.25	99.6	80-120	1.52	30	
Chlorobenzene	51.0	1	ug/L	50.0	1.25	99.6	80-120	1.52	30	
Chloroethane	38.9	1	ug/L	50.0	BLOD	77.7	60-135	13.1	30	
Chloroethane	38.9	1	ug/L	50.0	BLOD	77.7	60-135	13.1	30	
Chloroform	38.3	0.5	ug/L	50.0	BLOD	76.7	65-135	4.39	30	
Chloroform	38.3	0.5	ug/L	50.0	BLOD	76.7	65-135	4.39	30	
Chloromethane	43.0	1	ug/L	50.0	BLOD	86.0	40-125	4.81	30	
Chloromethane	43.0	1	ug/L	50.0	BLOD	86.0	40-125	4.81	30	
cis-1,2-Dichloroethylene	89.4	1	ug/L	50.0	44.8	89.2	70-125	0.669	30	
cis-1,2-Dichloroethylene	89.4	1	ug/L	50.0	44.8	89.2	70-125	0.669	30	
cis-1,3-Dichloropropene	39.4	1	ug/L	50.0	BLOD	78.7	70-130	2.38	30	
cis-1,3-Dichloropropene	39.4	1	ug/L	50.0	BLOD	78.7	70-130	2.38	30	
Dibromochloromethane	45.3	0.5	ug/L	50.0	BLOD	90.7	60-135	1.58	30	
Dibromochloromethane	45.3	0.5	ug/L	50.0	BLOD	90.7	60-135	1.58	30	
Dibromomethane	47.6	1	ug/L	50.0	BLOD	95.2	75-125	1.15	30	
Dibromomethane	47.6	1	ug/L	50.0	BLOD	95.2	75-125	1.15	30	
Dichlorodifluoromethane	30.3	1	ug/L	50.0	BLOD	60.5	30-155	6.49	30	
Ethylbenzene	51.7	1	ug/L	50.0	BLOD	103	75-125	1.08	30	
Ethylbenzene	51.7	1	ug/L	50.0	BLOD	103	75-125	1.08	30	
m+p-Xylenes	99.2	2	ug/L	100	BLOD	99.2	75-130	0.983	30	
m+p-Xylenes	99.2	2	ug/L	100	BLOD	99.2	75-130	0.983	30	
Methylene chloride	40.2	4	ug/L	50.0	BLOD	80.4	55-140	3.64	30	
Methylene chloride	40.2	4	ug/L	50.0	BLOD	80.4	55-140	3.64	30	
o-Xylene	50.3	1	ug/L	50.0	BLOD	101	80-120	1.97	30	

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Volatile Organic Compounds by GCMS - Quality Control

Enthalpy Analytical

Analyte	Result	LOQ	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Qual
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Batch BFL0391 - SW5030B-MS

Matrix Spike Dup (BFL0391-MSD1)	Source: 22L0423-13			Prepared & Analyzed: 12/09/2022						
o-Xylene	50.3	1	ug/L	50.0	BLOD	101	80-120	1.97	30	
Styrene	50.8	1	ug/L	50.0	BLOD	102	65-135	1.47	30	
Styrene	50.8	1	ug/L	50.0	BLOD	102	65-135	1.47	30	
Tetrachloroethylene (PCE)	81.8	1	ug/L	50.0	BLOD	164	45-150	0.134	30	M
Tetrachloroethylene (PCE)	81.8	1	ug/L	50.0	BLOD	164	45-150	0.134	30	M
Toluene	45.6	1	ug/L	50.0	BLOD	90.3	75-120	2.21	30	
Toluene	45.6	1	ug/L	50.0	BLOD	90.3	75-120	2.21	30	
trans-1,2-Dichloroethylene	39.9	1	ug/L	50.0	BLOD	79.9	60-140	14.2	30	
trans-1,2-Dichloroethylene	39.9	1	ug/L	50.0	BLOD	79.9	60-140	14.2	30	
trans-1,3-Dichloropropene	42.4	1	ug/L	50.0	BLOD	84.7	55-140	1.01	30	
trans-1,3-Dichloropropene	42.4	1	ug/L	50.0	BLOD	84.7	55-140	1.01	30	
Trichloroethylene	43.7	1	ug/L	50.0	BLOD	87.4	70-125	4.01	30	
Trichloroethylene	43.7	1	ug/L	50.0	BLOD	87.4	70-125	4.01	30	
Trichlorofluoromethane	44.9	1	ug/L	50.0	BLOD	89.8	60-145	4.78	30	
Trichlorofluoromethane	44.9	1	ug/L	50.0	BLOD	89.8	60-145	4.78	30	
Vinyl chloride	53.4	0.5	ug/L	50.0	11.9	82.8	50-145	3.92	30	
Vinyl chloride	53.4	0.5	ug/L	50.0	11.9	82.8	50-145	3.92	30	
<i>Surr: 1,2-Dichloroethane-d4 (Surr)</i>	<i>51.0</i>		<i>ug/L</i>	<i>50.0</i>		<i>102</i>	<i>70-120</i>			
<i>Surr: 4-Bromofluorobenzene (Surr)</i>	<i>49.9</i>		<i>ug/L</i>	<i>50.0</i>		<i>99.9</i>	<i>75-120</i>			
<i>Surr: Dibromofluoromethane (Surr)</i>	<i>51.8</i>		<i>ug/L</i>	<i>50.0</i>		<i>104</i>	<i>70-130</i>			
<i>Surr: Toluene-d8 (Surr)</i>	<i>49.0</i>		<i>ug/L</i>	<i>50.0</i>		<i>98.0</i>	<i>70-130</i>			

Batch BFL0436 - SW5030B-MS

Blank (BFL0436-BLK1)	Prepared & Analyzed: 12/12/2022									
1,1,1,2-Tetrachloroethane	ND	0.40	ug/L							

Certificate of Analysis

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Volatile Organic Compounds by GCMS - Quality Control

Enthalpy Analytical

Analyte	Result	LOQ	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Qual
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Batch BFL0436 - SW5030B-MS

Blank (BFL0436-BLK1)

Prepared & Analyzed: 12/12/2022

1,1,1-Trichloroethane	ND	1.00	ug/L
1,1,2,2-Tetrachloroethane	ND	0.40	ug/L
1,1,2-Trichloroethane	ND	1.00	ug/L
1,1-Dichloroethane	ND	1.00	ug/L
1,1-Dichloroethylene	ND	1.00	ug/L
1,2,3-Trichloropropane	ND	1.00	ug/L
1,2-Dichlorobenzene	ND	1.00	ug/L
1,2-Dichloroethane	ND	1.00	ug/L
1,2-Dichloropropane	ND	1.00	ug/L
1,4-Dichlorobenzene	ND	1.00	ug/L
2-Butanone (MEK)	ND	10.0	ug/L
2-Hexanone (MBK)	ND	5.00	ug/L
4-Methyl-2-pentanone (MIBK)	ND	5.00	ug/L
Acetone	ND	10.0	ug/L
Acrylonitrile	ND	5.00	ug/L
Benzene	ND	1.00	ug/L
Bromochloromethane	ND	1.00	ug/L
Bromodichloromethane	ND	0.50	ug/L
Bromoform	ND	1.00	ug/L
Bromomethane	ND	1.00	ug/L
Carbon disulfide	ND	10.0	ug/L
Carbon tetrachloride	ND	1.00	ug/L
Chlorobenzene	ND	1.00	ug/L
Chloroethane	ND	1.00	ug/L
Chloroform	ND	0.50	ug/L

Certificate of Analysis

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Volatile Organic Compounds by GCMS - Quality Control

Enthalpy Analytical

Analyte	Result	LOQ	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Qual
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Batch BFL0436 - SW5030B-MS

Blank (BFL0436-BLK1)

Prepared & Analyzed: 12/12/2022

Chloromethane	ND	1.00	ug/L							
cis-1,2-Dichloroethylene	ND	1.00	ug/L							
cis-1,3-Dichloropropene	ND	1.00	ug/L							
Dibromochloromethane	ND	0.50	ug/L							
Dibromomethane	ND	1.00	ug/L							
Ethylbenzene	ND	1.00	ug/L							
Iodomethane	ND	10.0	ug/L							
m+p-Xylenes	ND	2.00	ug/L							
Methylene chloride	ND	4.00	ug/L							
o-Xylene	ND	1.00	ug/L							
Styrene	ND	1.00	ug/L							
Tetrachloroethylene (PCE)	ND	1.00	ug/L							
Toluene	ND	1.00	ug/L							
trans-1,2-Dichloroethylene	ND	1.00	ug/L							
trans-1,3-Dichloropropene	ND	1.00	ug/L							
trans-1,4-Dichloro-2-butene	ND	4.00	ug/L							
Trichloroethylene	ND	1.00	ug/L							
Trichlorofluoromethane	ND	1.00	ug/L							
Vinyl acetate	ND	10.0	ug/L							
Vinyl chloride	ND	0.50	ug/L							
Xylenes, Total	ND	3.00	ug/L							
<hr/>										
<i>Surr: 1,2-Dichloroethane-d4 (Surr)</i>	<i>54.2</i>		<i>ug/L</i>	<i>50.0</i>		<i>108</i>	<i>70-120</i>			
<i>Surr: 4-Bromofluorobenzene (Surr)</i>	<i>48.6</i>		<i>ug/L</i>	<i>50.0</i>		<i>97.1</i>	<i>75-120</i>			
<i>Surr: Dibromofluoromethane (Surr)</i>	<i>47.5</i>		<i>ug/L</i>	<i>50.0</i>		<i>95.1</i>	<i>70-130</i>			
<i>Surr: Toluene-d8 (Surr)</i>	<i>49.8</i>		<i>ug/L</i>	<i>50.0</i>		<i>99.6</i>	<i>70-130</i>			

Certificate of Analysis

Client Name: SCS Engineers-Winchester
 Client Site I.D.: City of Bristol 2nd Semi-Annual
 Submitted To: Jennifer Robb

Date Issued: 12/30/2022 11:56:27AM

Volatile Organic Compounds by GCMS - Quality Control

Enthalpy Analytical

Analyte	Result	LOQ	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Qual
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Batch BFL0436 - SW5030B-MS

Blank (BFL0436-BLK1)

Prepared & Analyzed: 12/12/2022

LCS (BFL0436-BS1)

Prepared & Analyzed: 12/12/2022

1,1,1,2-Tetrachloroethane	54.2	0.4	ug/L	50.0		108	80-130			
1,1,1-Trichloroethane	49.0	1	ug/L	50.0		98.0	65-130			
1,1,2,2-Tetrachloroethane	46.8	0.4	ug/L	50.0		93.6	65-130			
1,1,2-Trichloroethane	48.9	1	ug/L	50.0		97.8	75-125			
1,1-Dichloroethane	45.7	1	ug/L	50.0		91.4	70-135			
1,1-Dichloroethylene	44.0	1	ug/L	50.0		87.9	70-130			
1,2,3-Trichloropropane	47.6	1	ug/L	50.0		95.1	75-125			
1,2-Dichlorobenzene	53.6	0.5	ug/L	50.0		107	70-120			
1,2-Dichloroethane	41.0	1	ug/L	50.0		82.1	70-130			
1,2-Dichloropropane	47.0	0.5	ug/L	50.0		94.1	75-125			
1,4-Dichlorobenzene	54.3	1	ug/L	50.0		109	75-125			
2-Butanone (MEK)	48.5	10	ug/L	50.0		96.9	30-150			
2-Hexanone (MBK)	53.9	5	ug/L	50.0		108	55-130			
4-Methyl-2-pentanone (MIBK)	49.7	5	ug/L	50.0		99.4	60-135			
Acetone	50.9	10	ug/L	50.0		102	40-140			
Acrylonitrile	262	5	ug/L	250		105	70-130			
Benzene	46.4	1	ug/L	50.0		92.9	80-120			
Bromochloromethane	47.1	1	ug/L	50.0		94.1	65-130			
Bromodichloromethane	50.5	0.5	ug/L	50.0		101	75-120			
Bromoform	53.1	1	ug/L	50.0		106	70-130			
Bromomethane	50.3	1	ug/L	50.0		101	30-145			
Carbon disulfide	47.9	10	ug/L	50.0		95.7	35-160			
Carbon tetrachloride	45.8	1	ug/L	50.0		91.5	65-140			

Certificate of Analysis

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 Submitted To: Jennifer Robb

Date Issued: 12/30/2022 11:56:27AM

Volatile Organic Compounds by GCMS - Quality Control

Enthalpy Analytical

Analyte	Result	LOQ	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Qual
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Batch BFL0436 - SW5030B-MS

LCS (BFL0436-BS1)

Prepared & Analyzed: 12/12/2022

Chlorobenzene	51.0	1	ug/L	50.0		102	80-120			
Chloroethane	43.2	1	ug/L	50.0		86.5	60-135			
Chloroform	42.6	0.5	ug/L	50.0		85.2	65-135			
Chloromethane	49.1	1	ug/L	50.0		98.2	40-125			
cis-1,2-Dichloroethylene	44.0	1	ug/L	50.0		88.0	70-125			
cis-1,3-Dichloropropene	43.1	1	ug/L	50.0		86.1	70-130			
Dibromochloromethane	48.8	0.5	ug/L	50.0		97.5	60-135			
Dibromomethane	49.4	1	ug/L	50.0		98.8	75-125			
Ethylbenzene	53.8	1	ug/L	50.0		108	75-125			
m+p-Xylenes	103	2	ug/L	100		103	75-130			
Methylene chloride	45.4	4	ug/L	50.0		90.9	55-140			
o-Xylene	52.6	1	ug/L	50.0		105	80-120			
Styrene	53.5	1	ug/L	50.0		107	65-135			
Tetrachloroethylene (PCE)	84.1	1	ug/L	50.0		168	45-150			L
Toluene	48.1	1	ug/L	50.0		96.2	75-120			
trans-1,2-Dichloroethylene	44.0	1	ug/L	50.0		88.0	60-140			
trans-1,3-Dichloropropene	46.7	1	ug/L	50.0		93.4	55-140			
Trichloroethylene	44.8	1	ug/L	50.0		89.5	70-125			
Trichlorofluoromethane	49.3	1	ug/L	50.0		98.5	60-145			
Vinyl chloride	43.4	0.5	ug/L	50.0		86.9	50-145			
<i>Surr: 1,2-Dichloroethane-d4 (Surr)</i>	<i>55.1</i>		ug/L	<i>50.0</i>		<i>110</i>	<i>70-120</i>			
<i>Surr: 4-Bromofluorobenzene (Surr)</i>	<i>50.0</i>		ug/L	<i>50.0</i>		<i>100</i>	<i>75-120</i>			
<i>Surr: Dibromofluoromethane (Surr)</i>	<i>48.6</i>		ug/L	<i>50.0</i>		<i>97.2</i>	<i>70-130</i>			
<i>Surr: Toluene-d8 (Surr)</i>	<i>49.1</i>		ug/L	<i>50.0</i>		<i>98.3</i>	<i>70-130</i>			

Certificate of Analysis

Client Name: SCS Engineers-Winchester
 Client Site I.D.: City of Bristol 2nd Semi-Annual
 Submitted To: Jennifer Robb

Date Issued: 12/30/2022 11:56:27AM

Volatile Organic Compounds by GCMS - Quality Control

Enthalpy Analytical

Analyte	Result	LOQ	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Qual
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Batch BFL0436 - SW5030B-MS

Duplicate (BFL0436-DUP1)	Source: 22L0557-02			Prepared & Analyzed: 12/12/2022						
1,1,1,2-Tetrachloroethane	ND	0.40	ug/L		BLOD			NA	30	
1,1,1-Trichloroethane	ND	1.00	ug/L		BLOD			NA	30	
1,1,2,2-Tetrachloroethane	ND	0.40	ug/L		BLOD			NA	30	
1,1,2-Trichloroethane	ND	1.00	ug/L		BLOD			NA	30	
1,1-Dichloroethane	ND	1.00	ug/L		BLOD			NA	30	
1,1-Dichloroethylene	ND	1.00	ug/L		BLOD			NA	30	
1,2,3-Trichloropropane	ND	1.00	ug/L		BLOD			NA	30	
1,2-Dichlorobenzene	ND	1.00	ug/L		BLOD			NA	30	
1,2-Dichloroethane	ND	1.00	ug/L		BLOD			NA	30	
1,2-Dichloropropane	ND	1.00	ug/L		BLOD			NA	30	
1,4-Dichlorobenzene	ND	1.00	ug/L		BLOD			NA	30	
2-Butanone (MEK)	ND	10.0	ug/L		BLOD			NA	30	
2-Hexanone (MBK)	ND	5.00	ug/L		BLOD			NA	30	
4-Methyl-2-pentanone (MIBK)	ND	5.00	ug/L		BLOD			NA	30	
Acetone	ND	10.0	ug/L		BLOD			NA	30	
Acrylonitrile	ND	5.00	ug/L		BLOD			NA	30	
Benzene	ND	1.00	ug/L		BLOD			NA	30	
Bromochloromethane	ND	1.00	ug/L		BLOD			NA	30	
Bromodichloromethane	ND	0.50	ug/L		BLOD			NA	30	
Bromoform	ND	1.00	ug/L		BLOD			NA	30	
Bromomethane	ND	1.00	ug/L		BLOD			NA	30	
Carbon disulfide	ND	10.0	ug/L		BLOD			NA	30	
Carbon tetrachloride	ND	1.00	ug/L		BLOD			NA	30	
Chlorobenzene	ND	1.00	ug/L		BLOD			NA	30	
Chloroethane	ND	1.00	ug/L		BLOD			NA	30	

Certificate of Analysis

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 Submitted To: Jennifer Robb

Date Issued: 12/30/2022 11:56:27AM

Volatile Organic Compounds by GCMS - Quality Control

Enthalpy Analytical

Analyte	Result	LOQ	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Qual
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Batch BFL0436 - SW5030B-MS

Duplicate (BFL0436-DUP1)

Source: 22L0557-02

Prepared & Analyzed: 12/12/2022

Chloroform	ND	0.50	ug/L		BLOD			NA	30	
Chloromethane	ND	1.00	ug/L		BLOD			NA	30	
cis-1,2-Dichloroethylene	ND	1.00	ug/L		BLOD			NA	30	
cis-1,3-Dichloropropene	ND	1.00	ug/L		BLOD			NA	30	
Dibromochloromethane	ND	0.50	ug/L		BLOD			NA	30	
Dibromomethane	ND	1.00	ug/L		BLOD			NA	30	
Ethylbenzene	ND	1.00	ug/L		BLOD			NA	30	
Iodomethane	ND	10.0	ug/L		BLOD			NA	30	
m+p-Xylenes	ND	2.00	ug/L		BLOD			NA	30	
Methylene chloride	ND	4.00	ug/L		BLOD			NA	30	
o-Xylene	ND	1.00	ug/L		BLOD			NA	30	
Styrene	ND	1.00	ug/L		BLOD			NA	30	
Tetrachloroethylene (PCE)	ND	1.00	ug/L		BLOD			NA	30	
Toluene	ND	1.00	ug/L		BLOD			NA	30	
trans-1,2-Dichloroethylene	ND	1.00	ug/L		BLOD			NA	30	
trans-1,3-Dichloropropene	ND	1.00	ug/L		BLOD			NA	30	
trans-1,4-Dichloro-2-butene	ND	4.00	ug/L		BLOD			NA	30	
Trichloroethylene	ND	1.00	ug/L		BLOD			NA	30	
Trichlorofluoromethane	ND	1.00	ug/L		BLOD			NA	30	
Vinyl acetate	ND	10.0	ug/L		BLOD			NA	30	
Vinyl chloride	ND	0.50	ug/L		BLOD			NA	30	
Xylenes, Total	ND	3.00	ug/L		BLOD			NA	30	
Tetrahydrofuran	ND	10.0	ug/L		BLOD			NA	30	
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Surr: 1,2-Dichloroethane-d4 (Surr)	52.3		ug/L	50.0		105	70-120			
Surr: 4-Bromofluorobenzene (Surr)	48.6		ug/L	50.0		97.1	75-120			

Certificate of Analysis

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Volatile Organic Compounds by GCMS - Quality Control

Enthalpy Analytical

Analyte	Result	LOQ	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Qual
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Batch BFL0436 - SW5030B-MS

Duplicate (BFL0436-DUP1)

Source: 22L0557-02

Prepared & Analyzed: 12/12/2022

<i>Surr: Dibromofluoromethane (Surr)</i>	57.0		ug/L	50.0		114	70-130
<i>Surr: Toluene-d8 (Surr)</i>	50.2		ug/L	50.0		100	70-130

Matrix Spike (BFL0436-MS1)

Source: 22L0557-01

Prepared & Analyzed: 12/12/2022

1,1,1,2-Tetrachloroethane	53.2	0.4	ug/L	50.0	BLOD	106	80-130
1,1,1-Trichloroethane	48.6	1	ug/L	50.0	BLOD	97.1	65-130
1,1,2,2-Tetrachloroethane	48.2	0.4	ug/L	50.0	BLOD	96.4	65-130
1,1,2-Trichloroethane	46.2	1	ug/L	50.0	BLOD	92.5	75-125
1,1-Dichloroethane	45.5	1	ug/L	50.0	BLOD	91.1	70-135
1,1-Dichloroethylene	39.1	1	ug/L	50.0	BLOD	78.2	70-130
1,2,3-Trichloropropane	48.9	1	ug/L	50.0	BLOD	97.9	75-125
1,2-Dichlorobenzene	53.7	0.5	ug/L	50.0	BLOD	107	70-120
1,2-Dichloroethane	36.9	1	ug/L	50.0	BLOD	73.8	70-130
1,2-Dichloropropane	45.5	0.5	ug/L	50.0	BLOD	90.9	75-125
1,4-Dichlorobenzene	53.0	1	ug/L	50.0	BLOD	106	75-125
2-Butanone (MEK)	50.3	10	ug/L	50.0	BLOD	101	30-150
2-Hexanone (MBK)	58.5	5	ug/L	50.0	BLOD	117	55-130
4-Methyl-2-pentanone (MIBK)	52.8	5	ug/L	50.0	BLOD	106	60-135
Acetone	49.0	10	ug/L	50.0	BLOD	92.1	40-140
Acrylonitrile	236	5	ug/L	250	BLOD	94.2	70-130
Benzene	45.8	1	ug/L	50.0	BLOD	91.5	80-120
Bromochloromethane	42.1	1	ug/L	50.0	BLOD	84.1	65-130
Bromodichloromethane	48.4	0.5	ug/L	50.0	BLOD	96.7	75-120
Bromoform	52.6	1	ug/L	50.0	BLOD	105	70-130
Bromomethane	40.1	1	ug/L	50.0	BLOD	80.1	30-145

Certificate of Analysis

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Volatile Organic Compounds by GCMS - Quality Control

Enthalpy Analytical

Analyte	Result	LOQ	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Qual
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Batch BFL0436 - SW5030B-MS

Matrix Spike (BFL0436-MS1)

Source: 22L0557-01

Prepared & Analyzed: 12/12/2022

Carbon disulfide	44.2	10	ug/L	50.0	BLOD	88.4	35-160			
Carbon tetrachloride	49.0	1	ug/L	50.0	BLOD	98.0	65-140			
Chlorobenzene	50.9	1	ug/L	50.0	BLOD	102	80-120			
Chloroethane	40.3	1	ug/L	50.0	BLOD	80.6	60-135			
Chloroform	37.9	0.5	ug/L	50.0	BLOD	75.7	65-135			
Chloromethane	40.6	1	ug/L	50.0	BLOD	81.1	40-125			
cis-1,2-Dichloroethylene	46.3	1	ug/L	50.0	BLOD	92.5	70-125			
cis-1,3-Dichloropropene	41.6	1	ug/L	50.0	BLOD	83.2	70-130			
Dibromochloromethane	45.6	0.5	ug/L	50.0	BLOD	91.3	60-135			
Dibromomethane	47.7	1	ug/L	50.0	BLOD	95.3	75-125			
Ethylbenzene	52.4	1	ug/L	50.0	BLOD	105	75-125			
m+p-Xylenes	103	2	ug/L	100	BLOD	103	75-130			
Methylene chloride	39.7	4	ug/L	50.0	BLOD	79.4	55-140			
o-Xylene	52.0	1	ug/L	50.0	BLOD	104	80-120			
Styrene	51.9	1	ug/L	50.0	BLOD	104	65-135			
Tetrachloroethylene (PCE)	83.4	1	ug/L	50.0	BLOD	167	45-150			M
Toluene	45.6	1	ug/L	50.0	BLOD	91.2	75-120			
trans-1,2-Dichloroethylene	44.7	1	ug/L	50.0	BLOD	89.3	60-140			
trans-1,3-Dichloropropene	43.2	1	ug/L	50.0	BLOD	86.3	55-140			
Trichloroethylene	44.9	1	ug/L	50.0	BLOD	89.8	70-125			
Trichlorofluoromethane	42.3	1	ug/L	50.0	BLOD	84.6	60-145			
Vinyl chloride	39.2	0.5	ug/L	50.0	BLOD	78.4	50-145			
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Surr: 1,2-Dichloroethane-d4 (Surr)	49.6		ug/L	50.0		99.2	70-120			
Surr: 4-Bromofluorobenzene (Surr)	50.0		ug/L	50.0		99.9	75-120			
Surr: Dibromofluoromethane (Surr)	50.3		ug/L	50.0		101	70-130			

Certificate of Analysis

Client Name: SCS Engineers-Winchester

Date Issued: 12/30/2022 11:56:27AM

Client Site I.D.: City of Bristol 2nd Semi-Annual

Submitted To: Jennifer Robb

Volatile Organic Compounds by GCMS - Quality Control

Enthalpy Analytical

Analyte	Result	LOQ	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Qual
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Batch BFL0436 - SW5030B-MS

Matrix Spike (BFL0436-MS1)
Source: 22L0557-01

Prepared & Analyzed: 12/12/2022

<i>Surr: Toluene-d8 (Surr)</i>	49.2	ug/L	50.0	98.5	70-130
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Certificate of Analysis

Client Name: SCS Engineers-Winchester
 Client Site I.D.: City of Bristol 2nd Semi-Annual
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Date Issued: 12/30/2022 11:56:27AM

Semivolatile Organic Compounds by GCMS - Quality Control

Enthalpy Analytical

Analyte	Result	LOQ	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Qual
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Batch BFL0373 - SW3510C/EPA600-MS

Blank (BFL0373-BLK1)

Prepared: 12/09/2022 Analyzed: 12/12/2022

bis (2-Ethylhexyl) phthalate	ND	5.00	ug/L							
Diethyl phthalate	ND	10.0	ug/L							
Di-n-butyl phthalate	ND	10.0	ug/L							
Phenol	ND	10.0	ug/L							
<i>Surr: 2,4,6-Tribromophenol (Surr)</i>	81.4		ug/L	100		81.4	10-86			
<i>Surr: 2-Fluorobiphenyl (Surr)</i>	42.7		ug/L	50.0		85.5	9-87			
<i>Surr: 2-Fluorophenol (Surr)</i>	43.2		ug/L	100		43.2	10-52			
<i>Surr: Nitrobenzene-d5 (Surr)</i>	44.5		ug/L	50.0		89.0	10-98.5			
<i>Surr: Phenol-d5 (Surr)</i>	31.4		ug/L	100		31.4	5-33			
<i>Surr: p-Terphenyl-d14 (Surr)</i>	48.8		ug/L	50.0		97.7	27-133			

LCS (BFL0373-BS1)

Prepared: 12/09/2022 Analyzed: 12/12/2022

1,2,4-Trichlorobenzene	25.9	10.0	ug/L	50.0		51.8	22-135			
1,2-Dichlorobenzene	25.3	10.0	ug/L	50.0		50.6	22-115			
1,3-Dichlorobenzene	24.0	10.0	ug/L	50.0		48.1	22-112			
1,4-Dichlorobenzene	25.7	10.0	ug/L	50.0		51.4	13-112			
2,4,6-Trichlorophenol	29.9	10.0	ug/L	50.0		59.8	11-145			
2,4-Dichlorophenol	28.2	10.0	ug/L	50.0		56.5	11-75			
2,4-Dimethylphenol	24.1	5.00	ug/L	50.0		48.2	11-121			
2,4-Dinitrophenol	33.4	50.0	ug/L	50.0		66.7	11-165			
2,4-Dinitrotoluene	40.3	10.0	ug/L	50.0		80.6	17-155			
2,6-Dinitrotoluene	35.5	10.0	ug/L	50.0		71.0	15-125			
2-Chloronaphthalene	30.4	10.0	ug/L	50.0		60.8	27-89			
2-Chlorophenol	28.9	10.0	ug/L	50.0		57.8	15-110			
2-Nitrophenol	30.7	10.0	ug/L	50.0		61.4	11-115			

Certificate of Analysis

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Semivolatile Organic Compounds by GCMS - Quality Control

Enthalpy Analytical

Analyte	Result	LOQ	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Qual
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Batch BFL0373 - SW3510C/EPA600-MS

LCS (BFL0373-BS1)

Prepared: 12/09/2022 Analyzed: 12/12/2022

3,3'-Dichlorobenzidine	18.7	10.0	ug/L	50.0		37.4	25-95			
4,6-Dinitro-2-methylphenol	41.6	50.0	ug/L	50.0		83.2	25-130			
4-Bromophenyl phenyl ether	31.4	10.0	ug/L	50.0		62.9	15-110			
4-Chlorophenyl phenyl ether	30.5	10.0	ug/L	50.0		61.0	15-110			
4-Nitrophenol	14.6	50.0	ug/L	50.0		29.1	12-70			
Acenaphthene	31.2	10.0	ug/L	50.0		62.5	18-85			
Acenaphthylene	32.4	10.0	ug/L	50.0		64.8	20-75			
Acetophenone	30.2	20.0	ug/L	50.0		60.5	0-200			
alpha-Terpineol	31.9	2.50	ug/L	50.0		63.7	0-200			
Anthracene	36.6	10.0	ug/L	50.0		73.2	35-95			
Benzo (a) anthracene	38.5	10.0	ug/L	50.0		77.0	25-95			
Benzo (a) pyrene	44.7	0.20	ug/L	50.0		89.4	37-110			
Benzo (b) fluoranthene	50.4	10.0	ug/L	50.0		101	25-75			L
Benzo (g,h,i) perylene	29.8	10.0	ug/L	50.0		59.7	25-90			
Benzo (k) fluoranthene	45.4	10.0	ug/L	50.0		90.8	25-95			
bis (2-Chloroethoxy) methane	26.9	10.0	ug/L	50.0		53.9	25-110			
bis (2-Chloroethyl) ether	28.8	10.0	ug/L	50.0		57.7	25-85			
2,2'-Oxybis (1-chloropropane)	31.8	10.0	ug/L	50.0		63.6	25-95			
bis (2-Ethylhexyl) phthalate	39.5	5.00	ug/L	50.0		78.9	30-125			
Butyl benzyl phthalate	37.1	10.0	ug/L	50.0		74.2	30-115			
Carbazole	37.1	2.50	ug/L	50.0		74.2	0-200			
Chrysene	37.3	10.0	ug/L	50.0		74.6	20-90			
Dibenz (a,h) anthracene	35.6	10.0	ug/L	50.0		71.1	27-125			
Diethyl phthalate	39.6	10.0	ug/L	50.0		79.2	25-120			
Dimethyl phthalate	39.7	10.0	ug/L	50.0		79.4	25-125			

Certificate of Analysis

 Client Name: SCS Engineers-Winchester
 Client Site I.D.: City of Bristol 2nd Semi-Annual
 Submitted To: Jennifer Robb

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Semivolatile Organic Compounds by GCMS - Quality Control

Enthalpy Analytical

Analyte	Result	LOQ	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Qual
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Batch BFL0373 - SW3510C/EPA600-MS

LCS (BFL0373-BS1)

Prepared: 12/09/2022 Analyzed: 12/12/2022

Di-n-butyl phthalate	39.3	10.0	ug/L	50.0		78.6	35-115			
Di-n-octyl phthalate	64.9	10.0	ug/L	50.0		130	25-105			L
Fluoranthene	38.9	10.0	ug/L	50.0		77.9	33-95			
Fluorene	35.1	10.0	ug/L	50.0		70.3	15-97			
Hexachlorobenzene	40.0	1.00	ug/L	50.0		80.0	25-125			
Hexachlorobutadiene	28.3	10.0	ug/L	50.0		56.7	25-125			
Hexachlorocyclopentadiene	13.3	10.0	ug/L	50.0		26.5	25-125			
Hexachloroethane	27.1	10.0	ug/L	50.0		54.2	25-125			
Indeno (1,2,3-cd) pyrene	34.3	10.0	ug/L	50.0		68.7	25-125			
Isophorone	21.4	10.0	ug/L	50.0		42.8	10-110			
Naphthalene	29.7	0.10	ug/L	50.0		59.4	12-100			
Nitrobenzene	33.9	10.0	ug/L	50.0		67.7	30-97			
n-Nitrosodimethylamine	18.3	10.0	ug/L	50.0		36.7	10-85			
n-Nitrosodi-n-propylamine	30.5	10.0	ug/L	50.0		61.1	12-97			
n-Nitrosodiphenylamine	28.6	10.0	ug/L	50.0		57.3	12-97			
p-Chloro-m-cresol	29.8	10.0	ug/L	50.0		59.6	10-91			
Pentachlorophenol	31.1	20.0	ug/L	50.0		62.2	30-109			
Phenanthrene	42.8	10.0	ug/L	50.0		85.7	30-88			
Phenol	10.4	10.0	ug/L	50.5		20.5	10-70			
Pyrene	41.6	10.0	ug/L	50.0		83.3	27-110			
Pyridine	21.2	10.0	ug/L	50.0		42.3	0-200			
<i>Surr: 2,4,6-Tribromophenol (Surr)</i>	75.2		ug/L	100		75.2	10-86			
<i>Surr: 2-Fluorobiphenyl (Surr)</i>	32.2		ug/L	50.0		64.4	9-87			
<i>Surr: 2-Fluorophenol (Surr)</i>	35.0		ug/L	100		35.0	10-52			
<i>Surr: Nitrobenzene-d5 (Surr)</i>	35.7		ug/L	50.0		71.3	10-98.5			

Certificate of Analysis

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Semivolatile Organic Compounds by GCMS - Quality Control

Enthalpy Analytical

Analyte	Result	LOQ	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Qual
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Batch BFL0373 - SW3510C/EPA600-MS

LCS (BFL0373-BS1)

Prepared: 12/09/2022 Analyzed: 12/12/2022

Surr: Phenol-d5 (Surr)	25.2	ug/L	100	25.2	5-33
Surr: p-Terphenyl-d14 (Surr)	43.0	ug/L	50.0	85.9	27-133

Matrix Spike (BFL0373-MS1)

Source: 22L0423-13

Prepared & Analyzed: 12/09/2022

1,2,4-Trichlorobenzene	32.6	10.0	ug/L	46.7	BLOD	69.7	22-65		M
1,2-Dichlorobenzene	33.0	10.0	ug/L	46.7	BLOD	70.7	22-60		M
1,3-Dichlorobenzene	32.1	10.0	ug/L	46.7	BLOD	68.8	22-60		M
1,4-Dichlorobenzene	36.1	10.0	ug/L	46.7	BLOD	77.3	13-60		M
1,4-Dioxane	11.1	50.0	ug/L		12.2		0-200		
2,4,6-Trichlorophenol	36.5	10.0	ug/L	46.7	BLOD	78.1	11-75		M
2,4-Dichlorophenol	33.8	10.0	ug/L	46.7	BLOD	72.3	11-75		
2,4-Dimethylphenol	32.5	4.67	ug/L	46.7	BLOD	69.5	11-65		M
2,4-Dinitrophenol	10.2	50.0	ug/L	46.7	BLOD	21.8	11-110		
2,4-Dinitrotoluene	42.2	10.0	ug/L	46.7	BLOD	90.2	17-95		
2,6-Dinitrotoluene	39.1	10.0	ug/L	46.7	BLOD	83.7	15-125		
2-Chloronaphthalene	39.2	10.0	ug/L	46.7	BLOD	83.9	27-89		
2-Chlorophenol	35.0	10.0	ug/L	46.7	BLOD	75.0	19-64		M
2-Nitrophenol	36.0	10.0	ug/L	46.7	BLOD	77.1	11-75		M
3,3'-Dichlorobenzidine	19.7	10.0	ug/L	46.7	BLOD	42.1	10-85		
4,6-Dinitro-2-methylphenol	44.0	50.0	ug/L	46.7	BLOD	94.1	40-130		
4-Bromophenyl phenyl ether	32.3	10.0	ug/L	46.7	BLOD	69.2	15-110		
4-Chlorophenyl phenyl ether	34.5	10.0	ug/L	46.7	BLOD	73.8	15-110		
4-Nitrophenol	14.2	50.0	ug/L	46.7	BLOD	30.4	12-70		
Acenaphthene	38.9	10.0	ug/L	46.7	BLOD	83.3	15-90		
Acenaphthylene	41.9	10.0	ug/L	46.7	BLOD	89.6	15-99		

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Semivolatile Organic Compounds by GCMS - Quality Control

Enthalpy Analytical

Analyte	Result	LOQ	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Qual
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Batch BFL0373 - SW3510C/EPA600-MS

Matrix Spike (BFL0373-MS1)

Source: 22L0423-13

Prepared & Analyzed: 12/09/2022

Acetophenone	31.6	20.0	ug/L	46.7	BLOD	67.6	0-200			
alpha-Terpineol	37.1	2.50	ug/L	46.7	BLOD	79.4	0-200			
Anthracene	42.7	10.0	ug/L	46.7	BLOD	91.4	20-95			
Benzo (a) anthracene	42.5	9.35	ug/L	46.7	BLOD	90.9	25-95			
Benzo (a) pyrene	44.4	0.20	ug/L	46.7	BLOD	95.0	25-82			M
Benzo (b) fluoranthene	49.9	10.0	ug/L	46.7	BLOD	107	25-75			M
Benzo (g,h,i) perylene	35.3	10.0	ug/L	46.7	BLOD	75.5	25-90			
Benzo (k) fluoranthene	44.7	10.0	ug/L	46.7	BLOD	95.7	25-95			M
bis (2-Chloroethoxy) methane	32.6	10.0	ug/L	46.7	BLOD	69.8	25-85			
bis (2-Chloroethyl) ether	36.3	10.0	ug/L	46.7	BLOD	77.7	25-85			
2,2'-Oxybis (1-chloropropane)	39.3	10.0	ug/L	46.7	BLOD	84.2	25-87			
bis (2-Ethylhexyl) phthalate	42.9	5.00	ug/L	46.7	BLOD	91.7	30-125			
Butyl benzyl phthalate	37.7	10.0	ug/L	46.7	BLOD	80.8	30-115			
Carbazole	40.3	2.50	ug/L	46.7	BLOD	86.2	0-200			
Chrysene	40.4	10.0	ug/L	46.7	BLOD	86.5	20-90			
Dibenz (a,h) anthracene	42.4	10.0	ug/L	46.7	BLOD	90.7	27-125			
Diethyl phthalate	45.6	10.0	ug/L	46.7	BLOD	97.6	25-120			
Dimethyl phthalate	45.9	10.0	ug/L	46.7	BLOD	98.2	25-125			
Di-n-butyl phthalate	36.9	10.0	ug/L	46.7	BLOD	79.0	25-115			
Di-n-octyl phthalate	70.9	10.0	ug/L	46.7	BLOD	152	22-105			M
Fluoranthene	46.4	10.0	ug/L	46.7	BLOD	99.4	25-96			M
Fluorene	41.6	10.0	ug/L	46.7	BLOD	88.9	15-97			
Hexachlorobenzene	40.3	0.93	ug/L	46.7	BLOD	86.3	25-125			
Hexachlorobutadiene	34.5	10.0	ug/L	46.7	BLOD	73.8	25-125			
Hexachlorocyclopentadiene	24.8	10.0	ug/L	46.7	BLOD	53.1	10-90			

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Semivolatile Organic Compounds by GCMS - Quality Control

Enthalpy Analytical

Analyte	Result	LOQ	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Qual
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Batch BFL0373 - SW3510C/EPA600-MS

Matrix Spike (BFL0373-MS1)

Source: 22L0423-13

Prepared & Analyzed: 12/09/2022

Hexachloroethane	34.2	10.0	ug/L	46.7	BLOD	73.2	25-125			
Indeno (1,2,3-cd) pyrene	39.7	10.0	ug/L	46.7	BLOD	85.1	25-125			
Isophorone	26.9	10.0	ug/L	46.7	BLOD	57.7	10-110			
Naphthalene	38.6	0.10	ug/L	46.7	BLOD	82.7	12-100			
Nitrobenzene	40.3	10.0	ug/L	46.7	BLOD	86.2	27-77			M
n-Nitrosodimethylamine	21.6	10.0	ug/L	46.7	BLOD	46.1	10-85			
n-Nitrosodi-n-propylamine	37.9	10.0	ug/L	46.7	BLOD	81.0	12-97			
n-Nitrosodiphenylamine	31.6	10.0	ug/L	46.7	BLOD	67.7	12-97			
p-Chloro-m-cresol	36.1	10.0	ug/L	46.7	BLOD	77.2	10-91			
Pentachlorophenol	36.9	20.0	ug/L	46.7	BLOD	78.9	27-109			
Phenanthrene	48.2	10.0	ug/L	46.7	BLOD	103	35-115			
Phenol	12.9	10.0	ug/L	47.2	BLOD	27.4	10-70			
Pyrene	45.6	10.0	ug/L	46.7	BLOD	97.7	23-110			
Pyridine	30.6	10.0	ug/L	46.7	BLOD	65.4	0-200			
<i>Surr: 2,4,6-Tribromophenol (Surr)</i>	80.1		ug/L	93.5		85.7	10-86			
<i>Surr: 2-Fluorobiphenyl (Surr)</i>	43.6		ug/L	46.7		93.3	9-87			S
<i>Surr: 2-Fluorophenol (Surr)</i>	42.2		ug/L	93.5		45.2	10-52			
<i>Surr: Nitrobenzene-d5 (Surr)</i>	42.9		ug/L	46.7		91.7	10-98.5			
<i>Surr: Phenol-d5 (Surr)</i>	30.8		ug/L	93.5		32.9	5-33			
<i>Surr: p-Terphenyl-d14 (Surr)</i>	41.3		ug/L	46.7		88.5	27-133			

Matrix Spike Dup (BFL0373-MSD1)

Source: 22L0423-13

Prepared: 12/09/2022 Analyzed: 12/12/2022

1,2,4-Trichlorobenzene	35.5	10.0	ug/L	46.7	BLOD	75.9	22-65	8.57	20	M
1,2-Dichlorobenzene	32.1	10.0	ug/L	46.7	BLOD	68.8	22-60	2.72	20	M
1,3-Dichlorobenzene	31.2	10.0	ug/L	46.7	BLOD	66.8	22-60	2.92	20	M

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Semivolatile Organic Compounds by GCMS - Quality Control

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Analyte	Result	LOQ	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Qual
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Batch BFL0373 - SW3510C/EPA600-MS

Matrix Spike Dup (BFL0373-MSD1)	Source: 22L0423-13			Prepared: 12/09/2022 Analyzed: 12/12/2022						
1,4-Dichlorobenzene	34.7	10.0	ug/L	46.7	BLOD	74.2	13-60	4.01	20	M
1,4-Dioxane	11.9	50.0	ug/L		12.2		0-200	6.91	20	
2,4,6-Trichlorophenol	38.9	10.0	ug/L	46.7	BLOD	83.3	11-75	6.49	20	M
2,4-Dichlorophenol	36.9	10.0	ug/L	46.7	BLOD	78.9	11-75	8.76	20	M
2,4-Dimethylphenol	32.5	4.67	ug/L	46.7	BLOD	69.5	11-65	0.0288	20	M
2,4-Dinitrophenol	12.0	50.0	ug/L	46.7	BLOD	25.6	11-110	16.0	20	
2,4-Dinitrotoluene	46.1	10.0	ug/L	46.7	BLOD	98.6	17-95	8.89	20	M
2,6-Dinitrotoluene	41.9	10.0	ug/L	46.7	BLOD	89.6	15-125	6.76	20	
2-Chloronaphthalene	39.0	10.0	ug/L	46.7	BLOD	83.5	27-89	0.550	20	
2-Chlorophenol	32.3	10.0	ug/L	46.7	BLOD	69.2	19-64	8.10	20	M
2-Nitrophenol	40.0	10.0	ug/L	46.7	BLOD	85.5	11-75	10.4	20	M
3,3'-Dichlorobenzidine	16.6	10.0	ug/L	46.7	BLOD	35.5	10-85	17.1	20	
4,6-Dinitro-2-methylphenol	47.1	50.0	ug/L	46.7	BLOD	101	40-130	6.93	20	
4-Bromophenyl phenyl ether	35.7	10.0	ug/L	46.7	BLOD	76.4	15-110	9.95	20	
4-Chlorophenyl phenyl ether	35.9	10.0	ug/L	46.7	BLOD	76.8	15-110	3.99	20	
4-Nitrophenol	16.9	50.0	ug/L	46.7	BLOD	36.1	12-70	17.2	20	
Acenaphthene	39.7	10.0	ug/L	46.7	BLOD	85.0	15-90	2.02	20	
Acenaphthylene	39.7	10.0	ug/L	46.7	BLOD	85.0	15-99	5.27	20	
Acetophenone	35.5	20.0	ug/L	46.7	BLOD	76.0	0-200	11.6	20	
alpha-Terpineol	40.2	2.50	ug/L	46.7	BLOD	86.0	0-200	7.98	20	
Anthracene	39.9	10.0	ug/L	46.7	BLOD	85.4	20-95	6.72	20	
Benzo (a) anthracene	41.0	9.35	ug/L	46.7	BLOD	87.8	25-95	3.42	20	
Benzo (a) pyrene	46.1	0.20	ug/L	46.7	BLOD	98.8	25-82	3.92	20	M
Benzo (b) fluoranthene	52.4	10.0	ug/L	46.7	BLOD	112	25-75	4.77	20	M
Benzo (g,h,i) perylene	36.3	10.0	ug/L	46.7	BLOD	77.7	25-90	2.98	20	

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Analyte	Result	LOQ	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Qual
Batch BFL0373 - SW3510C/EPA600-MS										
Matrix Spike Dup (BFL0373-MSD1)	Source: 22L0423-13			Prepared: 12/09/2022 Analyzed: 12/12/2022						
Benzo (k) fluoranthene	44.5	10.0	ug/L	46.7	BLOD	95.2	25-95	0.503	20	M
bis (2-Chloroethoxy) methane	35.7	10.0	ug/L	46.7	BLOD	76.4	25-85	9.11	20	
bis (2-Chloroethyl) ether	35.0	10.0	ug/L	46.7	BLOD	74.9	25-85	3.69	20	
2,2'-Oxybis (1-chloropropane)	40.7	10.0	ug/L	46.7	BLOD	87.2	25-87	3.50	20	M
bis (2-Ethylhexyl) phthalate	42.5	5.00	ug/L	46.7	BLOD	91.0	30-125	0.766	20	
Butyl benzyl phthalate	38.9	10.0	ug/L	46.7	BLOD	83.2	30-115	2.98	20	
Carbazole	38.1	2.50	ug/L	46.7	BLOD	81.6	0-200	5.43	20	
Chrysene	38.7	10.0	ug/L	46.7	BLOD	82.9	20-90	4.30	20	
Dibenz (a,h) anthracene	42.9	10.0	ug/L	46.7	BLOD	91.8	27-125	1.21	20	
Diethyl phthalate	44.8	10.0	ug/L	46.7	BLOD	95.8	25-120	1.90	20	
Dimethyl phthalate	45.6	10.0	ug/L	46.7	BLOD	97.5	25-125	0.654	20	
Di-n-butyl phthalate	37.3	10.0	ug/L	46.7	BLOD	79.9	25-115	1.06	20	
Di-n-octyl phthalate	28.1	10.0	ug/L	46.7	BLOD	60.1	22-105	86.5	20	P
Fluoranthene	38.7	10.0	ug/L	46.7	BLOD	82.9	25-96	18.1	20	
Fluorene	41.8	10.0	ug/L	46.7	BLOD	89.4	15-97	0.516	20	
Hexachlorobenzene	43.7	0.93	ug/L	46.7	BLOD	93.6	25-125	8.16	20	
Hexachlorobutadiene	38.1	10.0	ug/L	46.7	BLOD	81.5	25-125	9.89	20	
Hexachlorocyclopentadiene	20.4	10.0	ug/L	46.7	BLOD	43.7	10-90	19.5	20	
Hexachloroethane	34.8	10.0	ug/L	46.7	BLOD	74.5	25-125	1.73	20	
Indeno (1,2,3-cd) pyrene	40.5	10.0	ug/L	46.7	BLOD	86.6	25-125	1.84	20	
Isophorone	29.8	10.0	ug/L	46.7	BLOD	63.8	10-110	10.1	20	
Naphthalene	38.3	0.10	ug/L	46.7	BLOD	82.0	12-100	0.850	20	
Nitrobenzene	39.8	10.0	ug/L	46.7	BLOD	85.1	27-77	1.28	20	M
n-Nitrosodimethylamine	25.3	10.0	ug/L	46.7	BLOD	54.1	10-85	15.9	20	
n-Nitrosodi-n-propylamine	38.7	10.0	ug/L	46.7	BLOD	82.9	12-97	2.24	20	

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Enthalpy Analytical

Analyte	Result	LOQ	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Qual
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Batch BFL0373 - SW3510C/EPA600-MS

Matrix Spike Dup (BFL0373-MSD1)	Source: 22L0423-13		Prepared: 12/09/2022 Analyzed: 12/12/2022							
n-Nitrosodiphenylamine	32.5	10.0	ug/L	46.7	BLOD	69.5	12-97	2.65	20	
p-Chloro-m-cresol	38.9	10.0	ug/L	46.7	BLOD	83.3	10-91	7.58	20	
Pentachlorophenol	43.1	20.0	ug/L	46.7	BLOD	92.2	27-109	15.6	20	
Phenanthrene	45.1	10.0	ug/L	46.7	BLOD	96.4	35-115	6.75	20	
Phenol	13.1	10.0	ug/L	47.2	BLOD	27.9	10-70	1.58	20	
Pyrene	43.3	10.0	ug/L	46.7	BLOD	92.6	23-110	5.30	20	
Pyridine	29.6	10.0	ug/L	46.7	BLOD	63.3	0-200	3.36	20	
<i>Surr: 2,4,6-Tribromophenol (Surr)</i>	86.7		ug/L	93.5		92.8	10-86			M
<i>Surr: 2-Fluorobiphenyl (Surr)</i>	41.8		ug/L	46.7		89.5	9-87			M
<i>Surr: 2-Fluorophenol (Surr)</i>	39.9		ug/L	93.5		42.6	10-52			
<i>Surr: Nitrobenzene-d5 (Surr)</i>	42.8		ug/L	46.7		91.6	10-98.5			
<i>Surr: Phenol-d5 (Surr)</i>	30.3		ug/L	93.5		32.4	5-33			
<i>Surr: p-Terphenyl-d14 (Surr)</i>	42.6		ug/L	46.7		91.1	27-133			

Batch BFL0423 - SW3510C/EPA600-MS

Blank (BFL0423-BLK1)	Prepared & Analyzed: 12/12/2022									
bis (2-Ethylhexyl) phthalate	ND	5.00	ug/L							
Diethyl phthalate	ND	10.0	ug/L							
Di-n-butyl phthalate	ND	10.0	ug/L							
Phenol	ND	10.0	ug/L							
<i>Surr: 2,4,6-Tribromophenol (Surr)</i>	175		ug/L	100		175	10-86			S
<i>Surr: 2-Fluorobiphenyl (Surr)</i>	79.2		ug/L	50.0		158	9-87			S
<i>Surr: 2-Fluorophenol (Surr)</i>	95.2		ug/L	100		95.2	10-52			S
<i>Surr: Nitrobenzene-d5 (Surr)</i>	87.4		ug/L	50.0		175	10-98.5			S

Certificate of Analysis

Client Name: SCS Engineers-Winchester
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Date Issued: 12/30/2022 11:56:27AM

Semivolatile Organic Compounds by GCMS - Quality Control

Enthalpy Analytical

Analyte	Result	LOQ	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Qual
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Batch BFL0423 - SW3510C/EPA600-MS

Blank (BFL0423-BLK1)

Prepared & Analyzed: 12/12/2022

<i>Surr: Phenol-d5 (Surr)</i>	66.0		ug/L	100		66.0	5-33			S
<i>Surr: p-Terphenyl-d14 (Surr)</i>	90.0		ug/L	50.0		180	27-133			S

LCS (BFL0423-BS1)

Prepared: 12/12/2022 Analyzed: 12/13/2022

1,2,4-Trichlorobenzene	45.2	10.0	ug/L	50.0		90.5	22-135			
1,2-Dichlorobenzene	48.3	10.0	ug/L	50.0		96.6	22-115			
1,3-Dichlorobenzene	44.3	10.0	ug/L	50.0		88.6	22-112			
1,4-Dichlorobenzene	49.9	10.0	ug/L	50.0		99.8	13-112			
1-Chloronaphthalene	51.8	10.0	ug/L				0-200			
2,3,4,6-Tetrachlorophenol	1.20	10.0	ug/L				0-200			
2,4,6-Trichlorophenol	54.0	10.0	ug/L	50.0		108	11-145			
2,4-Dichlorophenol	54.7	10.0	ug/L	50.0		109	11-75			
2,4-Dimethylphenol	55.8	5.00	ug/L	50.0		112	11-121			
2,4-Dinitrophenol	37.6	50.0	ug/L	50.0		75.1	11-165			
2,4-Dinitrotoluene	77.0	10.0	ug/L	50.0		154	17-155			
2,6-Dinitrotoluene	69.9	10.0	ug/L	50.0		140	15-125			L
2-Chloronaphthalene	49.4	10.0	ug/L	50.0		98.7	27-89			L
2-Chlorophenol	58.7	10.0	ug/L	50.0		117	15-110			L
2-Nitrophenol	68.3	10.0	ug/L	50.0		137	11-115			L
3,3'-Dichlorobenzidine	44.4	10.0	ug/L	50.0		88.8	25-95			
4,6-Dinitro-2-methylphenol	74.7	50.0	ug/L	50.0		149	25-130			L
4-Aminobiphenyl	2.97	10.0	ug/L				0-200			
4-Bromophenyl phenyl ether	62.2	10.0	ug/L	50.0		124	15-110			L
4-Chlorophenyl phenyl ether	51.7	10.0	ug/L	50.0		103	15-110			
4-Nitrophenol	26.3	50.0	ug/L	50.0		52.5	12-70			

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Semivolatile Organic Compounds by GCMS - Quality Control

Enthalpy Analytical

Analyte	Result	LOQ	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Qual
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Batch BFL0423 - SW3510C/EPA600-MS

LCS (BFL0423-BS1)

Prepared: 12/12/2022 Analyzed: 12/13/2022

Acenaphthene	54.6	10.0	ug/L	50.0		109	18-85			L
Acenaphthylene	54.6	10.0	ug/L	50.0		109	20-75			L
Acetophenone	56.2	20.0	ug/L	50.0		112	0-200			
alpha-Terpineol	53.8	2.50	ug/L	50.0		108	0-200			
Anthracene	65.1	10.0	ug/L	50.0		130	35-95			L
Benzo (a) anthracene	76.2	10.0	ug/L	50.0		152	25-95			L
Benzo (a) pyrene	85.4	0.20	ug/L	50.0		171	37-110			L
Benzo (b) fluoranthene	77.8	10.0	ug/L	50.0		156	25-75			L
Benzo (g,h,i) perylene	82.8	10.0	ug/L	50.0		166	25-90			L
Benzo (k) fluoranthene	77.4	10.0	ug/L	50.0		155	25-95			L
bis (2-Chloroethoxy) methane	56.3	10.0	ug/L	50.0		113	25-110			L
bis (2-Chloroethyl) ether	59.4	10.0	ug/L	50.0		119	25-85			L
2,2'-Oxybis (1-chloropropane)	60.2	10.0	ug/L	50.0		120	25-95			L
bis (2-Ethylhexyl) phthalate	93.3	5.00	ug/L	50.0		187	30-125			L
Butyl benzyl phthalate	98.9	10.0	ug/L	50.0		198	30-115			L
Carbazole	69.6	2.50	ug/L	50.0		139	0-200			
Chrysene	76.5	10.0	ug/L	50.0		153	20-90			L
Dibenz (a,h) anthracene	91.4	10.0	ug/L	50.0		183	27-125			L
Dibenzofuran	ND	5.00	ug/L				0-200			
Diethyl phthalate	64.5	10.0	ug/L	50.0		129	25-120			L
Dimethyl phthalate	61.8	10.0	ug/L	50.0		124	25-125			
Di-n-butyl phthalate	50.9	10.0	ug/L	50.0		102	35-115			
Di-n-octyl phthalate	85.6	10.0	ug/L	50.0		171	25-105			L
Fluoranthene	67.3	10.0	ug/L	50.0		135	33-95			L
Fluorene	58.9	10.0	ug/L	50.0		118	15-97			L

Certificate of Analysis

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Semivolatile Organic Compounds by GCMS - Quality Control

Enthalpy Analytical

Analyte	Result	LOQ	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Qual
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Batch BFL0423 - SW3510C/EPA600-MS

LCS (BFL0423-BS1)

Prepared: 12/12/2022 Analyzed: 12/13/2022

Hexachlorobenzene	63.8	1.00	ug/L	50.0		128	25-125			L
Hexachlorobutadiene	43.9	10.0	ug/L	50.0		87.9	25-125			
Hexachlorocyclopentadiene	32.7	10.0	ug/L	50.0		65.5	25-125			
Hexachloroethane	46.4	10.0	ug/L	50.0		92.8	25-125			
Indeno (1,2,3-cd) pyrene	92.5	10.0	ug/L	50.0		185	25-125			L
Isophorone	40.8	10.0	ug/L	50.0		81.5	10-110			
Naphthalene	45.1	0.10	ug/L	50.0		90.1	12-100			
Nitrobenzene	64.1	10.0	ug/L	50.0		128	30-97			
n-Nitrosodimethylamine	46.9	10.0	ug/L	50.0		93.7	10-85			L
n-Nitrosodi-n-propylamine	63.3	10.0	ug/L	50.0		127	12-97			L
n-Nitrosodiphenylamine	52.1	10.0	ug/L	50.0		104	12-97			L
p-Chloro-m-cresol	59.0	10.0	ug/L	50.0		118	10-91			
Pentachlorophenol	65.6	20.0	ug/L	50.0		131	30-109			L
Phenanthrene	75.5	10.0	ug/L	50.0		151	30-88			L
Phenol	29.7	10.0	ug/L	50.5		58.8	10-70			
Pyrene	79.7	10.0	ug/L	50.0		159	27-110			L
Pyridine	50.3	10.0	ug/L	50.0		101	0-200			
<i>Surr: 2,4,6-Tribromophenol (Surr)</i>	<i>132</i>		ug/L	<i>100</i>		<i>132</i>	<i>10-86</i>			<i>S</i>
<i>Surr: 2-Fluorobiphenyl (Surr)</i>	<i>52.6</i>		ug/L	<i>50.0</i>		<i>105</i>	<i>9-87</i>			<i>S</i>
<i>Surr: 2-Fluorophenol (Surr)</i>	<i>84.9</i>		ug/L	<i>100</i>		<i>84.9</i>	<i>10-52</i>			<i>S</i>
<i>Surr: Nitrobenzene-d5 (Surr)</i>	<i>69.7</i>		ug/L	<i>50.0</i>		<i>139</i>	<i>10-98.5</i>			<i>S</i>
<i>Surr: Phenol-d5 (Surr)</i>	<i>58.5</i>		ug/L	<i>100</i>		<i>58.5</i>	<i>5-33</i>			<i>S</i>
<i>Surr: p-Terphenyl-d14 (Surr)</i>	<i>86.4</i>		ug/L	<i>50.0</i>		<i>173</i>	<i>27-133</i>			<i>S</i>

Certificate of Analysis

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Organochlorine Herbicides by GC/ECD - Quality Control

Enthalpy Analytical

Analyte	Result	LOQ	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Qual
Batch BFL0446 - SW8151A/EPA600										
Blank (BFL0446-BLK1)										
				Prepared: 12/12/2022 Analyzed: 12/16/2022						
2,4,5-TP (Silvex)	ND	0.500	ug/L							
2,4-D	ND	0.500	ug/L							
<i>Surr: DCAA (Surr)</i>	<i>0.892</i>		ug/L	<i>1.11</i>		<i>80.3</i>	<i>48.5-134</i>			
LCS (BFL0446-BS1)										
				Prepared: 12/12/2022 Analyzed: 12/16/2022						
2,4,5-T	0.526	0.500	ug/L	0.556		94.8	62-145			
2,4,5-TP (Silvex)	0.474	0.500	ug/L	0.556		85.4	62-132			
2,4-D	0.547	0.500	ug/L	0.556		98.4	74-139			
Dinoseb	0.575	0.500	ug/L	0.556		103	59-136			
Pentachlorophenol	0.600	0.500	ug/L	0.556		108	62-118			
<i>Surr: DCAA (Surr)</i>	<i>1.07</i>		ug/L	<i>1.11</i>		<i>96.2</i>	<i>70-130</i>			
Matrix Spike (BFL0446-MS1)										
		Source: 22L0423-13			Prepared: 12/12/2022 Analyzed: 12/16/2022					
2,4,5-T	0.552	0.500	ug/L	0.556	BLOD	99.3	53-144			
2,4,5-TP (Silvex)	0.624	0.500	ug/L	0.556	BLOD	112	52-129			
2,4-D	0.815	0.500	ug/L	0.556	BLOD	147	53-126			M
Dinoseb	0.731	0.500	ug/L	0.556	BLOD	132	60-137			
Pentachlorophenol	0.690	0.500	ug/L	0.556	BLOD	124	52-124			M
<i>Surr: DCAA (Surr)</i>	<i>1.24</i>		ug/L	<i>1.11</i>		<i>112</i>	<i>70-130</i>			
Matrix Spike Dup (BFL0446-MSD1)										
		Source: 22L0423-13			Prepared: 12/12/2022 Analyzed: 12/16/2022					
2,4,5-T	0.548	0.500	ug/L	0.556	BLOD	98.6	53-144	0.808	20	
2,4,5-TP (Silvex)	0.548	0.500	ug/L	0.556	BLOD	98.7	52-129	13.0	20	
2,4-D	0.791	0.500	ug/L	0.556	BLOD	142	53-126	3.02	20	M
Dinoseb	0.611	0.500	ug/L	0.556	BLOD	110	60-137	17.8	20	
Pentachlorophenol	0.578	0.500	ug/L	0.556	BLOD	104	52-124	17.6	20	

Certificate of Analysis

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Organochlorine Herbicides by GC/ECD - Quality Control

Enthalpy Analytical

Analyte	Result	LOQ	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Qual
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Batch BFL0446 - SW8151A/EPA600

Matrix Spike Dup (BFL0446-MSD1) **Source: 22L0423-13** Prepared: 12/12/2022 Analyzed: 12/16/2022

<i>Surr: DCAA (Surr)</i>	1.08	ug/L	1.11	97.1	70-130
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Certificate of Analysis

Client Name: SCS Engineers-Winchester
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Micro-extractables by GC/ECD - Quality Control

Enthalpy Analytical

Analyte	Result	LOQ	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Qual
Batch BFL0454 - SW8011										
Blank (BFL0454-BLK1)				Prepared & Analyzed: 12/12/2022						
1,2-Dibromoethane (EDB)	ND	0.010	ug/L							
1,2,3-Trichloropropane	ND	0.010	ug/L							
1,2-Dibromo-3-chloropropane (DBCP)	ND	0.010	ug/L							
LCS (BFL0454-BS1)				Prepared & Analyzed: 12/12/2022						
1,2-Dibromoethane (EDB)	0.224	0.010	ug/L	0.250		89.5	65-135			
1,2,3-Trichloropropane	0.206	0.010	ug/L	0.250		82.4	65-135			
1,2-Dibromo-3-chloropropane (DBCP)	0.241	0.010	ug/L	0.250		96.4	65-135			
Matrix Spike (BFL0454-MS1)				Source: 22L0423-13		Prepared: 12/12/2022 Analyzed: 12/13/2022				
1,2-Dibromoethane (EDB)	0.207	0.010	ug/L	0.251	BLOD	82.5	65-135			
1,2,3-Trichloropropane	0.752	0.010	ug/L	0.251	BLOD	300	65-135			M
1,2-Dibromo-3-chloropropane (DBCP)	0.195	0.010	ug/L	0.251	BLOD	77.6	65-135			
Matrix Spike Dup (BFL0454-MSD1)				Source: 22L0423-13		Prepared: 12/12/2022 Analyzed: 12/13/2022				
1,2-Dibromoethane (EDB)	0.213	0.010	ug/L	0.256	BLOD	83.2	65-135	2.64	20	
1,2,3-Trichloropropane	0.759	0.010	ug/L	0.256	BLOD	297	65-135	0.849	20	M
1,2-Dibromo-3-chloropropane (DBCP)	0.201	0.010	ug/L	0.256	BLOD	78.5	65-135	3.07	20	
Batch BFL0456 - SW8011										
Blank (BFL0456-BLK1)				Prepared: 12/12/2022 Analyzed: 12/13/2022						
1,2-Dibromoethane (EDB)	ND	0.010	ug/L							
1,2,3-Trichloropropane	ND	0.010	ug/L							
1,2-Dibromo-3-chloropropane (DBCP)	ND	0.010	ug/L							
LCS (BFL0456-BS1)				Prepared: 12/12/2022 Analyzed: 12/13/2022						
1,2-Dibromoethane (EDB)	0.215	0.010	ug/L	0.250		85.9	65-135			
1,2,3-Trichloropropane	0.193	0.010	ug/L	0.250		77.2	65-135			

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Micro-extractables by GC/ECD - Quality Control

Enthalpy Analytical

Analyte	Result	LOQ	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Qual
Batch BFL0456 - SW8011										
LCS (BFL0456-BS1)										
				Prepared: 12/12/2022 Analyzed: 12/13/2022						
1,2-Dibromo-3-chloropropane (DBCP)	0.219	0.010	ug/L	0.250		87.8	65-135			
Duplicate (BFL0456-DUP1)										
				Source: 22L0480-03 Prepared: 12/12/2022 Analyzed: 12/13/2022						
1,2-Dibromoethane (EDB)	ND	0.010	ug/L		BLOD			NA	20	
1,2,3-Trichloropropane	ND	0.010	ug/L		BLOD			NA	20	
1,2-Dibromo-3-chloropropane (DBCP)	ND	0.010	ug/L		BLOD			NA	20	
Matrix Spike (BFL0456-MS1)										
				Source: 22L0480-01 Prepared: 12/12/2022 Analyzed: 12/13/2022						
1,2-Dibromoethane (EDB)	0.245	0.010	ug/L	0.254	BLOD	96.5	65-135			
1,2,3-Trichloropropane	0.645	0.010	ug/L	0.254	BLOD	254	65-135			M
1,2-Dibromo-3-chloropropane (DBCP)	0.248	0.010	ug/L	0.254	BLOD	97.6	65-135			

Certificate of Analysis

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Head Space Analysis by GC - Quality Control

Enthalpy Analytical

Analyte	Result	LOQ	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Qual
Batch BFL0394 - SW5030B-MS										
Blank (BFL0394-BLK1)			Prepared & Analyzed: 12/09/2022							
Ethane	ND	5.0	ug/L							
Ethene	ND	5.0	ug/L							
Methane	ND	5.0	ug/L							
<i>Surr: Acetylene (Surr)</i>	466		ug/L	432		108	70-130			
<i>Surr: Acetylene (Surr)</i>	466		ug/L	432		108	70-130			
LCS (BFL0394-BS1)			Prepared & Analyzed: 12/09/2022							
Methane	262	5.0	ug/L	266		98.6	70-130			
Ethene	467	5.0	ug/L	464		101	70-130			
Ethane	518	5.0	ug/L	500		104	70-130			
<i>Surr: Acetylene (Surr)</i>	462		ug/L	432		107	70-130			
<i>Surr: Acetylene (Surr)</i>	462		ug/L	432		107	70-130			
Matrix Spike (BFL0394-MS1)			Source: 22L0423-13		Prepared & Analyzed: 12/09/2022					
Methane	2450	5.0	ug/L	266	2280	64.3	70-130			M
Ethane	677	5.0	ug/L	500	BLOD	135	70-130			M
Ethene	607	5.0	ug/L	464	BLOD	131	70-130			M
<i>Surr: Acetylene (Surr)</i>	611		ug/L	432		141	70-130			S
<i>Surr: Acetylene (Surr)</i>	611		ug/L	432		141	70-130			S
Matrix Spike Dup (BFL0394-MSD1)			Source: 22L0423-13		Prepared & Analyzed: 12/09/2022					
Methane	2930	5.0	ug/L	266	2280	242	70-130	17.6	20	M
Ethene	622	5.0	ug/L	464	BLOD	134	70-130	2.46	20	M
Ethane	694	5.0	ug/L	500	BLOD	139	70-130	2.47	20	M
<i>Surr: Acetylene (Surr)</i>	612		ug/L	432		142	70-130			S
<i>Surr: Acetylene (Surr)</i>	612		ug/L	432		142	70-130			S

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Wet Chemistry Analysis - Quality Control

Enthalpy Analytical

Analyte	Result	LOQ	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Qual
Batch BFL0382 - No Prep Wet Chem										
Blank (BFL0382-BLK1)				Prepared & Analyzed: 12/09/2022						
Sulfide	ND	1.00	mg/L							
LCS (BFL0382-BS1)				Prepared & Analyzed: 12/09/2022						
Sulfide	5.25	1	mg/L	5.00		105	80-120			
Matrix Spike (BFL0382-MS1)				Source: 22L0423-13 Prepared & Analyzed: 12/09/2022						
Sulfide	5.43	1.00	mg/L	5.00	BLOD	109	75-125			
Matrix Spike Dup (BFL0382-MSD1)				Source: 22L0423-13 Prepared & Analyzed: 12/09/2022						
Sulfide	5.11	1.00	mg/L	5.00	BLOD	102	75-125	6.07	20	
Batch BFL0440 - No Prep IC										
Blank (BFL0440-BLK1)				Prepared & Analyzed: 12/09/2022						
Chloride	ND	1.0	mg/L							
LCS (BFL0440-BS1)				Prepared & Analyzed: 12/09/2022						
Chloride	21.0	1	mg/L	20.0		105	90-110			
LCS Dup (BFL0440-BSD1)				Prepared & Analyzed: 12/09/2022						
Chloride	21.4	1	mg/L	20.0		107	90-110	1.87	15	
Matrix Spike (BFL0440-MS1)				Source: 22L0294-01RE1 Prepared & Analyzed: 12/09/2022						
Chloride	357	11.1	mg/L	111	242	104	90-110			
Matrix Spike (BFL0440-MS2)				Source: 22L0436-02 Prepared & Analyzed: 12/10/2022						
Chloride	100	1.1	mg/L	11.1	90.6	87.3	90-110			M

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Wet Chemistry Analysis - Quality Control

Enthalpy Analytical

Analyte	Result	LOQ	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Qual
Batch BFL0440 - No Prep IC										
Matrix Spike Dup (BFL0440-MSD1)		Source: 22L0294-01RE1			Prepared & Analyzed: 12/09/2022					
Chloride	329	11.1	mg/L	111	242	78.7	90-110	8.15	15	M
Matrix Spike Dup (BFL0440-MSD2)		Source: 22L0436-02			Prepared & Analyzed: 12/10/2022					
Chloride	98.9	1.1	mg/L	11.1	90.6	73.9	90-110	1.50	15	M
Batch BFL0447 - No Prep IC										
Blank (BFL0447-BLK1)		Prepared & Analyzed: 12/12/2022								
Chloride	ND	1.0	mg/L							
LCS (BFL0447-BS1)		Prepared & Analyzed: 12/12/2022								
Chloride	19.9	1	mg/L	20.0		99.3	90-110			
LCS Dup (BFL0447-BSD1)		Prepared & Analyzed: 12/12/2022								
Chloride	21.5	1	mg/L	20.0		108	90-110	8.18	15	
Matrix Spike (BFL0447-MS1)		Source: 22L0423-13			Prepared & Analyzed: 12/12/2022					
Chloride	155	11.1	mg/L	111	37.0	106	90-110			
Matrix Spike (BFL0447-MS2)		Source: 22L0482-03			Prepared & Analyzed: 12/13/2022					
Chloride	13.3	1.1	mg/L	11.1	2.6	96.5	90-110			
Matrix Spike Dup (BFL0447-MSD1)		Source: 22L0423-13			Prepared & Analyzed: 12/12/2022					
Chloride	153	11.1	mg/L	111	37.0	105	90-110	1.18	15	
Matrix Spike Dup (BFL0447-MSD2)		Source: 22L0482-03			Prepared & Analyzed: 12/13/2022					
Chloride	11.8	1.1	mg/L	11.1	2.6	83.3	90-110	11.8	15	M

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Wet Chemistry Analysis - Quality Control

Enthalpy Analytical

Analyte	Result	LOQ	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Qual
Batch BFL0553 - No Prep Wet Chem										
Blank (BFL0553-BLK1)				Prepared & Analyzed: 12/14/2022						
Cyanide	ND	0.01	mg/L							
LCS (BFL0553-BS1)				Prepared & Analyzed: 12/14/2022						
Cyanide	0.26	0.01	mg/L	0.250		105	80-120			
Matrix Spike (BFL0553-MS1)				Source: 22L0495-03 Prepared & Analyzed: 12/14/2022						
Cyanide	0.22	0.01	mg/L	0.250	BLOD	88.1	80-120			
Matrix Spike (BFL0553-MS2)				Source: 22L0423-13 Prepared & Analyzed: 12/14/2022						
Cyanide	0.23	0.01	mg/L	0.250	BLOD	91.4	80-120			
Matrix Spike Dup (BFL0553-MSD1)				Source: 22L0495-03 Prepared & Analyzed: 12/14/2022						
Cyanide	0.24	0.01	mg/L	0.250	BLOD	96.4	80-120	8.97	20	
Matrix Spike Dup (BFL0553-MSD2)				Source: 22L0423-13 Prepared & Analyzed: 12/14/2022						
Cyanide	0.24	0.01	mg/L	0.250	BLOD	96.8	80-120	5.74	20	
Batch BFL0614 - No Prep Wet Chem										
Blank (BFL0614-BLK1)				Prepared & Analyzed: 12/15/2022						
Cyanide	ND	0.01	mg/L							
Blank (BFL0614-BLK2)				Prepared & Analyzed: 12/15/2022						
Cyanide	ND	0.01	mg/L							
Blank (BFL0614-BLK3)				Prepared & Analyzed: 12/15/2022						
Cyanide	ND	0.01	mg/L							

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Wet Chemistry Analysis - Quality Control

Enthalpy Analytical

Analyte	Result	LOQ	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Qual
Batch BFL0614 - No Prep Wet Chem										
Blank (BFL0614-BLK4)				Prepared & Analyzed: 12/15/2022						
Cyanide	ND	0.01	mg/L							
Blank (BFL0614-BLK5)				Prepared & Analyzed: 12/15/2022						
Cyanide	ND	0.01	mg/L							
Blank (BFL0614-BLK6)				Prepared & Analyzed: 12/15/2022						
Cyanide	ND	0.01	mg/L							
LCS (BFL0614-BS1)				Prepared & Analyzed: 12/15/2022						
Cyanide	0.24	0.01	mg/L	0.250		97.3	80-120			
LCS (BFL0614-BS2)				Prepared & Analyzed: 12/15/2022						
Cyanide	0.23	0.01	mg/L	0.250		93.9	80-120			
Matrix Spike (BFL0614-MS1)				Source: 22L0722-03 Prepared & Analyzed: 12/15/2022						
Cyanide	0.23	0.01	mg/L	0.250	BLOD	91.3	80-120			
Matrix Spike (BFL0614-MS2)				Source: 22L0480-07 Prepared & Analyzed: 12/15/2022						
Cyanide	0.22	0.01	mg/L	0.250	BLOD	87.7	80-120			
Matrix Spike Dup (BFL0614-MSD1)				Source: 22L0722-03 Prepared & Analyzed: 12/15/2022						
Cyanide	0.24	0.01	mg/L	0.250	BLOD	95.1	80-120	4.03	20	
Matrix Spike Dup (BFL0614-MSD2)				Source: 22L0480-07 Prepared & Analyzed: 12/15/2022						
Cyanide	0.24	0.01	mg/L	0.250	BLOD	95.6	80-120	8.64	20	

Batch BFL0645 - No Prep Wet Chem

Blank (BFL0645-BLK1) Prepared & Analyzed: 12/15/2022

Alkalinity	ND	5.0	mg/L	
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Wet Chemistry Analysis - Quality Control

Enthalpy Analytical

Analyte	Result	LOQ	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Qual
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Batch BFL0645 - No Prep Wet Chem

LCS (BFL0645-BS1)

Prepared & Analyzed: 12/15/2022

Alkalinity	51.0	5.0	mg/L	50.0		102	80-120			
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Duplicate (BFL0645-DUP1)

Source: 22L0423-13

Prepared & Analyzed: 12/15/2022

Alkalinity	651	5.0	mg/L		647			0.616	20	
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Analytical Summary

Sample ID	Preparation Factors Initial / Final	Method	Batch ID	Sequence ID	Calibration ID
Metals (Total) by EPA 6000/7000 Series Methods			Preparation Method:	EPA200.8 R5.4	
22L0423-01	50.0 mL / 50.0 mL	SW6020B	BFL0428	SFL0657	AL20106
22L0423-02	50.0 mL / 50.0 mL	SW6020B	BFL0428	SFL0657	AL20106
22L0423-03	50.0 mL / 50.0 mL	SW6020B	BFL0428	SFL0657	AL20106
22L0423-03RE1	50.0 mL / 50.0 mL	SW6020B	BFL0428	SFL0673	AL20109
22L0423-04	50.0 mL / 50.0 mL	SW6020B	BFL0428	SFL0657	AL20106
22L0423-05	50.0 mL / 50.0 mL	SW6020B	BFL0428	SFL0657	AL20106
22L0423-06	50.0 mL / 50.0 mL	SW6020B	BFL0428	SFL0657	AL20106
22L0423-07	50.0 mL / 50.0 mL	SW6020B	BFL0428	SFL0657	AL20106
22L0423-08	50.0 mL / 50.0 mL	SW6020B	BFL0428	SFL0657	AL20106
22L0423-09	50.0 mL / 50.0 mL	SW6020B	BFL0428	SFL0657	AL20106
22L0423-10	50.0 mL / 50.0 mL	SW6020B	BFL0428	SFL0657	AL20106
22L0423-11	50.0 mL / 50.0 mL	SW6020B	BFL0428	SFL0657	AL20106
22L0423-12	50.0 mL / 50.0 mL	SW6020B	BFL0428	SFL0657	AL20106
22L0423-13	50.0 mL / 50.0 mL	SW6020B	BFL0428	SFL0657	AL20106
22L0423-13RE1	50.0 mL / 50.0 mL	SW6020B	BFL0428	SFL0673	AL20109
22L0423-14	50.0 mL / 50.0 mL	SW6020B	BFL0428	SFL0657	AL20106
22L0423-14RE1	50.0 mL / 50.0 mL	SW6020B	BFL0428	SFL0673	AL20109
22L0423-15	50.0 mL / 50.0 mL	SW6020B	BFL0428	SFL0657	AL20106
22L0423-15RE1	50.0 mL / 50.0 mL	SW6020B	BFL0428	SFL0673	AL20109
22L0423-16	50.0 mL / 50.0 mL	SW6020B	BFL0428	SFL0657	AL20106
22L0423-01RE1	50.0 mL / 50.0 mL	SW6020B	BFL0762	SFL0744	AL20119
22L0423-02RE2	50.0 mL / 50.0 mL	SW6020B	BFL0762	SFL0744	AL20119
22L0423-03RE2	50.0 mL / 50.0 mL	SW6020B	BFL0762	SFL0744	AL20119
22L0423-04RE1	50.0 mL / 50.0 mL	SW6020B	BFL0762	SFL0744	AL20119
22L0423-05RE1	50.0 mL / 50.0 mL	SW6020B	BFL0762	SFL0744	AL20119
22L0423-13RE2	50.0 mL / 50.0 mL	SW6020B	BFL0762	SFL0744	AL20119
22L0423-14RE2	50.0 mL / 50.0 mL	SW6020B	BFL0762	SFL0744	AL20119

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Sample ID	Preparation Factors Initial / Final	Method	Batch ID	Sequence ID	Calibration ID
Metals (Total) by EPA 6000/7000 Series Methods			Preparation Method: EPA200.8 R5.4		
22L0423-15RE3	50.0 mL / 50.0 mL	SW6020B	BFL0762	SFL0744	AL20119
22L0423-16RE2	50.0 mL / 50.0 mL	SW6020B	BFL0762	SFL0744	AL20119

Sample ID	Preparation Factors Initial / Final	Method	Batch ID	Sequence ID	Calibration ID
Wet Chemistry Analysis			Preparation Method: No Prep IC		
22L0423-14	1.00 mL / 1.00 mL	EPA300.0 R2.1	BFL0440	SFL0392	AB20157
22L0423-15	1.00 mL / 1.00 mL	EPA300.0 R2.1	BFL0440	SFL0392	AB20157
22L0423-16	1.00 mL / 1.00 mL	EPA300.0 R2.1	BFL0440	SFL0392	AB20157
22L0423-13	1.00 mL / 1.00 mL	EPA300.0 R2.1	BFL0447	SFL0436	AB20157

Sample ID	Preparation Factors Initial / Final	Method	Batch ID	Sequence ID	Calibration ID
Wet Chemistry Analysis			Preparation Method: No Prep Wet Chem		
22L0423-01	6.00 mL / 6.00 mL	SW9215	BFL0382	SFL0339	
22L0423-02	6.00 mL / 6.00 mL	SW9215	BFL0382	SFL0339	
22L0423-03	6.00 mL / 6.00 mL	SW9215	BFL0382	SFL0339	
22L0423-04	6.00 mL / 6.00 mL	SW9215	BFL0382	SFL0339	
22L0423-05	6.00 mL / 6.00 mL	SW9215	BFL0382	SFL0339	
22L0423-13	6.00 mL / 6.00 mL	SW9215	BFL0382	SFL0339	
22L0423-14	6.00 mL / 6.00 mL	SW9215	BFL0382	SFL0339	
22L0423-15	6.00 mL / 6.00 mL	SW9215	BFL0382	SFL0339	
22L0423-16	6.00 mL / 6.00 mL	SW9215	BFL0382	SFL0339	
22L0423-01	6.00 mL / 6.00 mL	SW9012B	BFL0553	SFL0524	AL20085
22L0423-02	6.00 mL / 6.00 mL	SW9012B	BFL0553	SFL0524	AL20085
22L0423-03	6.00 mL / 6.00 mL	SW9012B	BFL0553	SFL0524	AL20085
22L0423-13	6.00 mL / 6.00 mL	SW9012B	BFL0553	SFL0524	AL20085
22L0423-04	6.00 mL / 6.00 mL	SW9012B	BFL0614	SFL0571	AL20095
22L0423-05	6.00 mL / 6.00 mL	SW9012B	BFL0614	SFL0571	AL20095

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Sample ID	Preparation Factors Initial / Final	Method	Batch ID	Sequence ID	Calibration ID
Wet Chemistry Analysis			Preparation Method:	No Prep Wet Chem	
22L0423-14	6.00 mL / 6.00 mL	SW9012B	BFL0614	SFL0571	AL20095
22L0423-15	6.00 mL / 6.00 mL	SW9012B	BFL0614	SFL0571	AL20095
22L0423-16	6.00 mL / 6.00 mL	SW9012B	BFL0614	SFL0571	AL20095
22L0423-13	50.0 mL / 50.0 mL	SM22 2320B-2011	BFL0645	SFL0595	
22L0423-14	10.0 mL / 50.0 mL	SM22 2320B-2011	BFL0645	SFL0595	
22L0423-15	10.0 mL / 50.0 mL	SM22 2320B-2011	BFL0645	SFL0595	
22L0423-16	200 mL / 200 mL	SM22 2320B-2011	BFL0645	SFL0595	

Sample ID	Preparation Factors Initial / Final	Method	Batch ID	Sequence ID	Calibration ID
Semivolatile Organic Compounds by GCMS			Preparation Method:	SW3510C/EPA600-MS	
22L0423-01	1070 mL / 1.00 mL	SW8270E	BFL0373	SFL0425	AI20189
22L0423-02	1070 mL / 1.00 mL	SW8270E	BFL0373	SFL0425	AI20189
22L0423-03	1070 mL / 1.00 mL	SW8270E	BFL0373	SFL0425	AI20189
22L0423-04	1070 mL / 1.00 mL	SW8270E	BFL0373	SFL0425	AI20189
22L0423-13	1070 mL / 1.00 mL	SW8270E	BFL0373	SFL0425	AI20189
22L0423-05	1070 mL / 1.00 mL	SW8270E	BFL0423	SFL0372	AL20040
22L0423-14	1070 mL / 1.00 mL	SW8270E	BFL0423	SFL0372	AL20040
22L0423-15	1070 mL / 1.00 mL	SW8270E	BFL0423	SFL0372	AL20040
22L0423-16	1070 mL / 1.00 mL	SW8270E	BFL0423	SFL0372	AL20040

Sample ID	Preparation Factors Initial / Final	Method	Batch ID	Sequence ID	Calibration ID
Volatile Organic Compounds by GCMS			Preparation Method:	SW5030B-MS	
22L0423-01	5.00 mL / 5.00 mL	SW8260D	BFL0391	SFL0352	AL20034
22L0423-02	5.00 mL / 5.00 mL	SW8260D	BFL0391	SFL0352	AL20034
22L0423-03	5.00 mL / 5.00 mL	SW8260D	BFL0391	SFL0352	AL20034
22L0423-04	5.00 mL / 5.00 mL	SW8260D	BFL0391	SFL0352	AL20034
22L0423-05	5.00 mL / 5.00 mL	SW8260D	BFL0391	SFL0352	AL20034

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Sample ID	Preparation Factors Initial / Final	Method	Batch ID	Sequence ID	Calibration ID
Volatile Organic Compounds by GCMS			Preparation Method: SW5030B-MS		
22L0423-06	5.00 mL / 5.00 mL	SW8260D	BFL0391	SFL0352	AL20034
22L0423-07	5.00 mL / 5.00 mL	SW8260D	BFL0391	SFL0352	AL20034
22L0423-08	5.00 mL / 5.00 mL	SW8260D	BFL0391	SFL0352	AL20034
22L0423-09	5.00 mL / 5.00 mL	SW8260D	BFL0391	SFL0352	AL20034
22L0423-10	5.00 mL / 5.00 mL	SW8260D	BFL0391	SFL0352	AL20034
22L0423-11	5.00 mL / 5.00 mL	SW8260D	BFL0391	SFL0352	AL20034
22L0423-12	5.00 mL / 5.00 mL	SW8260D	BFL0391	SFL0352	AL20034
22L0423-13	5.00 mL / 5.00 mL	SW8260D	BFL0391	SFL0352	AL20034
22L0423-14	5.00 mL / 5.00 mL	SW8260D	BFL0391	SFL0352	AL20034
22L0423-15	5.00 mL / 5.00 mL	SW8260D	BFL0391	SFL0352	AL20034
22L0423-16	5.00 mL / 5.00 mL	SW8260D	BFL0391	SFL0352	AL20034
22L0423-17	5.00 mL / 5.00 mL	SW8260D	BFL0391	SFL0352	AL20034
22L0423-13	5.00 mL / 5.00 mL	RSK175M	BFL0394	SFL0366	AI20005
22L0423-14	5.00 mL / 5.00 mL	RSK175M	BFL0394	SFL0366	AI20005
22L0423-15	5.00 mL / 5.00 mL	RSK175M	BFL0394	SFL0366	AI20005
22L0423-16	5.00 mL / 5.00 mL	RSK175M	BFL0394	SFL0366	AI20005
22L0423-17	5.00 mL / 5.00 mL	RSK175M	BFL0394	SFL0366	AI20005
22L0423-14RE1	5.00 mL / 5.00 mL	SW8260D	BFL0436	SFL0414	AL20034
22L0423-15RE1	5.00 mL / 5.00 mL	SW8260D	BFL0436	SFL0414	AL20034

Sample ID	Preparation Factors Initial / Final	Method	Batch ID	Sequence ID	Calibration ID
Metals (Total) by EPA 6000/7000 Series Methods			Preparation Method: SW7470A		
22L0423-01	20.0 mL / 20.0 mL	SW7470A	BFL0592	SFL0594	AL20100
22L0423-02	20.0 mL / 20.0 mL	SW7470A	BFL0592	SFL0594	AL20100
22L0423-03	20.0 mL / 20.0 mL	SW7470A	BFL0592	SFL0594	AL20100
22L0423-04	20.0 mL / 20.0 mL	SW7470A	BFL0592	SFL0594	AL20100
22L0423-05	20.0 mL / 20.0 mL	SW7470A	BFL0592	SFL0594	AL20100
22L0423-13	20.0 mL / 20.0 mL	SW7470A	BFL0592	SFL0594	AL20100

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Sample ID	Preparation Factors Initial / Final	Method	Batch ID	Sequence ID	Calibration ID
Metals (Total) by EPA 6000/7000 Series Methods			Preparation Method: SW7470A		
22L0423-14	20.0 mL / 20.0 mL	SW7470A	BFL0592	SFL0594	AL20100
22L0423-15	20.0 mL / 20.0 mL	SW7470A	BFL0592	SFL0594	AL20100
22L0423-16	20.0 mL / 20.0 mL	SW7470A	BFL0592	SFL0594	AL20100

Sample ID	Preparation Factors Initial / Final	Method	Batch ID	Sequence ID	Calibration ID
Micro-extractables by GC/ECD			Preparation Method: SW8011		
22L0423-01	59.8 mL / 2.00 mL	SW8011	BFL0454	SFL0424	AJ20178
22L0423-02	59.4 mL / 2.00 mL	SW8011	BFL0454	SFL0424	AJ20178
22L0423-03	59.5 mL / 2.00 mL	SW8011	BFL0454	SFL0424	AJ20178
22L0423-04	60.1 mL / 2.00 mL	SW8011	BFL0454	SFL0424	AJ20178
22L0423-05	60.1 mL / 2.00 mL	SW8011	BFL0454	SFL0424	AJ20178
22L0423-06	58.9 mL / 2.00 mL	SW8011	BFL0454	SFL0424	AJ20178
22L0423-07	58.7 mL / 2.00 mL	SW8011	BFL0454	SFL0424	AJ20178
22L0423-08	58.3 mL / 2.00 mL	SW8011	BFL0454	SFL0424	AJ20178
22L0423-09	58.5 mL / 2.00 mL	SW8011	BFL0454	SFL0424	AJ20178
22L0423-10	58.7 mL / 2.00 mL	SW8011	BFL0454	SFL0424	AJ20178
22L0423-11	58.9 mL / 2.00 mL	SW8011	BFL0454	SFL0424	AJ20178
22L0423-12	58.5 mL / 2.00 mL	SW8011	BFL0454	SFL0424	AJ20178
22L0423-13	59.8 mL / 2.00 mL	SW8011	BFL0454	SFL0424	AJ20178
22L0423-14	59.1 mL / 2.00 mL	SW8011	BFL0454	SFL0424	AJ20178
22L0423-15	59.4 mL / 2.00 mL	SW8011	BFL0454	SFL0424	AJ20178
22L0423-16	59.6 mL / 2.00 mL	SW8011	BFL0456	SFL0474	AJ20178
22L0423-17	59.5 mL / 2.00 mL	SW8011	BFL0456	SFL0474	AJ20178

Sample ID	Preparation Factors Initial / Final	Method	Batch ID	Sequence ID	Calibration ID
Organochlorine Herbicides by GC/ECD			Preparation Method: SW8151A/EPA600		
22L0423-01	900 mL / 5.00 mL	SW8151A	BFL0446	SFL0672	AK20122
22L0423-02	900 mL / 5.00 mL	SW8151A	BFL0446	SFL0672	AK20122

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Sample ID	Preparation Factors Initial / Final	Method	Batch ID	Sequence ID	Calibration ID
Organochlorine Herbicides by GC/ECD			Preparation Method: SW8151A/EPA600		
22L0423-03	900 mL / 5.00 mL	SW8151A	BFL0446	SFL0672	AK20122
22L0423-04	900 mL / 5.00 mL	SW8151A	BFL0446	SFL0672	AK20122
22L0423-05	900 mL / 5.00 mL	SW8151A	BFL0446	SFL0672	AK20122
22L0423-13	900 mL / 5.00 mL	SW8151A	BFL0446	SFL0672	AK20122
22L0423-14	900 mL / 5.00 mL	SW8151A	BFL0446	SFL0766	AK20122
22L0423-15	900 mL / 5.00 mL	SW8151A	BFL0446	SFL0766	AK20122
22L0423-16	900 mL / 5.00 mL	SW8151A	BFL0446	SFL0672	AK20122

Certificate of Analysis

Client Name: SCS Engineers-Winchester
 Client Site I.D.: City of Bristol 2nd Semi-Annual
 Submitted To: Jennifer Robb

Date Issued: 12/30/2022 11:56:27AM

QC Analytical Summary

Sample ID	Preparation Factors Initial / Final	Method	Batch ID	Sequence ID	Calibration ID
Metals (Total) by EPA 6000/7000 Series Methods			Preparation Method:	EPA200.8 R5.4	
BFL0428-BLK1	50.0 mL / 50.0 mL	SW6020B	BFL0428	SFL0657	AL20106
BFL0428-BS1	50.0 mL / 50.0 mL	SW6020B	BFL0428	SFL0657	AL20106
BFL0428-MS1	50.0 mL / 50.0 mL	SW6020B	BFL0428	SFL0657	AL20106
BFL0428-MS2	50.0 mL / 50.0 mL	SW6020B	BFL0428	SFL0657	AL20106
BFL0428-MSD1	50.0 mL / 50.0 mL	SW6020B	BFL0428	SFL0657	AL20106
BFL0428-MSD2	50.0 mL / 50.0 mL	SW6020B	BFL0428	SFL0657	AL20106
BFL0762-BLK1	50.0 mL / 50.0 mL	SW6020B	BFL0762	SFL0744	AL20119
BFL0762-BS1	50.0 mL / 50.0 mL	SW6020B	BFL0762	SFL0744	AL20119
BFL0762-MS1	50.0 mL / 50.0 mL	SW6020B	BFL0762	SFL0744	AL20119
BFL0762-MS2		SW6020B	BFL0762		
BFL0762-MSD1	50.0 mL / 50.0 mL	SW6020B	BFL0762	SFL0744	AL20119
BFL0762-MSD2		SW6020B	BFL0762		

Sample ID	Preparation Factors Initial / Final	Method	Batch ID	Sequence ID	Calibration ID
Wet Chemistry Analysis			Preparation Method:	No Prep IC	
BFL0440-BLK1	1.00 mL / 1.00 mL	EPA300.0 R2.1	BFL0440	SFL0392	AB20157
BFL0440-BS1	1.00 mL / 1.00 mL	EPA300.0 R2.1	BFL0440	SFL0392	AB20157
BFL0440-BSD1	1.00 mL / 1.00 mL	EPA300.0 R2.1	BFL0440	SFL0392	AB20157
BFL0440-MS1	0.450 mL / 5.00 mL	EPA300.0 R2.1	BFL0440	SFL0392	AB20157
BFL0440-MS2	4.50 mL / 5.00 mL	EPA300.0 R2.1	BFL0440	SFL0392	AB20157
BFL0440-MSD1	0.450 mL / 5.00 mL	EPA300.0 R2.1	BFL0440	SFL0392	AB20157
BFL0440-MSD2	4.50 mL / 5.00 mL	EPA300.0 R2.1	BFL0440	SFL0392	AB20157
BFL0447-BLK1	1.00 mL / 1.00 mL	EPA300.0 R2.1	BFL0447	SFL0436	AB20157

Certificate of Analysis

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 Submitted To: Jennifer Robb

Date Issued: 12/30/2022 11:56:27AM

Sample ID	Preparation Factors Initial / Final	Method	Batch ID	Sequence ID	Calibration ID
Wet Chemistry Analysis			Preparation Method:	No Prep IC	
BFL0447-BS1	1.00 mL / 1.00 mL	EPA300.0 R2.1	BFL0447	SFL0436	AB20157
BFL0447-BSD1	1.00 mL / 1.00 mL	EPA300.0 R2.1	BFL0447	SFL0436	AB20157
BFL0447-MS1	0.450 mL / 5.00 mL	EPA300.0 R2.1	BFL0447	SFL0436	AB20157
BFL0447-MS2	4.50 mL / 5.00 mL	EPA300.0 R2.1	BFL0447	SFL0436	AB20157
BFL0447-MSD1	0.450 mL / 5.00 mL	EPA300.0 R2.1	BFL0447	SFL0436	AB20157
BFL0447-MSD2	4.50 mL / 5.00 mL	EPA300.0 R2.1	BFL0447	SFL0436	AB20157

Sample ID	Preparation Factors Initial / Final	Method	Batch ID	Sequence ID	Calibration ID
Wet Chemistry Analysis			Preparation Method:	No Prep Wet Chem	
BFL0382-BLK1	6.00 mL / 6.00 mL	SW9215	BFL0382	SFL0339	
BFL0382-BS1	6.00 mL / 6.00 mL	SW9215	BFL0382	SFL0339	
BFL0382-MRL1	6.00 mL / 6.00 mL	SW9215	BFL0382	SFL0339	
BFL0382-MS1	6.00 mL / 6.00 mL	SW9215	BFL0382	SFL0339	
BFL0382-MSD1	6.00 mL / 6.00 mL	SW9215	BFL0382	SFL0339	
BFL0553-BLK1	6.00 mL / 6.00 mL	SW9012B	BFL0553	SFL0524	AL20085
BFL0553-BS1	6.00 mL / 6.00 mL	SW9012B	BFL0553	SFL0524	AL20085
BFL0553-MRL1	6.00 mL / 6.00 mL	SW9012B	BFL0553	SFL0524	AL20085
BFL0553-MS1	6.00 mL / 6.00 mL	SW9012B	BFL0553	SFL0524	AL20085
BFL0553-MS2	6.00 mL / 6.00 mL	SW9012B	BFL0553	SFL0524	AL20085
BFL0553-MSD1	6.00 mL / 6.00 mL	SW9012B	BFL0553	SFL0524	AL20085
BFL0553-MSD2	6.00 mL / 6.00 mL	SW9012B	BFL0553	SFL0524	AL20085
BFL0614-BLK1	6.00 mL / 6.00 mL	SW9012B	BFL0614	SFL0571	AL20095
BFL0614-BLK2	6.00 mL / 6.00 mL	SW9012B	BFL0614	SFL0571	AL20095
BFL0614-BLK3	6.00 mL / 6.00 mL	SW9012B	BFL0614	SFL0571	AL20095
BFL0614-BLK4	6.00 mL / 6.00 mL	SW9012B	BFL0614	SFL0571	AL20095
BFL0614-BLK5	6.00 mL / 6.00 mL	SW9012B	BFL0614	SFL0571	AL20095
BFL0614-BLK6	6.00 mL / 6.00 mL	SW9012B	BFL0614	SFL0571	AL20095
BFL0614-BS1	6.00 mL / 6.00 mL	SW9012B	BFL0614	SFL0571	AL20095

Certificate of Analysis

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 Submitted To: Jennifer Robb

Date Issued: 12/30/2022 11:56:27AM

Sample ID	Preparation Factors Initial / Final	Method	Batch ID	Sequence ID	Calibration ID
Wet Chemistry Analysis			Preparation Method:	No Prep Wet Chem	
BFL0614-BS2	6.00 mL / 6.00 mL	SW9012B	BFL0614	SFL0571	AL20095
BFL0614-MRL1	6.00 mL / 6.00 mL	SW9012B	BFL0614	SFL0571	AL20095
BFL0614-MRL2	6.00 mL / 6.00 mL	SW9012B	BFL0614	SFL0571	AL20095
BFL0614-MRL3	6.00 mL / 6.00 mL	SW9012B	BFL0614	SFL0571	AL20095
BFL0614-MRL4	6.00 mL / 6.00 mL	SW9012B	BFL0614	SFL0571	AL20095
BFL0614-MRL5	6.00 mL / 6.00 mL	SW9012B	BFL0614	SFL0571	AL20095
BFL0614-MS1	6.00 mL / 6.00 mL	SW9012B	BFL0614	SFL0571	AL20095
BFL0614-MS2	6.00 mL / 6.00 mL	SW9012B	BFL0614	SFL0571	AL20095
BFL0614-MSD1	6.00 mL / 6.00 mL	SW9012B	BFL0614	SFL0571	AL20095
BFL0614-MSD2	6.00 mL / 6.00 mL	SW9012B	BFL0614	SFL0571	AL20095
BFL0645-BLK1	200 mL / 200 mL	SM22 2320B-2011	BFL0645	SFL0595	
BFL0645-BS1	50.0 mL / 50.0 mL	SM22 2320B-2011	BFL0645	SFL0595	
BFL0645-DUP1	50.0 mL / 50.0 mL	SM22 2320B-2011	BFL0645	SFL0595	
BFL0645-MRL1	50.0 mL / 50.0 mL	SM22 2320B-2011	BFL0645	SFL0595	

Sample ID	Preparation Factors Initial / Final	Method	Batch ID	Sequence ID	Calibration ID
Semivolatile Organic Compounds by GCMS			Preparation Method:	SW3510C/EPA600-MS	
BFL0373-BLK1	1000 mL / 1.00 mL	SW8270E	BFL0373	SFL0425	AI20189
BFL0373-BS1	1000 mL / 1.00 mL	SW8270E	BFL0373	SFL0425	AI20189
BFL0373-MS1	1070 mL / 1.00 mL	SW8270E	BFL0373	SFL0426	AI20189
BFL0373-MSD1	1070 mL / 1.00 mL	SW8270E	BFL0373	SFL0425	AI20189
BFL0423-BLK1	1000 mL / 1.00 mL	SW8270E	BFL0423	SFL0372	AL20040
BFL0423-BS1	1000 mL / 1.00 mL	SW8270E	BFL0423	SFL0470	AL20040

Sample ID	Preparation Factors Initial / Final	Method	Batch ID	Sequence ID	Calibration ID
Volatile Organic Compounds by GCMS			Preparation Method:	SW5030B-MS	
BFL0391-BLK1	5.00 mL / 5.00 mL	SW8260D	BFL0391	SFL0352	AL20034

Certificate of Analysis

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Sample ID	Preparation Factors Initial / Final	Method	Batch ID	Sequence ID	Calibration ID
Volatile Organic Compounds by GCMS			Preparation Method: SW5030B-MS		
BFL0391-BS1	5.00 mL / 5.00 mL	SW8260D	BFL0391	SFL0352	AL20034
BFL0391-MS1	5.00 mL / 5.00 mL	SW8260D	BFL0391	SFL0352	AL20034
BFL0391-MSD1	5.00 mL / 5.00 mL	SW8260D	BFL0391	SFL0352	AL20034
BFL0394-BLK1	5.00 mL / 5.00 mL	RSK175M	BFL0394	SFL0366	AI20005
BFL0394-BS1	5.00 mL / 5.00 mL	RSK175M	BFL0394	SFL0366	AI20005
BFL0394-MS1	5.00 mL / 5.00 mL	RSK175M	BFL0394	SFL0366	AI20005
BFL0394-MSD1	5.00 mL / 5.00 mL	RSK175M	BFL0394	SFL0366	AI20005
BFL0436-BLK1	5.00 mL / 5.00 mL	SW8260D	BFL0436	SFL0414	AL20034
BFL0436-BS1	5.00 mL / 5.00 mL	SW8260D	BFL0436	SFL0414	AL20034
BFL0436-DUP1	5.00 mL / 5.00 mL	SW8260D	BFL0436	SFL0414	AL20034
BFL0436-MS1	5.00 mL / 5.00 mL	SW8260D	BFL0436	SFL0414	AL20034

Sample ID	Preparation Factors Initial / Final	Method	Batch ID	Sequence ID	Calibration ID
Metals (Total) by EPA 6000/7000 Series Methods			Preparation Method: SW7470A		
BFL0592-BLK1	20.0 mL / 20.0 mL	SW7470A	BFL0592	SFL0594	AL20100
BFL0592-BS1	20.0 mL / 20.0 mL	SW7470A	BFL0592	SFL0594	AL20100
BFL0592-MS1	20.0 mL / 20.0 mL	SW7470A	BFL0592	SFL0594	AL20100
BFL0592-MSD1	20.0 mL / 20.0 mL	SW7470A	BFL0592	SFL0594	AL20100

Sample ID	Preparation Factors Initial / Final	Method	Batch ID	Sequence ID	Calibration ID
Micro-extractables by GC/ECD			Preparation Method: SW8011		
BFL0454-BLK1	60.0 mL / 2.00 mL	SW8011	BFL0454	SFL0424	AJ20178
BFL0454-BS1	60.0 mL / 2.00 mL	SW8011	BFL0454	SFL0424	AJ20178
BFL0454-MS1	59.8 mL / 2.00 mL	SW8011	BFL0454	SFL0424	AJ20178
BFL0454-MSD1	58.7 mL / 2.00 mL	SW8011	BFL0454	SFL0424	AJ20178
BFL0456-BLK1	60.0 mL / 2.00 mL	SW8011	BFL0456	SFL0474	AJ20178
BFL0456-BS1	60.0 mL / 2.00 mL	SW8011	BFL0456	SFL0474	AJ20178

Certificate of Analysis

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Date Issued: 12/30/2022 11:56:27AM

Sample ID	Preparation Factors Initial / Final	Method	Batch ID	Sequence ID	Calibration ID
Micro-extractables by GC/ECD			Preparation Method: SW8011		
BFL0456-DUP1	59.4 mL / 2.00 mL	SW8011	BFL0456	SFL0474	AJ20178
BFL0456-MS1	59.1 mL / 2.00 mL	SW8011	BFL0456	SFL0474	AJ20178
Sample ID	Preparation Factors Initial / Final	Method	Batch ID	Sequence ID	Calibration ID
Organochlorine Herbicides by GC/ECD			Preparation Method: SW8151A/EPA600		
BFL0446-BLK1	900 mL / 5.00 mL	SW8151A	BFL0446	SFL0672	AK20122
BFL0446-BS1	900 mL / 5.00 mL	SW8151A	BFL0446	SFL0672	AK20122
BFL0446-MS1	900 mL / 5.00 mL	SW8151A	BFL0446	SFL0672	AK20122
BFL0446-MSD1	900 mL / 5.00 mL	SW8151A	BFL0446	SFL0672	AK20122

Certificate of Analysis

Client Name: SCS Engineers-Winchester
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Date Issued: 12/30/2022 11:56:27AM

Certified Analyses included in this Report

Analyte	Certifications
<i>EPA300.0 R2.1 in Non-Potable Water</i>	
Chloride	VELAP,NCDEQ,PADEP,WVDEP
<i>RSK175M in Non-Potable Water</i>	
Ethane	VELAP
Ethene	VELAP
Methane	VELAP
<i>SM22 2320B-2011 in Non-Potable Water</i>	
Alkalinity	VELAP,WVDEP,PADEP
<i>SW6020B in Non-Potable Water</i>	
Antimony	VELAP,NCDEQ,WVDEP
Arsenic	VELAP,WVDEP
Barium	VELAP,WVDEP
Beryllium	VELAP,WVDEP
Cadmium	VELAP,WVDEP
Chromium	VELAP,WVDEP
Cobalt	VELAP,WVDEP
Copper	VELAP,WVDEP
Lead	VELAP,WVDEP
Nickel	VELAP,WVDEP
Selenium	VELAP,WVDEP
Silver	VELAP,WVDEP
Thallium	VELAP,WVDEP
Tin	VELAP,WVDEP
Vanadium	VELAP,WVDEP
Zinc	VELAP,WVDEP
<i>SW7470A in Non-Potable Water</i>	

Certificate of Analysis

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Certified Analyses included in this Report

Analyte	Certifications
Mercury	VELAP,NCDEQ,WVDEP
SW8011 in Non-Potable Water	
1,2-Dibromoethane (EDB)	VELAP,NCDEQ
1,2,3-Trichloropropane	VELAP,NCDEQ
1,2-Dibromo-3-chloropropane (DBCP)	VELAP,NCDEQ
SW8151A in Non-Potable Water	
2,4,5-TP (Silvex)	VELAP,PADEP,NCDEQ,WVDEP
2,4-D	VELAP,PADEP,NCDEQ,WVDEP
SW8260D in Non-Potable Water	
1,1,1,2-Tetrachloroethane	VELAP,NCDEQ,WVDEP
1,1,1-Trichloroethane	VELAP,NCDEQ,WVDEP
1,1,2,2-Tetrachloroethane	VELAP,NCDEQ,WVDEP
1,1,2-Trichloroethane	VELAP,NCDEQ,WVDEP
1,1-Dichloroethane	VELAP,NCDEQ,WVDEP
1,1-Dichloroethylene	VELAP,NCDEQ,WVDEP
1,2,3-Trichloropropane	VELAP,NCDEQ,WVDEP
1,2-Dichlorobenzene	VELAP,NCDEQ,WVDEP
1,2-Dichloroethane	VELAP,NCDEQ,WVDEP
1,2-Dichloropropane	VELAP,NCDEQ,WVDEP
1,4-Dichlorobenzene	VELAP,NCDEQ,WVDEP
2-Butanone (MEK)	VELAP,NCDEQ,WVDEP
2-Hexanone (MBK)	VELAP,NCDEQ,WVDEP
4-Methyl-2-pentanone (MIBK)	VELAP,NCDEQ,WVDEP
Acetone	VELAP,NCDEQ,WVDEP
Acrylonitrile	VELAP,NCDEQ,WVDEP
Benzene	VELAP,NCDEQ,WVDEP
Bromochloromethane	VELAP,NCDEQ,WVDEP

Certificate of Analysis

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Certified Analyses included in this Report

Analyte	Certifications
Bromodichloromethane	VELAP,NCDEQ,WVDEP
Bromoform	VELAP,NCDEQ,WVDEP
Bromomethane	VELAP,NCDEQ,WVDEP
Carbon disulfide	VELAP,NCDEQ,WVDEP
Carbon tetrachloride	VELAP,NCDEQ,WVDEP
Chlorobenzene	VELAP,NCDEQ,WVDEP
Chloroethane	VELAP,NCDEQ,WVDEP
Chloroform	VELAP,NCDEQ,WVDEP
Chloromethane	VELAP,NCDEQ,WVDEP
cis-1,2-Dichloroethylene	VELAP,NCDEQ,WVDEP
cis-1,3-Dichloropropene	VELAP,NCDEQ,WVDEP
Dibromochloromethane	VELAP,NCDEQ,WVDEP
Dibromomethane	VELAP,NCDEQ,WVDEP
Dichlorodifluoromethane	VELAP,NCDEQ,WVDEP
Ethylbenzene	VELAP,NCDEQ,WVDEP
Iodomethane	VELAP,NCDEQ,WVDEP
m+p-Xylenes	VELAP,NCDEQ,WVDEP
Methylene chloride	VELAP,NCDEQ,WVDEP
o-Xylene	VELAP,NCDEQ,WVDEP
Styrene	VELAP,NCDEQ,WVDEP
Tetrachloroethylene (PCE)	VELAP,NCDEQ,WVDEP
Toluene	VELAP,NCDEQ,WVDEP
trans-1,2-Dichloroethylene	VELAP,NCDEQ,WVDEP
trans-1,3-Dichloropropene	VELAP,NCDEQ,WVDEP
trans-1,4-Dichloro-2-butene	VELAP,NCDEQ,WVDEP
Trichloroethylene	VELAP,NCDEQ,WVDEP
Trichlorofluoromethane	VELAP,NCDEQ,WVDEP
Vinyl acetate	VELAP,NCDEQ,WVDEP

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Certified Analyses included in this Report

Analyte	Certifications
Vinyl chloride	VELAP,NCDEQ,WVDEP
Xylenes, Total	VELAP,NCDEQ,WVDEP
SW8270E in Non-Potable Water	
bis (2-Ethylhexyl) phthalate	VELAP,NCDEQ,WVDEP
Diethyl phthalate	VELAP,NCDEQ,WVDEP
Di-n-butyl phthalate	VELAP,NCDEQ,WVDEP
Phenol	VELAP,NCDEQ,WVDEP
SW9012B in Non-Potable Water	
Cyanide	VELAP,WVDEP
SW9215 in Non-Potable Water	
Sulfide	VELAP

Code	Description	Laboratory ID	Expires
MdDOE	Maryland DE Drinking Water	341	12/31/2023
NC	North Carolina DENR	495	07/31/2023
NCDEQ	North Carolina DEQ	495	07/31/2023
NCDOH	North Carolina Department of Health	51714	07/31/2023
NYDOH	New York DOH Drinking Water	12096	04/01/2023
PADEP	NELAP-Pennsylvania Certificate #008	68-03503	10/31/2023
VELAP	NELAP-Virginia Certificate #12157	460021	06/14/2023
WVDEP	West Virginia DEP	350	11/30/2023

Certificate of Analysis

Client Name: SCS Engineers-Winchester
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Submitted To: Jennifer Robb

Date Issued: 12/30/2022 11:56:27AM

Qualifiers and Definitions

CI	Residual Chlorine or other oxidizing agent was detected in the container used to analyze this sample.
DS	Surrogate concentration reflects a dilution factor.
E	Estimated concentration, outside calibration range
J	The reported result is an estimated value.
L	LCS recovery is outside of established acceptance limits
M	Matrix spike recovery is outside established acceptance limits
P	Duplicate analysis does not meet the acceptance criteria for precision
S	Surrogate recovery was outside acceptance criteria
RPD	Relative Percent Difference
Qual	Qualifiers
-RE	Denotes sample was re-analyzed
LOD	Limit of Detection
BLOD	Below Limit of Detection
LOQ	Limit of Quantitation
DF	Dilution Factor
TIC	Tentatively Identified Compounds are compounds that are identified by comparing the analyte mass spectral pattern with the NIST spectral library. A TIC spectral match is reported when the pattern is at least 75% consistent with the published pattern. Compound concentrations are estimated and are calculated using an internal standard response factor of 1.
PCBs, Total	Total PCBs are defined as the sum of detected Aroclors 1016, 1221, 1232, 1248, 1254, 1260, 1262, and 1268.

CHAIN OF CUSTODY

COMPANY NAME: SCS Engineers	INVOICE TO: SCS Reston	Project Name: City of Bristol 2nd Semi-Annual
CONTACT: Jennifer Robb	INVOICE CONTACT: Jennifer Robb	Site Name:
ADDRESS: 296 Victory Road, Winchester, VA 22602	INVOICE ADDRESS:	PROJECT NUMBER: 02218208.07 T1
PHONE #: (703) 471-6150	INVOICE PHONE #:	P.O. #:
FAX #: (703) 471-6676	EMAIL: jrobb@scsengineers.com	Pretreatment Program:

Is sample for compliance reporting? YES Va Is sample from a chlorinated supply? YES NO PWS I.D. #:

SAMPLER NAME (PRINT): M. NGUYEN
Anthony Minarch SAMPLER SIGNATURE: [Signature] Turn Around Time: 10 Day(s)

Matrix Codes: WW=Waste Water GW=Ground Water DW=Drinking Water S=Soil/Solids OR=Organic A=Air WP=Wipe OT=Other

CLIENT SAMPLE I.D.	Grab	Composite	Field Filtered (Dissolved Metals)	Composite Start Date	Composite Start Time	Grab Date or Composite Stop Date	Grab Time or Composite Stop Time	Time Preserved	Matrix (See Codes)	Number of Containers	ANALYSIS / (PRESERVATIVE)							COMMENTS
											VSWMR 3.1A (VOCs, EDB, Metals)	CN SW9012	Herb SW8151 (2,4-D & 2,4,5-TP)	Hg (7470) & Sn (6020)	Sulfide	VOC 3.1B Detects (Dichlorodifluoromethane)	SVOCs (3.1b Detects): (Bis(2-ethylhexyl) phthalate, Diethyl phthalate, Di-n-butyl phthalate, and Phenol)	
											1) MW-104 B	X					120522	
2) MW-104 A	X					120522	1221		GW 10		X	X	X	X	X	X		
3) MW-106 A	X					120622	1246		GW 10		X	X	X	X	X	X		
4) MW-101	X					↓	1403		GW 10		X	X	X	X	X	X		
5) MW-205 B	X					↓	1500		GW 10		X	X	X	X	X	X		
6)																		
7)																	277	
8)																	Ice	
9)																	sealed	
10)																	4.0°C	

RELINQUISHED: <u>[Signature]</u>	DATE / TIME: 12/22/2022 01400	RECEIVED: <u>LCN</u>	DATE / TIME:
RELINQUISHED: <u>LCN</u>	DATE / TIME:	RECEIVED: <u>mm 12/8/22 0800</u>	DATE / TIME:
RELINQUISHED:	DATE / TIME:	RECEIVED:	DATE / TIME:

SCS-W 22L0423
Solid Waste Permit #498 & 588 Sen
Recd: 12/08/2022 Due: 12/22/2022
v130325002

COOLER TEMP _____ °C

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CHAIN OF CUSTODY

COMPANY NAME: SCS Engineers	INVOICE TO: SCS Reston	Project Name: City of Bristol 2nd Semi-Annual
CONTACT: Jennifer Robb	INVOICE CONTACT: Jennifer Robb	Site Name:
ADDRESS: 296 Victory Road, Winchester, VA 22602	INVOICE ADDRESS:	PROJECT NUMBER: 02218208.07 T1
PHONE #: (703) 471-6150	INVOICE PHONE #:	P.O. #:
FAX #: (703) 471-6676	EMAIL: jrobb@scsengineers.com	Pretreatment Program:
Is sample for compliance reporting? YES <input checked="" type="checkbox"/> Va	Is sample from a chlorinated supply? YES <input type="checkbox"/> NO <input checked="" type="checkbox"/>	PWS I.D. #:

SAMPLER NAME (PRINT): M. NGUYEN
Anthony Mimick

SAMPLER SIGNATURE: [Signature]

Turn Around Time: 10 Day

Matrix Codes: WW=Waste Water GW=Ground Water DW=Drinking Water S=Soil/Solids OR=Organic A=Air WP=Wipe OT=Other

CLIENT SAMPLE I.D.	Grab	Composite	Field Filtered (Dissolved Metals)	Composite Start Date	Composite Start Time	Grab Date or Composite Stop Date	Grab Time or Composite Stop Time	Time Preserved	Matrix (See Codes)	Number of Containers	ANALYSIS / (PRESERVATIVE)						COMMENTS	
											VSWMR 3.1A (VOCs, EDB, Metals)	VOCs 8260 & 8011						
1) MW-206A	X					120522	1049		GW	6	X							
2) MW-206B	X					↓	1150		GW	6	X							
3) MW-211A	X					120622	1133		GW	6	X							
4) MW-211B	X					↓	1149		GW	6	X							
5) MW-106B	X					↓	1315		GW	6	X							
6) MW-210A	X					120722	924		GW	6	X							277
7) MW-210B	X					↓	9:39		GW	6	X							1ce
8)																		sealed
9)																		4.0°C
10)																		

RELINQUISHED: [Signature] DATE / TIME: 12/07/22 1400

RECEIVED: LCN DATE / TIME: 12/18/22 0500

QC Data Pac

Level I

Level II

SCS-W
Solid Waste Permit #498 & 588 Sen
Recd: 12/08/2022 Due: 12/22/2022

22L0423

TEMP _____ °C

CHAIN OF CUSTODY

COMPANY NAME: SCS Engineers	INVOICE TO: SCS Reston	Project Name: City of Bristol 1st Semi-Annual
CONTACT: Jennifer Robb	INVOICE CONTACT: Jennifer Robb	Site Name:
ADDRESS: 296 Victory Road, Winchester, VA 22602	INVOICE ADDRESS:	PROJECT NUMBER: 02218208.07 T1
PHONE #: (703) 471-6150	INVOICE PHONE #:	P.O. #:
FAX #: (703) 471-6676	EMAIL: jrobb@scsengineers.com	Pretreatment Program:

Is sample for compliance reporting? YES **Va** Is sample from a chlorinated supply? YES **NO** PWS I.D. #:

SAMPLER NAME (PRINT): **A. MINNICK** SAMPLER SIGNATURE: *[Signature]* Turn Around Time: **10 DAYS**

Matrix Codes: WW=Waste Water GW=Ground Water DW=Drinking Water S=Soil/Solids OR=Organic A=Air WP=Wipe OT=Other

CLIENT SAMPLE I.D.	Grab	Composite	Field Filtered (Dissolved Metals)	Composite Start Date	Composite Start Time	Grab Date or Composite Stop Date	Grab Time or Composite Stop Time	Time Preserved	Matrix (See Codes)	Number of Containers	ANALYSIS / (PRESERVATIVE)									
											VSWMR 3.1A (VOCs, EDB, Metals)	CN SW9012	Herb SW8151 (2,4-D & 2,4,5-TP)	Hg (7470) & Sn (6020)	Sulfide	VOC 3.1B Detects (Dichlorodifluoromethane)	Alkalinity, Chloride 300.0	MEE RSK 175	SVOCs: (Bis(2-ethylhexyl) phthalate, Diethyl phthalate, Di-n-butyl phthalate, and Phenol)	PLEASE NOTE PRES INTERFERENCE CHE RATE (L/m)
1) MW-108 / MS / MSD	X					120522	1435		GW	45	X	X	X	X	X	X	X	X		
2) GC OUTFALL	X					120622	1030		GW	15	X	X	X	X	X	X	X	X		
3) GC OUTFALL DUPLICATE						↓	1045		GW	15	X	X	X	X	X	X	X	X		
4) FIELD BLANK	X					↓	1301		GW	15	X	X	X	X	X	X	X	X		
5) TRIP BLANK	X					112922	1100		DI	6	X				X		X		→ VOCs 8Z60	
6)																			8011	
7)																			MEE	
8)																			277	
9)																			100	
10)																			sealed	

RELINQUISHED: <i>[Signature]</i>	DATE / TIME: 12/07/22 1400	RECEIVED: LCN	DATE / TIME:
RELINQUISHED: LCN	DATE / TIME:	RECEIVED: mm	DATE / TIME: 12/8/22 0800
RELINQUISHED:	DATE / TIME:	RECEIVED:	DATE / TIME:

QC Data 22L0423

Level I

Level II

Level III

SCS-W 22L0423
Solid Waste Permit #498 & 588 Sen
Recd: 12/08/2022 Due: 12/22/2022

TEMP 4.0 °C

v130325002

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Sample Preservation Log

Order ID 22L0423

Date Performed: 12/9/22

Analyst Performing Check: CSB

Sample ID	Container ID	Metals		Cyanide		Sulfide		Ammonia		TKN		Phos, Tot		NO3+NO2		DRO		Pesticide (8081/808/508) PCB DW only			SVOC (525/5270/525)			CrVI * **		Pest/PCB (508) / SVOC(525)											
		pH as Received		pH as Received		pH as Received		pH as Received		pH as Received		pH as Received		pH as Received		pH as Received		pH as Received		Received Res. Cl	final + or -	Received Res. Cl	final + or -	Received pH	Final pH	pH as Received		pH as Received		pH as Received							
		< 2	Other	> 12	Other	> 6	Other	< 2	Other	< 2	Other	< 2	Other	< 2	Other	< 2	Other	< 2	Other	+	-	+	-			< 2	Other	Final pH	Other	Final pH	Other	Final pH					
04	F																																				
05	A			/																																	
05	D																																				
05	E	/																																			
05	F			/																																	
06	D	/																																			
07	D		3	42																																	
08	D	/																																			
09	D	/																																			
10	D	/																																			
11	D	/																																			
12	D	/																																			
13	C			/																																	
13	I																																				
13	J		5	42																																	

NaOH ID: _____ HNO₃ ID: 2K02236 CrVI preserved date/time: _____ Analyst Initials: _____
 H₂SO₄ ID: _____ Na₂S₂O₃ ID: _____ Buffer Sol'n ID: _____
 HCL ID: _____ Na₂SO₃ ID: _____ 1N NaOH ID: _____ 5N NaOH: _____

Metals were received with pH = 3,4,5,7
 HNO₃ was added at 1000 on 9 December
 2022 by ATGin the Log-In room to bring
 pH= <2.

**W.Va only certifies DISS CrVI and not T CrVI as an approved analyte under 40CFR136 for waste water.



Sample Preservation Log

Order ID 22L0423

Date Performed: 12/9/22

Analyst Performing Check: CSR

Sample ID	Container ID	Metals		Cyanide		Sulfide		Ammonia		TKN		Phos, Tot		NO3+NO2		DRO		Pesticide (8081/808/508) PCB DW only			SVOC (525/6270/625)			CrVI * **		Pest/PCB (508) / SVOC(525)										
		pH as Received		pH as Received		pH as Received		pH as Received		pH as Received		pH as Received		pH as Received		pH as Received		pH as Received		Received Res. Cl	final + or -	Received Res. Cl	final + or -	Received pH	Final pH	pH as Received		pH as Received		pH as Received						
		<2	Other	>12	Other	>8	Other	<2	Other	<2	Other	<2	Other	<2	Other	<2	Other	<2	Other	+	-	+	-			<2	Other	Other	Final pH	Other	Final pH					
13	K					/																														
13	AJ	5	<2																																	
13	AK	5	<2																																	
13	AN					/																														
13	AO					/																														
13	AP					/																														
13	AQ					/																														
14	C					/																														
14	I																																			
14	J	7	<2																																	
14	K					/																														
15	C					/																														
15	I																																			
15	J	/																																		
15	K					/																														

NaOH ID: _____ HNO3 ID: 2KO 2236 CrVI preserved date/time: _____ Analyst Initials: _____
 * pH must be adjusted between 9.3 - 9.7
 H2SO4 ID: _____ Na2S2O3 ID: _____ Buffer Sol'n ID: _____
 HCL ID: _____ Na2SO3 ID: _____ 1N NaOH ID: _____ 5N NaOH: _____

Metals were received with pH = 3,4,5,7
 HNO3 was added at 1000 on 9 December 2022 by ATG in the Log-In room to bring pH = <2.

**W.Va only certifies DISS CrVI and not T CrVI as an approved analyte under 40CFR138 for waste water.



Sample Preservation Log

Order ID 22L0423

Date Performed: 12/9/22

Analyst Performing Check: CSB

Sample ID	Container ID	Metals		Cyanide		Sulfide		Ammonia		TKN		Phos, Tot		NO3+NO2		DRO		Pesticide (8081/808/508) PCB DW only			SVOC (525/8270/625)			CrVI * **		Pest/PCB (508) / SVOC(525)							
		pH as Received		pH as Received		pH as Received		pH as Received		pH as Received		pH as Received		pH as Received		pH as Received		pH as Received		Received Res. Cl	final + or -	Received Res. Cl	final + or -	Received pH	Final pH	pH as Received	Final pH	pH as Received	Final pH	pH as Received	Final pH		
		< 2	Other	> 12	Other	> 8	Other	< 2	Other	< 2	Other	< 2	Other	< 2	Other	< 2	Other	< 2	Other	+	-	+	-			< 2	Other		Other		Other		
16	C			/																													
16	I																																
16	J			/																													
16	K					/																											

NaOH ID: _____ HNO₃ ID: 2K022 36 CrVI preserved date/time: _____ Analyst Initials: _____
 * pH must be adjusted between 9.3 - 9.7
 H₂SO₄ ID: _____ Na₂S₂O₃ ID: _____ Buffer Sol'n ID: _____
 HCL ID: _____ Na₂SO₃ ID: _____ 1N NaOH ID: _____ 5N NaOH: _____

Metals were received with pH = 3,4,5,7
 HNO₃ was added at 1000 on 9 December
 2022 by ATG in the Log-In room to bring
 pH = <2.

**W.Va only certifies DISS CrVI and not T CrVI as an approved analyte under 40CFR136 for waste water.

Certificate of Analysis

Client Name: SCS Engineers-Winchester
Client Site I.D.: City of Bristol 2nd Semi-Annual
Submitted To: Jennifer Robb

Date Issued: 12/30/2022 11:56:27AM

Certificate of Analysis


Client Name: SCS Engineers-Winchester
 Client Site I.D.: City of Bristol 2nd Semi-Annual
 Submitted To: Jennifer Robb

Date Issued: 12/30/2022 11:56:27AM

Laboratory Order ID: 22L0423

Sample Conditions Checklist

Samples Received at:	4.00°C
How were samples received?	Logistics Courier
Were Custody Seals used? If so, were they received intact?	Yes
Are the custody papers filled out completely and correctly?	Yes
Do all bottle labels agree with custody papers?	Yes
Is the temperature blank or representative sample within acceptable limits or received on ice, and recently taken?	Yes
Are all samples within holding time for requested laboratory tests?	Yes
Is a sufficient amount of sample provided to perform the tests included?	Yes
Are all samples in appropriate containers for the analyses requested?	Yes
Were volatile organic containers received?	Yes
Are all volatile organic and TOX containers free of headspace?	Yes
Is a trip blank provided for each VOC sample set? VOC sample sets include EPA8011, EPA504, EPA8260, EPA624, EPA8015 GRO, EPA8021, EPA524, and RSK-175.	Yes
Are all samples received appropriately preserved? Note that metals containers do not require field preservation but lab preservation may delay analysis.	Yes



Appendix E
Historical Laboratory Analytical Results

Historical Laboratory Analytical Results

Well Classification		Background			Compliance			LOD	LOQ
Parameter	Monitoring Event	MW-101	MW-104A	MW-104B	MW-106A	MW-108	MW-205B	(ug/L)	(ug/L)
COLUMN A METALS									
Antimony Current GPS = EPA-MCL EPA-MCL = 6 ug/L	November-2011	0.14 J	ND	ND	ND	ND	ND	0.07	0.5
	May-2012	0.92	ND	ND	ND	ND	ND	0.25	0.5
	November-2012	2.1	ND	ND	ND	ND	ND	0.5	1
	May-2013	ND	ND	ND	ND	ND	ND	0.5	1
	November-2013	0.95 J	ND	ND	ND	ND	ND	0.5	1
	May-2014	ND	ND	ND	ND	ND	ND	0.5	1
	October-2014	0.88 J	ND	ND	ND	ND	ND	0.5	1
	April-2015	ND	ND	ND	ND	ND	ND	0.5	1
	October-2015	ND	ND	ND	ND	ND	ND	0.5	1
	May-2016	ND	ND	ND	ND	ND	ND	0.5	1
	November-2016	1.2	ND	ND	ND	ND	ND	0.5	1
	May-2017	ND	ND	ND	ND	ND	ND	0.5	1
	October-2017	0.7 J	ND	ND	ND	ND	---	0.1	1
	November-2017	---	---	---	---	---	ND	0.1	1
	May-2018	ND	ND	ND	ND	ND	ND	3.9	5
	October-2018	0.42 J	ND	ND	ND	ND	ND	0.1	1
	April-2019	---	---	---	ND	---	ND	0.11	1
	May-2019	ND	ND	ND	---	ND	---	0.11	1
	October-2019	0.35 J	ND	ND	0.23 J	ND	ND	0.11	1
	May-2020	0.3 J	ND	ND	0.18 J	ND	ND	0.11	1
	November-2020	ND	ND	ND	ND	ND	ND	0.5	2
	May-2021	ND	ND	ND	ND	ND	ND	0.5	2
	November-2021	2 J	ND	ND	ND	ND	ND	0.57	6
May-2022	ND	ND	ND	ND	ND	ND	1	1	
December-2022	---	---	---	---	ND D	---	1	1	
Arsenic Current GPS = FBAC FBAC = 30.9 ug/L	May-2002	---	---	---	ND	---	---		10
	November-2002	---	---	---	ND	---	---		10
	May-2003	---	---	---	ND	---	---		10
	November-2003	---	---	---	ND	---	---		10
	May-2004	---	---	---	ND	---	---		50
	November-2004	---	---	---	ND	---	---		10
	May-2005	---	---	---	ND	---	---	1.32	10
	November-2005	---	---	---	ND	---	---	1.7	10
	May-2006	---	---	---	2.1 B	---	---	1.3	10
	December-2006	---	---	---	1.92 J	---	---	1.3	10
	June-2007	---	---	---	ND	---	---	1.42	10
	November-2007	---	---	---	ND	---	---	1.42	5
	April-2008	---	---	---	ND	---	---	1	5
	October-2008	---	---	---	ND	---	---	2.7	5
	March-2009	---	---	---	6.7 B	---	---	2.7	5
	October-2009	---	---	---	5	---	---	2.7	5
	April-2010	---	---	---	9 B	---	---	2.7	5
	November-2010	---	---	---	6.7	---	---	2.7	5
	May-2011	---	---	---	ND	---	---	2.7	5
	November-2011	ND	6.9	ND	ND	ND	ND	2.7	5
	May-2012	8.9	10.4	ND	ND	2.9 J	ND	2.7	5
	November-2012	30.9	9.8 J	ND	ND	3.3 J	ND	2.7	10
	May-2013	22.6	11.3	ND	ND	7.6 J	ND	2.7	10
	November-2013	16.3	11.4	ND	ND	ND	ND	2.7	10
	May-2014	ND	9.2 J	ND	ND	ND	ND	2.7	10
	October-2014	ND	10.3	ND	ND	ND	ND	5	10
	April-2015	ND	10.6	ND	ND	ND	ND	5	10
	October-2015	ND	8.2 J	ND	ND	6.1 J	ND	5	10
	May-2016	ND	9.7 J	ND	ND	6 J	ND	5	10
	November-2016	6.7 J	12.2	ND	ND	ND	ND	5	10
	May-2017	ND	ND	ND	ND	ND	ND	5	10
	October-2017	5.1 J	ND	ND	ND	12.5	---	5	10
	November-2017	---	---	---	---	---	ND	5	10
May-2018	ND	ND	ND	ND	ND	ND	5	10	
October-2018	ND	10.6	ND	ND	ND	ND	5	10	
April-2019	---	---	---	10.4 B	---	ND	5	10	
May-2019	ND	12.6 B	ND	---	11.2 B	---	5	10	
October-2019	ND	ND	ND	ND	ND	ND	5	10	
May-2020	ND	10.1	ND	7 J	ND	ND	4.7	10	
November-2020	1.5 J	8.5	ND	4.4	5.7	ND	1.3	2	
May-2021	ND	8 J	ND	9.7 J	7.4 J	ND	4.7	10	
November-2021	6.9 J	7.6 J	ND	ND	4.5 J	ND	4	10	
May-2022	1.7	9	ND	3.2	13	0.56 J	0.5	1	
December-2022	---	---	---	---	13 D	---	0.5	1	
December-2022	0.69 J	6.5	ND	3.4	12	ND	0.5	1	

Historical Laboratory Analytical Results

Well Classification		Background			Compliance			LOD	LOQ
Parameter	Monitoring Event	MW-101	MW-104A	MW-104B	MW-106A	MW-108	MW-205B	(ug/L)	(ug/L)
Cadmium Current GPS = EPA-MCL EPA-MCL = 5 ug/L	November-2011	ND	ND	ND	ND	ND	ND	0.5	1
	May-2012	ND	ND	ND	ND	ND	ND	0.5	1
	November-2012	ND	ND	ND	ND	ND	ND	0.5	1
	May-2013	13.7	ND	ND	ND	ND	ND	0.5	1
	November-2013	2.2	ND	ND	ND	ND	ND	0.5	1
	May-2014	ND	ND	ND	ND	ND	ND	0.5	1
	October-2014	ND	ND	ND	ND	ND	ND	0.05	1
	April-2015	ND	ND	ND	ND	ND	ND	0.05	1
	October-2015	ND	ND	ND	ND	ND	ND	0.5	1
	May-2016	ND	ND	ND	ND	ND	ND	0.5	1
	November-2016	ND	ND	ND	ND	ND	ND	0.5	1
	May-2017	ND	ND	ND	ND	ND	ND	0.5	1
	October-2017	ND	ND	ND	ND	ND	---	0.5	1
	November-2017	---	---	---	---	---	ND	0.5	1
	May-2018	ND	ND	ND	ND	ND	ND	0.5	1
	October-2018	ND	ND	ND	ND	ND	ND	0.5	1
	April-2019	---	---	---	ND	---	ND	0.5	1
	May-2019	ND	ND	ND	---	1.1	---	0.5	1
	October-2019	ND	ND	ND	ND	ND	ND	0.5	1
	May-2020	ND	ND	ND	ND	ND	ND	0.4	1
	November-2020	ND	ND	ND	ND	0.95	ND	0.13	0.5
	May-2021	ND	ND	ND	ND	0.8 J	ND	0.4	1
	November-2021	ND	ND	ND	ND	ND	ND	1.7	5
	May-2022	0.104 J	ND	ND	ND	0.203 J	ND	0.1	1
December-2022	---	---	---	---	ND D	---	0.1	1	
Chromium Current GPS = EPA-MCL EPA-MCL = 100 ug/L	November-2011	ND	ND	ND	ND	ND	ND	2	5
	May-2012	ND	ND	ND	ND	ND	ND	2	5
	November-2012	5.5	ND	ND	ND	ND	ND	2	5
	May-2013	4.2 J	ND	ND	ND	ND	ND	2	5
	November-2013	5.3	ND	2.4 J	ND	ND	ND	2	5
	May-2014	ND	ND	ND	ND	2.5 J	ND	2	5
	October-2014	ND	ND	ND	ND	ND	ND	2.5	5
	April-2015	3 J	ND	ND	ND	2.6 J	ND	2.5	5
	October-2015	3.4 J	ND	ND	ND	4 J	ND	2.5	5
	May-2016	ND	ND	ND	ND	2.9 J	ND	2.5	5
	November-2016	10.3	ND	ND	ND	ND	ND	2.5	5
	May-2017	ND	ND	ND	ND	ND	ND	2.5	5
	October-2017	2.8 J	ND	ND	ND	ND	---	2.5	5
	November-2017	---	---	---	---	---	ND	2.5	5
	May-2018	ND	ND	ND	ND	ND	ND	2.5	5
	October-2018	ND	ND	ND	ND	4.9 J	ND	2.5	5
	April-2019	---	---	---	ND	---	ND	2.5	5
	May-2019	ND	ND	ND	---	6.9	---	2.5	5
	October-2019	ND	ND	ND	ND	ND	ND	2.5	5
	May-2020	ND	ND	ND	ND	---	ND	1	5
	November-2020	---	---	---	---	ND	---	3.7	5
	November-2020	2.1 J	ND	ND	ND	6.2	ND	1.3	5
	May-2021	ND	ND	ND	ND	4.2 J	ND	3.7	5
	November-2021	13	ND	ND	ND	ND	ND	3.7	10
May-2022	5.38	ND	ND	ND	1.15	ND	0.4	1	
December-2022	---	---	---	---	0.473 J,D	---	0.4	1	
Cobalt Current GPS = FBAC FBAC = 27 ug/L	November-2011	7.9	ND	ND	5.2	8.6	ND	0.25	4
	May-2012	30.1	0.15 J	ND	5	40.1	0.14 J	0.07	4
	November-2012	---	1.2 J	ND	4.7	32.4	ND	0.5	4
	May-2013	74.3 D5	---	---	---	---	---	0.5	20
	November-2013	---	0.9 J	1.4 J	4.4	45.8	ND	0.5	4
	May-2014	51.4 D5	---	---	---	---	---	2.5	20
	November-2014	---	0.68 J	ND	5.2	34.7	ND	0.5	4
	May-2015	37.6 D5	---	---	---	---	---	2.5	20
	November-2015	7.1	0.54 J	ND	5.2	31.4	ND	0.5	4
	May-2016	---	1.1	ND	6.4	4.7	ND	0.5	1
	October-2016	34.8 D2	---	---	---	---	---	1	2
	April-2017	9.7	0.87 J	ND	6.2	31.9	ND	0.5	1
	October-2017	9.1	0.98 J	0.63 J	6.3	42.7	ND	0.5	4
	May-2018	5.4	0.6 J	ND	6.4	39.7	ND	0.5	4
	November-2018	47.8	0.82 J	ND	6.8	6.5	ND	0.5	4
	May-2019	14.2	ND	ND	6.5	30.6	ND	0.5	4
	October-2019	14.3	1 J	0.045 J	8.2	40.3	---	0.01	4
	November-2019	---	---	---	---	---	0.053 J	0.01	4
	May-2020	5.6	0.7 J	0.16 J	7.4	20.5	0.044 J	0.01	4
	October-2020	3.5 J	0.74 J	0.12 J	7.4	34.3	0.055 J	0.01	4
	April-2021	---	---	---	7.8	---	0.26 J	0.05	4
	May-2021	1.1 J	0.31 J	40.5	---	1.8 J	---	0.05	4
	October-2021	3 J	1.1 J	0.07 J	5	37.1	0.073 J	0.05	4
	May-2022	2.3 J	1.2 J	0.34 J	4.1	---	0.23 J	0.05	4
November-2022	---	---	---	---	25.4 D5	---	0.25	4	
December-2022	6.7	ND	ND	5 J	8	ND	1.3	5	
January-2023	8.9	ND	1.8 J	4.5 J	31	ND	1.3	5	
February-2023	32	1.1 J	0.19 J	4.4	48	ND	0.19	4	
March-2023	18.2	0.986 J	0.286 J	5.43	42.8	ND	0.2	1	
April-2023	---	---	---	---	41.7 D	---	0.2	1	
May-2023	2.1	1.15	0.998 J	5.44	27.8	ND	0.2	1	

Historical Laboratory Analytical Results

Well Classification		Background			Compliance			LOD	LOQ
Parameter	Monitoring Event	MW-101	MW-104A	MW-104B	MW-106A	MW-108	MW-205B	(ug/L)	(ug/L)
Copper Current GPS = EPA-MCL EPA-MCL = 1300 ug/L	November-2011	2.1 J	ND	ND	ND	ND	ND	2	5
	May-2012	12.7	ND	ND	ND	ND	ND	2	5
	November-2012	40.8	ND	ND	ND	ND	ND	2	5
	May-2013	34.4	ND	4.4 J	ND	ND	ND	2	5
	November-2013	28.8	ND	ND	ND	ND	ND	2	5
	May-2014	3.2 J	ND	ND	ND	ND	ND	2	5
	October-2014	12.1	ND	ND	ND	ND	ND	2.5	5
	April-2015	7.7	ND	ND	ND	ND	ND	2.5	5
	October-2015	6.7	ND	ND	ND	ND	ND	2.5	5
	May-2016	5.9	ND	ND	ND	ND	ND	2.5	5
	November-2016	34.2	ND	ND	ND	ND	ND	2.5	5
	May-2017	6.8	ND	ND	ND	ND	ND	2.5	5
	October-2017	9.7	ND	ND	31.2	ND	---	2.5	5
	November-2017	---	---	---	---	---	ND	2.5	5
	May-2018	3.6 J	ND	ND	ND	ND	ND	2.5	5
	October-2018	4.2 J	ND	ND	2.9 J	ND	ND	2.5	5
	April-2019	---	---	---	3 J	---	ND	2.5	5
	May-2019	7	2.6 J	ND	---	4.1 J	---	2.5	5
	October-2019	3 J	ND	ND	ND	ND	ND	2.5	5
	May-2020	ND	ND	ND	ND	---	ND	2.1	5
		---	---	---	---	ND	---	4.3	5
	November-2020	4.8 J	ND	ND	ND	2.3 J	ND	1.3	5
	May-2021	10.4	ND	ND	ND	ND	ND	4.3	5
	November-2021	30	ND	ND	ND	ND	ND	1.7	5
May-2022	14	1.08	ND	ND	2.5	ND	0.3	1	
	---	---	---	---	0.716 J,D	---	0.3	1	
December-2022	1.66	ND	ND	ND	0.904 J	ND	0.3	1	
Lead Current GPS = EPA-MCL EPA-MCL = 15 ug/L	November-2011	ND	ND	ND	ND	ND	ND	4	5
	May-2012	4.1 J	ND	ND	ND	ND	ND	4	5
	November-2012	5.2	ND	ND	ND	ND	ND	4	5
	May-2013	10.8	ND	ND	ND	ND	ND	4	5
	November-2013	6.3	ND	ND	ND	ND	ND	4	5
	May-2014	ND	ND	ND	ND	ND	ND	4	5
	October-2014	ND	ND	ND	ND	ND	ND	2.5	5
	April-2015	ND	ND	ND	ND	3 J	ND	2.5	5
	October-2015	ND	ND	ND	ND	ND	ND	2.5	5
	May-2016	ND	ND	ND	ND	ND	ND	2.5	5
	November-2016	ND	ND	ND	ND	ND	ND	2.5	5
	May-2017	ND	3.8 J	9	7	7	3.5 J	2.5	5
	October-2017	4.1 J	ND	ND	ND	4.9 J	---	2.5	5
	November-2017	---	---	---	---	---	ND	2.5	5
	May-2018	ND	ND	ND	ND	ND	ND	2.5	5
	October-2018	ND	ND	ND	ND	ND	ND	2.5	5
	April-2019	---	---	---	ND	---	ND	2.5	5
	May-2019	ND	ND	ND	---	2.6 J	---	2.5	5
	October-2019	ND	ND	ND	ND	ND	ND	2.5	5
	May-2020	ND	ND	ND	ND	---	ND	1.6	5
		---	---	---	---	ND	---	4.5	5
	November-2020	ND	ND	ND	ND	1.6	ND	0.25	1
	May-2021	ND	ND	ND	ND	ND	ND	4.5	5
	November-2021	ND	ND	ND	ND	ND	ND	3.5	10
May-2022	ND	ND	ND	ND	ND	ND	1	1	
	---	---	---	---	ND D	---	1	1	
December-2022	ND	ND	ND	ND	1.5	ND	1	1	

Historical Laboratory Analytical Results

Well Classification		Background			Compliance			LOD	LOQ	
Parameter	Monitoring Event	MW-101	MW-104A	MW-104B	MW-106A	MW-108	MW-205B	(ug/L)	(ug/L)	
Nickel Current GPS = VDEQ-ACL VDEQ-ACL = 313 ug/L (Oct-2006) VDEQ-ACL = 313 ug/L (Jan-2009) VDEQ-ACL = 312 ug/L (Mar-2011) VDEQ-ACL = 312 ug/L (Feb-2012) VDEQ-ACL = 300 ug/L (July-2013) VDEQ-ACL = 300 ug/L (Mar-2014) VDEQ-ACL = 390 ug/L (Feb-2015) VDEQ-ACL = 390 ug/L (Feb-2016) VDEQ-ACL = 390 ug/L (Jan-2018) VDEQ-ACL = 390 ug/L (Jan-2019) VDEQ-ACL = 390 ug/L (Jan-2020) VDEQ-ACL = 390 ug/L (Jan-2021) VDEQ-ACL = 390 ug/L (Jan-2022)	May-2002	---	---	---	ND	---	---		100	
	November-2002	---	---	---	ND	---	---		100	
	May-2003	---	---	---	ND	---	---		100	
	November-2003	---	---	---	ND	---	---		100	
	May-2004	---	---	---	ND	---	---		50	
	November-2004	---	---	---	ND	---	---		10	
	May-2005	---	---	---	8.52 J	---	---	0.8	10	
	November-2005	---	---	---	7.6 J	---	---	0.56	10	
	May-2006	---	---	---	ND	---	---	0.6	10	
	December-2006	---	---	---	8.45 J	---	---	0.6	10	
	June-2007	---	---	---	7.5 J	---	---	0.67	10	
	November-2007	---	---	---	7.73	---	---	0.67	5	
	April-2008	---	---	---	7.07	---	---	1	5	
	October-2008	---	---	---	9	---	---	1.7	5	
	March-2009	---	---	---	6.3	---	---	1.7	5	
	October-2009	---	---	---	7.9	---	---	1.7	5	
	April-2010	---	---	---	ND	---	---	1.7	5	
	November-2010	---	---	---	ND	---	---	1.7	5	
	May-2011	---	---	---	7.2	---	---	2.5	5	
	November-2011	4.6 J	ND	ND	6.8	13.5	ND	2.5	5	
	May-2012	12.1	ND	ND	8	33.5	ND	2.5	5	
	November-2012	49.8	ND	ND	7.5	25.7	ND	2.5	5	
	May-2013	41.5	ND	ND	7.5	37.3	ND	2.5	5	
	November-2013	22.9	ND	ND	8.4	32	ND	2.5	5	
	May-2014	7.6	ND	ND	8.4	27.6	ND	2.5	5	
	October-2014	16.4	ND	ND	7.4	10.1	ND	2.5	5	
	April-2015	12	ND	ND	8.1	26.9	ND	2.5	5	
	October-2015	7	ND	ND	8.6	36.3	ND	2.5	5	
	May-2016	7.5	ND	ND	9	33.2	ND	2.5	5	
	November-2016	33.2	ND	ND	9.3	22.8	ND	2.5	5	
	May-2017	12.5	4.7 J	5.2	12.2	28.9	2.5 J	2.5	5	
	October-2017	12	ND	ND	8.6	31.9	---	2.5	5	
	November-2017	---	---	---	---	---	ND	2.5	5	
	May-2018	6.7	ND	ND	8.8	24.3	ND	2.5	5	
	October-2018	5.9	ND	ND	8.8	29.6	ND	2.5	5	
	April-2019	---	---	---	8.7	---	ND	2.5	5	
	May-2019	6.1	ND	ND	---	31.9	---	2.5	5	
	October-2019	4.6 J	ND	ND	7.2	29.1	ND	2.5	5	
	May-2020	3.3 J	ND	ND	5.8	---	0.94 J	0.9	5	
	November-2020	7.7	2.9 J	2.7 J	7.6	10	1.3 J	1.3	5	
	May-2021	9.3	ND	ND	9.4	29.7	4.3 J	3.5	5	
	November-2021	39	ND	ND	5.4 J	47	ND	3.4	10	
	May-2022	18.48	1.468	1.095	7.323	35.69	ND	1	1	
	December-2022	---	---	---	---	34.63 D	---	1	1	
	Selenium Current GPS = EPA-MCL EPA-MCL = 50 ug/L	November-2011	ND	ND	ND	ND	ND	ND	5	10
		May-2012	ND	ND	ND	ND	ND	ND	5	10
		November-2012	18.2	ND	ND	ND	ND	ND	5	10
		May-2013	ND	ND	ND	ND	ND	ND	5	10
		November-2013	ND	ND	ND	ND	ND	ND	5	10
		May-2014	ND	ND	ND	ND	ND	ND	5	10
October-2014		ND	ND	ND	5.1 J	ND	ND	5	10	
April-2015		ND	ND	ND	ND	ND	ND	5	10	
October-2015		ND	ND	ND	ND	ND	ND	5	10	
May-2016		ND	ND	ND	ND	ND	ND	5	10	
November-2016		ND	ND	ND	ND	ND	ND	5	10	
May-2017		ND	ND	ND	ND	ND	ND	5	10	
October-2017		ND	ND	ND	ND	ND	---	5	10	
November-2017		---	---	---	---	---	ND	5	10	
May-2018		ND	6.4 J	5.2 J	ND	ND	ND	5	10	
October-2018		ND	ND	ND	ND	ND	ND	5	10	
April-2019		---	---	---	ND	---	ND	5	10	
May-2019		ND	ND	ND	---	ND	---	5	10	
October-2019		ND	ND	ND	ND	ND	ND	5	10	
May-2020		ND	ND	ND	ND	ND	ND	4.7	10	
November-2020	ND	ND	ND	ND	ND	ND	1.3	5		
May-2021	ND	ND	ND	ND	ND	ND	4.7	10		
November-2021	ND	ND	ND	ND	ND	ND	4	10		
May-2022	ND	ND	ND	ND	ND	ND	0.85	1		
December-2022	---	---	---	---	ND D	---	0.85	1		
December-2022	ND	ND	ND	ND	ND	ND	0.85	1		

Historical Laboratory Analytical Results

Well Classification		Background			Compliance			LOD	LOQ
Parameter	Monitoring Event	MW-101	MW-104A	MW-104B	MW-106A	MW-108	MW-205B	(ug/L)	(ug/L)
Thallium Current GPS = EPA-MCL EPA-MCL = 2 ug/L	November-2011	ND	0.06 J	ND	ND	ND	ND	0.05	2
	May-2012	ND	ND	ND	ND	ND	ND	0.05	2
	November-2012	0.59 J	ND	ND	ND	ND	ND	0.5	2
	May-2013	ND	ND	ND	ND	0.62 J	ND	0.5	2
	November-2013	ND	ND	ND	ND	ND	ND	0.5	2
	May-2014	ND	ND	ND	ND	ND	ND	0.5	2
	October-2014	ND	ND	ND	ND	ND	ND	0.5	1
	April-2015	ND	ND	ND	ND	ND	ND	0.5	1
	October-2015	ND	ND	ND	ND	1 J	ND	0.5	2
	May-2016	ND	ND	ND	ND	1 J	ND	0.5	2
	November-2016	0.55 J	ND	ND	ND	ND	ND	0.5	2
	May-2017	ND	ND	ND	ND	0.61 J	ND	0.5	2
	October-2017	0.15 J	0.1 J	ND	0.16 J	0.64 J	---	0.02	2
	November-2017	---	---	---	---	---	ND	0.02	2
	May-2018	0.043 J	0.034 J	ND	0.16 J	0.7 J	ND	0.02	2
	October-2018	0.028 J	0.042 J	ND	0.15 J	0.65 J	ND	0.02	2
	April-2019	---	---	---	0.14 J	---	ND	0.06	2
	May-2019	ND	ND	0.83 J	---	ND	---	0.06	2
	October-2019	ND	0.064 J	ND	ND	0.65 J	ND	0.06	2
	May-2020	ND	ND	ND	ND	0.6 J	ND	0.06	2
	November-2020	ND	ND	ND	ND	0.34 J	ND	0.15	0.5
	May-2021	ND	ND	ND	ND	0.26 J	ND	0.15	0.5
	November-2021	ND	ND	ND	ND	0.45 J	0.55 J,B	0.2	2
May-2022	ND	ND	ND	ND	ND	ND	1	1	
December-2022	---	---	---	---	ND D	---	1	1	
Vanadium Current GPS = VDEQ-ACL VDEQ-ACL = 78 ug/L (Feb-2012) VDEQ-ACL = 78 ug/L (July-2013) VDEQ-ACL = 63 ug/L (Mar-2014) VDEQ-ACL = 86 ug/L (Feb-2015) VDEQ-ACL = 86 ug/L (Feb-2016) VDEQ-ACL = 86 ug/L (Jan-2018) VDEQ-ACL = 86 ug/L (Jan-2019) VDEQ-ACL = 86 ug/L (Jan-2020) VDEQ-ACL = 86 ug/L (Jan-2021) VDEQ-ACL = 86 ug/L (Jan-2022)	November-2011	ND	ND	ND	ND	ND	ND	2.5	5
	May-2012	ND	ND	ND	ND	ND	ND	2.5	5
	November-2012	11.4	ND	ND	ND	ND	ND	2.5	5
	May-2013	7.9	ND	ND	ND	ND	ND	2.5	5
	November-2013	6.6	ND	ND	ND	4.2 J	ND	2.5	5
	May-2014	ND	ND	ND	ND	ND	ND	2.5	5
	October-2014	3.1 J	ND	ND	ND	ND	ND	2.5	5
	April-2015	ND	ND	ND	ND	3.3 J	ND	2.5	5
	October-2015	ND	ND	ND	ND	4.3 J	ND	2.5	5
	May-2016	ND	ND	ND	ND	ND	ND	2.5	5
	November-2016	2.7 J	ND	ND	ND	ND	ND	2.5	5
	May-2017	ND	ND	ND	ND	ND	ND	2.5	5
	October-2017	ND	ND	ND	ND	ND	---	2.5	5
	November-2017	---	---	---	---	---	ND	2.5	5
	May-2018	ND	ND	ND	ND	ND	ND	2.5	5
	October-2018	ND	ND	ND	ND	2.6 J	ND	2.5	5
	April-2019	---	---	---	ND	---	ND	2.5	5
	May-2019	ND	ND	ND	---	3.7 J	---	2.5	5
	October-2019	ND	ND	ND	ND	ND	ND	2.5	5
	May-2020	ND	ND	ND	ND	---	ND	1.3	5
	November-2020	---	---	---	---	ND	---	3.9	5
	May-2021	ND	ND	ND	ND	3.7 J	ND	2.5	5
	November-2021	ND	ND	ND	ND	ND	ND	6.5	20
May-2022	ND	ND	ND	ND	ND	ND	2.5	5	
December-2022	---	---	---	---	ND D	---	2.5	5	
Zinc Current GPS = VDEQ-ACL VDEQ-ACL = 4680 ug/L (Feb-2012) VDEQ-ACL = 4700 ug/L (July-2013) VDEQ-ACL = 4700 ug/L (Mar-2014) VDEQ-ACL = 6000 ug/L (Feb-2015) VDEQ-ACL = 6000 ug/L (Feb-2016) VDEQ-ACL = 6000 ug/L (Jan-2018) VDEQ-ACL = 6000 ug/L (Jan-2019) VDEQ-ACL = 6000 ug/L (Jan-2020) VDEQ-ACL = 6000 ug/L (Jan-2021) VDEQ-ACL = 6000 ug/L (Jan-2022)	November-2011	ND	ND	ND	5.3 J	ND	ND	5	10
	May-2012	6 J	ND	ND	ND	5.1 J	ND	5	10
	November-2012	15.9	ND	ND	ND	9.1 J	ND	5	10
	May-2013	32.9	ND	6.8 J	ND	6.1 J	ND	5	10
	November-2013	9.5 J	ND	5.3 J	ND	ND	14.3	5	10
	May-2014	ND	ND	ND	ND	5.4 J	ND	5	10
	October-2014	10.4	6.1 J	ND	ND	ND	ND	5	10
	April-2015	14 B	6.8 J,B	7.7 J,B	7.5 J,B	28.7 B	6.3 J,B	5	10
	October-2015	8.7 J	ND	14.9	ND	14.7	12.1	5	10
	May-2016	14.4	ND	ND	ND	6.2 J	ND	5	10
	November-2016	18.8	ND	ND	ND	ND	ND	5	10
	May-2017	ND	ND	ND	ND	ND	ND	5	10
	October-2017	7.9 J	ND	ND	ND	ND	---	5	10
	November-2017	---	---	---	---	---	ND	5	10
	May-2018	9.1 J	ND	ND	ND	ND	ND	5	10
	October-2018	12	33.3	ND	ND	11.4	ND	5	10
	April-2019	---	---	---	ND	---	ND	5	10
	May-2019	8.5 J	ND	ND	---	14.9	---	5	10
	October-2019	5.8 J	ND	ND	ND	ND	ND	5	10
	May-2020	6 J	ND	ND	ND	---	ND	3.9	10
	November-2020	---	---	---	---	13.7	---	9.5	10
	May-2021	4.5 J	ND	ND	ND	20	ND	2.5	10
	November-2021	13.9	ND	ND	ND	12.1	ND	9.5	10
May-2022	16	9.45	ND	ND	54.4	3.43 J	2.5	5	
December-2022	---	---	---	---	27.6 D	---	2.5	5	

Historical Laboratory Analytical Results

Well Classification		Background			Compliance			LOD	LOQ
Parameter	Monitoring Event	MW-101	MW-104A	MW-104B	MW-106A	MW-108	MW-205B	(ug/L)	(ug/L)
1,4-Dichlorobenzene Current GPS = EPA-MCL EPA-MCL = 75 ug/L	November-2011	ND	ND	ND	ND	ND	ND	0.33	2
	May-2012	ND	ND	ND	ND	0.72 J	ND	0.33	2
	November-2012	ND	ND	ND	ND	0.81 J	ND	0.33	2
	May-2013	ND	ND	ND	ND	1.1 J	ND	0.33	2
	November-2013	ND	ND	ND	ND	0.92 J	ND	0.33	2
	May-2014	ND	ND	ND	ND	0.84 J	ND	0.33	2
	October-2014	ND	ND	ND	ND	ND	ND	0.33	2
	April-2015	ND	ND	ND	ND	ND	ND	0.33	2
	October-2015	ND	ND	ND	ND	0.81 J	ND	0.33	2
	May-2016	ND	ND	ND	ND	0.34 J	ND	0.33	2
	November-2016	ND	ND	ND	ND	ND	ND	0.33	2
	May-2017	ND	ND	ND	ND	ND	ND	0.33	2
	October-2017	ND	ND	ND	ND	1 J	---	0.33	2
	November-2017	---	---	---	---	---	ND	0.33	2
	May-2018	ND	ND	ND	ND	0.91 J	ND	0.33	2
	October-2018	ND	ND	ND	ND	0.9 J	ND	0.33	2
	April-2019	---	---	---	ND	---	ND	0.26	2
	May-2019	ND	ND	ND	---	ND	---	0.26	2
	October-2019	ND	ND	ND	ND	ND	ND	0.26	2
	May-2020	ND	ND	ND	ND	0.84 J	ND	0.26	1
	November-2020	ND	ND	ND	ND	ND	ND	0.26	1
	May-2021	ND	ND	ND	ND	---	ND	0.33	1
		---	---	---	---	3.4 D2	---	0.83	2.5
	November-2021	ND	ND	ND	ND	ND	ND	1	5
	May-2022	ND	ND	ND	ND	1.75	ND	0.4	1
	---	---	---	---	ND D	---	0.4	1	
December-2022	ND	ND	ND	ND	1.65	ND	0.4	1	
Acetone Current GPS = VDEQ-ACL VDEQ-ACL = 11561.2085 ug/L (Feb-2012) VDEQ-ACL = 12000 ug/L (July-2013) VDEQ-ACL = 12000 ug/L (Mar-2014) VDEQ-ACL = 14000 ug/L (Feb-2015) VDEQ-ACL = 14000 ug/L (Feb-2016) VDEQ-ACL = 14000 ug/L (Jan-2018) VDEQ-ACL = 14000 ug/L (Jan-2019) VDEQ-ACL = 14000 ug/L (Jan-2020) VDEQ-ACL = 14000 ug/L (Jan-2021) VDEQ-ACL = 14000 ug/L (Jan-2022)	November-2011	ND	ND	ND	ND	ND	ND	2.2	25
	May-2012	5.5 J,B	2.6 J,B	4.9 J,B	ND	ND	3.3 J,B	2.2	25
	November-2012	ND	ND	ND	ND	ND	ND	10	25
	May-2013	ND	ND	ND	ND	ND	ND	10	25
	November-2013	ND	ND	ND	ND	ND	ND	10	25
	May-2014	ND	ND	ND	ND	ND	ND	10	25
	October-2014	ND	ND	ND	ND	ND	ND	10	25
	April-2015	ND	ND	ND	ND	ND	13.7 J	10	25
	October-2015	ND	ND	ND	ND	ND	ND	10	25
	May-2016	ND	ND	ND	ND	ND	ND	10	25
	November-2016	ND	ND	ND	ND	ND	ND	10	25
	May-2017	ND	ND	ND	ND	ND	ND	10	25
	October-2017	ND	ND	ND	ND	ND	---	10	25
	November-2017	---	---	---	---	---	ND	10	25
	May-2018	ND	ND	ND	ND	ND	ND	10	25
	October-2018	ND	ND	ND	ND	ND	ND	10	25
	April-2019	---	---	---	ND	---	ND	6.2	25
	May-2019	ND	ND	ND	---	ND	---	6.2	25
	October-2019	ND	ND	ND	ND	ND	ND	6.2	25
	May-2020	ND	ND	ND	ND	ND	ND	6.2	25
	November-2020	ND	ND	ND	ND	ND	ND	6.2	25
	May-2021	ND	ND	ND	ND	---	ND	5.1	25
		---	---	---	---	ND D2	---	12.8	62.5
	November-2021	ND	ND	ND	ND	ND	ND	6	20
	May-2022	ND	ND	ND	ND	ND	ND	7	10
	---	---	---	---	ND D	---	7	10	
December-2022	ND	ND	ND	ND	ND	ND	7	10	
Benzene Current GPS = EPA-MCL EPA-MCL = 5 ug/L	November-2011	ND	ND	ND	ND	ND	ND	0.25	2
	May-2012	ND	ND	ND	ND	1.1 J	ND	0.25	2
	November-2012	ND	ND	ND	ND	1 J	ND	0.25	2
	May-2013	ND	ND	ND	ND	2.1	ND	0.25	2
	November-2013	ND	ND	ND	ND	1.4 J	ND	0.25	2
	May-2014	ND	ND	ND	ND	1.4 J	ND	0.25	2
	October-2014	ND	ND	ND	ND	ND	ND	0.25	2
	April-2015	ND	ND	ND	ND	ND	ND	0.25	2
	October-2015	ND	ND	ND	ND	0.82 J	ND	0.25	2
	May-2016	ND	ND	ND	ND	ND	ND	0.25	2
	November-2016	ND	ND	ND	ND	ND	ND	0.25	2
	May-2017	ND	ND	ND	ND	ND	ND	0.25	2
	October-2017	ND	ND	ND	ND	1.1 J	---	0.25	2
	November-2017	---	---	---	---	---	ND	0.25	2
	May-2018	ND	ND	ND	ND	1 J	ND	0.25	2
	October-2018	ND	ND	ND	ND	0.83 J	ND	0.25	2
	April-2019	---	---	---	ND	---	ND	0.15	2
	May-2019	ND	ND	ND	---	1.3 J	---	0.15	2
	October-2019	ND	ND	ND	ND	ND	ND	0.15	2
	May-2020	ND	ND	ND	ND	1.2	ND	0.15	1
	November-2020	ND	ND	ND	ND	13.3	ND	0.15	1
	May-2021	ND	ND	ND	ND	---	ND	0.34	1
		---	---	---	---	416 D2	---	0.86	2.5
	November-2021	ND	ND	ND	ND	ND	ND	0.5	5
	May-2022	ND	ND	ND	ND	9.46	ND	0.4	1
	---	---	---	---	7.3 D	---	0.4	1	
December-2022	ND	ND	ND	ND	39.3	ND	0.4	1	

Historical Laboratory Analytical Results

Well Classification		Background			Compliance			LOD	LOQ
Parameter	Monitoring Event	MW-101	MW-104A	MW-104B	MW-106A	MW-108	MW-205B	(ug/L)	(ug/L)
Chlorobenzene Current GPS = EPA-MCL EPA-MCL = 100 ug/L	November-2011	ND	ND	ND	ND	ND	ND	0.23	2
	May-2012	ND	ND	ND	ND	0.45 J	ND	0.23	2
	November-2012	ND	ND	ND	ND	0.54 J	ND	0.23	2
	May-2013	ND	ND	ND	ND	0.63 J	ND	0.23	2
	November-2013	ND	ND	ND	ND	0.61 J	ND	0.23	2
	May-2014	ND	ND	ND	ND	0.58 J	ND	0.23	2
	October-2014	ND	ND	ND	ND	ND	ND	0.23	2
	April-2015	ND	ND	ND	ND	ND	ND	0.23	2
	October-2015	ND	ND	ND	ND	0.64 J	ND	0.23	2
	May-2016	ND	ND	ND	ND	ND	ND	0.23	2
	November-2016	ND	ND	ND	ND	ND	ND	0.23	2
	May-2017	ND	ND	ND	ND	ND	ND	0.23	2
	October-2017	ND	ND	ND	ND	0.78 J	---	0.23	2
	November-2017	---	---	---	---	---	ND	0.23	2
	May-2018	ND	ND	ND	ND	0.69 J	ND	0.23	2
	October-2018	ND	ND	ND	ND	0.68 J	ND	0.23	2
	April-2019	---	---	---	ND	---	ND	0.23	2
	May-2019	ND	ND	ND	---	ND	---	0.23	2
	October-2019	ND	ND	ND	ND	ND	ND	0.23	2
	May-2020	ND	ND	ND	ND	0.58 J	ND	0.23	1
	November-2020	ND	ND	ND	ND	ND	ND	0.23	1
	May-2021	ND	ND	ND	ND	---	ND	0.28	1
		---	---	---	---	1.8 J,D2	---	0.71	2.5
	November-2021	ND	ND	ND	ND	ND	ND	0.8	5
	May-2022	ND	ND	ND	ND	1.3	ND	0.4	1
	---	---	---	---	1.31 D	---	0.4	1	
December-2022	ND	ND	ND	ND	1.25	ND	0.4	1	
Chloroethane Current GPS = VDEQ-ACL VDEQ-ACL = 20800 ug/L (Feb-2012) VDEQ-ACL = 21000 ug/L (July-2013) VDEQ-ACL = 21000 ug/L (Mar-2014) VDEQ-ACL = 21000 ug/L (Feb-2015) VDEQ-ACL = 21000 ug/L (Feb-2016) VDEQ-ACL = 21000 ug/L (Jan-2018) VDEQ-ACL = 21000 ug/L (Jan-2019) VDEQ-ACL = 21000 ug/L (Jan-2020) VDEQ-ACL = 21000 ug/L (Jan-2021) VDEQ-ACL = 21000 ug/L (Jan-2022)	November-2011	ND	ND	ND	ND	ND	ND	0.54	2
	May-2012	ND	ND	ND	ND	ND	ND	0.54	2
	November-2012	ND	ND	ND	ND	2.4	ND	0.54	2
	May-2013	ND	ND	ND	ND	ND	ND	0.54	2
	November-2013	ND	ND	ND	ND	2.2	ND	0.54	2
	May-2014	ND	ND	ND	ND	ND	ND	0.54	2
	October-2014	ND	ND	ND	ND	ND	ND	0.54	2
	April-2015	ND	ND	ND	ND	0.87 J	ND	0.54	2
	October-2015	ND	ND	ND	ND	1.9 J	ND	0.54	2
	May-2016	ND	ND	ND	ND	1.4 J	ND	0.54	2
	November-2016	ND	ND	ND	ND	0.76 J	ND	0.54	2
	May-2017	ND	ND	ND	ND	ND	ND	0.54	2
	October-2017	ND	ND	ND	ND	1.1 J	---	0.54	2
	November-2017	---	---	---	---	---	ND	0.54	2
	May-2018	ND	ND	ND	ND	ND	ND	0.54	2
	October-2018	ND	ND	ND	ND	ND	ND	0.54	2
	April-2019	---	---	---	ND	---	ND	0.49	2
	May-2019	ND	ND	ND	---	0.85 J	---	0.49	2
	October-2019	ND	ND	ND	ND	ND	ND	0.49	2
	May-2020	ND	ND	ND	ND	ND	ND	0.49	1
	November-2020	ND	ND	ND	ND	ND	ND	0.49	1
	May-2021	ND	ND	ND	ND	---	ND	0.65	1
		---	---	---	---	ND D2	---	1.6	2.5
	November-2021	ND	ND	ND	ND	ND	ND	1	5
	May-2022	ND	ND	ND	ND	1.22	ND	0.7	1
	---	---	---	---	1.07 D	---	0.7	1	
December-2022	ND	ND	ND	ND	ND	ND	0.7	1	
cis-1,2-Dichloroethene Current GPS = EPA-MCL EPA-MCL = 70 ug/L	November-2011	ND	ND	ND	0.59 J	24.3	ND	0.19	2
	May-2012	ND	ND	ND	0.46 J	79.8	ND	0.19	2
	November-2012	ND	ND	ND	0.53 J	72	ND	0.19	2
	May-2013	ND	ND	ND	0.44 J	115	ND	0.19	2
	November-2013	ND	ND	ND	0.62 J	99.6	ND	0.19	2
	May-2014	ND	ND	ND	0.59 J	76.1	ND	0.19	2
	October-2014	ND	ND	ND	0.64 J	32.8	ND	0.19	2
	April-2015	ND	ND	ND	0.58 J	25.5	ND	0.19	2
	October-2015	ND	ND	ND	0.66 J	65.4	ND	0.19	2
	May-2016	ND	ND	ND	0.6 J	45.3	ND	0.19	2
	November-2016	ND	ND	ND	0.55 J	34.6	ND	0.19	2
	May-2017	ND	ND	ND	0.63 J	30	ND	0.19	2
	October-2017	ND	ND	ND	0.78 J	73.2	---	0.19	2
	November-2017	---	---	---	---	---	ND	0.19	2
	May-2018	ND	ND	ND	0.55 J	52.4	ND	0.19	2
	October-2018	ND	ND	ND	0.59 J	54.6	ND	0.19	2
	April-2019	---	---	---	0.61 J	---	ND	0.29	2
	May-2019	ND	ND	ND	---	61.5	---	0.29	2
	October-2019	ND	ND	ND	0.57 J	27.5	ND	0.29	2
	May-2020	ND	ND	ND	0.56 J	30	ND	0.29	1
	November-2020	ND	ND	ND	0.49 J	17.2	ND	0.29	1
	May-2021	ND	ND	ND	0.54 J	---	ND	0.38	1
		---	---	---	---	35.1 D2	---	0.96	2.5
	November-2021	ND	ND	ND	ND	4 J	ND	0.8	5
	May-2022	ND	ND	ND	0.56 J	54.7	ND	0.4	1
	---	---	---	---	61.3 D	---	0.4	1	
December-2022	ND	ND	ND	0.67 J	44.8	ND	0.4	1	

Historical Laboratory Analytical Results

Well Classification		Background				Compliance			LOD	LOQ
Parameter	Monitoring Event	MW-101	MW-104A	MW-104B	MW-106A	MW-108	MW-205B	(ug/L)	(ug/L)	
COLUMN B INORGAINCS										
Cyanide Current GPS = EPA-MCL EPA-MCL = 200 ug/L	November-2011	ND	ND	ND	ND	ND	---	5	5	
	May-2012	ND	ND	ND	ND	ND	---	5	5	
	November-2012	ND	ND	ND	ND	5.4	---	5	5	
	May-2013	ND	ND	ND	ND	ND	---	5	5	
	November-2013	ND	ND	5	5	ND	---	5	5	
	May-2014	ND	ND	ND	ND	ND	ND	5	5	
	October-2014	ND	ND	ND	ND	ND	ND	5	5	
	April-2015	ND	ND	ND	ND	ND	ND	4	8	
	October-2015	ND	ND	ND	ND	ND	ND	4	8	
	May-2016	ND	ND	ND	ND	ND	ND	4	8	
	November-2016	ND	ND	ND	ND	ND	ND	4	8	
	May-2017	ND	ND	ND	ND	ND	ND	4	8	
	October-2017	ND	ND	ND	ND	ND	---	4	8	
	November-2017	---	---	---	---	---	ND	4	8	
	May-2018	ND	ND	4.2 J	ND	ND	ND	4	8	
	October-2018	ND	ND	ND	ND	ND	ND	4	8	
	April-2019	---	---	---	ND	---	ND	4	8	
	May-2019	ND	ND	ND	---	ND	---	4	8	
	October-2019	8.4	7 J	ND	ND	ND	ND	5.7	8	
	May-2020	ND	ND	ND	ND	ND	ND	6	8	
	November-2020	ND	ND	ND	ND	ND	ND	6	8	
	May-2021	ND	ND	ND	ND	ND	ND	6	8	
November-2021	ND	ND	ND	ND	ND	ND	4	10		
May-2022	ND	ND	ND	ND	ND	ND	10	10		
December-2022	---	---	---	---	ND D	---	10	10		
Mercury Current GPS = EPA-MCL EPA-MCL = 2 ug/L	November-2011	ND	ND	ND	ND	0.35	---	0.1	0.2	
	May-2012	ND	ND	ND	ND	0.52	ND	0.1	0.2	
	November-2012	ND	ND	ND	ND	0.32	---	0.1	0.2	
	May-2013	ND	ND	ND	ND	0.16 J	ND	0.1	0.2	
	November-2013	0.13 J,B	ND	ND	ND	0.52	---	0.1	0.2	
	May-2014	ND	ND	ND	ND	0.4	ND	0.1	0.2	
	October-2014	ND	ND	ND	ND	0.38	ND	0.1	0.2	
	April-2015	ND	ND	ND	ND	0.65	ND	0.1	0.2	
	October-2015	ND	ND	ND	ND	0.7	ND	0.1	0.2	
	May-2016	ND	ND	ND	ND	0.3	ND	0.1	0.2	
	November-2016	0.12 J	ND	ND	ND	0.57	ND	0.1	0.2	
	May-2017	ND	ND	ND	ND	0.92	ND	0.1	0.2	
	October-2017	ND	ND	ND	ND	0.25	---	0.1	0.2	
	November-2017	---	---	---	---	---	ND	0.1	0.2	
	May-2018	ND	ND	ND	ND	0.35	ND	0.1	0.2	
	October-2018	ND	ND	ND	ND	1.3	ND	0.1	0.2	
	April-2019	---	---	---	ND	---	ND	0.1	0.2	
	May-2019	ND	ND	ND	---	1.8	---	0.1	0.2	
	October-2019	ND	ND	ND	ND	0.52	ND	0.1	0.2	
	May-2020	ND	ND	ND	ND	1.4	ND	0.12	0.2	
	November-2020	ND	ND	ND	ND	1.7	ND	0.091	0.2	
	May-2021	ND	ND	ND	ND	1.1	ND	0.091	0.2	
November-2021	ND	ND	ND	ND	0.55	ND	0.13	0.2		
May-2022	ND	ND	ND	ND	0.57	ND	0.2	0.2		
December-2022	---	---	---	---	ND D	---	0.2	0.2		
December-2022	ND	ND	ND	ND	1.25	ND	0.2	0.2		
Sulfide Current GPS = FBAC FBAC = 6230 ug/L	June-2000	---	---	---	120	---	---		100	
	December-2000	---	---	---	ND	---	---		100	
	May-2001	---	---	---	ND	---	---		100	
	November-2011	ND	ND	290	ND	ND	---	100	100	
	May-2012	---	ND	ND	ND	ND	---	1000	1000	
	November-2012	ND	---	---	---	---	---	1000	2000	
	November-2012	ND	ND	ND	ND	ND	---	100	1000	
	May-2013	ND	ND	ND	ND	ND	---	100	100	
	November-2013	ND	ND	ND	ND	ND	---	100	100	
	May-2014	ND	ND	ND	ND	ND	ND	1000	1000	
	October-2014	ND	ND	ND	ND	ND	ND	1000	1000	
	April-2015	2000	ND	ND	ND	ND	ND	1000	1000	
	October-2015	ND	ND	ND	ND	ND	ND	1000	1000	
	May-2016	ND	ND	ND	ND	ND	ND	1000	1000	
	November-2016	ND	ND	ND	ND	ND	ND	1000	1000	
	October-2017	ND	ND	ND	ND	ND	---	1000	1000	
	November-2017	---	---	---	---	---	ND	1000	1000	
	May-2018	1100 J	1100 J	1100 J	ND	ND	ND	1000	1000	
	October-2018	1200	ND	ND	590	590	1200	100	100	
	April-2019	---	---	---	ND	---	ND	1000	1000	
	May-2019	ND	ND	ND	---	ND	---	1000	1000	
	October-2019	ND	ND	ND	ND	ND	ND	1000	1000	
	May-2020	4010	4010	4810	4810	4010	4810	2160	4000	
	November-2020	ND	ND	1500 J	ND	ND	ND	1400	3000	
	May-2021	ND	ND	ND	ND	ND	ND	1400	3000	
	November-2021	ND	ND	ND	ND	ND	ND	1400	3000	
	May-2022	ND	ND	6230	ND	ND	ND	800	1000	
	July-2022	---	---	---	---	ND D	---	800	1000	
	December-2022	---	ND	---	---	---	---	800	1000	
December-2022	ND	ND	ND	ND	ND	ND	800	1000		

Historical Laboratory Analytical Results

Well Classification		Background			Compliance			LOD	LOQ
Parameter	Monitoring Event	MW-101	MW-104A	MW-104B	MW-106A	MW-108	MW-205B	(ug/L)	(ug/L)
Tin	November-2011	ND	ND	ND	ND	3 J	---	2.5	5
Current GPS = VDEQ-ACL	May-2012	4 J	ND	4 J	ND	ND	---	2.5	5
VDEQ-ACL = 9360 ug/L (Feb-2012)	November-2012	3.2 J	ND	ND	ND	ND	---	2.5	5
	May-2013	7.5	ND	ND	ND	ND	---	2.5	5
VDEQ-ACL = 9300 ug/L (July-2013)	November-2013	ND	ND	ND	ND	ND	---	2.5	5
VDEQ-ACL = 9300 ug/L (Mar-2014)	May-2014	ND	ND	ND	ND	ND	ND	2.5	5
	October-2014	ND	ND	ND	4.8 J,B	ND	ND	2.5	5
VDEQ-ACL = 12000 ug/L (Feb-2015)	April-2015	ND	ND	ND	ND	ND	ND	2.5	5
	October-2015	ND	ND	ND	ND	ND	ND	2.5	5
VDEQ-ACL = 12000 ug/L (Feb-2016)	May-2016	ND	ND	ND	ND	ND	ND	2.5	5
	November-2016	ND	ND	ND	ND	ND	ND	2.5	5
	May-2017	ND	2.6 J	ND	ND	ND	ND	2.5	5
	October-2017	ND	ND	ND	ND	ND	---	2.5	5
	November-2017	---	---	---	---	---	ND	2.5	5
VDEQ-ACL = 12000 ug/L (Jan-2018)	May-2018	ND	ND	ND	ND	ND	ND	2.5	5
	October-2018	ND	ND	ND	ND	ND	ND	2.5	5
VDEQ-ACL = 12000 ug/L (Jan-2019)	April-2019	---	---	---	ND	---	ND	2.5	5
	May-2019	ND	ND	ND	---	ND	---	2.5	5
	October-2019	ND	ND	ND	ND	ND	ND	2.5	5
VDEQ-ACL = 12000 ug/L (Jan-2020)	May-2020	ND	ND	ND	ND	---	ND	1.6	5
		---	---	---	---	ND	---	4.7	5
	November-2020	ND	ND	ND	ND	ND	ND	5	20
VDEQ-ACL = 12000 ug/L (Jan-2021)	May-2021	ND	ND	ND	ND	ND	ND	4.7	5
	November-2021	ND	ND	ND	ND	ND	ND	17	50
VDEQ-ACL = 12000 ug/L (Jan-2022)	May-2022	ND	ND	4.3	ND	ND	ND	1	1
		---	---	---	---	ND D	---	1	1
	December-2022	ND	1.16	1.13	1.5	ND	ND	1	1

Historical Laboratory Analytical Results

Well Classification		Background			Compliance			LOD	LOQ
Parameter	Monitoring Event	MW-101	MW-104A	MW-104B	MW-106A	MW-108	MW-205B	(ug/L)	(ug/L)
COLUMN B SEMI-VOLATILE ORGAINCE COMPOUNDS									
2-Acetylaminofluorene Current GPS = VDEQ-ACL VDEQ-ACL = 0.013 ug/L (Mar-2014) VDEQ-ACL = 0.016 ug/L (Feb-2015) VDEQ-ACL = 0.016 ug/L (Feb-2016) VDEQ-ACL = 0.16 ug/L (Jan-2018) VDEQ-ACL = 0.16 ug/L (Jan-2019) VDEQ-ACL = 0.16 ug/L (Jan-2020) VDEQ-ACL = 0.16 ug/L (Jan-2021) VDEQ-ACL = 0.16 ug/L (Jan-2022)	May-2012	ND	ND	ND	ND	ND	---	5.8	20
	May-2013	ND	ND	ND	ND	ND	---	5.8	20
	May-2014	ND	ND	ND	ND	ND	ND	0.31	20
	April-2015	0.41 J	ND	ND	ND	ND	ND	0.31	20
	May-2016	ND	ND	ND	ND	ND	ND	0.84	20
	May-2017	ND	ND	ND	ND	ND	ND	0.84	20
	May-2018	ND	ND	ND	ND	ND	ND	1.6	19.6
	April-2019	---	---	---	ND	---	ND	3.1	20
	May-2019	ND	ND	ND	---	ND	---	3.1	20
	May-2020	ND	ND	ND	ND	ND	ND	1.9	10
	May-2021	ND	ND	ND	ND	ND	ND	1.7	10
	May-2022	ND	ND	ND	ND	ND	ND	2.34	2.5
		---	---	---	---	ND	---	2.34	2.5
2-Methylnaphthalene Current GPS = VDEQ-ACL VDEQ-ACL = 27 ug/L (Mar-2014) VDEQ-ACL = 36 ug/L (Feb-2015) VDEQ-ACL = 36 ug/L (Feb-2016) VDEQ-ACL = 36 ug/L (Jan-2018) VDEQ-ACL = 36 ug/L (Jan-2019) VDEQ-ACL = 36 ug/L (Jan-2020) VDEQ-ACL = 36 ug/L (Jan-2021) VDEQ-ACL = 36 ug/L (Jan-2022)	May-2012	ND	ND	ND	ND	ND	---	0.28	10
	May-2013	ND	ND	ND	ND	ND	---	0.28	10
	May-2014	ND	ND	ND	ND	ND	ND	1	10
	April-2015	ND	ND	ND	ND	ND	ND	1	10
	May-2016	ND	ND	ND	ND	ND	ND	0.28	10
	May-2017	ND	ND	ND	ND	ND	ND	0.28	10
	May-2018	ND	ND	ND	ND	ND	ND	1.4	9.8
	April-2019	---	---	---	ND	---	ND	1.4	10
	May-2019	ND	ND	ND	---	ND	---	1.4	10
	May-2020	ND	ND	ND	ND	ND	ND	1.4	10
	May-2021	ND	ND	ND	ND	0.17 J	ND	0.04	0.2
	May-2022	ND	ND	ND	ND	ND	ND	1.87	10
		---	---	---	---	ND D	---	1.87	10
3-Methylcholanthrene Current GPS = VDEQ-ACL VDEQ-ACL = 0.00098 ug/L (Mar-2014) VDEQ-ACL = 0.0011 ug/L (Feb-2015) VDEQ-ACL = 0.0011 ug/L (Feb-2016) VDEQ-ACL = 0.0011 ug/L (Jan-2018) VDEQ-ACL = 0.0011 ug/L (Jan-2019) VDEQ-ACL = 0.0011 ug/L (Jan-2020) VDEQ-ACL = 0.0011 ug/L (Jan-2021) VDEQ-ACL = 0.0011 ug/L (Jan-2022)	May-2012	ND	ND	ND	ND	ND	---	2.6	10
	May-2013	ND	ND	ND	ND	ND	---	2.6	10
	May-2014	ND	ND	ND	ND	ND	ND	0.37	10
	April-2015	0.53 J	ND	ND	ND	ND	ND	0.37	10
	May-2016	ND	ND	ND	ND	ND	ND	0.82	10
	May-2017	ND	ND	ND	ND	ND	ND	0.82	10
	May-2018	ND	ND	ND	ND	ND	ND	2.6	9.8
	April-2019	---	---	---	ND	---	ND	5.7	10
	May-2019	ND	ND	ND	---	ND	---	5.7	10
	May-2020	ND	ND	ND	ND	ND	ND	5.3	10
	May-2021	ND	ND	ND	ND	ND	ND	0.98	10
	May-2022	ND	ND	ND	ND	ND	ND	0.93	10
		---	---	---	---	ND D	---	0.93	10
7,12-Dimethylbenz (a) anthracene Current GPS = VDEQ-ACL VDEQ-ACL = 0.000086 ug/L (Mar-2014) VDEQ-ACL = 0.0001 ug/L (Feb-2015) VDEQ-ACL = 0.0001 ug/L (Feb-2016) VDEQ-ACL = 0.0001 ug/L (Jan-2018) VDEQ-ACL = 0.0001 ug/L (Jan-2019) VDEQ-ACL = 0.0001 ug/L (Jan-2020) VDEQ-ACL = 0.0001 ug/L (Jan-2021) VDEQ-ACL = 0.0001 ug/L (Jan-2022)	May-2012	ND	ND	ND	ND	ND	---	4.9	10
	May-2013	ND	ND	ND	ND	ND	---	4.9	10
	May-2014	ND	ND	ND	ND	ND	ND	0.51	10
	April-2015	0.53 J	ND	ND	ND	ND	ND	0.51	10
	May-2016	ND	ND	ND	ND	ND	ND	0.77	10
	May-2017	ND	ND	ND	ND	ND	ND	0.77	10
	May-2018	ND	ND	ND	ND	ND	ND	2.3	9.8
	April-2019	---	---	---	ND	---	ND	4	10
	May-2019	ND	ND	ND	---	ND	---	4	10
	May-2020	ND	ND	ND	ND	ND	ND	2.8	10
	May-2021	ND	ND	ND	ND	ND	ND	1.1	10
	May-2022	ND	ND	ND	ND	ND	ND	1.87	10
		---	---	---	---	ND D	---	1.87	10
bis (2-Ethylhexyl) phthalate Current GPS = EPA-MCL EPA-MCL = 6 ug/L	November-2011	2 J	ND	ND	ND	8.1	---	0.79	6
	May-2012	ND	ND	ND	ND	2.2 J	ND	0.79	6
	November-2012	1.9 J	ND	ND	ND	18.7	---	0.79	6
	May-2013	ND	ND	ND	ND	15.6	ND	0.79	6
	November-2013	ND	ND	ND	ND	9.7	---	0.79	6
	May-2014	2.5 J	ND	ND	ND	ND	ND	0.49	6
	October-2014	ND	---	ND	ND	ND	ND	0.49	6
		---	ND D10	---	---	---	---	4.9	60
	April-2015	ND	ND	ND	ND	ND	ND	0.49	6
	October-2015	ND	ND	ND	ND	11.3	ND	0.85	6
	May-2016	ND	ND	ND	ND	16.7	ND	0.85	6
	November-2016	ND	ND	ND	ND	ND	ND	0.85	6
	May-2017	ND	ND	ND	ND	ND	ND	0.85	6
	October-2017	ND	ND	ND	ND	32.5	---	1.4	6
	November-2017	---	---	---	---	---	ND	1.4	6
	May-2018	---	---	---	ND	3 J	ND	2.2	5.9
		ND	ND	ND	---	---	---	2.3	5.9
	October-2018	ND	ND	ND	ND	1.6 J	ND	1.4	6
	April-2019	---	---	---	ND	---	ND	2.1	6
	May-2019	ND	ND	ND	---	20.2	---	2.1	6
	October-2019	ND	ND	ND	ND	11.7	ND	2.1	6
	May-2020	ND	ND	ND	ND	ND	ND	2	6
	November-2020	0.73 J,B	0.68 J,B	0.77 J,B	0.76 J,B	2 J,B	0.74 J,B	0.5	4
May-2021	2 J,B	1.1 J,B	ND	1.8 J,B	1 J,B	1.8 J,B	1	4	
November-2021	ND	ND	ND	ND	ND	ND	2	5	
May-2022	ND	ND	ND	ND	ND	ND	4.67	5	
	---	---	---	---	ND D	---	4.67	5	
December-2022	ND	ND	ND	ND	ND	ND	4.67	5	

Historical Laboratory Analytical Results

Well Classification		Background			Compliance			LOD	LOQ
Parameter	Monitoring Event	MW-101	MW-104A	MW-104B	MW-106A	MW-108	MW-205B	(ug/L)	(ug/L)
Di-n-butyl phthalate Current GPS = VDEQ-ACL VDEQ-ACL = 1560 ug/L (Feb-2012) VDEQ-ACL = 670 ug/L (July-2013) VDEQ-ACL = 670 ug/L (Mar-2014) VDEQ-ACL = 900 ug/L (Feb-2015) VDEQ-ACL = 900 ug/L (Feb-2016) VDEQ-ACL = 900 ug/L (Jan-2018) VDEQ-ACL = 900 ug/L (Jan-2019) VDEQ-ACL = 900 ug/L (Jan-2020) VDEQ-ACL = 900 ug/L (Jan-2021) VDEQ-ACL = 900 ug/L (Jan-2022)	November-2011	ND	ND	ND	ND	ND	---	0.75	10
	May-2012	ND	ND	ND	ND	ND	---	0.75	10
	November-2012	ND	ND	ND	ND	ND	---	0.75	10
	May-2013	ND	ND	ND	ND	ND	---	0.75	10
	November-2013	ND	ND	ND	ND	ND	---	0.75	10
	May-2014	ND	ND	ND	ND	ND	ND	0.37	10
	October-2014	ND	---	ND	ND	ND	ND	0.37	10
		---	ND D10	---	---	---	---	3.7	100
	April-2015	ND	ND	ND	ND	ND	ND	0.37	10
	October-2015	ND	ND	ND	ND	ND	ND	1.1	10
	May-2016	ND	ND	ND	ND	ND	ND	1.1	10
	November-2016	ND	ND	ND	ND	ND	ND	1.1	10
	May-2017	ND	ND	ND	ND	ND	ND	1.1	10
	October-2017	ND	ND	ND	ND	ND	---	1.2	10
	November-2017	---	---	---	---	---	ND	1.2	10
	May-2018	ND	ND	ND	ND	ND	ND	1.9	9.8
	October-2018	ND	ND	ND	ND	ND	ND	1.2	10
	April-2019	---	---	---	ND	---	ND	1.8	10
	May-2019	ND	ND	ND	---	ND	---	1.8	10
	October-2019	ND	ND	ND	ND	ND	ND	1.8	10
May-2020	ND	ND	ND	ND	ND	ND	1.6	10	
November-2020	ND	ND	ND	ND	ND	ND	0.5	10	
May-2021	ND	0.51 J	ND	0.53 J	ND	ND	0.5	0.8	
November-2021	ND	ND	ND	ND	ND	ND	2	5	
May-2022	ND	ND	ND	ND	ND	ND	3.74	10	
	---	---	---	---	ND D	---	3.74	10	
December-2022	ND	ND	ND	ND	ND	ND	3.74	10	
Phenacetin Current GPS = VDEQ-ACL VDEQ-ACL = 30 ug/L (Mar-2014) VDEQ-ACL = 34 ug/L (Feb-2015) VDEQ-ACL = 34 ug/L (Feb-2016) VDEQ-ACL = 34 ug/L (Jan-2018) VDEQ-ACL = 34 ug/L (Jan-2019) VDEQ-ACL = 34 ug/L (Jan-2020) VDEQ-ACL = 34 ug/L (Jan-2021) VDEQ-ACL = 34 ug/L (Jan-2022)	May-2012	ND	ND	ND	ND	ND	---	4.8	20
	May-2013	ND	ND	ND	ND	ND	---	4.8	20
	May-2014	ND	ND	ND	ND	ND	ND	0.54	20
	April-2015	ND	ND	ND	ND	ND	ND	0.54	20
	May-2016	ND	ND	ND	ND	ND	ND	0.97	20
	May-2017	ND	ND	ND	ND	ND	ND	0.97	20
	May-2018	---	---	---	ND	ND	ND	1.8	19.6
		ND	ND	ND	---	---	---	1.9	19.6
	April-2019	---	---	---	ND	---	ND	4.2	20
	May-2019	ND	ND	ND	---	ND	---	4.2	20
	May-2020	ND	ND	ND	ND	ND	ND	1.9	10
	May-2021	0.54 J	ND	ND	0.49 J	ND	ND	0.32	10
	May-2022	ND	ND	ND	ND	ND	ND	0.93	10
		---	---	---	---	ND D	---	0.93	10
	Phenol Current GPS = VDEQ-ACL VDEQ-ACL = 4500 ug/L (Mar-2014) VDEQ-ACL = 5800 ug/L (Feb-2015) VDEQ-ACL = 5800 ug/L (Feb-2016) VDEQ-ACL = 5800 ug/L (Jan-2018) VDEQ-ACL = 5800 ug/L (Jan-2019) VDEQ-ACL = 5800 ug/L (Jan-2020) VDEQ-ACL = 5800 ug/L (Jan-2021) VDEQ-ACL = 5800 ug/L (Jan-2022)	May-2012	ND	ND	ND	ND	ND	---	1.9
May-2013		ND	ND	ND	ND	ND	---	1.9	10
May-2014		ND	ND	ND	ND	ND	ND	1.1	10
April-2015		ND	ND	ND	ND	ND	ND	1.1	10
May-2016		ND	ND	ND	ND	ND	ND	1.7	10
May-2017		ND	ND	ND	ND	ND	ND	1.7	10
May-2018		---	---	---	ND	ND	ND	1.2	9.8
		ND	ND	ND	---	---	---	1.3	9.8
April-2019		---	---	---	ND	---	ND	0.92	10
May-2019		ND	ND	ND	---	ND	---	0.92	10
May-2020		ND	ND	ND	ND	ND	ND	1.5	10
May-2021		ND	ND	ND	ND	17	ND	0.5	0.8
November-2021		ND	ND	ND	ND	2 J	ND	1	5
May-2022		ND	ND	ND	ND	3.37 J	ND	2.34	10
		---	---	---	---	2.75 J,D	---	2.34	10
December-2022	ND	ND	ND	ND	ND	ND	2.34	10	

Historical Laboratory Analytical Results

Well Classification		Background			Compliance			LOD	LOQ
Parameter	Monitoring Event	MW-101	MW-104A	MW-104B	MW-106A	MW-108	MW-205B	(ug/L)	(ug/L)
COLUMN B VOLATILE ORGANIC COMPOUNDS									
Isobutyl alcohol	May-2012	ND	ND	ND	ND	ND	---	35	130
Current GPS = VDEQ-ACL	May-2013	ND	ND	ND	ND	ND	---	35	130
VDEQ-ACL = 4600 ug/L (Mar-2014)	May-2014	ND	ND	ND	ND	ND	ND	35	130
VDEQ-ACL = 5900 ug/L (Feb-2015)	April-2015	ND	ND	ND	ND	ND	ND	35	130
VDEQ-ACL = 5900 ug/L (Feb-2016)	May-2016	ND	ND	ND	ND	ND	ND	35	130
	May-2017	ND	ND	ND	ND	ND	ND	35	130
VDEQ-ACL = 5900 ug/L (Jan-2018)	May-2018	ND	ND	ND	ND	ND	ND	35	130
VDEQ-ACL = 5900 ug/L (Jan-2019)	April-2019	---	---	---	ND	---	ND	66.4	130
	May-2019	ND	ND	ND	---	ND	---	66.4	130
VDEQ-ACL = 5900 ug/L (Jan-2020)	May-2020	ND	ND	ND	ND	ND	ND	66.4	100
VDEQ-ACL = 5900 ug/L (Jan-2021)	May-2021	ND	ND	ND	ND	---	ND	52.3	100
		---	---	---	---	205 J,D2	---	131	250
VDEQ-ACL = 5900 ug/L (Jan-2022)	May-2022	ND	ND	ND	ND	ND	ND	25	40
		---	---	---	---	ND D	---	25	40
Naphthalene	May-2012	ND	ND	ND	ND	ND	---	0.24	2
Current GPS = VDEQ-ACL	May-2013	ND	ND	ND	ND	ND	---	0.24	2
VDEQ-ACL = 0.14 ug/L (Mar-2014)	May-2014	ND	ND	ND	ND	ND	ND	0.24	2
VDEQ-ACL = 0.17 ug/L (Feb-2015)	April-2015	ND	ND	ND	ND	ND	ND	0.24	2
VDEQ-ACL = 0.17 ug/L (Feb-2016)	May-2016	ND	ND	ND	ND	ND	ND	0.24	2
	May-2017	ND	ND	ND	ND	ND	ND	0.24	2
VDEQ-ACL = 0.17 ug/L (Jan-2018)	May-2018	ND	ND	ND	ND	ND	ND	0.24	2
VDEQ-ACL = 0.17 ug/L (Jan-2019)	April-2019	---	---	---	ND	---	ND	0.35	2
	May-2019	ND	ND	ND	---	ND	---	0.35	2
VDEQ-ACL = 0.17 ug/L (Jan-2020)	May-2020	ND	ND	ND	ND	ND	ND	0.35	1
VDEQ-ACL = 0.12 ug/L (Jan-2021)	May-2021	ND	ND	ND	ND	---	ND	0.64	1
		---	---	---	---	2.4 J,D2	---	1.6	2.5
VDEQ-ACL = 0.12 ug/L (Jan-2022)	May-2022	ND	ND	ND	ND	ND	ND	0.8	1
		---	---	---	---	ND D	---	0.8	1

--- = not available/applicable

B = Qualifier used if quantitation of parameter is less than five times that detected in the laboratory's blank. Concentration is considered not validated.

D = Duplicate Sample

D# = # of times sample was diluted

EPA-MCL = Environmental Protection Agency-Maximum Contaminant Level (updated May 2009)

FBAC = Facility Background

GPS = Groundwater Protection Standard

J = Qualifier used if reported concentration is less than the LOQ but greater than the LOD. The concentration is considered to be estimated and not validated.


LOD = Limit of Detection

LOQ = Limit of Quantitation

ND = Not Detected

ug/L = micrograms per liter

VDEQ-ACL = Virginia Department of Environmental Quality-Alternate Concentrations Limit (revision date). In those cases where the ACL value is found to be less than the laboratory's current LOQ for the constituent, the LOQ shall serve as the "ACL" for comparison purposes.



Appendix F

Statistical Computations

Dixon's Test for Outliers

Parameter: 1,1-Dichloroethane

Location: MW-101

Original Data (Not Transformed)

Non-Detects Replaced with Detection Limit

For 23 Measurements...

5% Level of Significance

Iteration	Highest	Lowest	Critical	Outlier
1	0.30303	0	0.421	None

Loc.	Date	Conc.	Outlier
MW-101	11/8/2011	ND<0.32 U	FALSE
	5/16/2012	ND<0.32 U	FALSE
	11/13/2012	ND<0.32 U	FALSE
	5/15/2013	ND<0.32 U	FALSE
	11/4/2013	ND<0.32 U	FALSE
	5/6/2014	ND<0.32 U	FALSE
	10/28/2014	ND<0.32 U	FALSE
	4/28/2015	ND<0.32 U	FALSE
	10/27/2015	ND<0.32 U	FALSE
	5/2/2016	ND<0.32 U	FALSE
	11/1/2016	ND<0.32 U	FALSE
	5/2/2017	ND<0.32 U	FALSE
	10/31/2017	ND<0.32 U	FALSE
	5/1/2018	ND<0.32 U	FALSE
	10/29/2018	ND<0.32 U	FALSE
	5/1/2019	ND<0.27 U	FALSE
	10/29/2019	ND<0.27 U	FALSE
	5/4/2020	ND<0.27 U	FALSE
	11/16/2020	ND<0.27 U	FALSE
	5/17/2021	ND<0.37 U	FALSE
	11/8/2021	ND<0.5 U	FALSE
	5/25/2022	ND<0.6 U	FALSE
	12/6/2022	ND<0.6 U	FALSE

Dixon's Test for Outliers

Parameter: 1,1-Dichloroethane

Location: MW-104A

Original Data (Not Transformed)

Non-Detects Replaced with Detection Limit

For 23 Measurements...

5% Level of Significance

Iteration	Highest	Lowest	Critical	Outlier
1	0.30303	0	0.421	None

Loc.	Date	Conc.	Outlier
MW-104A	11/7/2011	ND<0.32 U	FALSE
	5/16/2012	ND<0.32 U	FALSE
	11/13/2012	ND<0.32 U	FALSE
	5/16/2013	ND<0.32 U	FALSE
	11/4/2013	ND<0.32 U	FALSE
	5/6/2014	ND<0.32 U	FALSE
	10/30/2014	ND<0.32 U	FALSE
	4/28/2015	ND<0.32 U	FALSE
	10/27/2015	ND<0.32 U	FALSE
	5/2/2016	ND<0.32 U	FALSE
	11/2/2016	ND<0.32 U	FALSE
	5/1/2017	ND<0.32 U	FALSE
	10/31/2017	ND<0.32 U	FALSE
	5/1/2018	ND<0.32 U	FALSE
	10/29/2018	ND<0.32 U	FALSE
	5/1/2019	ND<0.27 U	FALSE
	10/29/2019	ND<0.27 U	FALSE
	5/4/2020	ND<0.27 U	FALSE
	11/16/2020	ND<0.27 U	FALSE
	5/17/2021	ND<0.37 U	FALSE
	11/8/2021	ND<0.5 U	FALSE
	5/24/2022	ND<0.6 U	FALSE
	12/5/2022	ND<0.6 U	FALSE

Dixon's Test for Outliers

Parameter: 1,1-Dichloroethane

Location: MW-104B

Original Data (Not Transformed)

Non-Detects Replaced with Detection Limit

For 23 Measurements...

5% Level of Significance

Iteration	Highest	Lowest	Critical	Outlier
1	0.30303	0	0.421	None

Loc.	Date	Conc.	Outlier
MW-104B	11/7/2011	ND<0.32 U	FALSE
	5/16/2012	ND<0.32 U	FALSE
	11/13/2012	ND<0.32 U	FALSE
	5/16/2013	ND<0.32 U	FALSE
	11/4/2013	ND<0.32 U	FALSE
	5/6/2014	ND<0.32 U	FALSE
	10/30/2014	ND<0.32 U	FALSE
	4/28/2015	ND<0.32 U	FALSE
	10/27/2015	ND<0.32 U	FALSE
	5/2/2016	ND<0.32 U	FALSE
	11/2/2016	ND<0.32 U	FALSE
	5/1/2017	ND<0.32 U	FALSE
	10/31/2017	ND<0.32 U	FALSE
	5/1/2018	ND<0.32 U	FALSE
	10/29/2018	ND<0.32 U	FALSE
	5/1/2019	ND<0.27 U	FALSE
	10/29/2019	ND<0.27 U	FALSE
	5/4/2020	ND<0.27 U	FALSE
	11/16/2020	ND<0.27 U	FALSE
	5/17/2021	ND<0.37 U	FALSE
	11/8/2021	ND<0.5 U	FALSE
	5/24/2022	ND<0.6 U	FALSE
	12/5/2022	ND<0.6 U	FALSE

Dixon's Test for Outliers

Parameter: 1,4-Dichlorobenzene

Location: MW-101

Original Data (Not Transformed)

Non-Detects Replaced with Detection Limit

For 23 Measurements...

5% Level of Significance

Iteration	Highest	Lowest	Critical	Outlier
1	0.810811	0	0.421	1
2	0.5	0	0.43	0.4
3	0.5	0	0.44	0.4
4	0	0	0.45	None

Loc.	Date	Conc.	Outlier
MW-101	11/8/2011	ND<0.33 U	FALSE
	5/16/2012	ND<0.33 U	FALSE
	11/13/2012	ND<0.33 U	FALSE
	5/15/2013	ND<0.33 U	FALSE
	11/4/2013	ND<0.33 U	FALSE
	5/6/2014	ND<0.33 U	FALSE
	10/28/2014	ND<0.33 U	FALSE
	4/28/2015	ND<0.33 U	FALSE
	10/27/2015	ND<0.33 U	FALSE
	5/2/2016	ND<0.33 U	FALSE
	11/1/2016	ND<0.33 U	FALSE
	5/2/2017	ND<0.33 U	FALSE
	10/31/2017	ND<0.33 U	FALSE
	5/1/2018	ND<0.33 U	FALSE
	10/29/2018	ND<0.33 U	FALSE
	5/1/2019	ND<0.26 U	FALSE
	10/29/2019	ND<0.26 U	FALSE
	5/4/2020	ND<0.26 U	FALSE
	11/16/2020	ND<0.26 U	FALSE
	5/17/2021	ND<0.33 U	FALSE
	11/8/2021	ND<1 U	TRUE
	5/25/2022	ND<0.4 U	TRUE
	12/6/2022	ND<0.4 U	TRUE

Dixon's Test for Outliers

Parameter: 1,4-Dichlorobenzene

Location: MW-104A

Original Data (Not Transformed)

Non-Detects Replaced with Detection Limit

For 23 Measurements...

5% Level of Significance

Iteration	Highest	Lowest	Critical	Outlier
1	0.810811	0	0.421	1
2	0.5	0	0.43	0.4
3	0.5	0	0.44	0.4
4	0	0	0.45	None

Loc.	Date	Conc.	Outlier
MW-104A	11/7/2011	ND<0.33 U	FALSE
	5/16/2012	ND<0.33 U	FALSE
	11/13/2012	ND<0.33 U	FALSE
	5/16/2013	ND<0.33 U	FALSE
	11/4/2013	ND<0.33 U	FALSE
	5/6/2014	ND<0.33 U	FALSE
	10/30/2014	ND<0.33 U	FALSE
	4/28/2015	ND<0.33 U	FALSE
	10/27/2015	ND<0.33 U	FALSE
	5/2/2016	ND<0.33 U	FALSE
	11/2/2016	ND<0.33 U	FALSE
	5/1/2017	ND<0.33 U	FALSE
	10/31/2017	ND<0.33 U	FALSE
	5/1/2018	ND<0.33 U	FALSE
	10/29/2018	ND<0.33 U	FALSE
	5/1/2019	ND<0.26 U	FALSE
	10/29/2019	ND<0.26 U	FALSE
	5/4/2020	ND<0.26 U	FALSE
	11/16/2020	ND<0.26 U	FALSE
	5/17/2021	ND<0.33 U	FALSE
	11/8/2021	ND<1 U	TRUE
	5/24/2022	ND<0.4 U	TRUE
	12/5/2022	ND<0.4 U	TRUE

Dixon's Test for Outliers

Parameter: 1,4-Dichlorobenzene

Location: MW-104B

Original Data (Not Transformed)

Non-Detects Replaced with Detection Limit

For 23 Measurements...

5% Level of Significance

Iteration	Highest	Lowest	Critical	Outlier
1	0.810811	0	0.421	1
2	0.5	0	0.43	0.4
3	0.5	0	0.44	0.4
4	0	0	0.45	None

Loc.	Date	Conc.	Outlier
MW-104B	11/7/2011	ND<0.33 U	FALSE
	5/16/2012	ND<0.33 U	FALSE
	11/13/2012	ND<0.33 U	FALSE
	5/16/2013	ND<0.33 U	FALSE
	11/4/2013	ND<0.33 U	FALSE
	5/6/2014	ND<0.33 U	FALSE
	10/30/2014	ND<0.33 U	FALSE
	4/28/2015	ND<0.33 U	FALSE
	10/27/2015	ND<0.33 U	FALSE
	5/2/2016	ND<0.33 U	FALSE
	11/2/2016	ND<0.33 U	FALSE
	5/1/2017	ND<0.33 U	FALSE
	10/31/2017	ND<0.33 U	FALSE
	5/1/2018	ND<0.33 U	FALSE
	10/29/2018	ND<0.33 U	FALSE
	5/1/2019	ND<0.26 U	FALSE
	10/29/2019	ND<0.26 U	FALSE
	5/4/2020	ND<0.26 U	FALSE
	11/16/2020	ND<0.26 U	FALSE
	5/17/2021	ND<0.33 U	FALSE
	11/8/2021	ND<1 U	TRUE
	5/24/2022	ND<0.4 U	TRUE
	12/5/2022	ND<0.4 U	TRUE

Dixon's Test for Outliers

Parameter: Arsenic

Location: MW-101

Original Data (Not Transformed)

Non-Detects Replaced with Detection Limit

For 23 Measurements...

5% Level of Significance

Iteration	Highest	Lowest	Critical	Outlier
1	0.5	0.0647021	0.421	30.9
2	0.655502	0.123021	0.43	22.6
3	0.643836	0.162641	0.44	16.3
4	0.305556	0.168053	0.45	None

Loc.	Date	Conc.	Outlier
MW-101	11/8/2011	ND<2.7 U	FALSE
	5/16/2012	8.9	FALSE
	11/13/2012	30.9	TRUE
	5/15/2013	22.6	TRUE
	11/4/2013	16.3	TRUE
	5/6/2014	ND<2.7 U	FALSE
	10/28/2014	ND<5 U	FALSE
	4/28/2015	ND<5 U	FALSE
	10/27/2015	ND<5 U	FALSE
	5/2/2016	ND<5 U	FALSE
	11/1/2016	6.7 J	FALSE
	5/2/2017	ND<5 U	FALSE
	10/31/2017	5.1 J	FALSE
	5/1/2018	ND<5 U	FALSE
	10/29/2018	ND<5 U	FALSE
	5/1/2019	ND<5 U	FALSE
	10/29/2019	ND<5 U	FALSE
	5/4/2020	ND<4.7 U	FALSE
	11/16/2020	1.5 J	FALSE
	5/17/2021	ND<4.7 U	FALSE
	11/8/2021	6.9 J	FALSE
	5/25/2022	1.7	FALSE
	12/6/2022	0.69 J	FALSE

Dixon's Test for Outliers

Parameter: Arsenic

Location: MW-101

Original Data (Not Transformed)

Non-Detects Replaced with Detection Limit

For 23 Measurements...

5% Level of Significance

Iteration	Highest	Lowest	Critical	Outlier
1	0.5	0.0647021	0.421	30.9
2	0.655502	0.123021	0.43	22.6
3	0.643836	0.162641	0.44	16.3
4	0.305556	0.168053	0.45	None

Loc.	Date	Conc.	Outlier
MW-101	11/8/2011	ND<2.7 U	FALSE
	5/16/2012	8.9	FALSE
	11/13/2012	30.9	TRUE
	5/15/2013	22.6	TRUE
	11/4/2013	16.3	TRUE
	5/6/2014	ND<2.7 U	FALSE
	10/28/2014	ND<5 U	FALSE
	4/28/2015	ND<5 U	FALSE
	10/27/2015	ND<5 U	FALSE
	5/2/2016	ND<5 U	FALSE
	11/1/2016	6.7 J	FALSE
	5/2/2017	ND<5 U	FALSE
	10/31/2017	5.1 J	FALSE
	5/1/2018	ND<5 U	FALSE
	10/29/2018	ND<5 U	FALSE
	5/1/2019	ND<5 U	FALSE
	10/29/2019	ND<5 U	FALSE
	5/4/2020	ND<4.7 U	FALSE
	11/16/2020	1.5 J	FALSE
	5/17/2021	ND<4.7 U	FALSE
	11/8/2021	6.9 J	FALSE
	5/25/2022	1.7	FALSE
	12/6/2022	0.69 J	FALSE

Dixon's Test for Outliers

Parameter: Arsenic

Location: MW-104A

Original Data (Not Transformed)

Non-Detects Replaced with 1/2 DL

For 22 Measurements...

5% Level of Significance

Iteration	Highest	Lowest	Critical	Outlier
1	0.0927835	0	0.43	None

Loc.	Date	Conc.	Outlier
MW-104A	11/7/2011	6.9	FALSE
	5/16/2012	10.4	FALSE
	11/13/2012	9.8 J	FALSE
	5/16/2013	11.3	FALSE
	11/4/2013	11.4	FALSE
	5/6/2014	9.2 J	FALSE
	10/30/2014	10.3	FALSE
	4/28/2015	10.6	FALSE
	10/27/2015	8.2 J	FALSE
	5/2/2016	9.7 J	FALSE
	11/2/2016	12.2	FALSE
	5/1/2017	ND<2.5 U	FALSE
	10/31/2017	ND<2.5 U	FALSE
	5/1/2018	ND<2.5 U	FALSE
	10/29/2018	10.6	FALSE
	10/29/2019	ND<2.5 U	FALSE
	5/4/2020	10.1	FALSE
	11/16/2020	8.5	FALSE
	5/17/2021	8 J	FALSE
	11/8/2021	7.6 J	FALSE
	5/24/2022	9	FALSE
	12/5/2022	6.5	FALSE

Dixon's Test for Outliers

Parameter: Arsenic

Location: MW-104B

Original Data (Not Transformed)

Non-Detects Replaced with Detection Limit

For 23 Measurements...

5% Level of Significance

Iteration	Highest	Lowest	Critical	Outlier
1	0	0.177778	0.421	None

Loc.	Date	Conc.	Outlier
MW-104B	11/7/2011	ND<2.7 U	FALSE
	5/16/2012	ND<2.7 U	FALSE
	11/13/2012	ND<2.7 U	FALSE
	5/16/2013	ND<2.7 U	FALSE
	11/4/2013	ND<2.7 U	FALSE
	5/6/2014	ND<2.7 U	FALSE
	10/30/2014	ND<5 U	FALSE
	4/28/2015	ND<5 U	FALSE
	10/27/2015	ND<5 U	FALSE
	5/2/2016	ND<5 U	FALSE
	11/2/2016	ND<5 U	FALSE
	5/1/2017	ND<5 U	FALSE
	10/31/2017	ND<5 U	FALSE
	5/1/2018	ND<5 U	FALSE
	10/29/2018	ND<5 U	FALSE
	5/1/2019	ND<5 U	FALSE
	10/29/2019	ND<5 U	FALSE
	5/4/2020	ND<4.7 U	FALSE
	11/16/2020	ND<1.3 U	FALSE
	5/17/2021	ND<4.7 U	FALSE
	11/8/2021	ND<4 U	FALSE
	5/24/2022	ND<0.5 U	FALSE
	12/5/2022	ND<0.5 U	FALSE

Dixon's Test for Outliers

Parameter: Barium

Location: MW-101

Original Data (Not Transformed)

Non-Detects Replaced with Detection Limit

For 23 Measurements...

5% Level of Significance

Iteration	Highest	Lowest	Critical	Outlier
1	0.201049	0.0557851	0.421	None

Loc.	Date	Conc.	Outlier
MW-101	11/8/2011	113	FALSE
	5/16/2012	157	FALSE
	11/13/2012	203	FALSE
	5/15/2013	189	FALSE
	11/4/2013	143	FALSE
	5/6/2014	106	FALSE
	10/28/2014	137	FALSE
	4/28/2015	101	FALSE
	10/27/2015	134	FALSE
	5/2/2016	86.5	FALSE
	11/1/2016	119	FALSE
	5/2/2017	90.8	FALSE
	10/31/2017	97.7	FALSE
	5/1/2018	88.7	FALSE
	10/29/2018	125	FALSE
	5/1/2019	94.2	FALSE
	10/29/2019	88.6	FALSE
	5/4/2020	102	FALSE
	11/16/2020	91	FALSE
	5/17/2021	103	FALSE
	11/8/2021	180	FALSE
	5/25/2022	109	FALSE
	12/6/2022	83.2	FALSE

Dixon's Test for Outliers

Parameter: Barium

Location: MW-104A

Original Data (Not Transformed)

Non-Detects Replaced with Detection Limit

For 23 Measurements...

5% Level of Significance

Iteration	Highest	Lowest	Critical	Outlier
1	0.617564	0.0878378	0.421	98.6
2	0.329843	0.0921986	0.43	None

Loc.	Date	Conc.	Outlier
MW-104A	11/7/2011	68.9	FALSE
	5/16/2012	98.6	TRUE
	11/13/2012	65.9	FALSE
	5/16/2013	68.1	FALSE
	11/4/2013	76.8	FALSE
	5/6/2014	82.4	FALSE
	10/30/2014	66.3	FALSE
	4/28/2015	63.3	FALSE
	10/27/2015	71.4	FALSE
	5/2/2016	75.8	FALSE
	11/2/2016	68.9	FALSE
	5/1/2017	72.2	FALSE
	10/31/2017	63.8	FALSE
	5/1/2018	66.5	FALSE
	10/29/2018	76.1	FALSE
	5/1/2019	67.7	FALSE
	10/29/2019	63.6	FALSE
	5/4/2020	74.9	FALSE
	11/16/2020	62	FALSE
	5/17/2021	64.8	FALSE
	11/8/2021	63	FALSE
	5/24/2022	70.4	FALSE
	12/5/2022	67.2	FALSE

Dixon's Test for Outliers

Parameter: Barium

Location: MW-104B

Original Data (Not Transformed)

Non-Detects Replaced with Detection Limit

For 23 Measurements...

5% Level of Significance

Iteration	Highest	Lowest	Critical	Outlier
1	0.325581	0.0911681	0.421	None

Loc.	Date	Conc.	Outlier
MW-104B	11/7/2011	61.9	FALSE
	5/16/2012	77.3	FALSE
	11/13/2012	30.8	FALSE
	5/16/2013	48.3	FALSE
	11/4/2013	34.8	FALSE
	5/6/2014	33.1	FALSE
	10/30/2014	35.4	FALSE
	4/28/2015	68.8	FALSE
	10/27/2015	26.8	FALSE
	5/2/2016	52.2	FALSE
	11/2/2016	36	FALSE
	5/1/2017	34.5	FALSE
	10/31/2017	36.2	FALSE
	5/1/2018	37.7	FALSE
	10/29/2018	39.1	FALSE
	5/1/2019	48.1	FALSE
	10/29/2019	38.7	FALSE
	5/4/2020	54.3	FALSE
	11/16/2020	30	FALSE
	5/17/2021	39.5	FALSE
	11/8/2021	34	FALSE
	5/24/2022	51.7	FALSE
	12/5/2022	26.8	FALSE

Dixon's Test for Outliers

Parameter: Benzene

Location: MW-101

Original Data (Not Transformed)

Non-Detects Replaced with Detection Limit

For 23 Measurements...

5% Level of Significance

Iteration	Highest	Lowest	Critical	Outlier
1	0.285714	0	0.421	None

Loc.	Date	Conc.	Outlier
MW-101	11/8/2011	ND<0.25 U	FALSE
	5/16/2012	ND<0.25 U	FALSE
	11/13/2012	ND<0.25 U	FALSE
	5/15/2013	ND<0.25 U	FALSE
	11/4/2013	ND<0.25 U	FALSE
	5/6/2014	ND<0.25 U	FALSE
	10/28/2014	ND<0.25 U	FALSE
	4/28/2015	ND<0.25 U	FALSE
	10/27/2015	ND<0.25 U	FALSE
	5/2/2016	ND<0.25 U	FALSE
	11/1/2016	ND<0.25 U	FALSE
	5/2/2017	ND<0.25 U	FALSE
	10/31/2017	ND<0.25 U	FALSE
	5/1/2018	ND<0.25 U	FALSE
	10/29/2018	ND<0.25 U	FALSE
	5/1/2019	ND<0.15 U	FALSE
	10/29/2019	ND<0.15 U	FALSE
	5/4/2020	ND<0.15 U	FALSE
	11/16/2020	ND<0.15 U	FALSE
	5/17/2021	ND<0.34 U	FALSE
	11/8/2021	ND<0.5 U	FALSE
	5/25/2022	ND<0.4 U	FALSE
	12/6/2022	ND<0.4 U	FALSE

Dixon's Test for Outliers

Parameter: Benzene

Location: MW-104A

Original Data (Not Transformed)

Non-Detects Replaced with Detection Limit

For 23 Measurements...

5% Level of Significance

Iteration	Highest	Lowest	Critical	Outlier
1	0.285714	0	0.421	None

Loc.	Date	Conc.	Outlier
MW-104A	11/7/2011	ND<0.25 U	FALSE
	5/16/2012	ND<0.25 U	FALSE
	11/13/2012	ND<0.25 U	FALSE
	5/16/2013	ND<0.25 U	FALSE
	11/4/2013	ND<0.25 U	FALSE
	5/6/2014	ND<0.25 U	FALSE
	10/30/2014	ND<0.25 U	FALSE
	4/28/2015	ND<0.25 U	FALSE
	10/27/2015	ND<0.25 U	FALSE
	5/2/2016	ND<0.25 U	FALSE
	11/2/2016	ND<0.25 U	FALSE
	5/1/2017	ND<0.25 U	FALSE
	10/31/2017	ND<0.25 U	FALSE
	5/1/2018	ND<0.25 U	FALSE
	10/29/2018	ND<0.25 U	FALSE
	5/1/2019	ND<0.15 U	FALSE
	10/29/2019	ND<0.15 U	FALSE
	5/4/2020	ND<0.15 U	FALSE
	11/16/2020	ND<0.15 U	FALSE
	5/17/2021	ND<0.34 U	FALSE
	11/8/2021	ND<0.5 U	FALSE
	5/24/2022	ND<0.4 U	FALSE
	12/5/2022	ND<0.4 U	FALSE

Dixon's Test for Outliers

Parameter: Benzene

Location: MW-104B

Original Data (Not Transformed)

Non-Detects Replaced with Detection Limit

For 23 Measurements...

5% Level of Significance

Iteration	Highest	Lowest	Critical	Outlier
1	0.285714	0	0.421	None

Loc.	Date	Conc.	Outlier
MW-104B	11/7/2011	ND<0.25 U	FALSE
	5/16/2012	ND<0.25 U	FALSE
	11/13/2012	ND<0.25 U	FALSE
	5/16/2013	ND<0.25 U	FALSE
	11/4/2013	ND<0.25 U	FALSE
	5/6/2014	ND<0.25 U	FALSE
	10/30/2014	ND<0.25 U	FALSE
	4/28/2015	ND<0.25 U	FALSE
	10/27/2015	ND<0.25 U	FALSE
	5/2/2016	ND<0.25 U	FALSE
	11/2/2016	ND<0.25 U	FALSE
	5/1/2017	ND<0.25 U	FALSE
	10/31/2017	ND<0.25 U	FALSE
	5/1/2018	ND<0.25 U	FALSE
	10/29/2018	ND<0.25 U	FALSE
	5/1/2019	ND<0.15 U	FALSE
	10/29/2019	ND<0.15 U	FALSE
	5/4/2020	ND<0.15 U	FALSE
	11/16/2020	ND<0.15 U	FALSE
	5/17/2021	ND<0.34 U	FALSE
	11/8/2021	ND<0.5 U	FALSE
	5/24/2022	ND<0.4 U	FALSE
	12/5/2022	ND<0.4 U	FALSE

Dixon's Test for Outliers

Parameter: Chlorobenzene

Location: MW-101

Original Data (Not Transformed)

Non-Detects Replaced with Detection Limit

For 23 Measurements...

5% Level of Significance

Iteration	Highest	Lowest	Critical	Outlier
1	0.701754	0	0.421	0.8
2	0.705882	0	0.43	0.4

A Divide-By-Zero error occurred in the calculations.

Additional Outliers May Exist.

Loc.	Date	Conc.	Outlier
MW-101	11/8/2011	ND<0.23 U	FALSE
	5/16/2012	ND<0.23 U	FALSE
	11/13/2012	ND<0.23 U	FALSE
	5/15/2013	ND<0.23 U	FALSE
	11/4/2013	ND<0.23 U	FALSE
	5/6/2014	ND<0.23 U	FALSE
	10/28/2014	ND<0.23 U	FALSE
	4/28/2015	ND<0.23 U	FALSE
	10/27/2015	ND<0.23 U	FALSE
	5/2/2016	ND<0.23 U	FALSE
	11/1/2016	ND<0.23 U	FALSE
	5/2/2017	ND<0.23 U	FALSE
	10/31/2017	ND<0.23 U	FALSE
	5/1/2018	ND<0.23 U	FALSE
	10/29/2018	ND<0.23 U	FALSE
	5/1/2019	ND<0.23 U	FALSE
	10/29/2019	ND<0.23 U	FALSE
	5/4/2020	ND<0.23 U	FALSE
	11/16/2020	ND<0.23 U	FALSE
	5/17/2021	ND<0.28 U	FALSE
	11/8/2021	ND<0.8 U	TRUE
	5/25/2022	ND<0.4 U	TRUE
	12/6/2022	ND<0.4 U	TRUE

Dixon's Test for Outliers

Parameter: Chlorobenzene

Location: MW-104A

Original Data (Not Transformed)

Non-Detects Replaced with Detection Limit

For 23 Measurements...

5% Level of Significance

Iteration	Highest	Lowest	Critical	Outlier
1	0.701754	0	0.421	0.8
2	0.705882	0	0.43	0.4

A Divide-By-Zero error occurred in the calculations.

Additional Outliers May Exist.

Loc.	Date	Conc.	Outlier
MW-104A	11/7/2011	ND<0.23 U	FALSE
	5/16/2012	ND<0.23 U	FALSE
	11/13/2012	ND<0.23 U	FALSE
	5/16/2013	ND<0.23 U	FALSE
	11/4/2013	ND<0.23 U	FALSE
	5/6/2014	ND<0.23 U	FALSE
	10/30/2014	ND<0.23 U	FALSE
	4/28/2015	ND<0.23 U	FALSE
	10/27/2015	ND<0.23 U	FALSE
	5/2/2016	ND<0.23 U	FALSE
	11/2/2016	ND<0.23 U	FALSE
	5/1/2017	ND<0.23 U	FALSE
	10/31/2017	ND<0.23 U	FALSE
	5/1/2018	ND<0.23 U	FALSE
	10/29/2018	ND<0.23 U	FALSE
	5/1/2019	ND<0.23 U	FALSE
	10/29/2019	ND<0.23 U	FALSE
	5/4/2020	ND<0.23 U	FALSE
	11/16/2020	ND<0.23 U	FALSE
	5/17/2021	ND<0.28 U	FALSE
	11/8/2021	ND<0.8 U	TRUE
	5/24/2022	ND<0.4 U	TRUE
	12/5/2022	ND<0.4 U	TRUE

Dixon's Test for Outliers

Parameter: Chlorobenzene

Location: MW-104B

Original Data (Not Transformed)

Non-Detects Replaced with Detection Limit

For 23 Measurements...

5% Level of Significance

Iteration	Highest	Lowest	Critical	Outlier
1	0.701754	0	0.421	0.8
2	0.705882	0	0.43	0.4

**A Divide-By-Zero error occurred in the calculations.
Additional Outliers May Exist.**

Loc.	Date	Conc.	Outlier
MW-104B	11/7/2011	ND<0.23 U	FALSE
	5/16/2012	ND<0.23 U	FALSE
	11/13/2012	ND<0.23 U	FALSE
	5/16/2013	ND<0.23 U	FALSE
	11/4/2013	ND<0.23 U	FALSE
	5/6/2014	ND<0.23 U	FALSE
	10/30/2014	ND<0.23 U	FALSE
	4/28/2015	ND<0.23 U	FALSE
	10/27/2015	ND<0.23 U	FALSE
	5/2/2016	ND<0.23 U	FALSE
	11/2/2016	ND<0.23 U	FALSE
	5/1/2017	ND<0.23 U	FALSE
	10/31/2017	ND<0.23 U	FALSE
	5/1/2018	ND<0.23 U	FALSE
	10/29/2018	ND<0.23 U	FALSE
	5/1/2019	ND<0.23 U	FALSE
	10/29/2019	ND<0.23 U	FALSE
	5/4/2020	ND<0.23 U	FALSE
	11/16/2020	ND<0.23 U	FALSE
	5/17/2021	ND<0.28 U	FALSE
	11/8/2021	ND<0.8 U	TRUE
	5/24/2022	ND<0.4 U	TRUE
	12/5/2022	ND<0.4 U	TRUE

Dixon's Test for Outliers

Parameter: Chloroethane

Location: MW-101

Original Data (Not Transformed)

Non-Detects Replaced with Detection Limit

For 23 Measurements...

5% Level of Significance

Iteration	Highest	Lowest	Critical	Outlier
1	0.588235	0	0.421	1
2	0.238095	0	0.43	None

Loc.	Date	Conc.	Outlier
MW-101	11/8/2011	ND<0.54 U	FALSE
	5/16/2012	ND<0.54 U	FALSE
	11/13/2012	ND<0.54 U	FALSE
	5/15/2013	ND<0.54 U	FALSE
	11/4/2013	ND<0.54 U	FALSE
	5/6/2014	ND<0.54 U	FALSE
	10/28/2014	ND<0.54 U	FALSE
	4/28/2015	ND<0.54 U	FALSE
	10/27/2015	ND<0.54 U	FALSE
	5/2/2016	ND<0.54 U	FALSE
	11/1/2016	ND<0.54 U	FALSE
	5/2/2017	ND<0.54 U	FALSE
	10/31/2017	ND<0.54 U	FALSE
	5/1/2018	ND<0.54 U	FALSE
	10/29/2018	ND<0.54 U	FALSE
	5/1/2019	ND<0.49 U	FALSE
	10/29/2019	ND<0.49 U	FALSE
	5/4/2020	ND<0.49 U	FALSE
	11/16/2020	ND<0.49 U	FALSE
	5/17/2021	ND<0.65 U	FALSE
	11/8/2021	ND<1 U	TRUE
	5/25/2022	ND<0.7 U	FALSE
	12/6/2022	ND<0.7 U	FALSE

Dixon's Test for Outliers

Parameter: Chloroethane

Location: MW-104A

Original Data (Not Transformed)

Non-Detects Replaced with Detection Limit

For 23 Measurements...

5% Level of Significance

Iteration	Highest	Lowest	Critical	Outlier
1	0.588235	0	0.421	1
2	0.238095	0	0.43	None

Loc.	Date	Conc.	Outlier
MW-104A	11/7/2011	ND<0.54 U	FALSE
	5/16/2012	ND<0.54 U	FALSE
	11/13/2012	ND<0.54 U	FALSE
	5/16/2013	ND<0.54 U	FALSE
	11/4/2013	ND<0.54 U	FALSE
	5/6/2014	ND<0.54 U	FALSE
	10/30/2014	ND<0.54 U	FALSE
	4/28/2015	ND<0.54 U	FALSE
	10/27/2015	ND<0.54 U	FALSE
	5/2/2016	ND<0.54 U	FALSE
	11/2/2016	ND<0.54 U	FALSE
	5/1/2017	ND<0.54 U	FALSE
	10/31/2017	ND<0.54 U	FALSE
	5/1/2018	ND<0.54 U	FALSE
	10/29/2018	ND<0.54 U	FALSE
	5/1/2019	ND<0.49 U	FALSE
	10/29/2019	ND<0.49 U	FALSE
	5/4/2020	ND<0.49 U	FALSE
	11/16/2020	ND<0.49 U	FALSE
	5/17/2021	ND<0.65 U	FALSE
	11/8/2021	ND<1 U	TRUE
	5/24/2022	ND<0.7 U	FALSE
	12/5/2022	ND<0.7 U	FALSE

Dixon's Test for Outliers

Parameter: Chloroethane

Location: MW-104B

Original Data (Not Transformed)

Non-Detects Replaced with Detection Limit

For 23 Measurements...

5% Level of Significance

Iteration	Highest	Lowest	Critical	Outlier
1	0.588235	0	0.421	1
2	0.238095	0	0.43	None

Loc.	Date	Conc.	Outlier
MW-104B	11/7/2011	ND<0.54 U	FALSE
	5/16/2012	ND<0.54 U	FALSE
	11/13/2012	ND<0.54 U	FALSE
	5/16/2013	ND<0.54 U	FALSE
	11/4/2013	ND<0.54 U	FALSE
	5/6/2014	ND<0.54 U	FALSE
	10/30/2014	ND<0.54 U	FALSE
	4/28/2015	ND<0.54 U	FALSE
	10/27/2015	ND<0.54 U	FALSE
	5/2/2016	ND<0.54 U	FALSE
	11/2/2016	ND<0.54 U	FALSE
	5/1/2017	ND<0.54 U	FALSE
	10/31/2017	ND<0.54 U	FALSE
	5/1/2018	ND<0.54 U	FALSE
	10/29/2018	ND<0.54 U	FALSE
	5/1/2019	ND<0.49 U	FALSE
	10/29/2019	ND<0.49 U	FALSE
	5/4/2020	ND<0.49 U	FALSE
	11/16/2020	ND<0.49 U	FALSE
	5/17/2021	ND<0.65 U	FALSE
	11/8/2021	ND<1 U	TRUE
	5/24/2022	ND<0.7 U	FALSE
	12/5/2022	ND<0.7 U	FALSE

Dixon's Test for Outliers

Parameter: Chromium

Location: MW-101

Original Data (Not Transformed)

Non-Detects Replaced with Detection Limit

For 23 Measurements...

5% Level of Significance

Iteration	Highest	Lowest	Critical	Outlier
1	0.681818	0.285714	0.421	13
2	0.592771	0.292887	0.43	10.3
3	0.0571429	0.297872	0.44	None

Loc.	Date	Conc.	Outlier
MW-101	11/8/2011	ND<2 U	FALSE
	5/16/2012	ND<2 U	FALSE
	11/13/2012	5.5	FALSE
	5/15/2013	4.2 J	FALSE
	11/4/2013	5.3	FALSE
	5/6/2014	ND<2 U	FALSE
	10/28/2014	ND<2.5 U	FALSE
	4/28/2015	3 J	FALSE
	10/27/2015	3.4 J	FALSE
	5/2/2016	ND<2.5 U	FALSE
	11/1/2016	10.3	TRUE
	5/2/2017	ND<2.5 U	FALSE
	10/31/2017	2.8 J	FALSE
	5/1/2018	ND<2.5 U	FALSE
	10/29/2018	ND<2.5 U	FALSE
	5/1/2019	ND<2.5 U	FALSE
	10/29/2019	ND<2.5 U	FALSE
	5/4/2020	ND<1 U	FALSE
	11/16/2020	2.1 J	FALSE
	5/17/2021	ND<3.7 U	FALSE
	11/8/2021	13	TRUE
	5/25/2022	5.38	FALSE
	12/6/2022	ND<0.6 U	FALSE

Dixon's Test for Outliers

Parameter: Chromium

Location: MW-101

Original Data (Not Transformed)

Non-Detects Replaced with Detection Limit

For 23 Measurements...

5% Level of Significance

Iteration	Highest	Lowest	Critical	Outlier
1	0.681818	0.285714	0.421	13
2	0.592771	0.292887	0.43	10.3
3	0.0571429	0.297872	0.44	None

Loc.	Date	Conc.	Outlier
MW-101	11/8/2011	ND<2 U	FALSE
	5/16/2012	ND<2 U	FALSE
	11/13/2012	5.5	FALSE
	5/15/2013	4.2 J	FALSE
	11/4/2013	5.3	FALSE
	5/6/2014	ND<2 U	FALSE
	10/28/2014	ND<2.5 U	FALSE
	4/28/2015	3 J	FALSE
	10/27/2015	3.4 J	FALSE
	5/2/2016	ND<2.5 U	FALSE
	11/1/2016	10.3	TRUE
	5/2/2017	ND<2.5 U	FALSE
	10/31/2017	2.8 J	FALSE
	5/1/2018	ND<2.5 U	FALSE
	10/29/2018	ND<2.5 U	FALSE
	5/1/2019	ND<2.5 U	FALSE
	10/29/2019	ND<2.5 U	FALSE
	5/4/2020	ND<1 U	FALSE
	11/16/2020	2.1 J	FALSE
	5/17/2021	ND<3.7 U	FALSE
	11/8/2021	13	TRUE
	5/25/2022	5.38	FALSE
	12/6/2022	ND<0.6 U	FALSE

Dixon's Test for Outliers

Parameter: Chromium

Location: MW-104A

Original Data (Not Transformed)

Non-Detects Replaced with Detection Limit

For 23 Measurements...

5% Level of Significance

Iteration	Highest	Lowest	Critical	Outlier
1	0.444444	0.285714	0.421	3.7
2	0.444444	0.285714	0.43	3.7
3	0	0.285714	0.44	None

Loc.	Date	Conc.	Outlier
MW-104A	11/7/2011	ND<2 U	FALSE
	5/16/2012	ND<2 U	FALSE
	11/13/2012	ND<2 U	FALSE
	5/16/2013	ND<2 U	FALSE
	11/4/2013	ND<2 U	FALSE
	5/6/2014	ND<2 U	FALSE
	10/30/2014	ND<2.5 U	FALSE
	4/28/2015	ND<2.5 U	FALSE
	10/27/2015	ND<2.5 U	FALSE
	5/2/2016	ND<2.5 U	FALSE
	11/2/2016	ND<2.5 U	FALSE
	5/1/2017	ND<2.5 U	FALSE
	10/31/2017	ND<2.5 U	FALSE
	5/1/2018	ND<2.5 U	FALSE
	10/29/2018	ND<2.5 U	FALSE
	5/1/2019	ND<2.5 U	FALSE
	10/29/2019	ND<2.5 U	FALSE
	5/4/2020	ND<1 U	FALSE
	11/16/2020	ND<1.3 U	FALSE
	5/17/2021	ND<3.7 U	TRUE
	11/8/2021	ND<3.7 U	TRUE
	5/24/2022	ND<0.4 U	FALSE
	12/5/2022	ND<0.6 U	FALSE

Dixon's Test for Outliers

Parameter: Chromium

Location: MW-104B

Original Data (Not Transformed)

Non-Detects Replaced with Detection Limit

For 23 Measurements...

5% Level of Significance

Iteration	Highest	Lowest	Critical	Outlier
1	0.444444	0.285714	0.421	3.7
2	0.444444	0.285714	0.43	3.7
3	0	0.285714	0.44	None

Loc.	Date	Conc.	Outlier
MW-104B	11/7/2011	ND<2 U	FALSE
	5/16/2012	ND<2 U	FALSE
	11/13/2012	ND<2 U	FALSE
	5/16/2013	ND<2 U	FALSE
	11/4/2013	2.4 J	FALSE
	5/6/2014	ND<2 U	FALSE
	10/30/2014	ND<2.5 U	FALSE
	4/28/2015	ND<2.5 U	FALSE
	10/27/2015	ND<2.5 U	FALSE
	5/2/2016	ND<2.5 U	FALSE
	11/2/2016	ND<2.5 U	FALSE
	5/1/2017	ND<2.5 U	FALSE
	10/31/2017	ND<2.5 U	FALSE
	5/1/2018	ND<2.5 U	FALSE
	10/29/2018	ND<2.5 U	FALSE
	5/1/2019	ND<2.5 U	FALSE
	10/29/2019	ND<2.5 U	FALSE
	5/4/2020	ND<1 U	FALSE
	11/16/2020	ND<1.3 U	FALSE
	5/17/2021	ND<3.7 U	TRUE
	11/8/2021	ND<3.7 U	TRUE
	5/24/2022	ND<0.4 U	FALSE
	12/5/2022	ND<0.6 U	FALSE

Dixon's Test for Outliers

Parameter: cis-1,2-Dichloroethene

Location: MW-101

Original Data (Not Transformed)

Non-Detects Replaced with Detection Limit

For 23 Measurements...

5% Level of Significance

Iteration	Highest	Lowest	Critical	Outlier
1	0.655738	0	0.421	0.8
2	0.0952381	0	0.43	None

Loc.	Date	Conc.	Outlier
MW-101	11/8/2011	ND<0.19 U	FALSE
	5/16/2012	ND<0.19 U	FALSE
	11/13/2012	ND<0.19 U	FALSE
	5/15/2013	ND<0.19 U	FALSE
	11/4/2013	ND<0.19 U	FALSE
	5/6/2014	ND<0.19 U	FALSE
	10/28/2014	ND<0.19 U	FALSE
	4/28/2015	ND<0.19 U	FALSE
	10/27/2015	ND<0.19 U	FALSE
	5/2/2016	ND<0.19 U	FALSE
	11/1/2016	ND<0.19 U	FALSE
	5/2/2017	ND<0.19 U	FALSE
	10/31/2017	ND<0.19 U	FALSE
	5/1/2018	ND<0.19 U	FALSE
	10/29/2018	ND<0.19 U	FALSE
	5/1/2019	ND<0.29 U	FALSE
	10/29/2019	ND<0.29 U	FALSE
	5/4/2020	ND<0.29 U	FALSE
	11/16/2020	ND<0.29 U	FALSE
	5/17/2021	ND<0.38 U	FALSE
	11/8/2021	ND<0.8 U	TRUE
	5/25/2022	ND<0.4 U	FALSE
	12/6/2022	ND<0.4 U	FALSE

Dixon's Test for Outliers

Parameter: cis-1,2-Dichloroethene

Location: MW-104A

Original Data (Not Transformed)

Non-Detects Replaced with Detection Limit

For 23 Measurements...

5% Level of Significance

Iteration	Highest	Lowest	Critical	Outlier
1	0.655738	0	0.421	0.8
2	0.0952381	0	0.43	None

Loc.	Date	Conc.	Outlier
MW-104A	11/7/2011	ND<0.19 U	FALSE
	5/16/2012	ND<0.19 U	FALSE
	11/13/2012	ND<0.19 U	FALSE
	5/16/2013	ND<0.19 U	FALSE
	11/4/2013	ND<0.19 U	FALSE
	5/6/2014	ND<0.19 U	FALSE
	10/30/2014	ND<0.19 U	FALSE
	4/28/2015	ND<0.19 U	FALSE
	10/27/2015	ND<0.19 U	FALSE
	5/2/2016	ND<0.19 U	FALSE
	11/2/2016	ND<0.19 U	FALSE
	5/1/2017	ND<0.19 U	FALSE
	10/31/2017	ND<0.19 U	FALSE
	5/1/2018	ND<0.19 U	FALSE
	10/29/2018	ND<0.19 U	FALSE
	5/1/2019	ND<0.29 U	FALSE
	10/29/2019	ND<0.29 U	FALSE
	5/4/2020	ND<0.29 U	FALSE
	11/16/2020	ND<0.29 U	FALSE
	5/17/2021	ND<0.38 U	FALSE
	11/8/2021	ND<0.8 U	TRUE
	5/24/2022	ND<0.4 U	FALSE
	12/5/2022	ND<0.4 U	FALSE

Dixon's Test for Outliers

Parameter: cis-1,2-Dichloroethene

Location: MW-104B

Original Data (Not Transformed)

Non-Detects Replaced with Detection Limit

For 23 Measurements...

5% Level of Significance

Iteration	Highest	Lowest	Critical	Outlier
1	0.655738	0	0.421	0.8
2	0.0952381	0	0.43	None

Loc.	Date	Conc.	Outlier
MW-104B	11/7/2011	ND<0.19 U	FALSE
	5/16/2012	ND<0.19 U	FALSE
	11/13/2012	ND<0.19 U	FALSE
	5/16/2013	ND<0.19 U	FALSE
	11/4/2013	ND<0.19 U	FALSE
	5/6/2014	ND<0.19 U	FALSE
	10/30/2014	ND<0.19 U	FALSE
	4/28/2015	ND<0.19 U	FALSE
	10/27/2015	ND<0.19 U	FALSE
	5/2/2016	ND<0.19 U	FALSE
	11/2/2016	ND<0.19 U	FALSE
	5/1/2017	ND<0.19 U	FALSE
	10/31/2017	ND<0.19 U	FALSE
	5/1/2018	ND<0.19 U	FALSE
	10/29/2018	ND<0.19 U	FALSE
	5/1/2019	ND<0.29 U	FALSE
	10/29/2019	ND<0.29 U	FALSE
	5/4/2020	ND<0.29 U	FALSE
	11/16/2020	ND<0.29 U	FALSE
	5/17/2021	ND<0.38 U	FALSE
	11/8/2021	ND<0.8 U	TRUE
	5/24/2022	ND<0.4 U	FALSE
	12/5/2022	ND<0.4 U	FALSE

Dixon's Test for Outliers

Parameter: Cobalt

Location: MW-101

Original Data (Not Transformed)

Non-Detects Replaced with Detection Limit

For 23 Measurements...

5% Level of Significance

Iteration	Highest	Lowest	Critical	Outlier
1	0.368056	0.0256959	0.421	None

Loc.	Date	Conc.	Outlier
MW-101	11/8/2011	7.9	FALSE
	5/16/2012	30.1	FALSE
	11/13/2012	74.3	FALSE
	5/15/2013	51.4	FALSE
	11/4/2013	37.6	FALSE
	5/6/2014	7.1	FALSE
	10/28/2014	34.8	FALSE
	4/28/2015	9.7	FALSE
	10/27/2015	9.1	FALSE
	5/2/2016	5.4	FALSE
	11/1/2016	47.8	FALSE
	5/2/2017	14.2	FALSE
	10/31/2017	14.3	FALSE
	5/1/2018	5.6	FALSE
	10/29/2018	3.5 J	FALSE
	5/1/2019	1.1 J	FALSE
	10/29/2019	3 J	FALSE
	5/4/2020	2.3 J	FALSE
	11/16/2020	6.7	FALSE
	5/17/2021	8.9	FALSE
	11/8/2021	32	FALSE
	5/25/2022	18.2	FALSE
	12/6/2022	2.1	FALSE

Dixon's Test for Outliers

Parameter: Cobalt

Location: MW-104A

Original Data (Not Transformed)

Non-Detects Replaced with 1/2 DL

For 23 Measurements...

5% Level of Significance

Iteration	Highest	Lowest	Critical	Outlier
1	0.0526316	0.121951	0.421	None

Loc.	Date	Conc.	Outlier
MW-104A	11/7/2011	ND<0.125 U	FALSE
	5/16/2012	0.15 J	FALSE
	11/13/2012	1.2 J	FALSE
	5/16/2013	0.9 J	FALSE
	11/4/2013	0.68 J	FALSE
	5/6/2014	0.54 J	FALSE
	10/30/2014	1.1	FALSE
	4/28/2015	0.87 J	FALSE
	10/27/2015	0.98 J	FALSE
	5/2/2016	0.6 J	FALSE
	11/2/2016	0.82 J	FALSE
	5/1/2017	ND<0.25 U	FALSE
	10/31/2017	1 J	FALSE
	5/1/2018	0.7 J	FALSE
	10/29/2018	0.74 J	FALSE
	5/1/2019	0.31 J	FALSE
	10/29/2019	1.1 J	FALSE
	5/4/2020	1.2 J	FALSE
	11/16/2020	ND<0.65 U	FALSE
	5/17/2021	ND<0.65 U	FALSE
	11/8/2021	1.1 J	FALSE
	5/24/2022	0.986 J	FALSE
	12/5/2022	1.15	FALSE

Dixon's Test for Outliers

Parameter: Cobalt

Location: MW-104B

Original Data (Not Transformed)

Non-Detects Replaced with 0

For 23 Measurements...

5% Level of Significance

Iteration	Highest	Lowest	Critical	Outlier
1	0.965432	0	0.421	40.5
2	0.445556	0	0.43	1.8
3	0.55	0	0.44	1.4
4	0.659319	0	0.45	0.998
5	0.546032	0	0.462	0.63
6	0.441176	0	0.475	None

Loc.	Date	Conc.	Outlier
MW-104B	11/7/2011	ND<0 U	FALSE
	5/16/2012	ND<0 U	FALSE
	11/13/2012	ND<0 U	FALSE
	5/16/2013	1.4 J	TRUE
	11/4/2013	ND<0 U	FALSE
	5/6/2014	ND<0 U	FALSE
	10/30/2014	ND<0 U	FALSE
	4/28/2015	ND<0 U	FALSE
	10/27/2015	0.63 J	TRUE
	5/2/2016	ND<0 U	FALSE
	11/2/2016	ND<0 U	FALSE
	5/1/2017	ND<0 U	FALSE
	10/31/2017	0.045 J	FALSE
	5/1/2018	0.16 J	FALSE
	10/29/2018	0.12 J	FALSE
	5/1/2019	40.5	TRUE
	10/29/2019	0.07 J	FALSE
	5/4/2020	0.34 J	FALSE
	11/16/2020	ND<0 U	FALSE
	5/17/2021	1.8 J	TRUE
	11/8/2021	0.19 J	FALSE
	5/24/2022	0.286 J	FALSE
	12/5/2022	0.998 J	TRUE

Dixon's Test for Outliers

Parameter: Copper

Location: MW-101

Original Data (Not Transformed)

Non-Detects Replaced with 1/2 DL

For 23 Measurements...

5% Level of Significance

Iteration	Highest	Lowest	Critical	Outlier
1	0.170543	0.0316742	0.421	None

Loc.	Date	Conc.	Outlier
MW-101	11/8/2011	2.1 J	FALSE
	5/16/2012	12.7	FALSE
	11/13/2012	40.8	FALSE
	5/15/2013	34.4	FALSE
	11/4/2013	28.8	FALSE
	5/6/2014	3.2 J	FALSE
	10/28/2014	12.1	FALSE
	4/28/2015	7.7	FALSE
	10/27/2015	6.7	FALSE
	5/2/2016	5.9	FALSE
	11/1/2016	34.2	FALSE
	5/2/2017	6.8	FALSE
	10/31/2017	9.7	FALSE
	5/1/2018	3.6 J	FALSE
	10/29/2018	4.2 J	FALSE
	5/1/2019	7	FALSE
	10/29/2019	3 J	FALSE
	5/4/2020	ND<1.05 U	FALSE
	11/16/2020	4.8 J	FALSE
	5/17/2021	10.4	FALSE
	11/8/2021	30	FALSE
	5/25/2022	14	FALSE
	12/6/2022	1.66	FALSE

Dixon's Test for Outliers

Parameter: Copper

Location: MW-104A

Original Data (Not Transformed)

Non-Detects Replaced with Detection Limit

For 23 Measurements...

5% Level of Significance

Iteration	Highest	Lowest	Critical	Outlier
1	0.6	0.454545	0.421	4.3
2	0.0769231	0.454545	0.43	0.3
3	0.111111	0.43662	0.44	None

Loc.	Date	Conc.	Outlier
MW-104A	11/7/2011	ND<2 U	FALSE
	5/16/2012	ND<2 U	FALSE
	11/13/2012	ND<2 U	FALSE
	5/16/2013	ND<2 U	FALSE
	11/4/2013	ND<2 U	FALSE
	5/6/2014	ND<2 U	FALSE
	10/30/2014	ND<2.5 U	FALSE
	4/28/2015	ND<2.5 U	FALSE
	10/27/2015	ND<2.5 U	FALSE
	5/2/2016	ND<2.5 U	FALSE
	11/2/2016	ND<2.5 U	FALSE
	5/1/2017	ND<2.5 U	FALSE
	10/31/2017	ND<2.5 U	FALSE
	5/1/2018	ND<2.5 U	FALSE
	10/29/2018	ND<2.5 U	FALSE
	5/1/2019	2.6 J	FALSE
	10/29/2019	ND<2.5 U	FALSE
	5/4/2020	ND<2.1 U	FALSE
	11/16/2020	ND<1.3 U	FALSE
	5/17/2021	ND<4.3 U	TRUE
	11/8/2021	ND<1.7 U	FALSE
	5/24/2022	1.08	FALSE
	12/5/2022	ND<0.3 U	TRUE

Dixon's Test for Outliers

Parameter: Copper

Location: MW-104B

Original Data (Not Transformed)

Non-Detects Replaced with Detection Limit

For 23 Measurements...

5% Level of Significance

Iteration	Highest	Lowest	Critical	Outlier
1	0.612903	0.454545	0.421	4.4
2	0.6	0.454545	0.43	4.3
3	0	0.454545	0.44	0.3
4	0	0.636364	0.45	0.3
5	0	0.583333	0.462	1.3
6	0	0.375	0.475	None

Loc.	Date	Conc.	Outlier
MW-104B	11/7/2011	ND<2 U	FALSE
	5/16/2012	ND<2 U	FALSE
	11/13/2012	ND<2 U	FALSE
	5/16/2013	4.4 J	TRUE
	11/4/2013	ND<2 U	FALSE
	5/6/2014	ND<2 U	FALSE
	10/30/2014	ND<2.5 U	FALSE
	4/28/2015	ND<2.5 U	FALSE
	10/27/2015	ND<2.5 U	FALSE
	5/2/2016	ND<2.5 U	FALSE
	11/2/2016	ND<2.5 U	FALSE
	5/1/2017	ND<2.5 U	FALSE
	10/31/2017	ND<2.5 U	FALSE
	5/1/2018	ND<2.5 U	FALSE
	10/29/2018	ND<2.5 U	FALSE
	5/1/2019	ND<2.5 U	FALSE
	10/29/2019	ND<2.5 U	FALSE
	5/4/2020	ND<2.1 U	FALSE
	11/16/2020	ND<1.3 U	TRUE
	5/17/2021	ND<4.3 U	TRUE
	11/8/2021	ND<1.7 U	FALSE
	5/24/2022	ND<0.3 U	TRUE
	12/5/2022	ND<0.3 U	TRUE

Dixon's Test for Outliers

Parameter: Lead

Location: MW-101

Original Data (Not Transformed)

Non-Detects Replaced with Detection Limit

For 23 Measurements...

5% Level of Significance

Iteration	Highest	Lowest	Critical	Outlier
1	0.571429	0.151515	0.421	10.8
2	0.339623	0.176471	0.43	None

Loc.	Date	Conc.	Outlier
MW-101	11/8/2011	ND<4 U	FALSE
	5/16/2012	4.1 J	FALSE
	11/13/2012	5.2	FALSE
	5/15/2013	10.8	TRUE
	11/4/2013	6.3	FALSE
	5/6/2014	ND<4 U	FALSE
	10/28/2014	ND<2.5 U	FALSE
	4/28/2015	ND<2.5 U	FALSE
	10/27/2015	ND<2.5 U	FALSE
	5/2/2016	ND<2.5 U	FALSE
	11/1/2016	ND<2.5 U	FALSE
	5/2/2017	ND<2.5 U	FALSE
	10/31/2017	4.1 J	FALSE
	5/1/2018	ND<2.5 U	FALSE
	10/29/2018	ND<2.5 U	FALSE
	5/1/2019	ND<2.5 U	FALSE
	10/29/2019	ND<2.5 U	FALSE
	5/4/2020	ND<1.6 U	FALSE
	11/16/2020	ND<0.25 U	FALSE
	5/17/2021	ND<4.5 U	FALSE
	11/8/2021	ND<3.5 U	FALSE
	5/25/2022	ND<1 U	FALSE
	12/6/2022	ND<1 U	FALSE

Dixon's Test for Outliers

Parameter: Lead

Location: MW-104A

Original Data (Not Transformed)

Non-Detects Replaced with Detection Limit

For 23 Measurements...

5% Level of Significance

Iteration	Highest	Lowest	Critical	Outlier
1	0.142857	0.2	0.421	None

Loc.	Date	Conc.	Outlier
MW-104A	11/7/2011	ND<4 U	FALSE
	5/16/2012	ND<4 U	FALSE
	11/13/2012	ND<4 U	FALSE
	5/16/2013	ND<4 U	FALSE
	11/4/2013	ND<4 U	FALSE
	5/6/2014	ND<4 U	FALSE
	10/30/2014	ND<2.5 U	FALSE
	4/28/2015	ND<2.5 U	FALSE
	10/27/2015	ND<2.5 U	FALSE
	5/2/2016	ND<2.5 U	FALSE
	11/2/2016	ND<2.5 U	FALSE
	5/1/2017	3.8 J	FALSE
	10/31/2017	ND<2.5 U	FALSE
	5/1/2018	ND<2.5 U	FALSE
	10/29/2018	ND<2.5 U	FALSE
	5/1/2019	ND<2.5 U	FALSE
	10/29/2019	ND<2.5 U	FALSE
	5/4/2020	ND<1.6 U	FALSE
	11/16/2020	ND<0.25 U	FALSE
	5/17/2021	ND<4.5 U	FALSE
	11/8/2021	ND<3.5 U	FALSE
	5/24/2022	ND<1 U	FALSE
	12/5/2022	ND<1 U	FALSE

Dixon's Test for Outliers

Parameter: Lead

Location: MW-104B

Original Data (Not Transformed)

Non-Detects Replaced with Detection Limit

For 23 Measurements...

5% Level of Significance

Iteration	Highest	Lowest	Critical	Outlier
1	0.625	0.2	0.421	9
2	0.142857	0.2	0.43	None

Loc.	Date	Conc.	Outlier
MW-104B	11/7/2011	ND<4 U	FALSE
	5/16/2012	ND<4 U	FALSE
	11/13/2012	ND<4 U	FALSE
	5/16/2013	ND<4 U	FALSE
	11/4/2013	ND<4 U	FALSE
	5/6/2014	ND<4 U	FALSE
	10/30/2014	ND<2.5 U	FALSE
	4/28/2015	ND<2.5 U	FALSE
	10/27/2015	ND<2.5 U	FALSE
	5/2/2016	ND<2.5 U	FALSE
	11/2/2016	ND<2.5 U	FALSE
	5/1/2017	9	TRUE
	10/31/2017	ND<2.5 U	FALSE
	5/1/2018	ND<2.5 U	FALSE
	10/29/2018	ND<2.5 U	FALSE
	5/1/2019	ND<2.5 U	FALSE
	10/29/2019	ND<2.5 U	FALSE
	5/4/2020	ND<1.6 U	FALSE
	11/16/2020	ND<0.25 U	FALSE
	5/17/2021	ND<4.5 U	FALSE
	11/8/2021	ND<3.5 U	FALSE
	5/24/2022	ND<1 U	FALSE
	12/5/2022	ND<1 U	FALSE

Dixon's Test for Outliers

Parameter: Mercury

Location: MW-104B

Original Data (Not Transformed)

Non-Detects Replaced with Detection Limit

For 23 Measurements...

5% Level of Significance

Iteration	Highest	Lowest	Critical	Outlier
1	0.7	0.230769	0.421	0.2
2	0.8	0.310345	0.43	0.2
3	1	1	0.44	0.13
4	1	1	0.45	0.12

**A Divide-By-Zero error occurred in the calculations.
Additional Outliers May Exist.**

Loc.	Date	Conc.	Outlier
MW-104B	11/7/2011	ND<0.1 U	FALSE
	5/16/2012	ND<0.1 U	FALSE
	11/13/2012	ND<0.1 U	FALSE
	5/16/2013	ND<0.1 U	FALSE
	11/4/2013	ND<0.1 U	FALSE
	5/6/2014	ND<0.1 U	FALSE
	10/30/2014	ND<0.1 U	FALSE
	4/28/2015	ND<0.1 U	FALSE
	10/27/2015	ND<0.1 U	FALSE
	5/2/2016	ND<0.1 U	FALSE
	11/2/2016	ND<0.1 U	FALSE
	5/1/2017	ND<0.1 U	FALSE
	10/31/2017	ND<0.1 U	FALSE
	5/1/2018	ND<0.1 U	FALSE
	10/29/2018	ND<0.1 U	FALSE
	5/1/2019	ND<0.1 U	FALSE
	10/29/2019	ND<0.1 U	FALSE
	5/4/2020	ND<0.12 U	TRUE
	11/16/2020	ND<0.091 U	FALSE
	5/17/2021	ND<0.091 U	FALSE
	11/8/2021	ND<0.13 U	TRUE
	5/24/2022	ND<0.2 U	TRUE
	12/5/2022	ND<0.2 U	TRUE

Dixon's Test for Outliers

Parameter: Mercury

Location: MW-104A

Original Data (Not Transformed)

Non-Detects Replaced with Detection Limit

For 23 Measurements...

5% Level of Significance

Iteration	Highest	Lowest	Critical	Outlier
1	0.7	0.230769	0.421	0.2
2	0.8	0.310345	0.43	0.2
3	1	1	0.44	0.13
4	1	1	0.45	0.12

**A Divide-By-Zero error occurred in the calculations.
Additional Outliers May Exist.**

Loc.	Date	Conc.	Outlier
MW-104A	11/7/2011	ND<0.1 U	FALSE
	5/16/2012	ND<0.1 U	FALSE
	11/13/2012	ND<0.1 U	FALSE
	5/16/2013	ND<0.1 U	FALSE
	11/4/2013	ND<0.1 U	FALSE
	5/6/2014	ND<0.1 U	FALSE
	10/30/2014	ND<0.1 U	FALSE
	4/28/2015	ND<0.1 U	FALSE
	10/27/2015	ND<0.1 U	FALSE
	5/2/2016	ND<0.1 U	FALSE
	11/2/2016	ND<0.1 U	FALSE
	5/1/2017	ND<0.1 U	FALSE
	10/31/2017	ND<0.1 U	FALSE
	5/1/2018	ND<0.1 U	FALSE
	10/29/2018	ND<0.1 U	FALSE
	5/1/2019	ND<0.1 U	FALSE
	10/29/2019	ND<0.1 U	FALSE
	5/4/2020	ND<0.12 U	TRUE
	11/16/2020	ND<0.091 U	FALSE
	5/17/2021	ND<0.091 U	FALSE
	11/8/2021	ND<0.13 U	TRUE
	5/24/2022	ND<0.2 U	TRUE
	12/5/2022	ND<0.2 U	TRUE

Dixon's Test for Outliers

Parameter: Mercury

Location: MW-101

Original Data (Not Transformed)

Non-Detects Replaced with Detection Limit

For 22 Measurements...

5% Level of Significance

Iteration	Highest	Lowest	Critical	Outlier
1	0.7	0.230769	0.43	0.2
2	0.8	0.310345	0.44	0.2
3	0.333333	0.310345	0.45	None

Loc.	Date	Conc.	Outlier
MW-101	11/8/2011	ND<0.1 U	FALSE
	5/16/2012	ND<0.1 U	FALSE
	11/13/2012	ND<0.1 U	FALSE
	5/15/2013	ND<0.1 U	FALSE
	5/6/2014	ND<0.1 U	FALSE
	10/28/2014	ND<0.1 U	FALSE
	4/28/2015	ND<0.1 U	FALSE
	10/27/2015	ND<0.1 U	FALSE
	5/2/2016	ND<0.1 U	FALSE
	11/1/2016	0.12 J	FALSE
	5/2/2017	ND<0.1 U	FALSE
	10/31/2017	ND<0.1 U	FALSE
	5/1/2018	ND<0.1 U	FALSE
	10/29/2018	ND<0.1 U	FALSE
	5/1/2019	ND<0.1 U	FALSE
	10/29/2019	ND<0.1 U	FALSE
	5/4/2020	ND<0.12 U	FALSE
	11/16/2020	ND<0.091 U	FALSE
	5/17/2021	ND<0.091 U	FALSE
	11/8/2021	ND<0.13 U	FALSE
	5/25/2022	ND<0.2 U	TRUE
	12/6/2022	ND<0.2 U	TRUE

Dixon's Test for Outliers

Parameter: Nickel

Location: MW-101

Original Data (Not Transformed)

Non-Detects Replaced with Detection Limit

For 23 Measurements...

5% Level of Significance

Iteration	Highest	Lowest	Critical	Outlier
1	0.238938	0.0364146	0.421	None

Loc.	Date	Conc.	Outlier
MW-101	11/8/2011	4.6 J	FALSE
	5/16/2012	12.1	FALSE
	11/13/2012	49.8	FALSE
	5/15/2013	41.5	FALSE
	11/4/2013	22.9	FALSE
	5/6/2014	7.6	FALSE
	10/28/2014	16.4	FALSE
	4/28/2015	12	FALSE
	10/27/2015	7	FALSE
	5/2/2016	7.5	FALSE
	11/1/2016	33.2	FALSE
	5/2/2017	12.5	FALSE
	10/31/2017	12	FALSE
	5/1/2018	6.7	FALSE
	10/29/2018	5.9	FALSE
	5/1/2019	6.1	FALSE
	10/29/2019	4.6 J	FALSE
	5/4/2020	3.3 J	FALSE
	11/16/2020	7.7	FALSE
	5/17/2021	9.3	FALSE
	11/8/2021	39	FALSE
	5/25/2022	18.48	FALSE
	12/6/2022	3.502	FALSE

Dixon's Test for Outliers

Parameter: Nickel

Location: MW-104A

Original Data (Not Transformed)

Non-Detects Replaced with Detection Limit

For 23 Measurements...

5% Level of Significance

Iteration	Highest	Lowest	Critical	Outlier
1	0.432325	0.3172	0.421	4.7
2	0.332042	0.3965	0.43	None

Loc.	Date	Conc.	Outlier
MW-104A	11/7/2011	ND<2.5 U	FALSE
	5/16/2012	ND<2.5 U	FALSE
	11/13/2012	ND<2.5 U	FALSE
	5/16/2013	ND<2.5 U	FALSE
	11/4/2013	ND<2.5 U	FALSE
	5/6/2014	ND<2.5 U	FALSE
	10/30/2014	ND<2.5 U	FALSE
	4/28/2015	ND<2.5 U	FALSE
	10/27/2015	ND<2.5 U	FALSE
	5/2/2016	ND<2.5 U	FALSE
	11/2/2016	ND<2.5 U	FALSE
	5/1/2017	4.7 J	TRUE
	10/31/2017	ND<2.5 U	FALSE
	5/1/2018	ND<2.5 U	FALSE
	10/29/2018	ND<2.5 U	FALSE
	5/1/2019	ND<2.5 U	FALSE
	10/29/2019	ND<2.5 U	FALSE
	5/4/2020	ND<0.9 U	FALSE
	11/16/2020	2.9 J	FALSE
	5/17/2021	ND<3.5 U	FALSE
	11/8/2021	ND<3.4 U	FALSE
	5/24/2022	1.468	FALSE
	12/5/2022	1.693	FALSE

Dixon's Test for Outliers

Parameter: Nickel

Location: MW-104B

Original Data (Not Transformed)

Non-Detects Replaced with Detection Limit

For 23 Measurements...

5% Level of Significance

Iteration	Highest	Lowest	Critical	Outlier
1	0.476316	0.2084	0.421	5.2
2	0.3848	0.289444	0.43	None

Loc.	Date	Conc.	Outlier
MW-104B	11/7/2011	ND<2.5 U	FALSE
	5/16/2012	ND<2.5 U	FALSE
	11/13/2012	ND<2.5 U	FALSE
	5/16/2013	ND<2.5 U	FALSE
	11/4/2013	ND<2.5 U	FALSE
	5/6/2014	ND<2.5 U	FALSE
	10/30/2014	ND<2.5 U	FALSE
	4/28/2015	ND<2.5 U	FALSE
	10/27/2015	ND<2.5 U	FALSE
	5/2/2016	ND<2.5 U	FALSE
	11/2/2016	ND<2.5 U	FALSE
	5/1/2017	5.2	TRUE
	10/31/2017	ND<2.5 U	FALSE
	5/1/2018	ND<2.5 U	FALSE
	10/29/2018	ND<2.5 U	FALSE
	5/1/2019	ND<2.5 U	FALSE
	10/29/2019	ND<2.5 U	FALSE
	5/4/2020	ND<0.9 U	FALSE
	11/16/2020	2.7 J	FALSE
	5/17/2021	ND<3.5 U	FALSE
	11/8/2021	ND<3.4 U	FALSE
	5/24/2022	1.095	FALSE
	12/5/2022	1.421	FALSE

Dixon's Test for Outliers

Parameter: Tin

Location: MW-104B

Original Data (Not Transformed)

Non-Detects Replaced with Detection Limit

For 23 Measurements...

5% Level of Significance

Iteration	Highest	Lowest	Critical	Outlier
1	0.848276	0.383754	0.421	17
2	0.28	0.432177	0.43	1.13
3	0.28	0.333333	0.44	None

Loc.	Date	Conc.	Outlier
MW-104B	11/7/2011	ND<2.5 U	FALSE
	5/16/2012	4 J	FALSE
	11/13/2012	ND<2.5 U	FALSE
	5/16/2013	ND<2.5 U	FALSE
	11/4/2013	ND<2.5 U	FALSE
	5/6/2014	ND<2.5 U	FALSE
	10/30/2014	ND<2.5 U	FALSE
	4/28/2015	ND<2.5 U	FALSE
	10/27/2015	ND<2.5 U	FALSE
	5/2/2016	ND<2.5 U	FALSE
	11/2/2016	ND<2.5 U	FALSE
	5/1/2017	ND<2.5 U	FALSE
	10/31/2017	ND<2.5 U	FALSE
	5/1/2018	ND<2.5 U	FALSE
	10/29/2018	ND<2.5 U	FALSE
	5/1/2019	ND<2.5 U	FALSE
	10/29/2019	ND<2.5 U	FALSE
	5/4/2020	ND<1.6 U	FALSE
	11/16/2020	ND<5 U	FALSE
	5/17/2021	ND<4.7 U	FALSE
	11/8/2021	ND<17 U	TRUE
	5/24/2022	4.3	FALSE
	12/5/2022	1.13	TRUE

Dixon's Test for Outliers

Parameter: Tin

Location: MW-104A

Original Data (Not Transformed)

Non-Detects Replaced with Detection Limit

For 23 Measurements...

5% Level of Significance

Iteration	Highest	Lowest	Critical	Outlier
1	0.798701	0.162162	0.421	17
2	0.705882	0.375	0.43	5
3	0.709677	0.4	0.44	4.7
4	0.1	0.4	0.45	None

Loc.	Date	Conc.	Outlier
MW-104A	11/7/2011	ND<2.5 U	FALSE
	5/16/2012	ND<2.5 U	FALSE
	11/13/2012	ND<2.5 U	FALSE
	5/16/2013	ND<2.5 U	FALSE
	11/4/2013	ND<2.5 U	FALSE
	5/6/2014	ND<2.5 U	FALSE
	10/30/2014	ND<2.5 U	FALSE
	4/28/2015	ND<2.5 U	FALSE
	10/27/2015	ND<2.5 U	FALSE
	5/2/2016	ND<2.5 U	FALSE
	11/2/2016	ND<2.5 U	FALSE
	5/1/2017	2.6 J	FALSE
	10/31/2017	ND<2.5 U	FALSE
	5/1/2018	ND<2.5 U	FALSE
	10/29/2018	ND<2.5 U	FALSE
	5/1/2019	ND<2.5 U	FALSE
	10/29/2019	ND<2.5 U	FALSE
	5/4/2020	ND<1.6 U	FALSE
	11/16/2020	ND<5 U	TRUE
	5/17/2021	ND<4.7 U	TRUE
	11/8/2021	ND<17 U	TRUE
	5/24/2022	ND<1 U	FALSE
	12/5/2022	1.16	FALSE

Dixon's Test for Outliers

Parameter: Tin

Location: MW-101

Original Data (Not Transformed)

Non-Detects Replaced with Detection Limit

For 23 Measurements...

5% Level of Significance

Iteration	Highest	Lowest	Critical	Outlier
1	0.779221	0.15	0.421	17
2	0.474576	0.162162	0.43	7.5
3	0.294118	0.2	0.44	None

Loc.	Date	Conc.	Outlier
MW-101	11/8/2011	ND<2.5 U	FALSE
	5/16/2012	4 J	FALSE
	11/13/2012	3.2 J	FALSE
	5/15/2013	7.5	TRUE
	11/4/2013	ND<2.5 U	FALSE
	5/6/2014	ND<2.5 U	FALSE
	10/28/2014	ND<2.5 U	FALSE
	4/28/2015	ND<2.5 U	FALSE
	10/27/2015	ND<2.5 U	FALSE
	5/2/2016	ND<2.5 U	FALSE
	11/1/2016	ND<2.5 U	FALSE
	5/2/2017	ND<2.5 U	FALSE
	10/31/2017	ND<2.5 U	FALSE
	5/1/2018	ND<2.5 U	FALSE
	10/29/2018	ND<2.5 U	FALSE
	5/1/2019	ND<2.5 U	FALSE
	10/29/2019	ND<2.5 U	FALSE
	5/4/2020	ND<1.6 U	FALSE
	11/16/2020	ND<5 U	FALSE
	5/17/2021	ND<4.7 U	FALSE
	11/8/2021	ND<17 U	TRUE
	5/25/2022	ND<1 U	FALSE
	12/6/2022	ND<1 U	FALSE

Dixon's Test for Outliers

Parameter: Toluene

Location: MW-101

Original Data (Not Transformed)

Non-Detects Replaced with Detection Limit

For 23 Measurements...

5% Level of Significance

Iteration	Highest	Lowest	Critical	Outlier
1	0.434783	0	0.421	0.7
2	0.0769231	0	0.43	None

Loc.	Date	Conc.	Outlier
MW-101	11/8/2011	ND<0.26 U	FALSE
	5/16/2012	ND<0.26 U	FALSE
	11/13/2012	ND<0.26 U	FALSE
	5/15/2013	ND<0.26 U	FALSE
	11/4/2013	ND<0.26 U	FALSE
	5/6/2014	ND<0.26 U	FALSE
	10/28/2014	ND<0.26 U	FALSE
	4/28/2015	ND<0.26 U	FALSE
	10/27/2015	ND<0.26 U	FALSE
	5/2/2016	ND<0.26 U	FALSE
	11/1/2016	ND<0.26 U	FALSE
	5/2/2017	ND<0.26 U	FALSE
	10/31/2017	ND<0.26 U	FALSE
	5/1/2018	ND<0.26 U	FALSE
	10/29/2018	ND<0.26 U	FALSE
	5/1/2019	ND<0.24 U	FALSE
	10/29/2019	ND<0.24 U	FALSE
	5/4/2020	ND<0.24 U	FALSE
	11/16/2020	ND<0.24 U	FALSE
	5/17/2021	ND<0.48 U	FALSE
	11/8/2021	ND<0.7 U	TRUE
	5/25/2022	ND<0.5 U	FALSE
	12/6/2022	ND<0.5 U	FALSE

Dixon's Test for Outliers

Parameter: Toluene

Location: MW-104A

Original Data (Not Transformed)

Non-Detects Replaced with Detection Limit

For 23 Measurements...

5% Level of Significance

Iteration	Highest	Lowest	Critical	Outlier
1	0.434783	0	0.421	0.7
2	0.0769231	0	0.43	None

Loc.	Date	Conc.	Outlier
MW-104A	11/7/2011	ND<0.26 U	FALSE
	5/16/2012	ND<0.26 U	FALSE
	11/13/2012	ND<0.26 U	FALSE
	5/16/2013	ND<0.26 U	FALSE
	11/4/2013	ND<0.26 U	FALSE
	5/6/2014	ND<0.26 U	FALSE
	10/30/2014	ND<0.26 U	FALSE
	4/28/2015	ND<0.26 U	FALSE
	10/27/2015	ND<0.26 U	FALSE
	5/2/2016	ND<0.26 U	FALSE
	11/2/2016	ND<0.26 U	FALSE
	5/1/2017	ND<0.26 U	FALSE
	10/31/2017	ND<0.26 U	FALSE
	5/1/2018	ND<0.26 U	FALSE
	10/29/2018	ND<0.26 U	FALSE
	5/1/2019	ND<0.24 U	FALSE
	10/29/2019	ND<0.24 U	FALSE
	5/4/2020	ND<0.24 U	FALSE
	11/16/2020	ND<0.24 U	FALSE
	5/17/2021	ND<0.48 U	FALSE
	11/8/2021	ND<0.7 U	TRUE
	5/24/2022	ND<0.5 U	FALSE
	12/5/2022	ND<0.5 U	FALSE

Dixon's Test for Outliers

Parameter: Toluene

Location: MW-104B

Original Data (Not Transformed)

Non-Detects Replaced with Detection Limit

For 23 Measurements...

5% Level of Significance

Iteration	Highest	Lowest	Critical	Outlier
1	0.434783	0	0.421	0.7
2	0.0769231	0	0.43	None

Loc.	Date	Conc.	Outlier
MW-104B	11/7/2011	ND<0.26 U	FALSE
	5/16/2012	ND<0.26 U	FALSE
	11/13/2012	ND<0.26 U	FALSE
	5/16/2013	ND<0.26 U	FALSE
	11/4/2013	ND<0.26 U	FALSE
	5/6/2014	ND<0.26 U	FALSE
	10/30/2014	ND<0.26 U	FALSE
	4/28/2015	ND<0.26 U	FALSE
	10/27/2015	ND<0.26 U	FALSE
	5/2/2016	ND<0.26 U	FALSE
	11/2/2016	ND<0.26 U	FALSE
	5/1/2017	ND<0.26 U	FALSE
	10/31/2017	ND<0.26 U	FALSE
	5/1/2018	ND<0.26 U	FALSE
	10/29/2018	ND<0.26 U	FALSE
	5/1/2019	ND<0.24 U	FALSE
	10/29/2019	ND<0.24 U	FALSE
	5/4/2020	ND<0.24 U	FALSE
	11/16/2020	ND<0.24 U	FALSE
	5/17/2021	ND<0.48 U	FALSE
	11/8/2021	ND<0.7 U	TRUE
	5/24/2022	ND<0.5 U	FALSE
	12/5/2022	ND<0.5 U	FALSE

Dixon's Test for Outliers

Parameter: Vinyl chloride

Location: MW-101

Original Data (Not Transformed)

Non-Detects Replaced with Detection Limit

For 23 Measurements...

5% Level of Significance

Iteration	Highest	Lowest	Critical	Outlier
1	0	0	0.421	None

Loc.	Date	Conc.	Outlier
MW-101	11/8/2011	ND<0.62 U	FALSE
	5/16/2012	ND<0.62 U	FALSE
	11/13/2012	ND<0.62 U	FALSE
	5/15/2013	ND<0.62 U	FALSE
	11/4/2013	ND<0.62 U	FALSE
	5/6/2014	ND<0.62 U	FALSE
	10/28/2014	ND<0.62 U	FALSE
	4/28/2015	ND<0.62 U	FALSE
	10/27/2015	ND<0.62 U	FALSE
	5/2/2016	ND<0.62 U	FALSE
	11/1/2016	ND<0.62 U	FALSE
	5/2/2017	ND<0.62 U	FALSE
	10/31/2017	ND<0.62 U	FALSE
	5/1/2018	ND<0.62 U	FALSE
	10/29/2018	ND<0.62 U	FALSE
	5/1/2019	ND<0.24 U	FALSE
	10/29/2019	ND<0.24 U	FALSE
	5/4/2020	ND<0.24 U	FALSE
	11/16/2020	ND<0.24 U	FALSE
	5/17/2021	ND<0.39 U	FALSE
	11/8/2021	ND<0.5 U	FALSE
	5/25/2022	ND<0.5 U	FALSE
	12/6/2022	ND<0.5 U	FALSE

Dixon's Test for Outliers

Parameter: Vinyl chloride

Location: MW-104A

Original Data (Not Transformed)

Non-Detects Replaced with Detection Limit

For 23 Measurements...

5% Level of Significance

Iteration	Highest	Lowest	Critical	Outlier
1	0	0	0.421	None

Loc.	Date	Conc.	Outlier
MW-104A	11/7/2011	ND<0.62 U	FALSE
	5/16/2012	ND<0.62 U	FALSE
	11/13/2012	ND<0.62 U	FALSE
	5/16/2013	ND<0.62 U	FALSE
	11/4/2013	ND<0.62 U	FALSE
	5/6/2014	ND<0.62 U	FALSE
	10/30/2014	ND<0.62 U	FALSE
	4/28/2015	ND<0.62 U	FALSE
	10/27/2015	ND<0.62 U	FALSE
	5/2/2016	ND<0.62 U	FALSE
	11/2/2016	ND<0.62 U	FALSE
	5/1/2017	ND<0.62 U	FALSE
	10/31/2017	ND<0.62 U	FALSE
	5/1/2018	ND<0.62 U	FALSE
	10/29/2018	ND<0.62 U	FALSE
	5/1/2019	ND<0.24 U	FALSE
	10/29/2019	ND<0.24 U	FALSE
	5/4/2020	ND<0.24 U	FALSE
	11/16/2020	ND<0.24 U	FALSE
	5/17/2021	ND<0.39 U	FALSE
	11/8/2021	ND<0.5 U	FALSE
	5/24/2022	ND<0.5 U	FALSE
	12/5/2022	ND<0.5 U	FALSE

Dixon's Test for Outliers

Parameter: Vinyl chloride

Location: MW-104B

Original Data (Not Transformed)

Non-Detects Replaced with Detection Limit

For 23 Measurements...

5% Level of Significance

Iteration	Highest	Lowest	Critical	Outlier
1	0	0	0.421	None

Loc.	Date	Conc.	Outlier
MW-104B	11/7/2011	ND<0.62 U	FALSE
	5/16/2012	ND<0.62 U	FALSE
	11/13/2012	ND<0.62 U	FALSE
	5/16/2013	ND<0.62 U	FALSE
	11/4/2013	ND<0.62 U	FALSE
	5/6/2014	ND<0.62 U	FALSE
	10/30/2014	ND<0.62 U	FALSE
	4/28/2015	ND<0.62 U	FALSE
	10/27/2015	ND<0.62 U	FALSE
	5/2/2016	ND<0.62 U	FALSE
	11/2/2016	ND<0.62 U	FALSE
	5/1/2017	ND<0.62 U	FALSE
	10/31/2017	ND<0.62 U	FALSE
	5/1/2018	ND<0.62 U	FALSE
	10/29/2018	ND<0.62 U	FALSE
	5/1/2019	ND<0.24 U	FALSE
	10/29/2019	ND<0.24 U	FALSE
	5/4/2020	ND<0.24 U	FALSE
	11/16/2020	ND<0.24 U	FALSE
	5/17/2021	ND<0.39 U	FALSE
	11/8/2021	ND<0.5 U	FALSE
	5/24/2022	ND<0.5 U	FALSE
	12/5/2022	ND<0.5 U	FALSE

Dixon's Test for Outliers

Parameter: Zinc

Location: MW-101

Original Data (Not Transformed)

Non-Detects Replaced with 1/2 DL

For 22 Measurements...

5% Level of Significance

Iteration	Highest	Lowest	Critical	Outlier
1	0.555921	0	0.43	32.9
2	0.177914	0	0.44	None

Loc.	Date	Conc.	Outlier
MW-101	11/8/2011	ND<2.5 U	FALSE
	5/16/2012	6 J	FALSE
	11/13/2012	15.9	FALSE
	5/15/2013	32.9	TRUE
	11/4/2013	9.5 J	FALSE
	5/6/2014	ND<2.5 U	FALSE
	10/28/2014	10.4	FALSE
	10/27/2015	8.7 J	FALSE
	5/2/2016	14.4	FALSE
	11/1/2016	18.8	FALSE
	5/2/2017	ND<2.5 U	FALSE
	10/31/2017	7.9 J	FALSE
	5/1/2018	9.1 J	FALSE
	10/29/2018	12	FALSE
	5/1/2019	8.5 J	FALSE
	10/29/2019	5.8 J	FALSE
	5/4/2020	6 J	FALSE
	11/16/2020	4.5 J	FALSE
	5/17/2021	13.9	FALSE
	11/8/2021	ND<7.5 U	FALSE
	5/25/2022	16	FALSE
	12/6/2022	3.03 J	FALSE

Dixon's Test for Outliers

Parameter: Zinc

Location: MW-104A

Original Data (Not Transformed)

Non-Detects Replaced with Detection Limit

For 22 Measurements...

5% Level of Significance

Iteration	Highest	Lowest	Critical	Outlier
1	0.809524	0.2	0.43	33.3
2	0.5	0.201439	0.44	15
3	0.607143	0.388889	0.45	9.5
4	0.801802	0.56	0.462	9.45
5	0.5	0.56	0.475	6.1
6	0	0.56	0.49	2.5

**A Divide-By-Zero error occurred in the calculations.
Additional Outliers May Exist.**

Loc.	Date	Conc.	Outlier
MW-104A	11/7/2011	ND<5 U	FALSE
	5/16/2012	ND<5 U	FALSE
	11/13/2012	ND<5 U	FALSE
	5/16/2013	ND<5 U	FALSE
	11/4/2013	ND<5 U	FALSE
	5/6/2014	ND<5 U	FALSE
	10/30/2014	6.1 J	TRUE
	10/27/2015	ND<5 U	FALSE
	5/2/2016	ND<5 U	FALSE
	11/2/2016	ND<5 U	FALSE
	5/1/2017	ND<5 U	FALSE
	10/31/2017	ND<5 U	FALSE
	5/1/2018	ND<5 U	FALSE
	10/29/2018	33.3	TRUE
	5/1/2019	ND<5 U	FALSE
	10/29/2019	ND<5 U	FALSE
	5/4/2020	ND<3.9 U	FALSE
	11/16/2020	ND<2.5 U	TRUE
	5/17/2021	ND<9.5 U	TRUE
	11/8/2021	ND<15 U	TRUE
	5/24/2022	9.45	TRUE
	12/5/2022	ND<2.5 U	TRUE

Dixon's Test for Outliers

Parameter: Zinc

Location: MW-104B

Original Data (Not Transformed)

Non-Detects Replaced with Detection Limit

For 22 Measurements...

5% Level of Significance

Iteration	Highest	Lowest	Critical	Outlier
1	0.44	0	0.43	15
2	0.653226	0	0.44	14.9
3	0.6	0	0.45	9.5
4	0.418605	0	0.462	None

Loc.	Date	Conc.	Outlier
MW-104B	11/7/2011	ND<5 U	FALSE
	5/16/2012	ND<5 U	FALSE
	11/13/2012	ND<5 U	FALSE
	5/16/2013	6.8 J	FALSE
	11/4/2013	5.3 J	FALSE
	5/6/2014	ND<5 U	FALSE
	10/30/2014	ND<5 U	FALSE
	10/27/2015	14.9	TRUE
	5/2/2016	ND<5 U	FALSE
	11/2/2016	ND<5 U	FALSE
	5/1/2017	ND<5 U	FALSE
	10/31/2017	ND<5 U	FALSE
	5/1/2018	ND<5 U	FALSE
	10/29/2018	ND<5 U	FALSE
	5/1/2019	ND<5 U	FALSE
	10/29/2019	ND<5 U	FALSE
	5/4/2020	ND<3.9 U	FALSE
	11/16/2020	ND<2.5 U	FALSE
	5/17/2021	ND<9.5 U	TRUE
	11/8/2021	ND<15 U	TRUE
	5/24/2022	ND<2.5 U	FALSE
	12/5/2022	ND<2.5 U	FALSE

Dixon's Test for Outliers

Parameter: 1,1-Dichloroethane

Location: MW-108

Original Data (Not Transformed)

Non-Detects Replaced with Detection Limit

For 23 Measurements...

5% Level of Significance

Iteration	Highest	Lowest	Critical	Outlier
1	0.128571	0.115942	0.421	None

Loc.	Date	Conc.	Outlier
MW-108	11/8/2011	8.4	FALSE
	5/17/2012	11.2	FALSE
	11/14/2012	10.1	FALSE
	5/15/2013	12	FALSE
	11/5/2013	11.1	FALSE
	5/7/2014	10.2	FALSE
	10/28/2014	8.9	FALSE
	4/28/2015	7.3	FALSE
	10/27/2015	8	FALSE
	5/3/2016	7.2	FALSE
	11/1/2016	6.6	FALSE
	5/1/2017	7.8	FALSE
	10/31/2017	7.3	FALSE
	5/2/2018	6.9	FALSE
	10/29/2018	8.8	FALSE
	5/1/2019	7	FALSE
	10/29/2019	6	FALSE
	5/5/2020	6.1	FALSE
	11/16/2020	4.8	FALSE
	5/18/2021	4.2	FALSE
	11/8/2021	5	FALSE
	5/26/2022 ~	6.045	FALSE
	12/5/2022	5.19	FALSE

Dixon's Test for Outliers

Parameter: Cobalt

Location: MW-108

Original Data (Not Transformed)

Non-Detects Replaced with Detection Limit

For 23 Measurements...

5% Level of Significance

Iteration	Highest	Lowest	Critical	Outlier
1	0.127711	0.114914	0.421	None

Loc.	Date	Conc.	Outlier
MW-108	11/8/2011	8.6	FALSE
	5/17/2012	40.1	FALSE
	11/14/2012	32.4	FALSE
	5/15/2013	45.8	FALSE
	11/5/2013	34.7	FALSE
	5/7/2014	31.4	FALSE
	10/28/2014	4.7	FALSE
	4/28/2015	31.9	FALSE
	10/27/2015	42.7	FALSE
	5/3/2016	39.7	FALSE
	11/1/2016	6.5	FALSE
	5/1/2017	30.6	FALSE
	10/31/2017	40.3	FALSE
	5/2/2018	20.5	FALSE
	10/29/2018	34.3	FALSE
	5/1/2019	1.8 J	FALSE
	10/29/2019	37.1	FALSE
	5/5/2020	25.4	FALSE
	11/16/2020	8	FALSE
	5/18/2021	31	FALSE
	11/8/2021	48	FALSE
	5/26/2022 ~	42.25 D	FALSE
	12/5/2022	27.8	FALSE

Dixon's Test for Outliers

Parameter: Vinyl chloride

Location: MW-108

Original Data (Not Transformed)

Non-Detects Replaced with 1/2 DL

For 23 Measurements...

5% Level of Significance

Iteration	Highest	Lowest	Critical	Outlier
1	0.11526	0.00980392	0.421	None

Loc.	Date	Conc.	Outlier
MW-108	11/8/2011	ND<0.31 U	FALSE
	5/17/2012	9	FALSE
	11/14/2012	13	FALSE
	5/15/2013	6.3	FALSE
	11/5/2013	14.1	FALSE
	5/7/2014	17.7	FALSE
	10/28/2014	ND<0.31 U	FALSE
	4/28/2015	ND<0.31 U	FALSE
	10/27/2015	9.4	FALSE
	5/3/2016	3.9	FALSE
	11/1/2016	ND<0.31 U	FALSE
	5/1/2017	0.64 J	FALSE
	10/31/2017	5.9	FALSE
	5/2/2018	12.4	FALSE
	10/29/2018	20.5	FALSE
	5/1/2019	6.8	FALSE
	10/29/2019	ND<0.12 U	FALSE
	5/5/2020	22	FALSE
	11/16/2020	19.5	FALSE
	5/18/2021	4.3	FALSE
	11/8/2021	ND<0.25 U	FALSE
	5/26/2022 ~	8.055 D	FALSE
	12/5/2022	11.9	FALSE

Basic Statistics

Parameter: 1,1-Dichloroethane

Original Data (Not Transformed)

Non-Detects Replaced with Detection Limit

Total Measurements	124
Total Non-Detects	79 (63.7097%)
Pooled Mean	1.83185
Pooled Std Dev	2.96674

Compliance Meas.	67
Compliance Mean	3.12701
Compliance Std Dev	3.56344

Background Meas.	57
Background Mean	0.309474
Background Std Dev	0.0205653

Background Locations

There are 3 background location

Location	Meas.	Non-Detects	% ND	Total
MW-104A	19	19	100	5.88
MW-104B	19	19	100	5.88
MW-101	19	19	100	5.88

Location	Mean	Std Dev	Std Err	Rank Sum	Rank Mean
MW-104A	0.309474	0.0209427	0	760	40
MW-104B	0.309474	0.0209427	0	760	40
MW-101	0.309474	0.0209427	0	760	40

Compliance Locations

There are 3 compliance location

Location	Obs.	Non-Detects	% ND	Total
MW-106A	22	0	0	25.17
MW-108	23	0	0	176.99
MW-205B	22	22	100	7.35

Location	Mean	Std Dev	Dif From Bkg	Std Err	Rank Sum	Rank Mean
MW-106A	1.14409	0.141343	0.834617	0.231071	1991	90.5
MW-108	7.69522	2.12611	7.38574	0.227418	2599	113
MW-205B	0.334091	0.0752557	0.0246172	0.231071	880	40

Analysis of Variance Statistics

SS Wells	982.582
SS Total	1082.59

Kruskal-Wallis Statistics

Non-Detect Rank	40
Background Rank Sum	2280
Background Rank Mean	40
H Statistic	89.7271
H Adjusted for Ties	121.019

Non-Parametric Prediction Interval

Inter-Well Comparison

Parameter: 1,1-Dichloroethane

Original Data (Not Transformed)

Non-Detects Replaced with Detection Limit

Total Percent Non-Detects = 63.7097%

Number of comparisons = 3

Future Samples (k) = 3

Recent Dates = 1

Background Measurements (n) = 57

Maximum Background Value = 0.32

Confidence Level = 95%

False Positive Rate = 5%

Location	Date	Count	Mean	Significant
MW-106A	5/25/2022	1	1.02	TRUE
MW-108	5/26/2022	2	6.045	TRUE
MW-205B	5/25/2022	1	0.6	TRUE

Basic Statistics

Parameter: 1,4-Dichlorobenzene

Original Data (Not Transformed)

Non-Detects Replaced with Detection Limit

Total Measurements	127
Total Non-Detects	114 (89.7638%)
Pooled Mean	0.413937
Pooled Std Dev	0.347383

Compliance Meas.	67
Compliance Mean	0.501642
Compliance Std Dev	0.461669

Background Meas.	60
Background Mean	0.316
Background Std Dev	0.0282363

Background Locations

There are 3 background location

Location	Meas.	Non-Detects	% ND	Total
MW-104A	20	20	100	6.32
MW-104B	20	20	100	6.32
MW-101	20	20	100	6.32

Location	Mean	Std Dev	Std Err	Rank Sum	Rank Mean
MW-104A	0.316	0.0287274	0	1150	57.5
MW-104B	0.316	0.0287274	0	1150	57.5
MW-101	0.316	0.0287274	0	1150	57.5

Compliance Locations

There are 3 compliance location

Location	Obs.	Non-Detects	% ND	Total
MW-106A	22	22	100	7.72
MW-108	23	10	43.4783	18.17
MW-205B	22	22	100	7.72

Location	Mean	Std Dev	Dif From Bkg	Std Err	Rank Sum	Rank Mean
MW-106A	0.350909	0.14861	0.0349091	0.0758359	1265	57.5
MW-108	0.79	0.681822	0.474	0.0746199	2148	93.3913
MW-205B	0.350909	0.14861	0.0349091	0.0758359	1265	57.5

Analysis of Variance Statistics

SS Wells	4.00303
SS Total	15.205

Kruskal-Wallis Statistics

Non-Detect Rank	57.5
Background Rank Sum	3450
Background Rank Mean	57.5
H Statistic	17.9103
H Adjusted for Ties	64.7199

Non-Parametric Prediction Interval

Inter-Well Comparison

Parameter: 1,4-Dichlorobenzene

Original Data (Not Transformed)

Non-Detects Replaced with Detection Limit

Total Percent Non-Detects = 89.7638%

Number of comparisons = 3

Future Samples (k) = 3

Recent Dates = 1

Background Measurements (n) = 60

Maximum Background Value = 0.33

Confidence Level = 95.2%

False Positive Rate = 4.8%

Location	Date	Count	Mean	Significant
MW-106A	5/25/2022	1	0.4	TRUE
MW-108	5/26/2022	2	1.075	TRUE
MW-205B	5/25/2022	1	0.4	TRUE

Basic Statistics

Parameter: Arsenic

Original Data (Not Transformed)

Non-Detects Replaced with Detection Limit

Total Measurements	145
Total Non-Detects	100 (68.9655%)
Pooled Mean	5.97752
Pooled Std Dev	5.31102
Compliance Meas.	81
Compliance Mean	5.39062
Compliance Std Dev	5.67714
Background Meas.	64
Background Mean	6.72031
Background Std Dev	4.7479

Background Locations

There are 3 background location

Location	Meas.	Non-Detects	% ND	Total
MW-104B	21	21	100	85.9
MW-104A	21	4	19.0476	183.8
MW-101	22	13	59.0909	160.4

Location	Mean	Std Dev	Std Err	Rank Sum	Rank Mean
MW-104B	4.09048	1.20909	0	1060.5	50.5
MW-104A	8.75238	2.2739	0	2411	114.81
MW-101	7.29091	7.06574	0	1763.5	80.1591

Compliance Locations

There are 3 compliance location

Location	Obs.	Non-Detects	% ND	Total
MW-106A	37	30	81.0811	220.38
MW-108	22	11	50	129.8
MW-205B	22	21	95.4545	86.46

Location	Mean	Std Dev	Dif From Bkg	Std Err	Rank Sum	Rank Mean
MW-106A	5.95622	7.93659	-0.764096	1.0648	2308	62.3784
MW-108	5.9	3.12562	-0.820312	1.27423	1880.5	85.4773
MW-205B	3.93	1.39959	-2.79031	1.27423	1161.5	52.7955

Analysis of Variance Statistics

SS Wells	366.807
SS Total	4061.79

Kruskal-Wallis Statistics

Non-Detect Rank	50.5
Background Rank Sum	5235
Background Rank Mean	81.7969
H Statistic	12.2057
H Adjusted for Ties	18.1632

Non-Parametric Prediction Interval

Inter-Well Comparison

Parameter: Arsenic

Original Data (Not Transformed)

Non-Detects Replaced with Detection Limit

Total Percent Non-Detects = 68.9655%

Number of comparisons = 3

Future Samples (k) = 3

Recent Dates = 1

Background Measurements (n) = 64

Maximum Background Value = 30.9

Confidence Level = 95.5%

False Positive Rate = 4.5%

Location	Date	Count	Mean	Significant
MW-106A	5/25/2022	1	3.2	FALSE
MW-108	5/26/2022	2	13	FALSE
MW-205B	5/25/2022	1	0.56	FALSE

Basic Statistics

Parameter: Barium

Original Data (Not Transformed)

Non-Detects Replaced with Detection Limit

Total Measurements	158
Total Non-Detects	0 (0%)
Pooled Mean	234.508
Pooled Std Dev	206.582

Compliance Meas.	93
Compliance Mean	343.998
Compliance Std Dev	205.686

Background Meas.	65
Background Mean	77.8538
Background Std Dev	39.1186

Background Locations

There are 3 background location

Location	Meas.	Non-Detects	% ND	Total
MW-104B	22	0	0	949.2
MW-104A	21	0	0	1452.8
MW-101	22	0	0	2658.5

Location	Mean	Std Dev	Std Err	Rank Sum	Rank Mean
MW-104B	43.1455	13.214	0	284	12.9091
MW-104A	69.181	5.50514	0	662	31.5238
MW-101	120.841	34.4535	0	1490	67.7273

Compliance Locations

There are 3 compliance location

Location	Obs.	Non-Detects	% ND	Total
MW-106A	48	0	0	14660
MW-108	23	0	0	15084
MW-205B	22	0	0	2247.8

Location	Mean	Std Dev	Dif From Bkg	Std Err	Rank Sum	Rank Mean
MW-106A	305.417	25.0564	227.563	8.82648	5352	111.5
MW-108	655.826	110.299	577.972	11.2524	3381	147
MW-205B	102.173	5.3633	24.3189	11.4398	1392	63.2727

Analysis of Variance Statistics

SS Wells	6.3732e+006
SS Total	6.70016e+006

Kruskal-Wallis Statistics

Non-Detect Rank	0
Background Rank Sum	2436
Background Rank Mean	37.4769
H Statistic	131.132
H Adjusted for Ties	131.132

Shapiro-Francia Test of Normality

Parameter: Barium

Background Locations

Normality Test of Parameter Concentrations

Original Data (Not Transformed)

Non-Detects Replaced with Detection Limit

Total Number of Measurements = 65

i	x(i)	m(i)	sum(m^2)	sum(mx)
1	26.8	-2.17009	4.70929	-58.1584
2	30	-1.88079	8.24666	-114.582
3	30.8	-1.6954	11.121	-166.8
4	33.1	-1.55477	13.5384	-218.263
5	34	-1.43953	15.6106	-267.207
6	34.5	-1.34075	17.4082	-313.463
7	34.8	-1.24809	18.9659	-356.897
8	35.4	-1.17	20.3348	-398.315
9	36	-1.09847	21.5415	-437.86
10	36.2	-1.03215	22.6068	-475.224
11	37.7	-0.970094	23.5479	-511.796
12	38.7	-0.911562	24.3788	-547.074
13	39.1	-0.855996	25.1116	-580.543
14	39.5	-0.7995	25.7508	-612.123
15	48.1	-0.748762	26.3114	-648.139
16	48.3	-0.699883	26.8013	-681.943
17	51.7	-0.652622	27.2272	-715.684
18	52.2	-0.606775	27.5954	-747.357
19	54.3	-0.56217	27.9114	-777.883
20	61.9	-0.515791	28.1774	-809.811
21	62	-0.473299	28.4014	-839.155
22	63	-0.431644	28.5878	-866.349
23	63.3	-0.390726	28.7404	-891.082
24	63.6	-0.350451	28.8632	-913.37
25	63.8	-0.310738	28.9598	-933.196
26	64.8	-0.271509	29.0335	-950.789
27	65.9	-0.230118	29.0865	-965.954
28	66.3	-0.191671	29.1232	-978.662
29	66.5	-0.153505	29.1468	-988.87
30	67.7	-0.115562	29.1601	-996.693
31	68.1	-0.0777834	29.1662	-1001.99
32	68.8	-0.0401167	29.1678	-1004.75
33	68.9	0	29.1678	-1004.75
34	68.9	0.0401167	29.1694	-1001.99
35	70.4	0.0777834	29.1754	-996.511
36	71.4	0.115562	29.1888	-988.259
37	72.2	0.153505	29.2124	-977.176
38	74.9	0.191671	29.2491	-962.82
39	75.8	0.230118	29.3021	-945.377
40	76.1	0.271509	29.3758	-924.715
41	76.8	0.310738	29.4723	-900.851
42	77.3	0.350451	29.5951	-873.761
43	82.4	0.390726	29.7478	-841.565
44	86.5	0.431644	29.9341	-804.228
45	88.6	0.473299	30.1581	-762.294
46	88.7	0.515791	30.4242	-716.543
47	90.8	0.56217	30.7402	-665.498
48	91	0.606775	31.1084	-610.281
49	94.2	0.652622	31.5343	-548.804
50	97.7	0.699883	32.0241	-480.426
51	101	0.748762	32.5848	-404.801
52	102	0.7995	33.224	-323.252
53	103	0.855996	33.9567	-235.084
54	106	0.911562	34.7877	-138.459
55	109	0.970094	35.7287	-32.7184
56	113	1.03215	36.7941	83.915
57	119	1.09847	38.0007	214.633
58	125	1.17	39.3696	360.883

59	134	1.24809	40.9273	528.126
60	137	1.34075	42.725	711.81
61	143	1.43953	44.7972	917.663
62	157	1.55477	47.2145	1161.76
63	180	1.6954	50.0889	1466.93
64	189	1.88079	53.6263	1822.4
65	203	2.17009	58.3356	2262.93

Data Set Standard Deviation = 39.1186

Numerator = 5.12086e+006

Denominator = 5.7132e+006

W Statistic = 0.896321 = 5.12086e+006 / 5.7132e+006

5% Critical value of 0.965 exceeds 0.896321

Evidence of non-normality at 95% level of significance

1% Critical value of 0.948 exceeds 0.896321

Evidence of non-normality at 99% level of significance

Non-Parametric Prediction Interval

Inter-Well Comparison

Parameter: Barium

Original Data (Not Transformed)

Non-Detects Replaced with Detection Limit

Total Percent Non-Detects = 0%

Number of comparisons = 3

Future Samples (k) = 3

Recent Dates = 1

Background Measurements (n) = 65

Maximum Background Value = 203

Confidence Level = 95.6%

False Positive Rate = 4.4%

Location	Date	Count	Mean	Significant
MW-106A	5/25/2022	1	290	TRUE
MW-108	5/26/2022	2	745	TRUE
MW-205B	5/25/2022	1	93.3	FALSE

Non-Parametric Prediction Interval

Inter-Well Comparison

Parameter: Benzene

Original Data (Not Transformed)

Non-Detects Replaced with Detection Limit

Total Percent Non-Detects = 87.9032%

Number of comparisons = 3

Future Samples (k) = 3

Recent Dates = 1

Background Measurements (n) = 57

Maximum Background Value = 0.25

Confidence Level = 95%

False Positive Rate = 5%

Location	Date	Count	Mean	Significant
MW-106A	5/25/2022	1	0.4	TRUE
MW-108	5/26/2022	2	8.38	TRUE
MW-205B	5/25/2022	1	0.4	TRUE

Basic Statistics

Parameter: Benzene

Original Data (Not Transformed)

Non-Detects Replaced with Detection Limit

Total Measurements	124
Total Non-Detects	109 (87.9032%)
Pooled Mean	3.91685
Pooled Std Dev	37.3402

Compliance Meas.	67
Compliance Mean	7.05433
Compliance Std Dev	50.7613

Background Meas.	57
Background Mean	0.228947
Background Std Dev	0.0411306

Background Locations

There are 3 background location

Location	Meas.	Non-Detects	% ND	Total
MW-104A	19	19	100	4.35
MW-104B	19	19	100	4.35
MW-101	19	19	100	4.35

Location	Mean	Std Dev	Std Err	Rank Sum	Rank Mean
MW-104A	0.228947	0.0418854	0	1045	55
MW-104B	0.228947	0.0418854	0	1045	55
MW-101	0.228947	0.0418854	0	1045	55

Compliance Locations

There are 3 compliance location

Location	Obs.	Non-Detects	% ND	Total
MW-106A	22	22	100	5.59
MW-108	23	8	34.7826	461.46
MW-205B	22	22	100	5.59

Location	Mean	Std Dev	Dif From Bkg	Std Err	Rank Sum	Rank Mean
MW-106A	0.254091	0.079502	0.0251435	9.36106	1210	55
MW-108	20.0635	86.3753	19.8345	9.21306	2195	95.4348
MW-205B	0.254091	0.079502	0.0251435	9.36106	1210	55

Analysis of Variance Statistics

SS Wells	7361.94
SS Total	171497

Kruskal-Wallis Statistics

Non-Detect Rank	55
Background Rank Sum	3135
Background Rank Mean	55
H Statistic	23.713
H Adjusted for Ties	73.9215

Basic Statistics

Parameter: Chromium

Original Data (Not Transformed)

Non-Detects Replaced with Detection Limit

Total Measurements	127
Total Non-Detects	108 (85.0394%)
Pooled Mean	2.4575
Pooled Std Dev	1.02216
Compliance Meas.	67
Compliance Mean	2.49885
Compliance Std Dev	1.09504
Background Meas.	60
Background Mean	2.41133
Background Std Dev	0.941174

Background Locations

There are 3 background location

Location	Meas.	Non-Detects	% ND	Total
MW-104A	20	20	100	42.2
MW-104B	20	19	95	42.6
MW-101	20	12	60	59.88

Location	Mean	Std Dev	Std Err	Rank Sum	Rank Mean
MW-104A	2.11	0.587501	0	1090	54.5
MW-104B	2.13	0.590361	0	1147.5	57.375
MW-101	2.994	1.23317	0	1607	80.35

Compliance Locations

There are 3 compliance location

Location	Obs.	Non-Detects	% ND	Total
MW-106A	22	22	100	49.6
MW-108	23	13	56.5217	68.223
MW-205B	22	22	100	49.6

Location	Mean	Std Dev	Dif From Bkg	Std Err	Rank Sum	Rank Mean
MW-106A	2.25455	0.728813	-0.156788	0.241462	1199	54.5
MW-108	2.96622	1.49517	0.554884	0.23759	1885.5	81.9783
MW-205B	2.25455	0.728813	-0.156788	0.241462	1199	54.5

Analysis of Variance Statistics

SS Wells	18.0815
SS Total	131.646

Kruskal-Wallis Statistics

Non-Detect Rank	54.5
Background Rank Sum	3844.5
Background Rank Mean	64.075
H Statistic	8.4193
H Adjusted for Ties	21.8663

Non-Parametric Prediction Interval

Inter-Well Comparison

Parameter: Chromium

Original Data (Not Transformed)

Non-Detects Replaced with Detection Limit

Total Percent Non-Detects = 85.0394%

Number of comparisons = 3

Future Samples (k) = 3

Recent Dates = 1

Background Measurements (n) = 60

Maximum Background Value = 5.5

Confidence Level = 95.2%

False Positive Rate = 4.8%

Location	Date	Count	Mean	Significant
MW-106A	5/25/2022	1	0.4	FALSE
MW-108	5/26/2022	2	0.8115	FALSE
MW-205B	5/25/2022	1	0.4	FALSE

Basic Statistics

Parameter: Chlorobenzene

Original Data (Not Transformed)

Non-Detects Replaced with Detection Limit

Total Measurements	130
Total Non-Detects	117 (90%)
Pooled Mean	0.310077
Pooled Std Dev	0.227097

Compliance Meas.	67
Compliance Mean	0.375522
Compliance Std Dev	0.300844

Background Meas.	63
Background Mean	0.240476
Background Std Dev	0.0375211

Background Locations

There are 3 background location

Location	Meas.	Non-Detects	% ND	Total
MW-104A	21	21	100	5.05
MW-104B	21	21	100	5.05
MW-101	21	21	100	5.05

Location	Mean	Std Dev	Std Err	Rank Sum	Rank Mean
MW-104A	0.240476	0.0381413	0	1239	59
MW-104B	0.240476	0.0381413	0	1239	59
MW-101	0.240476	0.0381413	0	1239	59

Compliance Locations

There are 3 compliance location

Location	Obs.	Non-Detects	% ND	Total
MW-106A	22	22	100	5.85
MW-108	23	10	43.4783	13.46
MW-205B	22	22	100	5.85

Location	Mean	Std Dev	Dif From Bkg	Std Err	Rank Sum	Rank Mean
MW-106A	0.265909	0.124963	0.0254329	0.0472847	1298	59
MW-108	0.585217	0.414377	0.344741	0.0465166	2202	95.7391
MW-205B	0.265909	0.124963	0.0254329	0.0472847	1298	59

Analysis of Variance Statistics

SS Wells	2.13218
SS Total	6.6529

Kruskal-Wallis Statistics

Non-Detect Rank	59
Background Rank Sum	3717
Background Rank Mean	59
H Statistic	18.005
H Adjusted for Ties	66.4366

Non-Parametric Prediction Interval

Inter-Well Comparison

Parameter: Chlorobenzene

Original Data (Not Transformed)

Non-Detects Replaced with Detection Limit

Total Percent Non-Detects = 90%

Number of comparisons = 3

Future Samples (k) = 3

Recent Dates = 1

Background Measurements (n) = 63

Maximum Background Value = 0.4

Confidence Level = 95.5%

False Positive Rate = 4.5%

Location	Date	Count	Mean	Significant
MW-106A	5/25/2022	1	0.4	FALSE
MW-108	5/26/2022	2	1.305	TRUE
MW-205B	5/25/2022	1	0.4	FALSE

Basic Statistics

Parameter: Chloroethane

Original Data (Not Transformed)

Non-Detects Replaced with Detection Limit

Total Measurements	124
Total Non-Detects	114 (91.9355%)
Pooled Mean	0.622258
Pooled Std Dev	0.301311
Compliance Meas.	67
Compliance Mean	0.701194
Compliance Std Dev	0.393799
Background Meas.	57
Background Mean	0.529474
Background Std Dev	0.0205653

Background Locations

There are 3 background location

Location	Meas.	Non-Detects	% ND	Total
MW-104A	19	19	100	10.06
MW-104B	19	19	100	10.06
MW-101	19	19	100	10.06

Location	Mean	Std Dev	Std Err	Rank Sum	Rank Mean
MW-104A	0.529474	0.0209427	0	1092.5	57.5
MW-104B	0.529474	0.0209427	0	1092.5	57.5
MW-101	0.529474	0.0209427	0	1092.5	57.5

Compliance Locations

There are 3 compliance location

Location	Obs.	Non-Detects	% ND	Total
MW-106A	22	22	100	12.41
MW-108	23	13	56.5217	22.16
MW-205B	22	22	100	12.41

Location	Mean	Std Dev	Dif From Bkg	Std Err	Rank Sum	Rank Mean
MW-106A	0.564091	0.108349	0.0346172	0.0647357	1265	57.5
MW-108	0.963478	0.577326	0.434005	0.0637122	1942.5	84.4565
MW-205B	0.564091	0.108349	0.0346172	0.0647357	1265	57.5

Analysis of Variance Statistics

SS Wells	3.3175
SS Total	11.167

Kruskal-Wallis Statistics

Non-Detect Rank	57.5
Background Rank Sum	3277.5
Background Rank Mean	57.5
H Statistic	10.5391
H Adjusted for Ties	47.2695

Non-Parametric Prediction Interval

Inter-Well Comparison

Parameter: Chloroethane

Original Data (Not Transformed)

Non-Detects Replaced with Detection Limit

Total Percent Non-Detects = 91.9355%

Number of comparisons = 3

Future Samples (k) = 3

Recent Dates = 1

Background Measurements (n) = 57

Maximum Background Value = 0.54

Confidence Level = 95%

False Positive Rate = 5%

Location	Date	Count	Mean	Significant
MW-106A	5/25/2022	1	0.7	TRUE
MW-108	5/26/2022	2	1.145	TRUE
MW-205B	5/25/2022	1	0.7	TRUE

Basic Statistics

Parameter: Cobalt

Original Data (Not Transformed)

Non-Detects Replaced with Detection Limit

Total Measurements	132
Total Non-Detects	30 (22.7273%)
Pooled Mean	9.62585
Pooled Std Dev	14.98

Compliance Meas.	67
Compliance Mean	12.1884
Compliance Std Dev	15.2777

Background Meas.	65
Background Mean	6.98442
Background Std Dev	14.3058

Background Locations

There are 3 background location

Location	Meas.	Non-Detects	% ND	Total
MW-104A	22	4	18.1818	18.326
MW-104B	21	11	52.381	10.661
MW-101	22	0	0	425

Location	Mean	Std Dev	Std Err	Rank Sum	Rank Mean
MW-104A	0.833	0.336582	0	1034	47
MW-104B	0.507667	0.459483	0	625.5	29.7857
MW-101	19.3182	19.5562	0	2205	100.227

Compliance Locations

There are 3 compliance location

Location	Obs.	Non-Detects	% ND	Total
MW-106A	22	0	0	127.53
MW-108	23	0	0	680
MW-205B	22	15	68.1818	9.095

Location	Mean	Std Dev	Dif From Bkg	Std Err	Rank Sum	Rank Mean
MW-106A	5.79682	1.20211	-1.1876	2.46155	1847	83.9545
MW-108	29.5652	14.2671	22.5808	2.42124	2577	112.043
MW-205B	0.413409	0.338895	-6.57101	2.46155	489.5	22.25

Analysis of Variance Statistics

SS Wells	16847.6
SS Total	29396.4

Kruskal-Wallis Statistics

Non-Detect Rank	15.5
Background Rank Sum	3864.5
Background Rank Mean	59.4538
H Statistic	68.8406
H Adjusted for Ties	69.6575

Shapiro-Francia Test of Normality

Parameter: Cobalt

Background Locations

Normality Test of Parameter Concentrations

Original Data (Not Transformed)

Non-Detects Replaced with 1/2 DL

Total Number of Measurements = 65

i	x(i)	m(i)	sum(m^2)	sum(mx)
1	0.035	-2.17009	4.70929	-0.0759532
2	0.045	-1.88079	8.24666	-0.160589
3	0.07	-1.6954	11.121	-0.279267
4	0.12	-1.55477	13.5384	-0.465839
5	0.125	-1.43953	15.6106	-0.64578
6	0.125	-1.34075	17.4082	-0.813375
7	0.15	-1.24809	18.9659	-1.00059
8	0.16	-1.17	20.3348	-1.18779
9	0.19	-1.09847	21.5415	-1.3965
10	0.25	-1.03215	22.6068	-1.65454
11	0.25	-0.970094	23.5479	-1.89706
12	0.25	-0.911562	24.3788	-2.12495
13	0.25	-0.855996	25.1116	-2.33895
14	0.25	-0.7995	25.7508	-2.53882
15	0.25	-0.748762	26.3114	-2.72601
16	0.25	-0.699883	26.8013	-2.90098
17	0.25	-0.652622	27.2272	-3.06414
18	0.25	-0.606775	27.5954	-3.21583
19	0.286	-0.56217	27.9114	-3.37661
20	0.31	-0.515791	28.1774	-3.53651
21	0.34	-0.473299	28.4014	-3.69743
22	0.54	-0.431644	28.5878	-3.93052
23	0.6	-0.390726	28.7404	-4.16495
24	0.63	-0.350451	28.8632	-4.38574
25	0.65	-0.310738	28.9598	-4.58772
26	0.65	-0.271509	29.0335	-4.7642
27	0.65	-0.230118	29.0865	-4.91378
28	0.68	-0.191671	29.1232	-5.04411
29	0.7	-0.153505	29.1468	-5.15157
30	0.74	-0.115562	29.1601	-5.23708
31	0.82	-0.0777834	29.1662	-5.30086
32	0.87	-0.0401167	29.1678	-5.33577
33	0.9	0	29.1678	-5.33577
34	0.98	0.0401167	29.1694	-5.29645
35	0.986	0.0777834	29.1754	-5.21976
36	1	0.115562	29.1888	-5.1042
37	1.1	0.153505	29.2124	-4.93534
38	1.1	0.191671	29.2491	-4.7245
39	1.1	0.230118	29.3021	-4.47137
40	1.1	0.271509	29.3758	-4.17271
41	1.2	0.310738	29.4723	-3.79983
42	1.2	0.350451	29.5951	-3.37928
43	1.4	0.390726	29.7478	-2.83227
44	1.8	0.431644	29.9341	-2.05531
45	2.3	0.473299	30.1581	-0.966723
46	3	0.515791	30.4242	0.580652
47	3.5	0.56217	30.7402	2.54825
48	5.4	0.606775	31.1084	5.82483
49	5.6	0.652622	31.5343	9.47951
50	6.7	0.699883	32.0241	14.1687
51	7.1	0.748762	32.5848	19.4849
52	7.9	0.7995	33.224	25.801
53	8.9	0.855996	33.9567	33.4194
54	9.1	0.911562	34.7877	41.7146
55	9.7	0.970094	35.7287	51.1245
56	14.2	1.03215	36.7941	65.7811
57	14.3	1.09847	38.0007	81.4892
58	18.2	1.17	39.3696	102.783

59	30.1	1.24809	40.9273	140.351
60	32	1.34075	42.725	183.255
61	34.8	1.43953	44.7972	233.35
62	37.6	1.55477	47.2145	291.81
63	47.8	1.6954	50.0889	372.85
64	51.4	1.88079	53.6263	469.522
65	74.3	2.17009	58.3356	630.76

Data Set Standard Deviation = 14.3368

Numerator = 397858

Denominator = 767390

W Statistic = 0.518456 = 397858 / 767390

5% Critical value of 0.965 exceeds 0.518456

Evidence of non-normality at 95% level of significance

1% Critical value of 0.948 exceeds 0.518456

Evidence of non-normality at 99% level of significance

Non-Parametric Prediction Interval

Inter-Well Comparison

Parameter: Cobalt

Original Data (Not Transformed)

Non-Detects Replaced with 1/2 DL

Total Percent Non-Detects = 22.7273%

Number of comparisons = 3

Future Samples (k) = 3

Recent Dates = 1

Background Measurements (n) = 65

Maximum Background Value = 74.3

Confidence Level = 95.6%

False Positive Rate = 4.4%

Location	Date	Count	Mean	Significant
MW-106A	5/25/2022	1	5.43	FALSE
MW-108	5/26/2022	2	42.25	FALSE
MW-205B	5/25/2022	1	0.1	FALSE

Basic Statistics

Parameter: Copper

Original Data (Not Transformed)

Non-Detects Replaced with Detection Limit

Total Measurements	128
Total Non-Detects	98 (76.5625%)
Pooled Mean	4.34528
Pooled Std Dev	6.82721
Compliance Meas.	67
Compliance Mean	2.75994
Compliance Std Dev	3.60474
Background Meas.	61
Background Mean	6.08656
Background Std Dev	8.85871

Background Locations

There are 3 background location

Location	Meas.	Non-Detects	% ND	Total
MW-104A	21	19	90.4762	45.78
MW-104B	18	18	100	41.3
MW-101	22	1	4.54545	284.2

Location	Mean	Std Dev	Std Err	Rank Sum	Rank Mean
MW-104A	2.18	0.425206	0	1144.5	54.5
MW-104B	2.29444	0.275408	0	891	49.5
MW-101	12.9182	12.1452	0	2499.5	113.614

Compliance Locations

There are 3 compliance location

Location	Obs.	Non-Detects	% ND	Total
MW-106A	22	19	86.3636	78.8
MW-108	23	19	82.6087	56.916
MW-205B	22	22	100	49.2

Location	Mean	Std Dev	Dif From Bkg	Std Err	Rank Sum	Rank Mean
MW-106A	3.58182	6.21125	-2.50474	1.41282	1277.5	58.0682
MW-108	2.47461	0.808698	-3.61195	1.39006	1354.5	58.8913
MW-205B	2.23636	0.700031	-3.85019	1.41282	1089	49.5

Analysis of Variance Statistics

SS Wells	1982.2
SS Total	5919.57

Kruskal-Wallis Statistics

Non-Detect Rank	49.5
Background Rank Sum	4535
Background Rank Mean	74.3443
H Statistic	9.08074
H Adjusted for Ties	16.4738

Non-Parametric Prediction Interval

Inter-Well Comparison

Parameter: Copper

Original Data (Not Transformed)

Non-Detects Replaced with Detection Limit

Total Percent Non-Detects = 76.5625%

Number of comparisons = 3

Future Samples (k) = 3

Recent Dates = 1

Background Measurements (n) = 61

Maximum Background Value = 40.8

Confidence Level = 95.3%

False Positive Rate = 4.7%

Location	Date	Count	Mean	Significant
MW-106A	5/25/2022	1	0.3	FALSE
MW-108	5/26/2022	2	1.608	FALSE
MW-205B	5/25/2022	1	0.3	FALSE

Basic Statistics

Parameter: cis-1,2-Dichloroethene

Original Data (Not Transformed)

Non-Detects Replaced with Detection Limit

Total Measurements	124
Total Non-Detects	80 (64.5161%)
Pooled Mean	9.69726
Pooled Std Dev	22.8819

Compliance Meas.	67
Compliance Mean	17.7676
Compliance Std Dev	28.8431

Background Meas.	57
Background Mean	0.211053
Background Std Dev	0.0411306

Background Locations

There are 3 background location

Location	Meas.	Non-Detects	% ND	Total
MW-104A	19	19	100	4.01
MW-104B	19	19	100	4.01
MW-101	19	19	100	4.01

Location	Mean	Std Dev	Std Err	Rank Sum	Rank Mean
MW-104A	0.211053	0.0418854	0	769.5	40.5
MW-104B	0.211053	0.0418854	0	769.5	40.5
MW-101	0.211053	0.0418854	0	769.5	40.5

Compliance Locations

There are 3 compliance location

Location	Obs.	Non-Detects	% ND	Total
MW-106A	22	1	4.54545	12.94
MW-108	23	0	0	1171.9
MW-205B	22	22	100	5.59

Location	Mean	Std Dev	Dif From Bkg	Std Err	Rank Sum	Rank Mean
MW-106A	0.588182	0.0849446	0.377129	2.95345	1951.5	88.7045
MW-108	50.9522	27.2512	50.7411	2.90676	2599	113
MW-205B	0.254091	0.138346	0.0430383	2.95345	891	40.5

Analysis of Variance Statistics

SS Wells	48061.9
SS Total	64400.3

Kruskal-Wallis Statistics

Non-Detect Rank	40.5
Background Rank Sum	2308.5
Background Rank Mean	40.5
H Statistic	86.7086
H Adjusted for Ties	118.538

Non-Parametric Prediction Interval

Inter-Well Comparison

Parameter: cis-1,2-Dichloroethene

Original Data (Not Transformed)

Non-Detects Replaced with Detection Limit

Total Percent Non-Detects = 64.5161%

Number of comparisons = 3

Future Samples (k) = 3

Recent Dates = 1

Background Measurements (n) = 57

Maximum Background Value = 0.29

Confidence Level = 95%

False Positive Rate = 5%

Location	Date	Count	Mean	Significant
MW-106A	5/25/2022	1	0.56	TRUE
MW-108	5/26/2022	2	58	TRUE
MW-205B	5/25/2022	1	0.4	TRUE

Basic Statistics

Parameter: Mercury

Original Data (Not Transformed)

Non-Detects Replaced with Detection Limit

Total Measurements	122
Total Non-Detects	99 (81.1475%)
Pooled Mean	0.210738
Pooled Std Dev	0.301995

Compliance Meas.	64
Compliance Mean	0.310844
Compliance Std Dev	0.392066

Background Meas.	58
Background Mean	0.100276
Background Std Dev	0.00618655

Background Locations

There are 3 background location

Location	Meas.	Non-Detects	% ND	Total
MW-104A	19	19	100	1.882
MW-104B	19	19	100	1.882
MW-101	20	19	95	2.052

Location	Mean	Std Dev	Std Err	Rank Sum	Rank Mean
MW-104A	0.0990526	0.00283772	0	950	50
MW-104B	0.0990526	0.00283772	0	950	50
MW-101	0.1026	0.00953332	0	1050	52.5

Compliance Locations

There are 3 compliance location

Location	Obs.	Non-Detects	% ND	Total
MW-106A	22	22	100	2.332
MW-108	23	1	4.34783	15.53
MW-205B	19	19	100	2.032

Location	Mean	Std Dev	Dif From Bkg	Std Err	Rank Sum	Rank Mean
MW-106A	0.106	0.022541	0.00572414	0.051564	1100	50
MW-108	0.675217	0.471756	0.574942	0.0507448	2503	108.826
MW-205B	0.106947	0.0242039	0.00667151	0.0544355	950	50

Analysis of Variance Statistics

SS Wells	6.11594
SS Total	11.0353

Kruskal-Wallis Statistics

Non-Detect Rank	50
Background Rank Sum	2950
Background Rank Mean	50.8621
H Statistic	50.7799
H Adjusted for Ties	109.047

Non-Parametric Prediction Interval

Inter-Well Comparison

Parameter: Mercury

Original Data (Not Transformed)

Non-Detects Replaced with Detection Limit

Total Percent Non-Detects = 81.1475%

Number of comparisons = 3

Future Samples (k) = 3

Recent Dates = 1

Background Measurements (n) = 58

Maximum Background Value = 0.13

Confidence Level = 95.1%

False Positive Rate = 4.9%

Location	Date	Count	Mean	Significant
MW-106A	5/25/2022	1	0.2	TRUE
MW-108	5/26/2022	2	0.385	TRUE
MW-205B	5/25/2022	1	0.2	TRUE

Basic Statistics

Parameter: Nickel

Original Data (Not Transformed)

Non-Detects Replaced with Detection Limit

Total Measurements	144
Total Non-Detects	61 (42.3611%)
Pooled Mean	12.8882
Pooled Std Dev	18.8108

Compliance Meas.	86
Compliance Mean	16.6436
Compliance Std Dev	22.0857

Background Meas.	58
Background Mean	7.31971
Background Std Dev	10.3682

Background Locations

There are 3 background location

Location	Meas.	Non-Detects	% ND	Total
MW-104A	18	17	94.4444	42.368
MW-104B	18	17	94.4444	41.995
MW-101	22	0	0	340.18

Location	Mean	Std Dev	Std Err	Rank Sum	Rank Mean
MW-104A	2.35378	0.436575	0	592	32.8889
MW-104B	2.33306	0.487029	0	590	32.7778
MW-101	15.4627	13.3984	0	2251	102.318

Compliance Locations

There are 3 compliance location

Location	Obs.	Non-Detects	% ND	Total
MW-106A	41	9	21.9512	720.093
MW-108	23	0	0	657.82
MW-205B	22	18	81.8182	53.44

Location	Mean	Std Dev	Dif From Bkg	Std Err	Rank Sum	Rank Mean
MW-106A	17.5632	28.3086	10.2435	3.36212	3233	78.8537
MW-108	28.6009	8.60137	21.2812	4.06038	2956	128.522
MW-205B	2.42909	0.692235	-4.89062	4.12593	818	37.1818

Analysis of Variance Statistics

SS Wells	13129.9
SS Total	50599.9

Kruskal-Wallis Statistics

Non-Detect Rank	31
Background Rank Sum	3433
Background Rank Mean	59.1897
H Statistic	64.1132
H Adjusted for Ties	69.3865

Non-Parametric Prediction Interval

Inter-Well Comparison

Parameter: Nickel

Original Data (Not Transformed)

Non-Detects Replaced with Detection Limit

Total Percent Non-Detects = 42.3611%

Number of comparisons = 3

Future Samples (k) = 3

Recent Dates = 1

Background Measurements (n) = 58

Maximum Background Value = 49.8

Confidence Level = 95.1%

False Positive Rate = 4.9%

Location	Date	Count	Mean	Significant
MW-106A	5/25/2022	1	7.323	FALSE
MW-108	5/26/2022	2	35.16	FALSE
MW-205B	5/25/2022	1	1	FALSE

Basic Statistics

Parameter: Toluene

Original Data (Not Transformed)

Non-Detects Replaced with Detection Limit

Total Measurements	123
Total Non-Detects	121 (98.374%)
Pooled Mean	0.500163
Pooled Std Dev	1.81229

Compliance Meas.	66
Compliance Mean	0.711212
Compliance Std Dev	2.46311

Background Meas.	57
Background Mean	0.255789
Background Std Dev	0.00822613

Background Locations

There are 3 background location

Location	Meas.	Non-Detects	% ND	Total
MW-104A	19	19	100	4.86
MW-104B	19	19	100	4.86
MW-101	19	19	100	4.86

Location	Mean	Std Dev	Std Err	Rank Sum	Rank Mean
MW-104A	0.255789	0.00837708	0	1159	61
MW-104B	0.255789	0.00837708	0	1159	61
MW-101	0.255789	0.00837708	0	1159	61

Compliance Locations

There are 3 compliance location

Location	Obs.	Non-Detects	% ND	Total
MW-106A	22	22	100	6.54
MW-108	22	20	90.9091	33.86
MW-205B	22	22	100	6.54

Location	Mean	Std Dev	Dif From Bkg	Std Err	Rank Sum	Rank Mean
MW-106A	0.297273	0.113523	0.0414833	0.447393	1342	61
MW-108	1.53909	4.20425	1.2833	0.447393	1465	66.5909
MW-205B	0.297273	0.113523	0.0414833	0.447393	1342	61

Analysis of Variance Statistics

SS Wells	28.9614
SS Total	400.697

Kruskal-Wallis Statistics

Non-Detect Rank	61
Background Rank Sum	3477
Background Rank Mean	61
H Statistic	0.444282
H Adjusted for Ties	9.25708

Non-Parametric Prediction Interval

Inter-Well Comparison

Parameter: Toluene

Original Data (Not Transformed)

Non-Detects Replaced with Detection Limit

Total Percent Non-Detects = 98.374%

Number of comparisons = 3

Future Samples (k) = 3

Recent Dates = 1

Background Measurements (n) = 57

Maximum Background Value = 0.26

Confidence Level = 95%

False Positive Rate = 5%

Location	Date	Count	Mean	Significant
MW-106A	5/25/2022	1	0.5	TRUE
MW-108	5/26/2022	2	14.15	TRUE
MW-205B	5/25/2022	1	0.5	TRUE

Basic Statistics

Parameter: Vinyl chloride

Original Data (Not Transformed)

Non-Detects Replaced with Detection Limit

Total Measurements	133
Total Non-Detects	116 (87.218%)
Pooled Mean	1.82722
Pooled Std Dev	4.0493

Compliance Meas.	67
Compliance Mean	3.10552
Compliance Std Dev	5.42486

Background Meas.	66
Background Mean	0.529545
Background Std Dev	0.148732

Background Locations

There are 3 background location

Location	Meas.	Non-Detects	% ND	Total
MW-104A	22	22	100	11.65
MW-104B	22	22	100	11.65
MW-101	22	22	100	11.65

Location	Mean	Std Dev	Std Err	Rank Sum	Rank Mean
MW-104A	0.529545	0.151075	0	1287	58.5
MW-104B	0.529545	0.151075	0	1287	58.5
MW-101	0.529545	0.151075	0	1287	58.5

Compliance Locations

There are 3 compliance location

Location	Obs.	Non-Detects	% ND	Total
MW-106A	22	22	100	11.65
MW-108	23	6	26.087	184.77
MW-205B	22	22	100	11.65

Location	Mean	Std Dev	Dif From Bkg	Std Err	Rank Sum	Rank Mean
MW-106A	0.529545	0.151075	-2.22045e-016	0.722295	1287	58.5
MW-108	8.03348	7.04159	7.50393	0.710421	2476	107.652
MW-205B	0.529545	0.151075	-2.22045e-016	0.722295	1287	58.5

Analysis of Variance Statistics

SS Wells	1071.14
SS Total	2164.38

Kruskal-Wallis Statistics

Non-Detect Rank	58.5
Background Rank Sum	3861
Background Rank Mean	58.5
H Statistic	30.9442
H Adjusted for Ties	91.9466

Non-Parametric Prediction Interval

Inter-Well Comparison

Parameter: Vinyl chloride

Original Data (Not Transformed)

Non-Detects Replaced with Detection Limit

Total Percent Non-Detects = 87.218%

Number of comparisons = 3

Future Samples (k) = 3

Recent Dates = 1

Background Measurements (n) = 66

Maximum Background Value = 0.62

Confidence Level = 95.7%

False Positive Rate = 4.3%

Location	Date	Count	Mean	Significant
MW-106A	5/25/2022	1	0.5	FALSE
MW-108	5/26/2022	2	8.055	TRUE
MW-205B	5/25/2022	1	0.5	FALSE

Basic Statistics

Parameter: Zinc

Original Data (Not Transformed)

Non-Detects Replaced with Detection Limit

Total Measurements	114
Total Non-Detects	80 (70.1754%)
Pooled Mean	7.40202
Pooled Std Dev	6.15309

Compliance Meas.	64
Compliance Mean	7.83016
Compliance Std Dev	7.52183

Background Meas.	50
Background Mean	6.854
Background Std Dev	3.74461

Background Locations

There are 3 background location

Location	Meas.	Non-Detects	% ND	Total
MW-104A	16	16	100	76.4
MW-104B	14	14	100	68.9
MW-101	20	4	20	197.4

Location	Mean	Std Dev	Std Err	Rank Sum	Rank Mean
MW-104A	4.775	0.665833	0	648	40.5
MW-104B	4.92143	0.293987	0	567	40.5
MW-101	9.87	4.44819	0	1703	85.15

Compliance Locations

There are 3 compliance location

Location	Obs.	Non-Detects	% ND	Total
MW-108	22	8	36.3636	256.7
MW-106A	21	20	95.2381	113.7
MW-205B	21	18	85.7143	130.73

Location	Mean	Std Dev	Dif From Bkg	Std Err	Rank Sum	Rank Mean
MW-108	11.6682	11.3341	4.81418	1.44545	1728	78.5455
MW-106A	5.41429	2.55388	-1.43971	1.46916	894	42.5714
MW-205B	6.22524	3.43183	-0.628762	1.46916	1015	48.3333

Analysis of Variance Statistics

SS Wells	830.842
SS Total	4278.24

Kruskal-Wallis Statistics

Non-Detect Rank	40.5
Background Rank Sum	2918
Background Rank Mean	58.36
H Statistic	14.8519
H Adjusted for Ties	22.694

Non-Parametric Prediction Interval

Inter-Well Comparison

Parameter: Zinc

Original Data (Not Transformed)

Non-Detects Replaced with Detection Limit

Total Percent Non-Detects = 70.1754%

Number of comparisons = 3

Future Samples (k) = 3

Recent Dates = 1

Background Measurements (n) = 50

Maximum Background Value = 18.8

Confidence Level = 94.3%

False Positive Rate = 5.7%

Location	Date	Count	Mean	Significant
MW-108	5/26/2022	2	41	TRUE
MW-106A	5/25/2022	1	2.5	FALSE
MW-205B	5/25/2022	1	3.43	FALSE

Basic Statistics

Parameter: 1,1-Dichloroethane

Original Data (Not Transformed)

Non-Detects Replaced with Detection Limit

Total Measurements	139
Total Non-Detects	92 (66.1871%)
Pooled Mean	1.72784
Pooled Std Dev	2.84297

Compliance Meas.	70
Compliance Mean	3.09029
Compliance Std Dev	3.51614

Background Meas.	69
Background Mean	0.345652
Background Std Dev	0.0907239

Background Locations

There are 3 background location

Location	Meas.	Non-Detects	% ND	Total
MW-101	23	23	100	7.95
MW-104A	23	23	100	7.95
MW-104B	23	23	100	7.95

Location	Mean	Std Dev	Std Err	Rank Sum	Rank Mean
MW-101	0.345652	0.0920882	0	1069.5	46.5
MW-104A	0.345652	0.0920882	0	1069.5	46.5
MW-104B	0.345652	0.0920882	0	1069.5	46.5

Compliance Locations

There are 3 compliance location

Location	Obs.	Non-Detects	% ND	Total
MW-205B	23	23	100	7.95
MW-106A	23	0	0	26.19
MW-108	24	0	0	182.18

Location	Mean	Std Dev	Dif From Bkg	Std Err	Rank Sum	Rank Mean
MW-205B	0.345652	0.0920882	-1.11022e-016	0.215599	1069.5	46.5
MW-106A	1.1387	0.140496	0.793043	0.215599	2392	104
MW-108	7.59083	2.14134	7.24518	0.212203	3060	127.5

Analysis of Variance Statistics

SS Wells	1008.74
SS Total	1115.38

Kruskal-Wallis Statistics

Non-Detect Rank	46.5
Background Rank Sum	3208.5
Background Rank Mean	46.5
H Statistic	96.6567
H Adjusted for Ties	136.122

Non-Parametric Prediction Interval

Inter-Well Comparison

Parameter: 1,1-Dichloroethane

Original Data (Not Transformed)

Non-Detects Replaced with Detection Limit

Total Percent Non-Detects = 66.1871%

Number of comparisons = 3

Future Samples (k) = 3

Recent Dates = 1

Background Measurements (n) = 69

Maximum Background Value = 0.6

Confidence Level = 95.8%

False Positive Rate = 4.2%

Location	Date	Count	Mean	Significant
MW-205B	12/6/2022	1	0.6	FALSE
MW-106A	12/6/2022	1	1.02	TRUE
MW-108	12/5/2022	1	5.19	TRUE

Basic Statistics

Parameter: 1,4-Dichlorobenzene

Original Data (Not Transformed)

Non-Detects Replaced with Detection Limit

Total Measurements	130
Total Non-Detects	116 (89.2308%)
Pooled Mean	0.423231
Pooled Std Dev	0.360039

Compliance Meas.	70
Compliance Mean	0.515143
Compliance Std Dev	0.472332

Background Meas.	60
Background Mean	0.316
Background Std Dev	0.0282363

Background Locations

There are 3 background location

Location	Meas.	Non-Detects	% ND	Total
MW-101	20	20	100	6.32
MW-104A	20	20	100	6.32
MW-104B	20	20	100	6.32

Location	Mean	Std Dev	Std Err	Rank Sum	Rank Mean
MW-101	0.316	0.0287274	0	1170	58.5
MW-104A	0.316	0.0287274	0	1170	58.5
MW-104B	0.316	0.0287274	0	1170	58.5

Compliance Locations

There are 3 compliance location

Location	Obs.	Non-Detects	% ND	Total
MW-106A	23	23	100	8.12
MW-108	24	10	41.6667	19.82
MW-205B	23	23	100	8.12

Location	Mean	Std Dev	Dif From Bkg	Std Err	Rank Sum	Rank Mean
MW-106A	0.353043	0.145553	0.0370435	0.0760226	1345.5	58.5
MW-108	0.825833	0.689555	0.509833	0.074869	2314	96.4167
MW-205B	0.353043	0.145553	0.0370435	0.0760226	1345.5	58.5

Analysis of Variance Statistics

SS Wells	4.80665
SS Total	16.722

Kruskal-Wallis Statistics

Non-Detect Rank	58.5
Background Rank Sum	3510
Background Rank Mean	58.5
H Statistic	19.8244
H Adjusted for Ties	68.4678

Non-Parametric Prediction Interval

Inter-Well Comparison

Parameter: 1,4-Dichlorobenzene

Original Data (Not Transformed)

Non-Detects Replaced with Detection Limit

Total Percent Non-Detects = 89.2308%

Number of comparisons = 3

Future Samples (k) = 3

Recent Dates = 1

Background Measurements (n) = 60

Maximum Background Value = 0.33

Confidence Level = 95.2%

False Positive Rate = 4.8%

Location	Date	Count	Mean	Significant
MW-106A	12/6/2022	1	0.4	TRUE
MW-108	12/5/2022	1	1.65	TRUE
MW-205B	12/6/2022	1	0.4	TRUE

Basic Statistics

Parameter: Arsenic

Original Data (Not Transformed)

Non-Detects Replaced with Detection Limit

Total Measurements	152
Total Non-Detects	103 (67.7632%)
Pooled Mean	5.86072
Pooled Std Dev	5.28704

Compliance Meas.	84
Compliance Mean	5.38738
Compliance Std Dev	5.65042

Background Meas.	68
Background Mean	6.44544
Background Std Dev	4.77688

Background Locations

There are 3 background location

Location	Meas.	Non-Detects	% ND	Total
MW-101	23	13	56.5217	161.09
MW-104A	22	4	18.1818	190.3
MW-104B	23	23	100	86.9

Location	Mean	Std Dev	Std Err	Rank Sum	Rank Mean
MW-101	7.00391	7.03916	0	1939	84.3043
MW-104A	8.65	2.27046	0	2641	120.045
MW-104B	3.77826	1.54889	0	1196	52

Compliance Locations

There are 3 compliance location

Location	Obs.	Non-Detects	% ND	Total
MW-106A	38	30	78.9474	223.78
MW-108	23	11	47.8261	141.8
MW-205B	23	22	95.6522	86.96

Location	Mean	Std Dev	Dif From Bkg	Std Err	Rank Sum	Rank Mean
MW-106A	5.88895	7.83958	-0.556494	1.03577	2501	65.8158
MW-108	6.16522	3.30806	-0.280224	1.23355	2103	91.4348
MW-205B	3.78087	1.54315	-2.66457	1.23355	1248	54.2609

Analysis of Variance Statistics

SS Wells	402.619
SS Total	4220.87

Kruskal-Wallis Statistics

Non-Detect Rank	52
Background Rank Sum	5776
Background Rank Mean	84.9412
H Statistic	13.2551
H Adjusted for Ties	19.2422

Non-Parametric Prediction Interval

Inter-Well Comparison

Parameter: Arsenic

Original Data (Not Transformed)

Non-Detects Replaced with Detection Limit

Total Percent Non-Detects = 67.7632%

Number of comparisons = 3

Future Samples (k) = 3

Recent Dates = 1

Background Measurements (n) = 68

Maximum Background Value = 30.9

Confidence Level = 95.8%

False Positive Rate = 4.2%

Location	Date	Count	Mean	Significant
MW-106A	12/6/2022	1	3.4	FALSE
MW-108	12/5/2022	1	12	FALSE
MW-205B	12/6/2022	1	0.5	FALSE

Basic Statistics

Parameter: Barium

Original Data (Not Transformed)

Non-Detects Replaced with Detection Limit

Total Measurements	164
Total Non-Detects	0 (0%)
Pooled Mean	233.838
Pooled Std Dev	208.287

Compliance Meas.	96
Compliance Mean	344.915
Compliance Std Dev	208.107

Background Meas.	68
Background Mean	77.025
Background Std Dev	38.7565

Background Locations

There are 3 background location

Location	Meas.	Non-Detects	% ND	Total
MW-104B	23	0	0	976
MW-104A	22	0	0	1520
MW-101	23	0	0	2741.7

Location	Mean	Std Dev	Std Err	Rank Sum	Rank Mean
MW-104B	42.4348	13.3525	0	309	13.4348
MW-104A	69.0909	5.38905	0	726	33
MW-101	119.204	34.5643	0	1614	70.1739

Compliance Locations

There are 3 compliance location

Location	Obs.	Non-Detects	% ND	Total
MW-205B	23	0	0	2350.8
MW-106A	49	0	0	14934
MW-108	24	0	0	15827

Location	Mean	Std Dev	Dif From Bkg	Std Err	Rank Sum	Rank Mean
MW-205B	102.209	5.24282	25.1837	11.1372	1537	66.8261
MW-106A	304.776	25.1969	227.751	8.65195	5684	116
MW-108	659.458	109.332	582.433	10.9624	3660	152.5

Analysis of Variance Statistics

SS Wells	6.73471e+006
SS Total	7.07153e+006

Kruskal-Wallis Statistics

Non-Detect Rank	0
Background Rank Sum	2649
Background Rank Mean	38.9559
H Statistic	136.219
H Adjusted for Ties	136.219

Shapiro-Francia Test of Normality

Parameter: Barium

Background Locations

Normality Test of Parameter Concentrations

Original Data (Not Transformed)

Non-Detects Replaced with Detection Limit

Total Number of Measurements = 68

i	x(i)	m(i)	sum(m^2)	sum(mx)
1	26.8	-2.19728	4.82806	-58.8872
2	26.8	-1.91103	8.4801	-110.103
3	30	-1.71688	11.4278	-161.609
4	30.8	-1.58047	13.9257	-210.288
5	33.1	-1.46106	16.0604	-258.649
6	34	-1.36581	17.9258	-305.086
7	34.5	-1.27588	19.5536	-349.104
8	34.8	-1.20036	20.9945	-390.876
9	35.4	-1.12639	22.2633	-430.751
10	36	-1.06252	23.3922	-469.001
11	36.2	-0.998575	24.3894	-505.15
12	37.7	-0.942375	25.2774	-540.677
13	38.7	-0.885291	26.0612	-574.938
14	39.1	-0.834498	26.7576	-607.567
15	39.5	-0.782366	27.3697	-638.47
16	48.1	-0.735557	27.9107	-673.851
17	48.3	-0.687131	28.3828	-707.039
18	51.7	-0.643345	28.7967	-740.3
19	52.2	-0.597761	29.1541	-771.503
20	54.3	-0.556308	29.4635	-801.711
21	61.9	-0.51293	29.7266	-833.461
22	62	-0.473299	29.9506	-862.806
23	63	-0.431644	30.137	-889.999
24	63.3	-0.393433	30.2917	-914.903
25	63.6	-0.353118	30.4164	-937.362
26	63.8	-0.316004	30.5163	-957.523
27	64.8	-0.276714	30.5929	-975.454
28	65.9	-0.240426	30.6507	-991.298
29	66.3	-0.201894	30.6914	-1004.68
30	66.5	-0.166199	30.7191	-1015.74
31	67.2	-0.128189	30.7355	-1024.35
32	67.7	-0.0928787	30.7441	-1030.64
33	68.1	-0.0551734	30.7472	-1034.4
34	68.8	-0.0200544	30.7476	-1035.77
35	68.9	0.0200544	30.748	-1034.39
36	68.9	0.0551734	30.751	-1030.59
37	70.4	0.0928787	30.7596	-1024.05
38	71.4	0.128189	30.7761	-1014.9
39	72.2	0.166199	30.8037	-1002.9
40	74.9	0.201894	30.8445	-987.779
41	75.8	0.240426	30.9023	-969.555
42	76.1	0.276714	30.9788	-948.497
43	76.8	0.316004	31.0787	-924.228
44	77.3	0.353118	31.2034	-896.932
45	82.4	0.393433	31.3582	-864.513
46	83.2	0.431644	31.5445	-828.6
47	86.5	0.473299	31.7685	-787.66
48	88.6	0.51293	32.0316	-742.214
49	88.7	0.556308	32.3411	-692.87
50	90.8	0.597761	32.6984	-638.593
51	91	0.643345	33.1123	-580.048
52	94.2	0.687131	33.5844	-515.321
53	97.7	0.735557	34.1255	-443.457
54	101	0.782366	34.7376	-364.438
55	102	0.834498	35.434	-279.319
56	103	0.885291	36.2177	-188.134
57	106	0.942375	37.1058	-88.2423
58	109	0.998575	38.1029	20.6023

59	113	1.06252	39.2319	140.667
60	119	1.12639	40.5006	274.708
61	125	1.20036	41.9415	424.753
62	134	1.27588	43.5693	595.72
63	137	1.36581	45.4348	782.835
64	143	1.46106	47.5695	991.767
65	157	1.58047	50.0673	1239.9
66	180	1.71688	53.015	1548.94
67	189	1.91103	56.6671	1910.12
68	203	2.19728	61.4951	2356.17

Data Set Standard Deviation = 38.7565

Numerator = 5.55155e+006

Denominator = 6.18879e+006

W Statistic = 0.897034 = 5.55155e+006 / 6.18879e+006

5% Critical value of 0.966 exceeds 0.897034
Evidence of non-normality at 95% level of significance

1% Critical value of 0.951 exceeds 0.897034
Evidence of non-normality at 99% level of significance

Non-Parametric Prediction Interval

Inter-Well Comparison

Parameter: Barium

Original Data (Not Transformed)

Non-Detects Replaced with Detection Limit

Total Percent Non-Detects = 0%

Number of comparisons = 3

Future Samples (k) = 3

Recent Dates = 1

Background Measurements (n) = 68

Maximum Background Value = 203

Confidence Level = 95.8%

False Positive Rate = 4.2%

Location	Date	Count	Mean	Significant
MW-205B	12/6/2022	1	103	FALSE
MW-106A	12/6/2022	1	274	TRUE
MW-108	12/5/2022	1	743	TRUE

Basic Statistics

Parameter: Benzene

Original Data (Not Transformed)

Non-Detects Replaced with Detection Limit

Total Measurements	139
Total Non-Detects	123 (88.4892%)
Pooled Mean	3.81806
Pooled Std Dev	35.3984

Compliance Meas.	70
Compliance Mean	7.32486
Compliance Std Dev	49.8092

Background Meas.	69
Background Mean	0.260435
Background Std Dev	0.0821841

Background Locations

There are 3 background location

Location	Meas.	Non-Detects	% ND	Total
MW-101	23	23	100	5.99
MW-104A	23	23	100	5.99
MW-104B	23	23	100	5.99

Location	Mean	Std Dev	Std Err	Rank Sum	Rank Mean
MW-101	0.260435	0.08342	0	1426	62
MW-104A	0.260435	0.08342	0	1426	62
MW-104B	0.260435	0.08342	0	1426	62

Compliance Locations

There are 3 compliance location

Location	Obs.	Non-Detects	% ND	Total
MW-106A	23	23	100	5.99
MW-108	24	8	33.3333	500.76
MW-205B	23	23	100	5.99

Location	Mean	Std Dev	Dif From Bkg	Std Err	Rank Sum	Rank Mean
MW-106A	0.260435	0.08342	5.55112e-017	8.4674	1426	62
MW-108	20.865	84.5679	20.6046	8.33405	2600	108.333
MW-205B	0.260435	0.08342	5.55112e-017	8.4674	1426	62

Analysis of Variance Statistics

SS Wells	8429.88
SS Total	172920

Kruskal-Wallis Statistics

Non-Detect Rank	62
Background Rank Sum	4278
Background Rank Mean	62
H Statistic	26.2857
H Adjusted for Ties	85.5907

Non-Parametric Prediction Interval

Inter-Well Comparison

Parameter: Benzene

Original Data (Not Transformed)

Non-Detects Replaced with Detection Limit

Total Percent Non-Detects = 88.4892%

Number of comparisons = 3

Future Samples (k) = 3

Recent Dates = 1

Background Measurements (n) = 69

Maximum Background Value = 0.5

Confidence Level = 95.8%

False Positive Rate = 4.2%

Location	Date	Count	Mean	Significant
MW-106A	12/6/2022	1	0.4	FALSE
MW-108	12/5/2022	1	39.3	TRUE
MW-205B	12/6/2022	1	0.4	FALSE

Basic Statistics

Parameter: Chlorobenzene

Original Data (Not Transformed)

Non-Detects Replaced with Detection Limit

Total Measurements	130
Total Non-Detects	116 (89.2308%)
Pooled Mean	0.316615
Pooled Std Dev	0.241486
Compliance Meas.	70
Compliance Mean	0.388714
Compliance Std Dev	0.312243
Background Meas.	60
Background Mean	0.2325
Background Std Dev	0.0109892

Background Locations

There are 3 background location

Location	Meas.	Non-Detects	% ND	Total
MW-101	20	20	100	4.65
MW-104A	20	20	100	4.65
MW-104B	20	20	100	4.65

Location	Mean	Std Dev	Std Err	Rank Sum	Rank Mean
MW-101	0.2325	0.0111803	0	1170	58.5
MW-104A	0.2325	0.0111803	0	1170	58.5
MW-104B	0.2325	0.0111803	0	1170	58.5

Compliance Locations

There are 3 compliance location

Location	Obs.	Non-Detects	% ND	Total
MW-106A	23	23	100	6.25
MW-108	24	10	41.6667	14.71
MW-205B	23	23	100	6.25

Location	Mean	Std Dev	Dif From Bkg	Std Err	Rank Sum	Rank Mean
MW-106A	0.271739	0.125251	0.0392391	0.0487438	1345.5	58.5
MW-108	0.612917	0.427383	0.380417	0.0480041	2314	96.4167
MW-205B	0.271739	0.125251	0.0392391	0.0487438	1345.5	58.5

Analysis of Variance Statistics

SS Wells	2.62423
SS Total	7.52271

Kruskal-Wallis Statistics

Non-Detect Rank	58.5
Background Rank Sum	3510
Background Rank Mean	58.5
H Statistic	19.8244
H Adjusted for Ties	68.4678

Non-Parametric Prediction Interval

Inter-Well Comparison

Parameter: Chlorobenzene

Original Data (Not Transformed)

Non-Detects Replaced with Detection Limit

Total Percent Non-Detects = 89.2308%

Number of comparisons = 3

Future Samples (k) = 3

Recent Dates = 1

Background Measurements (n) = 60

Maximum Background Value = 0.28

Confidence Level = 95.2%

False Positive Rate = 4.8%

Location	Date	Count	Mean	Significant
MW-106A	12/6/2022	1	0.4	TRUE
MW-108	12/5/2022	1	1.25	TRUE
MW-205B	12/6/2022	1	0.4	TRUE

Basic Statistics

Parameter: Chloroethane

Original Data (Not Transformed)

Non-Detects Replaced with Detection Limit

Total Measurements	136
Total Non-Detects	126 (92.6471%)
Pooled Mean	0.628015
Pooled Std Dev	0.288279
Compliance Meas.	70
Compliance Mean	0.701143
Compliance Std Dev	0.385143
Background Meas.	66
Background Mean	0.550455
Background Std Dev	0.0572023

Background Locations

There are 3 background location

Location	Meas.	Non-Detects	% ND	Total
MW-101	22	22	100	12.11
MW-104A	22	22	100	12.11
MW-104B	22	22	100	12.11

Location	Mean	Std Dev	Std Err	Rank Sum	Rank Mean
MW-101	0.550455	0.0581031	0	1397	63.5
MW-104A	0.550455	0.0581031	0	1397	63.5
MW-104B	0.550455	0.0581031	0	1397	63.5

Compliance Locations

There are 3 compliance location

Location	Obs.	Non-Detects	% ND	Total
MW-106A	23	23	100	13.11
MW-108	24	14	58.3333	22.86
MW-205B	23	23	100	13.11

Location	Mean	Std Dev	Dif From Bkg	Std Err	Rank Sum	Rank Mean
MW-106A	0.57	0.109586	0.0195455	0.0605911	1460.5	63.5
MW-108	0.9525	0.567192	0.402045	0.0596476	2204	91.8333
MW-205B	0.57	0.109586	0.0195455	0.0605911	1460.5	63.5

Analysis of Variance Statistics

SS Wells	3.07883
SS Total	11.2192

Kruskal-Wallis Statistics

Non-Detect Rank	63.5
Background Rank Sum	4191
Background Rank Mean	63.5
H Statistic	10.219
H Adjusted for Ties	49.9039

Non-Parametric Prediction Interval

Inter-Well Comparison

Parameter: Chloroethane

Original Data (Not Transformed)

Non-Detects Replaced with Detection Limit

Total Percent Non-Detects = 92.6471%

Number of comparisons = 3

Future Samples (k) = 3

Recent Dates = 1

Background Measurements (n) = 66

Maximum Background Value = 0.7

Confidence Level = 95.7%

False Positive Rate = 4.3%

Location	Date	Count	Mean	Significant
MW-106A	12/6/2022	1	0.7	FALSE
MW-108	12/5/2022	1	0.7	FALSE
MW-205B	12/6/2022	1	0.7	FALSE

Basic Statistics

Parameter: Chromium

Original Data (Not Transformed)

Non-Detects Replaced with Detection Limit

Total Measurements	133
Total Non-Detects	113 (84.9624%)
Pooled Mean	2.3828
Pooled Std Dev	1.06093
Compliance Meas.	70
Compliance Mean	2.43476
Compliance Std Dev	1.11991
Background Meas.	63
Background Mean	2.32508
Background Std Dev	0.997066

Background Locations

There are 3 background location

Location	Meas.	Non-Detects	% ND	Total
MW-101	21	13	61.9048	60.48
MW-104A	21	21	100	42.8
MW-104B	21	20	95.2381	43.2

Location	Mean	Std Dev	Std Err	Rank Sum	Rank Mean
MW-101	2.88	1.31057	0	1742	82.9524
MW-104A	2.0381	0.660663	0	1197	57
MW-104B	2.05714	0.66526	0	1258	59.9048

Compliance Locations

There are 3 compliance location

Location	Obs.	Non-Detects	% ND	Total
MW-106A	23	23	100	50.2
MW-108	24	13	54.1667	70.033
MW-205B	23	23	100	50.2

Location	Mean	Std Dev	Dif From Bkg	Std Err	Rank Sum	Rank Mean
MW-106A	2.18261	0.791232	-0.142471	0.246427	1311	57
MW-108	2.91804	1.48123	0.592962	0.242637	2092	87.1667
MW-205B	2.18261	0.791232	-0.142471	0.246427	1311	57

Analysis of Variance Statistics

SS Wells	18.6328
SS Total	148.575

Kruskal-Wallis Statistics

Non-Detect Rank	57
Background Rank Sum	4197
Background Rank Mean	66.619
H Statistic	9.67555
H Adjusted for Ties	25.0206

Non-Parametric Prediction Interval

Inter-Well Comparison

Parameter: Chromium

Original Data (Not Transformed)

Non-Detects Replaced with Detection Limit

Total Percent Non-Detects = 84.9624%

Number of comparisons = 3

Future Samples (k) = 3

Recent Dates = 1

Background Measurements (n) = 63

Maximum Background Value = 5.5

Confidence Level = 95.5%

False Positive Rate = 4.5%

Location	Date	Count	Mean	Significant
MW-106A	12/6/2022	1	0.6	FALSE
MW-108	12/5/2022	1	1.81	FALSE
MW-205B	12/6/2022	1	0.6	FALSE

Basic Statistics

Parameter: cis-1,2-Dichloroethene

Original Data (Not Transformed)

Non-Detects Replaced with Detection Limit

Total Measurements	136
Total Non-Detects	90 (66.1765%)
Pooled Mean	9.20493
Pooled Std Dev	22.2022

Compliance Meas.	70
Compliance Mean	17.6614
Compliance Std Dev	28.5472

Background Meas.	66
Background Mean	0.235909
Background Std Dev	0.0737767

Background Locations

There are 3 background location

Location	Meas.	Non-Detects	% ND	Total
MW-101	22	22	100	5.19
MW-104A	22	22	100	5.19
MW-104B	22	22	100	5.19

Location	Mean	Std Dev	Std Err	Rank Sum	Rank Mean
MW-101	0.235909	0.0749386	0	1001	45.5
MW-104A	0.235909	0.0749386	0	1001	45.5
MW-104B	0.235909	0.0749386	0	1001	45.5

Compliance Locations

There are 3 compliance location

Location	Obs.	Non-Detects	% ND	Total
MW-106A	23	1	4.34783	13.61
MW-205B	23	23	100	5.99
MW-108	24	0	0	1216.7

Location	Mean	Std Dev	Dif From Bkg	Std Err	Rank Sum	Rank Mean
MW-106A	0.591739	0.084727	0.35583	2.71756	2278.5	99.0652
MW-205B	0.260435	0.138547	0.0245257	2.71756	1046.5	45.5
MW-108	50.6958	26.6818	50.4599	2.67524	2988	124.5

Analysis of Variance Statistics

SS Wells	50171.5
SS Total	66546.6

Kruskal-Wallis Statistics

Non-Detect Rank	45.5
Background Rank Sum	3003
Background Rank Mean	45.5
H Statistic	92.6357
H Adjusted for Ties	130.434

Non-Parametric Prediction Interval

Inter-Well Comparison

Parameter: cis-1,2-Dichloroethene

Original Data (Not Transformed)

Non-Detects Replaced with Detection Limit

Total Percent Non-Detects = 66.1765%

Number of comparisons = 3

Future Samples (k) = 3

Recent Dates = 1

Background Measurements (n) = 66

Maximum Background Value = 0.4

Confidence Level = 95.7%

False Positive Rate = 4.3%

Location	Date	Count	Mean	Significant
MW-106A	12/6/2022	1	0.67	TRUE
MW-205B	12/6/2022	1	0.4	FALSE
MW-108	12/5/2022	1	44.8	TRUE

Basic Statistics

Parameter: Cobalt

Original Data (Not Transformed)

Non-Detects Replaced with Detection Limit

Total Measurements	134
Total Non-Detects	31 (23.1343%)
Pooled Mean	9.7274
Pooled Std Dev	14.9562

Compliance Meas.	70
Compliance Mean	12.1438
Compliance Std Dev	15.1503

Background Meas.	64
Background Mean	7.08448
Background Std Dev	14.3962

Background Locations

There are 3 background location

Location	Meas.	Non-Detects	% ND	Total
MW-104A	23	4	17.3913	19.476
MW-104B	18	11	61.1111	6.831
MW-101	23	0	0	427.1

Location	Mean	Std Dev	Std Err	Rank Sum	Rank Mean
MW-104A	0.846783	0.335421	0	1105	48.0435
MW-104B	0.3795	0.291594	0	458	25.4444
MW-101	18.5696	19.4409	0	2296	99.8261

Compliance Locations

There are 3 compliance location

Location	Obs.	Non-Detects	% ND	Total
MW-205B	23	16	69.5652	9.295
MW-108	24	0	0	707.8
MW-106A	23	0	0	132.97

Location	Mean	Std Dev	Dif From Bkg	Std Err	Rank Sum	Rank Mean
MW-205B	0.40413	0.33408	-6.68035	2.43424	520	22.6087
MW-108	29.4917	13.9582	22.4072	2.39664	2722	113.417
MW-106A	5.7813	1.17683	-1.30318	2.43424	1944	84.5217

Analysis of Variance Statistics

SS Wells	16917.4
SS Total	29750.3

Kruskal-Wallis Statistics

Non-Detect Rank	16
Background Rank Sum	3859
Background Rank Mean	60.2969
H Statistic	70.9354
H Adjusted for Ties	71.8238

Shapiro-Francia Test of Normality

Parameter: Cobalt

Background Locations

Normality Test of Parameter Concentrations

Original Data (Not Transformed)

Non-Detects Replaced with 1/2 DL

Total Number of Measurements = 64

i	x(i)	m(i)	sum(m^2)	sum(mx)
1	0.035	-2.17009	4.70929	-0.0759532
2	0.045	-1.88079	8.24666	-0.160589
3	0.07	-1.68494	11.0857	-0.278534
4	0.12	-1.54643	13.4771	-0.464106
5	0.125	-1.4325	15.5292	-0.643169
6	0.125	-1.32854	17.2942	-0.809237
7	0.15	-1.24264	18.8384	-0.995633
8	0.16	-1.16012	20.1843	-1.18125
9	0.19	-1.08935	21.3709	-1.38823
10	0.25	-1.02365	22.4188	-1.64414
11	0.25	-0.958125	23.3368	-1.88367
12	0.25	-0.900227	24.1472	-2.10873
13	0.25	-0.841621	24.8555	-2.31914
14	0.25	-0.789191	25.4784	-2.51643
15	0.25	-0.738846	26.0243	-2.70114
16	0.25	-0.687131	26.4964	-2.87293
17	0.25	-0.640266	26.9064	-3.03299
18	0.25	-0.594766	27.2601	-3.18169
19	0.286	-0.547551	27.5599	-3.33829
20	0.31	-0.504372	27.8143	-3.49464
21	0.34	-0.459327	28.0253	-3.65081
22	0.54	-0.417928	28.1999	-3.87649
23	0.6	-0.377233	28.3423	-4.10283
24	0.65	-0.334503	28.4541	-4.32026
25	0.65	-0.294992	28.5412	-4.512
26	0.65	-0.253347	28.6053	-4.67668
27	0.68	-0.214702	28.6514	-4.82268
28	0.7	-0.176374	28.6826	-4.94614
29	0.74	-0.135774	28.701	-5.04661
30	0.82	-0.0979139	28.7106	-5.1269
31	0.87	-0.0601949	28.7142	-5.17927
32	0.9	-0.0200544	28.7146	-5.19732
33	0.98	0.0200544	28.715	-5.17767
34	0.986	0.0601949	28.7186	-5.11831
35	1	0.0979139	28.7282	-5.0204
36	1.1	0.135774	28.7466	-4.87105
37	1.1	0.176374	28.7778	-4.67704
38	1.1	0.214702	28.8239	-4.44087
39	1.1	0.253347	28.888	-4.16218
40	1.15	0.294992	28.9751	-3.82294
41	1.2	0.334503	29.0869	-3.42154
42	1.2	0.377233	29.2293	-2.96886
43	2.1	0.417928	29.4039	-2.09121
44	2.3	0.459327	29.6149	-1.03476
45	3	0.504372	29.8693	0.478355
46	3.5	0.547551	30.1691	2.39478
47	5.4	0.594766	30.5228	5.60652
48	5.6	0.640266	30.9328	9.19201
49	6.7	0.687131	31.4049	13.7958
50	7.1	0.738846	31.9508	19.0416
51	7.9	0.789191	32.5737	25.2762
52	8.9	0.841621	33.282	32.7666
53	9.1	0.900227	34.0924	40.9587
54	9.7	0.958125	35.0104	50.2525
55	14.2	1.02365	36.0583	64.7884
56	14.3	1.08935	37.2449	80.3661
57	18.2	1.16012	38.5908	101.48
58	30.1	1.24264	40.135	138.884

59	32	1.32854	41.9	181.397
60	34.8	1.4325	43.9521	231.248
61	37.6	1.54643	46.3435	289.394
62	47.8	1.68494	49.1825	369.934
63	51.4	1.88079	52.7199	466.607
64	74.3	2.17009	57.4292	627.844

Data Set Standard Deviation = 14.428

Numerator = 394189

Denominator = 753153

W Statistic = $0.523384 = 394189 / 753153$

5% Critical value of 0.965 exceeds 0.523384

Evidence of non-normality at 95% level of significance

1% Critical value of 0.948 exceeds 0.523384

Evidence of non-normality at 99% level of significance

Non-Parametric Prediction Interval

Inter-Well Comparison

Parameter: Cobalt

Original Data (Not Transformed)

Non-Detects Replaced with 1/2 DL

Total Percent Non-Detects = 23.1343%

Number of comparisons = 3

Future Samples (k) = 3

Recent Dates = 1

Background Measurements (n) = 64

Maximum Background Value = 74.3

Confidence Level = 95.5%

False Positive Rate = 4.5%

Location	Date	Count	Mean	Significant
MW-205B	12/6/2022	1	0.1	FALSE
MW-108	12/5/2022	1	27.8	FALSE
MW-106A	12/6/2022	1	5.44	FALSE

Basic Statistics

Parameter: Copper

Original Data (Not Transformed)

Non-Detects Replaced with Detection Limit

Total Measurements	132
Total Non-Detects	100 (75.7576%)
Pooled Mean	4.23758
Pooled Std Dev	6.75064

Compliance Meas.	70
Compliance Mean	2.66314
Compliance Std Dev	3.55598

Background Meas.	62
Background Mean	6.01516
Background Std Dev	8.80377

Background Locations

There are 3 background location

Location	Meas.	Non-Detects	% ND	Total
MW-101	23	1	4.34783	285.86
MW-104A	21	19	90.4762	45.78
MW-104B	18	18	100	41.3

Location	Mean	Std Dev	Std Err	Rank Sum	Rank Mean
MW-101	12.4287	12.0959	0	2688.5	116.891
MW-104A	2.18	0.425206	0	1170.5	55.7381
MW-104B	2.29444	0.275408	0	909	50.5

Compliance Locations

There are 3 compliance location

Location	Obs.	Non-Detects	% ND	Total
MW-106A	23	20	86.9565	79.1
MW-108	24	19	79.1667	57.82
MW-205B	23	23	100	49.5

Location	Mean	Std Dev	Dif From Bkg	Std Err	Rank Sum	Rank Mean
MW-106A	3.43913	6.10691	-2.57603	1.38842	1359	59.087
MW-108	2.40917	0.853429	-3.60599	1.36716	1489.5	62.0625
MW-205B	2.15217	0.794223	-3.86299	1.38842	1161.5	50.5

Analysis of Variance Statistics

SS Wells	1894.96
SS Total	5969.82

Kruskal-Wallis Statistics

Non-Detect Rank	50.5
Background Rank Sum	4768
Background Rank Mean	76.9032
H Statistic	9.79808
H Adjusted for Ties	17.3347

Non-Parametric Prediction Interval

Inter-Well Comparison

Parameter: Copper

Original Data (Not Transformed)

Non-Detects Replaced with Detection Limit

Total Percent Non-Detects = 75.7576%

Number of comparisons = 3

Future Samples (k) = 3

Recent Dates = 1

Background Measurements (n) = 62

Maximum Background Value = 40.8

Confidence Level = 95.4%

False Positive Rate = 4.6%

Location	Date	Count	Mean	Significant
MW-106A	12/6/2022	1	0.3	FALSE
MW-108	12/5/2022	1	0.904	FALSE
MW-205B	12/6/2022	1	0.3	FALSE

Basic Statistics

Parameter: Lead

Original Data (Not Transformed)

Non-Detects Replaced with Detection Limit

Total Measurements	137
Total Non-Detects	124 (90.5109%)
Pooled Mean	2.91131
Pooled Std Dev	1.26333
Compliance Meas.	70
Compliance Mean	2.98286
Compliance Std Dev	1.30636
Background Meas.	67
Background Mean	2.83657
Background Std Dev	1.22207

Background Locations

There are 3 background location

Location	Meas.	Non-Detects	% ND	Total
MW-101	22	18	81.8182	64.55
MW-104A	23	22	95.6522	64.65
MW-104B	22	22	100	60.85

Location	Mean	Std Dev	Std Err	Rank Sum	Rank Mean
MW-101	2.93409	1.42389	0	1657	75.3182
MW-104A	2.81087	1.13498	0	1505	65.4348
MW-104B	2.76591	1.14053	0	1375	62.5

Compliance Locations

There are 3 compliance location

Location	Obs.	Non-Detects	% ND	Total
MW-106A	23	22	95.6522	67.85
MW-108	24	18	75	76.6
MW-205B	23	22	95.6522	64.35

Location	Mean	Std Dev	Dif From Bkg	Std Err	Rank Sum	Rank Mean
MW-106A	2.95	1.42167	0.113433	0.308974	1511	65.6957
MW-108	3.19167	1.3768	0.3551	0.304145	1901	79.2083
MW-205B	2.79783	1.12477	-0.0387411	0.308974	1504	65.3913

Analysis of Variance Statistics

SS Wells	2.92559
SS Total	217.055

Kruskal-Wallis Statistics

Non-Detect Rank	62.5
Background Rank Sum	4537
Background Rank Mean	67.7164
H Statistic	2.00703
H Adjusted for Ties	7.76349

Non-Parametric Prediction Interval

Inter-Well Comparison

Parameter: Lead

Original Data (Not Transformed)

Non-Detects Replaced with Detection Limit

Total Percent Non-Detects = 90.5109%

Number of comparisons = 3

Future Samples (k) = 3

Recent Dates = 1

Background Measurements (n) = 67

Maximum Background Value = 6.3

Confidence Level = 95.7%

False Positive Rate = 4.3%

Location	Date	Count	Mean	Significant
MW-106A	12/6/2022	1	1	FALSE
MW-108	12/5/2022	1	1.5	FALSE
MW-205B	12/6/2022	1	1	FALSE

Basic Statistics

Parameter: Mercury

Original Data (Not Transformed)

Non-Detects Replaced with Detection Limit

Total Measurements	125
Total Non-Detects	101 (80.8%)
Pooled Mean	0.21888
Pooled Std Dev	0.312474

Compliance Meas.	67
Compliance Mean	0.321552
Compliance Std Dev	0.400435

Background Meas.	58
Background Mean	0.100276
Background Std Dev	0.00618655

Background Locations

There are 3 background location

Location	Meas.	Non-Detects	% ND	Total
MW-101	20	19	95	2.052
MW-104A	19	19	100	1.882
MW-104B	19	19	100	1.882

Location	Mean	Std Dev	Std Err	Rank Sum	Rank Mean
MW-101	0.1026	0.00953332	0	1071	53.55
MW-104A	0.0990526	0.00283772	0	969	51
MW-104B	0.0990526	0.00283772	0	969	51

Compliance Locations

There are 3 compliance location

Location	Obs.	Non-Detects	% ND	Total
MW-106A	23	23	100	2.532
MW-108	24	1	4.16667	16.78
MW-205B	20	20	100	2.232

Location	Mean	Std Dev	Dif From Bkg	Std Err	Rank Sum	Rank Mean
MW-106A	0.110087	0.0294818	0.00981109	0.0517705	1173	51
MW-108	0.699167	0.47607	0.598891	0.0509923	2673	111.375
MW-205B	0.1116	0.0314315	0.0113241	0.0544798	1020	51

Analysis of Variance Statistics

SS Wells	6.85466
SS Total	12.1074

Kruskal-Wallis Statistics

Non-Detect Rank	51
Background Rank Sum	3009
Background Rank Mean	51.8793
H Statistic	52.9739
H Adjusted for Ties	112.113

Non-Parametric Prediction Interval

Inter-Well Comparison

Parameter: Mercury

Original Data (Not Transformed)

Non-Detects Replaced with Detection Limit

Total Percent Non-Detects = 80.8%

Number of comparisons = 3

Future Samples (k) = 3

Recent Dates = 1

Background Measurements (n) = 58

Maximum Background Value = 0.13

Confidence Level = 95.1%

False Positive Rate = 4.9%

Location	Date	Count	Mean	Significant
MW-106A	12/6/2022	1	0.2	TRUE
MW-108	12/5/2022	1	1.25	TRUE
MW-205B	12/6/2022	1	0.2	TRUE

Basic Statistics

Parameter: Nickel

Original Data (Not Transformed)

Non-Detects Replaced with Detection Limit

Total Measurements	156
Total Non-Detects	66 (42.3077%)
Pooled Mean	12.2628
Pooled Std Dev	18.2644

Compliance Meas.	89
Compliance Mean	16.4319
Compliance Std Dev	21.7994

Background Meas.	67
Background Mean	6.72476
Background Std Dev	9.75885

Background Locations

There are 3 background location

Location	Meas.	Non-Detects	% ND	Total
MW-104A	22	19	86.3636	53.861
MW-104B	22	19	86.3636	53.016
MW-101	23	0	0	343.682

Location	Mean	Std Dev	Std Err	Rank Sum	Rank Mean
MW-104A	2.44823	0.542802	0	854.5	38.8409
MW-104B	2.40982	0.592386	0	848.5	38.5682
MW-101	14.9427	13.3258	0	2566	111.565

Compliance Locations

There are 3 compliance location

Location	Obs.	Non-Detects	% ND	Total
MW-106A	42	9	21.4286	727.661
MW-205B	23	19	82.6087	54.44
MW-108	24	0	0	680.34

Location	Mean	Std Dev	Dif From Bkg	Std Err	Rank Sum	Rank Mean
MW-106A	17.3253	28.0038	10.6005	3.12214	3693.5	87.9405
MW-205B	2.36696	0.739056	-4.3578	3.83373	923.5	40.1522
MW-108	28.3475	8.50339	21.6227	3.7738	3360	140

Analysis of Variance Statistics

SS Wells	13958.1
SS Total	51706.1

Kruskal-Wallis Statistics

Non-Detect Rank	33.5
Background Rank Sum	4269
Background Rank Mean	63.7164
H Statistic	70.0554
H Adjusted for Ties	75.7941

Non-Parametric Prediction Interval

Inter-Well Comparison

Parameter: Nickel

Original Data (Not Transformed)

Non-Detects Replaced with Detection Limit

Total Percent Non-Detects = 42.3077%

Number of comparisons = 3

Future Samples (k) = 3

Recent Dates = 1

Background Measurements (n) = 67

Maximum Background Value = 49.8

Confidence Level = 95.7%

False Positive Rate = 4.3%

Location	Date	Count	Mean	Significant
MW-106A	12/6/2022	1	7.568	FALSE
MW-205B	12/6/2022	1	1	FALSE
MW-108	12/5/2022	1	22.52	FALSE

Basic Statistics

Parameter: Tin

Original Data (Not Transformed)

Non-Detects Replaced with Detection Limit

Total Measurements	126
Total Non-Detects	118 (93.6508%)
Pooled Mean	2.93619
Pooled Std Dev	2.37091

Compliance Meas.	64
Compliance Mean	3.25781
Compliance Std Dev	3.20831

Background Meas.	62
Background Mean	2.60419
Background Std Dev	0.817057

Background Locations

There are 3 background location

Location	Meas.	Non-Detects	% ND	Total
MW-101	21	19	90.4762	55.5
MW-104A	20	18	90	46.36
MW-104B	21	19	90.4762	59.6

Location	Mean	Std Dev	Std Err	Rank Sum	Rank Mean
MW-101	2.64286	0.967249	0	1377.5	65.5952
MW-104A	2.318	0.470337	0	1311	65.55
MW-104B	2.8381	0.865723	0	1381.5	65.7857

Compliance Locations

There are 3 compliance location

Location	Obs.	Non-Detects	% ND	Total
MW-106A	22	21	95.4545	70.8
MW-108	24	23	95.8333	77.4
MW-205B	18	18	100	60.3

Location	Mean	Std Dev	Dif From Bkg	Std Err	Rank Sum	Rank Mean
MW-106A	3.21818	3.19265	0.613988	0.593412	1369.5	62.25
MW-108	3.225	3.09674	0.620806	0.574873	1490.5	62.1042
MW-205B	3.35	3.54505	0.745806	0.640232	1071	59.5

Analysis of Variance Statistics

SS Wells	16.4858
SS Total	702.653

Kruskal-Wallis Statistics

Non-Detect Rank	59.5
Background Rank Sum	4070
Background Rank Mean	65.6452
H Statistic	0.49077
H Adjusted for Ties	2.74717

Non-Parametric Prediction Interval

Inter-Well Comparison

Parameter: Tin

Original Data (Not Transformed)

Non-Detects Replaced with Detection Limit

Total Percent Non-Detects = 93.6508%

Number of comparisons = 3

Future Samples (k) = 3

Recent Dates = 1

Background Measurements (n) = 62

Maximum Background Value = 5

Confidence Level = 95.4%

False Positive Rate = 4.6%

Location	Date	Count	Mean	Significant
MW-106A	12/6/2022	1	1.5	FALSE
MW-108	12/5/2022	1	1	FALSE
MW-205B	12/6/2022	1	1	FALSE

Basic Statistics

Parameter: Toluene

Original Data (Not Transformed)

Non-Detects Replaced with Detection Limit

Total Measurements	135
Total Non-Detects	133 (98.5185%)
Pooled Mean	0.499704
Pooled Std Dev	1.72924

Compliance Meas.	69
Compliance Mean	0.702029
Compliance Std Dev	2.40856

Background Meas.	66
Background Mean	0.288182
Background Std Dev	0.0825723

Background Locations

There are 3 background location

Location	Meas.	Non-Detects	% ND	Total
MW-101	22	22	100	6.34
MW-104A	22	22	100	6.34
MW-104B	22	22	100	6.34

Location	Mean	Std Dev	Std Err	Rank Sum	Rank Mean
MW-101	0.288182	0.0838727	0	1474	67
MW-104A	0.288182	0.0838727	0	1474	67
MW-104B	0.288182	0.0838727	0	1474	67

Compliance Locations

There are 3 compliance location

Location	Obs.	Non-Detects	% ND	Total
MW-106A	23	23	100	7.04
MW-108	23	21	91.3043	34.36
MW-205B	23	23	100	7.04

Location	Mean	Std Dev	Dif From Bkg	Std Err	Rank Sum	Rank Mean
MW-106A	0.306087	0.118695	0.0179051	0.411894	1541	67
MW-108	1.49391	4.1133	1.20573	0.411894	1676	72.8696
MW-205B	0.306087	0.118695	0.0179051	0.411894	1541	67

Analysis of Variance Statistics

SS Wells	27.4118
SS Total	400.698

Kruskal-Wallis Statistics

Non-Detect Rank	67
Background Rank Sum	4422
Background Rank Mean	67
H Statistic	0.429668
H Adjusted for Ties	9.81181

Non-Parametric Prediction Interval

Inter-Well Comparison

Parameter: Toluene

Original Data (Not Transformed)

Non-Detects Replaced with Detection Limit

Total Percent Non-Detects = 98.5185%

Number of comparisons = 3

Future Samples (k) = 3

Recent Dates = 1

Background Measurements (n) = 66

Maximum Background Value = 0.5

Confidence Level = 95.7%

False Positive Rate = 4.3%

Location	Date	Count	Mean	Significant
MW-106A	12/6/2022	1	0.5	FALSE
MW-108	12/5/2022	1	0.5	FALSE
MW-205B	12/6/2022	1	0.5	FALSE

Basic Statistics

Parameter: Vinyl chloride

Original Data (Not Transformed)

Non-Detects Replaced with Detection Limit

Total Measurements	139
Total Non-Detects	121 (87.0504%)
Pooled Mean	1.85194
Pooled Std Dev	4.05985

Compliance Meas.	70
Compliance Mean	3.15671
Compliance Std Dev	5.42813

Background Meas.	69
Background Mean	0.528261
Background Std Dev	0.145541

Background Locations

There are 3 background location

Location	Meas.	Non-Detects	% ND	Total
MW-101	23	23	100	12.15
MW-104A	23	23	100	12.15
MW-104B	23	23	100	12.15

Location	Mean	Std Dev	Std Err	Rank Sum	Rank Mean
MW-101	0.528261	0.14773	0	1403	61
MW-104A	0.528261	0.14773	0	1403	61
MW-104B	0.528261	0.14773	0	1403	61

Compliance Locations

There are 3 compliance location

Location	Obs.	Non-Detects	% ND	Total
MW-106A	23	23	100	12.15
MW-108	24	6	25	196.67
MW-205B	23	23	100	12.15

Location	Mean	Std Dev	Dif From Bkg	Std Err	Rank Sum	Rank Mean
MW-106A	0.528261	0.14773	-1.11022e-016	0.69481	1403	61
MW-108	8.19458	6.93188	7.66632	0.683867	2715	113.125
MW-205B	0.528261	0.14773	-1.11022e-016	0.69481	1403	61

Analysis of Variance Statistics

SS Wells	1166.99
SS Total	2274.57

Kruskal-Wallis Statistics

Non-Detect Rank	61
Background Rank Sum	4209
Background Rank Mean	61
H Statistic	33.2679
H Adjusted for Ties	97.7421

Non-Parametric Prediction Interval

Inter-Well Comparison

Parameter: Vinyl chloride

Original Data (Not Transformed)

Non-Detects Replaced with Detection Limit

Total Percent Non-Detects = 87.0504%

Number of comparisons = 3

Future Samples (k) = 3

Recent Dates = 1

Background Measurements (n) = 69

Maximum Background Value = 0.62

Confidence Level = 95.8%

False Positive Rate = 4.2%

Location	Date	Count	Mean	Significant
MW-106A	12/6/2022	1	0.5	FALSE
MW-108	12/5/2022	1	11.9	TRUE
MW-205B	12/6/2022	1	0.5	FALSE

Basic Statistics

Parameter: Zinc

Original Data (Not Transformed)

Non-Detects Replaced with Detection Limit

Total Measurements	122
Total Non-Detects	84 (68.8525%)
Pooled Mean	7.91033
Pooled Std Dev	10.0552

Compliance Meas.	67
Compliance Mean	8.98851
Compliance Std Dev	13.0981

Background Meas.	55
Background Mean	6.59691
Background Std Dev	3.69786

Background Locations

There are 3 background location

Location	Meas.	Non-Detects	% ND	Total
MW-101	21	4	19.0476	200.43
MW-104A	15	15	100	73.9
MW-104B	19	17	89.4737	88.5

Location	Mean	Std Dev	Std Err	Rank Sum	Rank Mean
MW-101	9.54429	4.5853	0	1903	90.619
MW-104A	4.92667	0.284019	0	637.5	42.5
MW-104B	4.65789	1.08183	0	908.5	47.8158

Compliance Locations

There are 3 compliance location

Location	Obs.	Non-Detects	% ND	Total
MW-106A	22	21	95.4545	116.2
MW-108	23	8	34.7826	352.8
MW-205B	22	19	86.3636	133.23

Location	Mean	Std Dev	Dif From Bkg	Std Err	Rank Sum	Rank Mean
MW-106A	5.28182	2.56861	-1.31509	2.38243	982.5	44.6591
MW-108	15.3391	20.7982	8.74222	2.34515	1959	85.1739
MW-205B	6.05591	3.44201	-0.541	2.38243	1112.5	50.5682

Analysis of Variance Statistics

SS Wells	1887.55
SS Total	12234.1

Kruskal-Wallis Statistics

Non-Detect Rank	42.5
Background Rank Sum	3449
Background Rank Mean	62.7091
H Statistic	17.4646
H Adjusted for Ties	25.9266

Non-Parametric Prediction Interval

Inter-Well Comparison

Parameter: Zinc

Original Data (Not Transformed)

Non-Detects Replaced with Detection Limit

Total Percent Non-Detects = 68.8525%

Number of comparisons = 3

Future Samples (k) = 3

Recent Dates = 1

Background Measurements (n) = 55

Maximum Background Value = 18.8

Confidence Level = 94.8%

False Positive Rate = 5.2%

Location	Date	Count	Mean	Significant
MW-106A	12/6/2022	1	2.5	FALSE
MW-108	12/5/2022	1	96.1	TRUE
MW-205B	12/6/2022	1	2.5	FALSE

Mann-Kendall Trend Analysis

Parameter: 1,1-Dichloroethane

Location: MW-108

Original Data (Not Transformed)

Non-Detects Replaced with Detection Limit

95% Confidence Level

Xj	Xk	Xj - Xk	Positives	Negatives
11.2	8.4	2.8	1	0
10.1	8.4	1.7	2	0
12	8.4	3.6	3	0
11.1	8.4	2.7	4	0
10.2	8.4	1.8	5	0
8.9	8.4	0.5	6	0
7.3	8.4	-1.1	6	1
8	8.4	-0.4	6	2
7.2	8.4	-1.2	6	3
6.6	8.4	-1.8	6	4
7.8	8.4	-0.6	6	5
7.3	8.4	-1.1	6	6
6.9	8.4	-1.5	6	7
8.8	8.4	0.4	7	7
7	8.4	-1.4	7	8
6	8.4	-2.4	7	9
6.1	8.4	-2.3	7	10
4.8	8.4	-3.6	7	11
4.2	8.4	-4.2	7	12
5	8.4	-3.4	7	13
6.045	8.4	-2.355	7	14
5.19	8.4	-3.21	7	15
10.1	11.2	-1.1	7	16
12	11.2	0.8	8	16
11.1	11.2	-0.1	8	17
10.2	11.2	-1	8	18
8.9	11.2	-2.3	8	19
7.3	11.2	-3.9	8	20
8	11.2	-3.2	8	21
7.2	11.2	-4	8	22
6.6	11.2	-4.6	8	23
7.8	11.2	-3.4	8	24
7.3	11.2	-3.9	8	25
6.9	11.2	-4.3	8	26
8.8	11.2	-2.4	8	27
7	11.2	-4.2	8	28
6	11.2	-5.2	8	29
6.1	11.2	-5.1	8	30
4.8	11.2	-6.4	8	31
4.2	11.2	-7	8	32
5	11.2	-6.2	8	33
6.045	11.2	-5.155	8	34
5.19	11.2	-6.01	8	35
12	10.1	1.9	9	35
11.1	10.1	1	10	35
10.2	10.1	0.1	11	35
8.9	10.1	-1.2	11	36
7.3	10.1	-2.8	11	37
8	10.1	-2.1	11	38
7.2	10.1	-2.9	11	39
6.6	10.1	-3.5	11	40
7.8	10.1	-2.3	11	41
7.3	10.1	-2.8	11	42
6.9	10.1	-3.2	11	43
8.8	10.1	-1.3	11	44

7	10.1	-3.1	11	45
6	10.1	-4.1	11	46
6.1	10.1	-4	11	47
4.8	10.1	-5.3	11	48
4.2	10.1	-5.9	11	49
5	10.1	-5.1	11	50
6.045	10.1	-4.055	11	51
5.19	10.1	-4.91	11	52
11.1	12	-0.9	11	53
10.2	12	-1.8	11	54
8.9	12	-3.1	11	55
7.3	12	-4.7	11	56
8	12	-4	11	57
7.2	12	-4.8	11	58
6.6	12	-5.4	11	59
7.8	12	-4.2	11	60
7.3	12	-4.7	11	61
6.9	12	-5.1	11	62
8.8	12	-3.2	11	63
7	12	-5	11	64
6	12	-6	11	65
6.1	12	-5.9	11	66
4.8	12	-7.2	11	67
4.2	12	-7.8	11	68
5	12	-7	11	69
6.045	12	-5.955	11	70
5.19	12	-6.81	11	71
10.2	11.1	-0.9	11	72
8.9	11.1	-2.2	11	73
7.3	11.1	-3.8	11	74
8	11.1	-3.1	11	75
7.2	11.1	-3.9	11	76
6.6	11.1	-4.5	11	77
7.8	11.1	-3.3	11	78
7.3	11.1	-3.8	11	79
6.9	11.1	-4.2	11	80
8.8	11.1	-2.3	11	81
7	11.1	-4.1	11	82
6	11.1	-5.1	11	83
6.1	11.1	-5	11	84
4.8	11.1	-6.3	11	85
4.2	11.1	-6.9	11	86
5	11.1	-6.1	11	87
6.045	11.1	-5.055	11	88
5.19	11.1	-5.91	11	89
8.9	10.2	-1.3	11	90
7.3	10.2	-2.9	11	91
8	10.2	-2.2	11	92
7.2	10.2	-3	11	93
6.6	10.2	-3.6	11	94
7.8	10.2	-2.4	11	95
7.3	10.2	-2.9	11	96
6.9	10.2	-3.3	11	97
8.8	10.2	-1.4	11	98
7	10.2	-3.2	11	99
6	10.2	-4.2	11	100
6.1	10.2	-4.1	11	101
4.8	10.2	-5.4	11	102
4.2	10.2	-6	11	103
5	10.2	-5.2	11	104
6.045	10.2	-4.155	11	105
5.19	10.2	-5.01	11	106
7.3	8.9	-1.6	11	107

8	8.9	-0.9	11	108
7.2	8.9	-1.7	11	109
6.6	8.9	-2.3	11	110
7.8	8.9	-1.1	11	111
7.3	8.9	-1.6	11	112
6.9	8.9	-2	11	113
8.8	8.9	-0.1	11	114
7	8.9	-1.9	11	115
6	8.9	-2.9	11	116
6.1	8.9	-2.8	11	117
4.8	8.9	-4.1	11	118
4.2	8.9	-4.7	11	119
5	8.9	-3.9	11	120
6.045	8.9	-2.855	11	121
5.19	8.9	-3.71	11	122
8	7.3	0.7	12	122
7.2	7.3	-0.1	12	123
6.6	7.3	-0.7	12	124
7.8	7.3	0.5	13	124
7.3	7.3	0	13	124
6.9	7.3	-0.4	13	125
8.8	7.3	1.5	14	125
7	7.3	-0.3	14	126
6	7.3	-1.3	14	127
6.1	7.3	-1.2	14	128
4.8	7.3	-2.5	14	129
4.2	7.3	-3.1	14	130
5	7.3	-2.3	14	131
6.045	7.3	-1.255	14	132
5.19	7.3	-2.11	14	133
7.2	8	-0.8	14	134
6.6	8	-1.4	14	135
7.8	8	-0.2	14	136
7.3	8	-0.7	14	137
6.9	8	-1.1	14	138
8.8	8	0.8	15	138
7	8	-1	15	139
6	8	-2	15	140
6.1	8	-1.9	15	141
4.8	8	-3.2	15	142
4.2	8	-3.8	15	143
5	8	-3	15	144
6.045	8	-1.955	15	145
5.19	8	-2.81	15	146
6.6	7.2	-0.6	15	147
7.8	7.2	0.6	16	147
7.3	7.2	0.1	17	147
6.9	7.2	-0.3	17	148
8.8	7.2	1.6	18	148
7	7.2	-0.2	18	149
6	7.2	-1.2	18	150
6.1	7.2	-1.1	18	151
4.8	7.2	-2.4	18	152
4.2	7.2	-3	18	153
5	7.2	-2.2	18	154
6.045	7.2	-1.155	18	155
5.19	7.2	-2.01	18	156
7.8	6.6	1.2	19	156
7.3	6.6	0.7	20	156
6.9	6.6	0.3	21	156
8.8	6.6	2.2	22	156
7	6.6	0.4	23	156
6	6.6	-0.6	23	157

6.1	6.6	-0.5	23	158
4.8	6.6	-1.8	23	159
4.2	6.6	-2.4	23	160
5	6.6	-1.6	23	161
6.045	6.6	-0.555	23	162
5.19	6.6	-1.41	23	163
7.3	7.8	-0.5	23	164
6.9	7.8	-0.9	23	165
8.8	7.8	1	24	165
7	7.8	-0.8	24	166
6	7.8	-1.8	24	167
6.1	7.8	-1.7	24	168
4.8	7.8	-3	24	169
4.2	7.8	-3.6	24	170
5	7.8	-2.8	24	171
6.045	7.8	-1.755	24	172
5.19	7.8	-2.61	24	173
6.9	7.3	-0.4	24	174
8.8	7.3	1.5	25	174
7	7.3	-0.3	25	175
6	7.3	-1.3	25	176
6.1	7.3	-1.2	25	177
4.8	7.3	-2.5	25	178
4.2	7.3	-3.1	25	179
5	7.3	-2.3	25	180
6.045	7.3	-1.255	25	181
5.19	7.3	-2.11	25	182
8.8	6.9	1.9	26	182
7	6.9	0.1	27	182
6	6.9	-0.9	27	183
6.1	6.9	-0.8	27	184
4.8	6.9	-2.1	27	185
4.2	6.9	-2.7	27	186
5	6.9	-1.9	27	187
6.045	6.9	-0.855	27	188
5.19	6.9	-1.71	27	189
7	8.8	-1.8	27	190
6	8.8	-2.8	27	191
6.1	8.8	-2.7	27	192
4.8	8.8	-4	27	193
4.2	8.8	-4.6	27	194
5	8.8	-3.8	27	195
6.045	8.8	-2.755	27	196
5.19	8.8	-3.61	27	197
6	7	-1	27	198
6.1	7	-0.9	27	199
4.8	7	-2.2	27	200
4.2	7	-2.8	27	201
5	7	-2	27	202
6.045	7	-0.955	27	203
5.19	7	-1.81	27	204
6.1	6	0.1	28	204
4.8	6	-1.2	28	205
4.2	6	-1.8	28	206
5	6	-1	28	207
6.045	6	0.045	29	207
5.19	6	-0.81	29	208
4.8	6.1	-1.3	29	209
4.2	6.1	-1.9	29	210
5	6.1	-1.1	29	211

6.045	6.1	-0.055	29	212
5.19	6.1	-0.91	29	213
4.2	4.8	-0.6	29	214
5	4.8	0.2	30	214
6.045	4.8	1.245	31	214
5.19	4.8	0.39	32	214
5	4.2	0.8	33	214
6.045	4.2	1.845	34	214
5.19	4.2	0.99	35	214
6.045	5	1.045	36	214
5.19	5	0.19	37	214
5.19	6.045	-0.855	37	215

S Statistic = 37 - 215 = -178

Tied Group	Value	Members
1	7.3	2

Time Period	Observations
11/8/2011	1
5/17/2012	1
11/14/2012	1
5/15/2013	1
11/5/2013	1
5/7/2014	1
10/28/2014	1
4/28/2015	1
10/27/2015	1
5/3/2016	1
11/1/2016	1
5/1/2017	1
10/31/2017	1
5/2/2018	1
10/29/2018	1
5/1/2019	1
10/29/2019	1
5/5/2020	1
11/16/2020	1
5/18/2021	1
11/8/2021	1
5/26/2022	1
12/5/2022	1

There are 0 time periods with multiple data

A = 18

B = 0

C = 0

D = 0

E = 2

F = 0

a = 25806

b = 95634

c = 1012

Group Variance = 1432.67

Z-Score = -4.67628

Comparison Level at 95% confidence level = -1.65463 (downward trend)

-4.67628 < -1.65463 indicating a downward trend

Mann-Kendall Trend Analysis

Parameter: Cobalt

Location: MW-108

Original Data (Not Transformed)

Non-Detects Replaced with Detection Limit

95% Confidence Level

Xj	Xk	Xj - Xk	Positives	Negatives
40.1	8.6	31.5	1	0
32.4	8.6	23.8	2	0
45.8	8.6	37.2	3	0
34.7	8.6	26.1	4	0
31.4	8.6	22.8	5	0
4.7	8.6	-3.9	5	1
31.9	8.6	23.3	6	1
42.7	8.6	34.1	7	1
39.7	8.6	31.1	8	1
6.5	8.6	-2.1	8	2
30.6	8.6	22	9	2
40.3	8.6	31.7	10	2
20.5	8.6	11.9	11	2
34.3	8.6	25.7	12	2
1.8 J	8.6	-6.8	12	3
37.1	8.6	28.5	13	3
25.4	8.6	16.8	14	3
8	8.6	-0.6	14	4
31	8.6	22.4	15	4
48	8.6	39.4	16	4
42.25 D	8.6	33.65	17	4
27.8	8.6	19.2	18	4
32.4	40.1	-7.7	18	5
45.8	40.1	5.7	19	5
34.7	40.1	-5.4	19	6
31.4	40.1	-8.7	19	7
4.7	40.1	-35.4	19	8
31.9	40.1	-8.2	19	9
42.7	40.1	2.6	20	9
39.7	40.1	-0.4	20	10
6.5	40.1	-33.6	20	11
30.6	40.1	-9.5	20	12
40.3	40.1	0.2	21	12
20.5	40.1	-19.6	21	13
34.3	40.1	-5.8	21	14
1.8 J	40.1	-38.3	21	15
37.1	40.1	-3	21	16
25.4	40.1	-14.7	21	17
8	40.1	-32.1	21	18
31	40.1	-9.1	21	19
48	40.1	7.9	22	19
42.25 D	40.1	2.15	23	19
27.8	40.1	-12.3	23	20
45.8	32.4	13.4	24	20
34.7	32.4	2.3	25	20
31.4	32.4	-1	25	21
4.7	32.4	-27.7	25	22
31.9	32.4	-0.5	25	23
42.7	32.4	10.3	26	23
39.7	32.4	7.3	27	23
6.5	32.4	-25.9	27	24
30.6	32.4	-1.8	27	25
40.3	32.4	7.9	28	25
20.5	32.4	-11.9	28	26
34.3	32.4	1.9	29	26

1.8 J	32.4	-30.6	29	27
37.1	32.4	4.7	30	27
25.4	32.4	-7	30	28
8	32.4	-24.4	30	29
31	32.4	-1.4	30	30
48	32.4	15.6	31	30
42.25 D	32.4	9.85	32	30
27.8	32.4	-4.6	32	31
34.7	45.8	-11.1	32	32
31.4	45.8	-14.4	32	33
4.7	45.8	-41.1	32	34
31.9	45.8	-13.9	32	35
42.7	45.8	-3.1	32	36
39.7	45.8	-6.1	32	37
6.5	45.8	-39.3	32	38
30.6	45.8	-15.2	32	39
40.3	45.8	-5.5	32	40
20.5	45.8	-25.3	32	41
34.3	45.8	-11.5	32	42
1.8 J	45.8	-44	32	43
37.1	45.8	-8.7	32	44
25.4	45.8	-20.4	32	45
8	45.8	-37.8	32	46
31	45.8	-14.8	32	47
48	45.8	2.2	33	47
42.25 D	45.8	-3.55	33	48
27.8	45.8	-18	33	49
31.4	34.7	-3.3	33	50
4.7	34.7	-30	33	51
31.9	34.7	-2.8	33	52
42.7	34.7	8	34	52
39.7	34.7	5	35	52
6.5	34.7	-28.2	35	53
30.6	34.7	-4.1	35	54
40.3	34.7	5.6	36	54
20.5	34.7	-14.2	36	55
34.3	34.7	-0.4	36	56
1.8 J	34.7	-32.9	36	57
37.1	34.7	2.4	37	57
25.4	34.7	-9.3	37	58
8	34.7	-26.7	37	59
31	34.7	-3.7	37	60
48	34.7	13.3	38	60
42.25 D	34.7	7.55	39	60
27.8	34.7	-6.9	39	61
4.7	31.4	-26.7	39	62
31.9	31.4	0.5	40	62
42.7	31.4	11.3	41	62
39.7	31.4	8.3	42	62
6.5	31.4	-24.9	42	63
30.6	31.4	-0.8	42	64
40.3	31.4	8.9	43	64
20.5	31.4	-10.9	43	65
34.3	31.4	2.9	44	65
1.8 J	31.4	-29.6	44	66
37.1	31.4	5.7	45	66
25.4	31.4	-6	45	67
8	31.4	-23.4	45	68
31	31.4	-0.4	45	69
48	31.4	16.6	46	69
42.25 D	31.4	10.85	47	69
27.8	31.4	-3.6	47	70
31.9	4.7	27.2	48	70

42.7	4.7	38	49	70
39.7	4.7	35	50	70
6.5	4.7	1.8	51	70
30.6	4.7	25.9	52	70
40.3	4.7	35.6	53	70
20.5	4.7	15.8	54	70
34.3	4.7	29.6	55	70
1.8 J	4.7	-2.9	55	71
37.1	4.7	32.4	56	71
25.4	4.7	20.7	57	71
8	4.7	3.3	58	71
31	4.7	26.3	59	71
48	4.7	43.3	60	71
42.25 D	4.7	37.55	61	71
27.8	4.7	23.1	62	71
42.7	31.9	10.8	63	71
39.7	31.9	7.8	64	71
6.5	31.9	-25.4	64	72
30.6	31.9	-1.3	64	73
40.3	31.9	8.4	65	73
20.5	31.9	-11.4	65	74
34.3	31.9	2.4	66	74
1.8 J	31.9	-30.1	66	75
37.1	31.9	5.2	67	75
25.4	31.9	-6.5	67	76
8	31.9	-23.9	67	77
31	31.9	-0.9	67	78
48	31.9	16.1	68	78
42.25 D	31.9	10.35	69	78
27.8	31.9	-4.1	69	79
39.7	42.7	-3	69	80
6.5	42.7	-36.2	69	81
30.6	42.7	-12.1	69	82
40.3	42.7	-2.4	69	83
20.5	42.7	-22.2	69	84
34.3	42.7	-8.4	69	85
1.8 J	42.7	-40.9	69	86
37.1	42.7	-5.6	69	87
25.4	42.7	-17.3	69	88
8	42.7	-34.7	69	89
31	42.7	-11.7	69	90
48	42.7	5.3	70	90
42.25 D	42.7	-0.45	70	91
27.8	42.7	-14.9	70	92
6.5	39.7	-33.2	70	93
30.6	39.7	-9.1	70	94
40.3	39.7	0.6	71	94
20.5	39.7	-19.2	71	95
34.3	39.7	-5.4	71	96
1.8 J	39.7	-37.9	71	97
37.1	39.7	-2.6	71	98
25.4	39.7	-14.3	71	99
8	39.7	-31.7	71	100
31	39.7	-8.7	71	101
48	39.7	8.3	72	101
42.25 D	39.7	2.55	73	101
27.8	39.7	-11.9	73	102
30.6	6.5	24.1	74	102
40.3	6.5	33.8	75	102
20.5	6.5	14	76	102
34.3	6.5	27.8	77	102
1.8 J	6.5	-4.7	77	103
37.1	6.5	30.6	78	103

25.4	6.5	18.9	79	103
8	6.5	1.5	80	103
31	6.5	24.5	81	103
48	6.5	41.5	82	103
42.25 D	6.5	35.75	83	103
27.8	6.5	21.3	84	103
40.3	30.6	9.7	85	103
20.5	30.6	-10.1	85	104
34.3	30.6	3.7	86	104
1.8 J	30.6	-28.8	86	105
37.1	30.6	6.5	87	105
25.4	30.6	-5.2	87	106
8	30.6	-22.6	87	107
31	30.6	0.4	88	107
48	30.6	17.4	89	107
42.25 D	30.6	11.65	90	107
27.8	30.6	-2.8	90	108
20.5	40.3	-19.8	90	109
34.3	40.3	-6	90	110
1.8 J	40.3	-38.5	90	111
37.1	40.3	-3.2	90	112
25.4	40.3	-14.9	90	113
8	40.3	-32.3	90	114
31	40.3	-9.3	90	115
48	40.3	7.7	91	115
42.25 D	40.3	1.95	92	115
27.8	40.3	-12.5	92	116
34.3	20.5	13.8	93	116
1.8 J	20.5	-18.7	93	117
37.1	20.5	16.6	94	117
25.4	20.5	4.9	95	117
8	20.5	-12.5	95	118
31	20.5	10.5	96	118
48	20.5	27.5	97	118
42.25 D	20.5	21.75	98	118
27.8	20.5	7.3	99	118
1.8 J	34.3	-32.5	99	119
37.1	34.3	2.8	100	119
25.4	34.3	-8.9	100	120
8	34.3	-26.3	100	121
31	34.3	-3.3	100	122
48	34.3	13.7	101	122
42.25 D	34.3	7.95	102	122
27.8	34.3	-6.5	102	123
37.1	1.8 J	35.3	103	123
25.4	1.8 J	23.6	104	123
8	1.8 J	6.2	105	123
31	1.8 J	29.2	106	123
48	1.8 J	46.2	107	123
42.25 D	1.8 J	40.45	108	123
27.8	1.8 J	26	109	123
25.4	37.1	-11.7	109	124
8	37.1	-29.1	109	125
31	37.1	-6.1	109	126
48	37.1	10.9	110	126
42.25 D	37.1	5.15	111	126
27.8	37.1	-9.3	111	127
8	25.4	-17.4	111	128
31	25.4	5.6	112	128
48	25.4	22.6	113	128

42.25 D	25.4	16.85	114	128
27.8	25.4	2.4	115	128
31	8	23	116	128
48	8	40	117	128
42.25 D	8	34.25	118	128
27.8	8	19.8	119	128
48	31	17	120	128
42.25 D	31	11.25	121	128
27.8	31	-3.2	121	129
42.25 D	48	-5.75	121	130
27.8	48	-20.2	121	131
27.8	42.25 D	-14.45	121	132

S Statistic = 121 - 132 = -11

Tied Group	Value	Members
Time Period		Observations
11/8/2011		1
5/17/2012		1
11/14/2012		1
5/15/2013		1
11/5/2013		1
5/7/2014		1
10/28/2014		1
4/28/2015		1
10/27/2015		1
5/3/2016		1
11/1/2016		1
5/1/2017		1
10/31/2017		1
5/2/2018		1
10/29/2018		1
5/1/2019		1
10/29/2019		1
5/5/2020		1
11/16/2020		1
5/18/2021		1
11/8/2021		1
5/26/2022		1
12/5/2022		1

There are 0 time periods with multiple data

A = 0
 B = 0
 C = 0
 D = 0
 E = 0
 F = 0
 a = 25806
 b = 95634
 c = 1012
 Group Variance = 1433.67
 Z-Score = -0.264105
 Comparison Level at 1.0 - (0.05 / 2) = 97.5% confidence level = 1.97737 (two-tailed)
 |-0.264105| <= 1.97737 indicating no evidence of a trend

Mann-Kendall Trend Analysis

Parameter: Vinyl chloride

Location: MW-108

Original Data (Not Transformed)

Non-Detects Replaced with 1/2 DL

95% Confidence Level

Xj	Xk	Xj - Xk	Positives	Negatives
9	ND<0.31 U	8.69	1	0
13	ND<0.31 U	12.69	2	0
6.3	ND<0.31 U	5.99	3	0
14.1	ND<0.31 U	13.79	4	0
17.7	ND<0.31 U	17.39	5	0
ND<0.31 U	ND<0.31 U	0	5	0
ND<0.31 U	ND<0.31 U	0	5	0
9.4	ND<0.31 U	9.09	6	0
3.9	ND<0.31 U	3.59	7	0
ND<0.31 U	ND<0.31 U	0	7	0
0.64 J	ND<0.31 U	0.33	8	0
5.9	ND<0.31 U	5.59	9	0
12.4	ND<0.31 U	12.09	10	0
20.5	ND<0.31 U	20.19	11	0
6.8	ND<0.31 U	6.49	12	0
ND<0.12 U	ND<0.31 U	-0.19	12	1
22	ND<0.31 U	21.69	13	1
19.5	ND<0.31 U	19.19	14	1
4.3	ND<0.31 U	3.99	15	1
ND<0.25 U	ND<0.31 U	-0.06	15	2
8.055 D	ND<0.31 U	7.745	16	2
11.9	ND<0.31 U	11.59	17	2
13	9	4	18	2
6.3	9	-2.7	18	3
14.1	9	5.1	19	3
17.7	9	8.7	20	3
ND<0.31 U	9	-8.69	20	4
ND<0.31 U	9	-8.69	20	5
9.4	9	0.4	21	5
3.9	9	-5.1	21	6
ND<0.31 U	9	-8.69	21	7
0.64 J	9	-8.36	21	8
5.9	9	-3.1	21	9
12.4	9	3.4	22	9
20.5	9	11.5	23	9
6.8	9	-2.2	23	10
ND<0.12 U	9	-8.88	23	11
22	9	13	24	11
19.5	9	10.5	25	11
4.3	9	-4.7	25	12
ND<0.25 U	9	-8.75	25	13
8.055 D	9	-0.945	25	14
11.9	9	2.9	26	14
6.3	13	-6.7	26	15
14.1	13	1.1	27	15
17.7	13	4.7	28	15
ND<0.31 U	13	-12.69	28	16
ND<0.31 U	13	-12.69	28	17
9.4	13	-3.6	28	18
3.9	13	-9.1	28	19
ND<0.31 U	13	-12.69	28	20
0.64 J	13	-12.36	28	21
5.9	13	-7.1	28	22
12.4	13	-0.6	28	23
20.5	13	7.5	29	23

6.8	13	-6.2	29	24
ND<0.12 U	13	-12.88	29	25
22	13	9	30	25
19.5	13	6.5	31	25
4.3	13	-8.7	31	26
ND<0.25 U	13	-12.75	31	27
8.055 D	13	-4.945	31	28
11.9	13	-1.1	31	29
14.1	6.3	7.8	32	29
17.7	6.3	11.4	33	29
ND<0.31 U	6.3	-5.99	33	30
ND<0.31 U	6.3	-5.99	33	31
9.4	6.3	3.1	34	31
3.9	6.3	-2.4	34	32
ND<0.31 U	6.3	-5.99	34	33
0.64 J	6.3	-5.66	34	34
5.9	6.3	-0.4	34	35
12.4	6.3	6.1	35	35
20.5	6.3	14.2	36	35
6.8	6.3	0.5	37	35
ND<0.12 U	6.3	-6.18	37	36
22	6.3	15.7	38	36
19.5	6.3	13.2	39	36
4.3	6.3	-2	39	37
ND<0.25 U	6.3	-6.05	39	38
8.055 D	6.3	1.755	40	38
11.9	6.3	5.6	41	38
17.7	14.1	3.6	42	38
ND<0.31 U	14.1	-13.79	42	39
ND<0.31 U	14.1	-13.79	42	40
9.4	14.1	-4.7	42	41
3.9	14.1	-10.2	42	42
ND<0.31 U	14.1	-13.79	42	43
0.64 J	14.1	-13.46	42	44
5.9	14.1	-8.2	42	45
12.4	14.1	-1.7	42	46
20.5	14.1	6.4	43	46
6.8	14.1	-7.3	43	47
ND<0.12 U	14.1	-13.98	43	48
22	14.1	7.9	44	48
19.5	14.1	5.4	45	48
4.3	14.1	-9.8	45	49
ND<0.25 U	14.1	-13.85	45	50
8.055 D	14.1	-6.045	45	51
11.9	14.1	-2.2	45	52
ND<0.31 U	17.7	-17.39	45	53
ND<0.31 U	17.7	-17.39	45	54
9.4	17.7	-8.3	45	55
3.9	17.7	-13.8	45	56
ND<0.31 U	17.7	-17.39	45	57
0.64 J	17.7	-17.06	45	58
5.9	17.7	-11.8	45	59
12.4	17.7	-5.3	45	60
20.5	17.7	2.8	46	60
6.8	17.7	-10.9	46	61
ND<0.12 U	17.7	-17.58	46	62
22	17.7	4.3	47	62
19.5	17.7	1.8	48	62
4.3	17.7	-13.4	48	63
ND<0.25 U	17.7	-17.45	48	64
8.055 D	17.7	-9.645	48	65
11.9	17.7	-5.8	48	66
ND<0.31 U	ND<0.31 U	0	48	66

9.4	ND<0.31 U	9.09	49	66
3.9	ND<0.31 U	3.59	50	66
ND<0.31 U	ND<0.31 U	0	50	66
0.64 J	ND<0.31 U	0.33	51	66
5.9	ND<0.31 U	5.59	52	66
12.4	ND<0.31 U	12.09	53	66
20.5	ND<0.31 U	20.19	54	66
6.8	ND<0.31 U	6.49	55	66
ND<0.12 U	ND<0.31 U	-0.19	55	67
22	ND<0.31 U	21.69	56	67
19.5	ND<0.31 U	19.19	57	67
4.3	ND<0.31 U	3.99	58	67
ND<0.25 U	ND<0.31 U	-0.06	58	68
8.055 D	ND<0.31 U	7.745	59	68
11.9	ND<0.31 U	11.59	60	68

9.4	ND<0.31 U	9.09	61	68
3.9	ND<0.31 U	3.59	62	68
ND<0.31 U	ND<0.31 U	0	62	68
0.64 J	ND<0.31 U	0.33	63	68
5.9	ND<0.31 U	5.59	64	68
12.4	ND<0.31 U	12.09	65	68
20.5	ND<0.31 U	20.19	66	68
6.8	ND<0.31 U	6.49	67	68
ND<0.12 U	ND<0.31 U	-0.19	67	69
22	ND<0.31 U	21.69	68	69
19.5	ND<0.31 U	19.19	69	69
4.3	ND<0.31 U	3.99	70	69
ND<0.25 U	ND<0.31 U	-0.06	70	70
8.055 D	ND<0.31 U	7.745	71	70
11.9	ND<0.31 U	11.59	72	70

3.9	9.4	-5.5	72	71
ND<0.31 U	9.4	-9.09	72	72
0.64 J	9.4	-8.76	72	73
5.9	9.4	-3.5	72	74
12.4	9.4	3	73	74
20.5	9.4	11.1	74	74
6.8	9.4	-2.6	74	75
ND<0.12 U	9.4	-9.28	74	76
22	9.4	12.6	75	76
19.5	9.4	10.1	76	76
4.3	9.4	-5.1	76	77
ND<0.25 U	9.4	-9.15	76	78
8.055 D	9.4	-1.345	76	79
11.9	9.4	2.5	77	79

ND<0.31 U	3.9	-3.59	77	80
0.64 J	3.9	-3.26	77	81
5.9	3.9	2	78	81
12.4	3.9	8.5	79	81
20.5	3.9	16.6	80	81
6.8	3.9	2.9	81	81
ND<0.12 U	3.9	-3.78	81	82
22	3.9	18.1	82	82
19.5	3.9	15.6	83	82
4.3	3.9	0.4	84	82
ND<0.25 U	3.9	-3.65	84	83
8.055 D	3.9	4.155	85	83
11.9	3.9	8	86	83

0.64 J	ND<0.31 U	0.33	87	83
5.9	ND<0.31 U	5.59	88	83
12.4	ND<0.31 U	12.09	89	83
20.5	ND<0.31 U	20.19	90	83
6.8	ND<0.31 U	6.49	91	83
ND<0.12 U	ND<0.31 U	-0.19	91	84

22	ND<0.31 U	21.69	92	84
19.5	ND<0.31 U	19.19	93	84
4.3	ND<0.31 U	3.99	94	84
ND<0.25 U	ND<0.31 U	-0.06	94	85
8.055 D	ND<0.31 U	7.745	95	85
11.9	ND<0.31 U	11.59	96	85
5.9	0.64 J	5.26	97	85
12.4	0.64 J	11.76	98	85
20.5	0.64 J	19.86	99	85
6.8	0.64 J	6.16	100	85
ND<0.12 U	0.64 J	-0.52	100	86
22	0.64 J	21.36	101	86
19.5	0.64 J	18.86	102	86
4.3	0.64 J	3.66	103	86
ND<0.25 U	0.64 J	-0.39	103	87
8.055 D	0.64 J	7.415	104	87
11.9	0.64 J	11.26	105	87
12.4	5.9	6.5	106	87
20.5	5.9	14.6	107	87
6.8	5.9	0.9	108	87
ND<0.12 U	5.9	-5.78	108	88
22	5.9	16.1	109	88
19.5	5.9	13.6	110	88
4.3	5.9	-1.6	110	89
ND<0.25 U	5.9	-5.65	110	90
8.055 D	5.9	2.155	111	90
11.9	5.9	6	112	90
20.5	12.4	8.1	113	90
6.8	12.4	-5.6	113	91
ND<0.12 U	12.4	-12.28	113	92
22	12.4	9.6	114	92
19.5	12.4	7.1	115	92
4.3	12.4	-8.1	115	93
ND<0.25 U	12.4	-12.15	115	94
8.055 D	12.4	-4.345	115	95
11.9	12.4	-0.5	115	96
6.8	20.5	-13.7	115	97
ND<0.12 U	20.5	-20.38	115	98
22	20.5	1.5	116	98
19.5	20.5	-1	116	99
4.3	20.5	-16.2	116	100
ND<0.25 U	20.5	-20.25	116	101
8.055 D	20.5	-12.445	116	102
11.9	20.5	-8.6	116	103
ND<0.12 U	6.8	-6.68	116	104
22	6.8	15.2	117	104
19.5	6.8	12.7	118	104
4.3	6.8	-2.5	118	105
ND<0.25 U	6.8	-6.55	118	106
8.055 D	6.8	1.255	119	106
11.9	6.8	5.1	120	106
22	ND<0.12 U	21.88	121	106
19.5	ND<0.12 U	19.38	122	106
4.3	ND<0.12 U	4.18	123	106
ND<0.25 U	ND<0.12 U	0.13	124	106
8.055 D	ND<0.12 U	7.935	125	106
11.9	ND<0.12 U	11.78	126	106
19.5	22	-2.5	126	107
4.3	22	-17.7	126	108
ND<0.25 U	22	-21.75	126	109

8.055 D	22	-13.945	126	110
11.9	22	-10.1	126	111
4.3	19.5	-15.2	126	112
ND<0.25 U	19.5	-19.25	126	113
8.055 D	19.5	-11.445	126	114
11.9	19.5	-7.6	126	115
ND<0.25 U	4.3	-4.05	126	116
8.055 D	4.3	3.755	127	116
11.9	4.3	7.6	128	116
8.055 D	ND<0.25 U	7.805	129	116
11.9	ND<0.25 U	11.65	130	116
11.9	8.055 D	3.845	131	116

S Statistic = 131 - 116 = 15

Tied Group	Value	Members
1	0.31	4

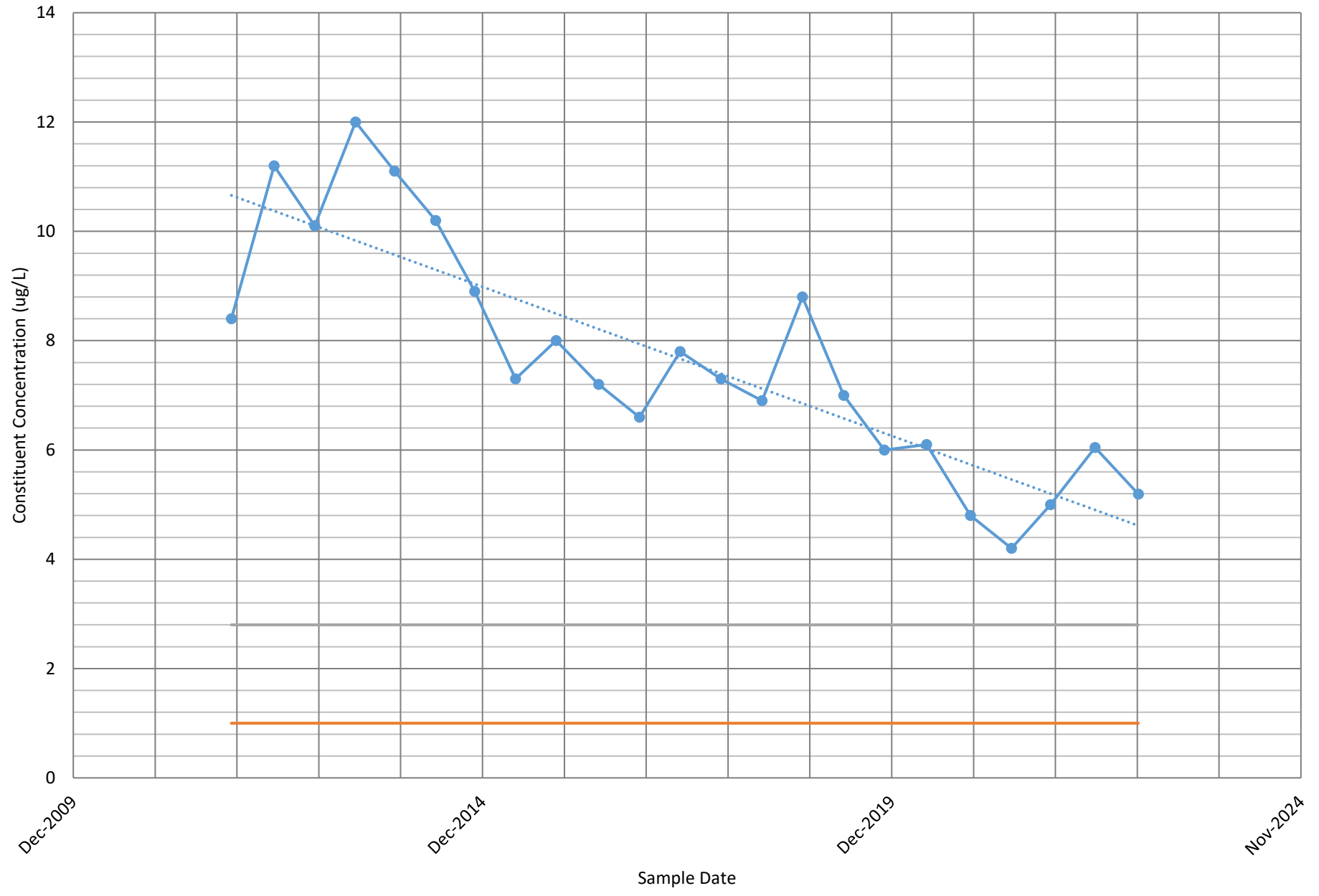
Time Period	Observations
11/8/2011	1
5/17/2012	1
11/14/2012	1
5/15/2013	1
11/5/2013	1
5/7/2014	1
10/28/2014	1
4/28/2015	1
10/27/2015	1
5/3/2016	1
11/1/2016	1
5/1/2017	1
10/31/2017	1
5/2/2018	1
10/29/2018	1
5/1/2019	1
10/29/2019	1
5/5/2020	1
11/16/2020	1
5/18/2021	1
11/8/2021	1
5/26/2022	1
12/5/2022	1

There are 0 time periods with multiple data

A = 156
 B = 0
 C = 24
 D = 0
 E = 12
 F = 0
 a = 25806
 b = 95634
 c = 1012
 Group Variance = 1425
 Z-Score = 0.370869
 Comparison Level at 1.0 - (0.05 / 2) = 97.5% confidence level = 1.97737 (two-tailed)
 |0.370869| <= 1.97737 indicating no evidence of a trend

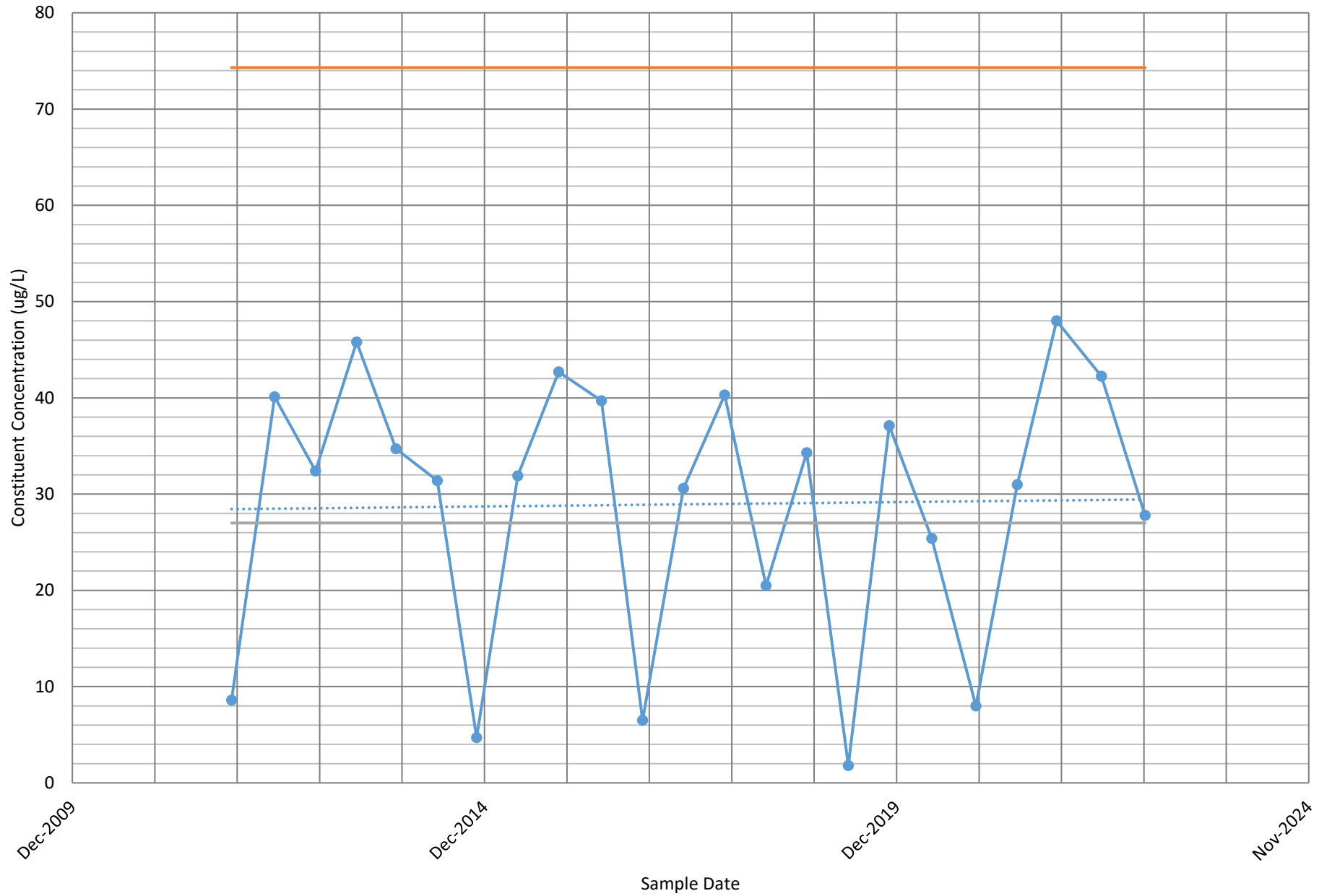
Time-Series Plot

MW-108: 1,1-Dichloroethane UPL GPS Linear (MW-108: 1,1-Dichloroethane)

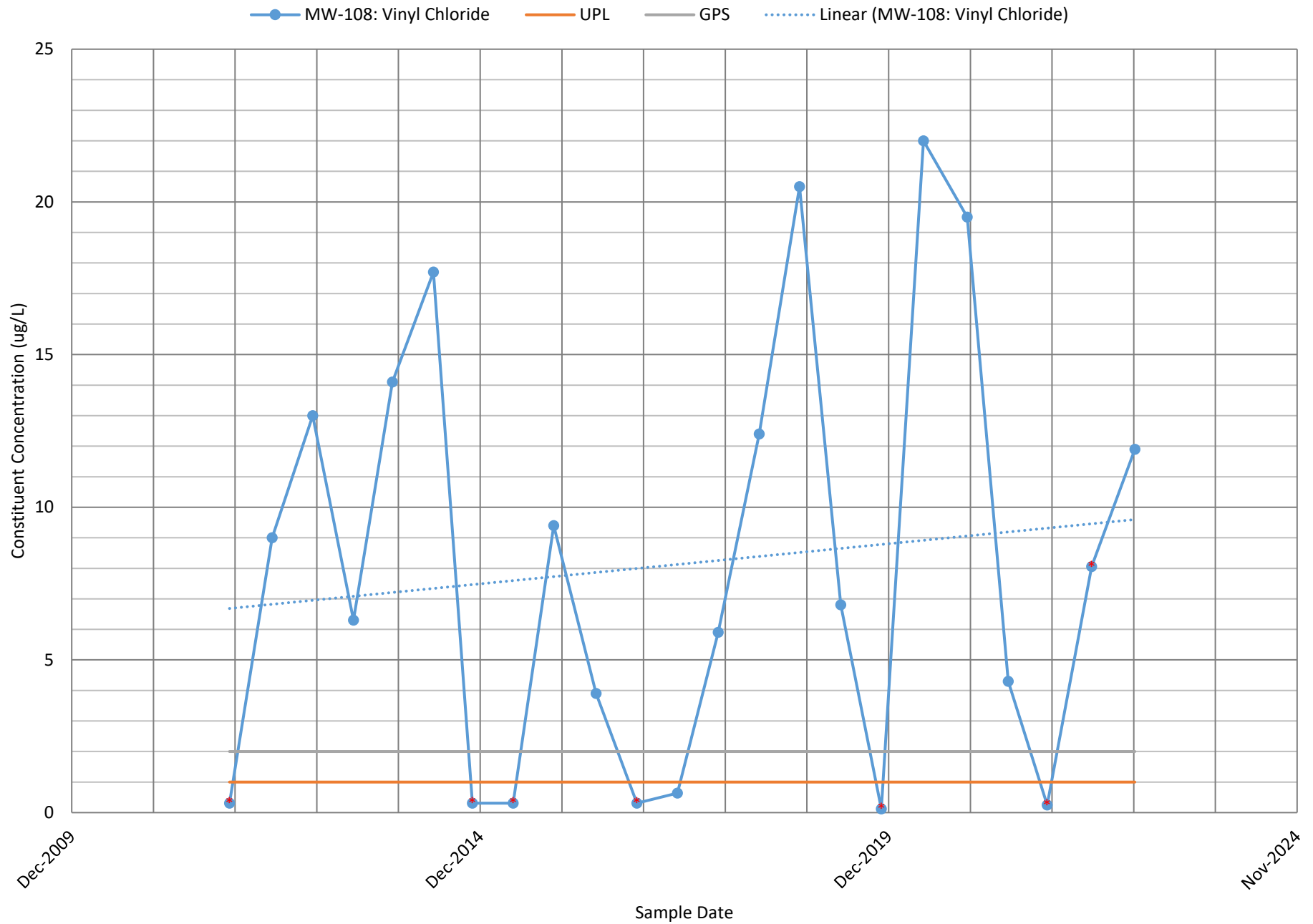


Time-Series Plot


MW-108: Cobalt UPL GPS Linear (MW-108: Cobalt)



Time-Series Plot



*Constituent was not detected. One half the laboratory's limit of detection was utilized as result for time-series plot.



Appendix G
QA/QC Data Packages

Certificate of Analysis

Client Name: SCS Engineers-Winchester
 Client Site I.D.: City of Bristol 1st Semi-Annual 2022
 Submitted To: Jennifer Robb

Date Issued: 7/12/2022 2:30:28PM

Metals (Total) by EPA 6000/7000 Series Methods - Quality Control

Enthalpy Analytical

Analyte	Result	LOQ	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Qual
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Batch BFE1163 - EPA200.8 R5.4

Blank (BFE1163-BLK1)

Prepared: 05/31/2022 Analyzed: 06/02/2022

Antimony	ND	1.0	ug/L							
Arsenic	ND	1.0	ug/L							
Barium	ND	5.00	ug/L							
Beryllium	ND	1.00	ug/L							
Cadmium	ND	1.00	ug/L							
Chromium	ND	1.00	ug/L							
Cobalt	ND	1.00	ug/L							
Copper	ND	1.00	ug/L							
Lead	ND	1.0	ug/L							
Nickel	ND	1.000	ug/L							
Selenium	ND	1.00	ug/L							
Silver	ND	1.00	ug/L							
Thallium	ND	1.0	ug/L							
Tin	ND	1.00	ug/L							
Vanadium	ND	5.00	ug/L							
Zinc	ND	5.00	ug/L							

LCS (BFE1163-BS1)

Prepared: 05/31/2022 Analyzed: 06/02/2022

Antimony	53	1.0	ug/L	50.0		106	80-120			
Arsenic	53	1.0	ug/L	50.0		107	80-120			
Barium	49.8	5.00	ug/L	50.0		99.6	80-120			
Beryllium	49.6	1.00	ug/L	50.0		99.2	80-120			
Cadmium	52.5	1.00	ug/L	50.0		105	80-120			
Chromium	50.8	1.00	ug/L	50.0		102	80-120			
Cobalt	51.0	1.00	ug/L	50.0		102	80-120			

Certificate of Analysis

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Enthalpy Analytical

Analyte	Result	LOQ	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Qual
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Batch BFE1163 - EPA200.8 R5.4

LCS (BFE1163-BS1)

Prepared: 05/31/2022 Analyzed: 06/02/2022

Copper	52.6	1.00	ug/L	50.0		105	80-120			
Lead	52	1.0	ug/L	50.0		104	80-120			
Nickel	51.22	1.000	ug/L	50.0		102	80-120			
Selenium	55.8	1.00	ug/L	50.0		112	80-120			
Silver	9.85	1.00	ug/L	10.0		98.5	80-120			
Thallium	53	1.0	ug/L	50.0		105	80-120			
Tin	50.4	1.00	ug/L	50.0		101	80-120			
Vanadium	50.6	5.00	ug/L	50.0		101	80-120			
Zinc	55.0	5.00	ug/L	50.0		110	80-120			

Matrix Spike (BFE1163-MS1)

Source: 22E1388-11

Prepared: 05/31/2022 Analyzed: 06/02/2022

Antimony	54	1.0	ug/L	50.0	BLOD	109	75-125			
Arsenic	56	1.0	ug/L	50.0	3.2	106	75-125			
Beryllium	53.2	1.00	ug/L	50.0	BLOD	106	75-125			
Cadmium	50.3	1.00	ug/L	50.0	BLOD	101	75-125			
Chromium	52.5	1.00	ug/L	50.0	BLOD	105	75-125			
Cobalt	56.0	1.00	ug/L	50.0	5.43	101	75-125			
Copper	49.2	1.00	ug/L	50.0	BLOD	98.5	75-125			
Lead	51	1.0	ug/L	50.0	BLOD	102	75-125			
Nickel	56.90	1.000	ug/L	50.0	7.323	99.1	75-125			
Selenium	51.7	1.00	ug/L	50.0	BLOD	103	75-125			
Silver	9.50	1.00	ug/L	10.0	BLOD	95.0	75-125			
Thallium	53	1.0	ug/L	50.0	BLOD	105	75-125			
Tin	53.4	1.00	ug/L	50.0	BLOD	107	75-125			
Vanadium	54.2	5.00	ug/L	50.0	BLOD	108	75-125			

Certificate of Analysis

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Enthalpy Analytical

Analyte	Result	LOQ	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Qual
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Batch BFE1163 - EPA200.8 R5.4

Matrix Spike (BFE1163-MS1)		Source: 22E1388-11			Prepared: 05/31/2022 Analyzed: 06/02/2022					
Zinc	49.1	5.00	ug/L	50.0	BLOD	98.1	75-125			
Matrix Spike (BFE1163-MS2)		Source: 22E1454-09			Prepared: 05/31/2022 Analyzed: 06/02/2022					
Antimony	53	1.0	ug/L	50.0	BLOD	106	75-125			
Arsenic	53	1.0	ug/L	50.0	BLOD	107	75-125			
Barium	50.6	5.00	ug/L	50.0	BLOD	101	75-125			
Beryllium	53.0	1.00	ug/L	50.0	BLOD	106	75-125			
Cadmium	52.8	1.00	ug/L	50.0	BLOD	106	75-125			
Chromium	52.1	1.00	ug/L	50.0	BLOD	104	75-125			
Cobalt	52.4	1.00	ug/L	50.0	BLOD	105	75-125			
Copper	53.3	1.00	ug/L	50.0	BLOD	107	75-125			
Lead	52	1.0	ug/L	50.0	BLOD	104	75-125			
Nickel	52.59	1.000	ug/L	50.0	BLOD	105	75-125			
Selenium	54.1	1.00	ug/L	50.0	BLOD	108	75-125			
Silver	10.0	1.00	ug/L	10.0	BLOD	100	75-125			
Thallium	53	1.0	ug/L	50.0	BLOD	105	75-125			
Tin	51.3	1.00	ug/L	50.0	BLOD	103	75-125			
Vanadium	52.0	5.00	ug/L	50.0	BLOD	104	75-125			
Zinc	53.3	5.00	ug/L	50.0	14.6	77.6	75-125			
Matrix Spike (BFE1163-MS3)		Source: 22E1388-11RE1			Prepared: 05/31/2022 Analyzed: 06/08/2022					
Antimony	54	10	ug/L	50.0	BLOD	107	75-125			
Arsenic	56	10	ug/L	50.0	BLOD	112	75-125			
Barium	351	50.0	ug/L	50.0	290	121	75-125			
Cobalt	56.3	10.0	ug/L	50.0	5.43	102	75-125			
Copper	51.8	10.0	ug/L	50.0	BLOD	104	75-125			

Certificate of Analysis

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Metals (Total) by EPA 6000/7000 Series Methods - Quality Control

Enthalpy Analytical

Analyte	Result	LOQ	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Qual
Batch BFE1163 - EPA200.8 R5.4										
Matrix Spike (BFE1163-MS3)										
			Source: 22E1388-11RE1		Prepared: 05/31/2022 Analyzed: 06/08/2022					
Selenium	53.2	10.0	ug/L	50.0	BLOD	106	75-125			
Silver	9.76	10.0	ug/L	10.0	BLOD	97.6	75-125			
Thallium	53	10	ug/L	50.0	BLOD	106	75-125			
Matrix Spike Dup (BFE1163-MSD1)										
			Source: 22E1388-11		Prepared: 05/31/2022 Analyzed: 06/02/2022					
Antimony	51	1.0	ug/L	50.0	BLOD	103	75-125	5.44	20	
Arsenic	54	1.0	ug/L	50.0	3.2	101	75-125	4.55	20	
Beryllium	49.6	1.00	ug/L	50.0	BLOD	99.2	75-125	7.00	20	
Cadmium	48.2	1.00	ug/L	50.0	BLOD	96.3	75-125	4.23	20	
Chromium	49.6	1.00	ug/L	50.0	BLOD	99.3	75-125	5.66	20	
Cobalt	53.8	1.00	ug/L	50.0	5.43	96.8	75-125	4.03	20	
Copper	47.6	1.00	ug/L	50.0	BLOD	95.1	75-125	3.46	20	
Lead	48	1.0	ug/L	50.0	BLOD	96.9	75-125	4.94	20	
Nickel	54.82	1.000	ug/L	50.0	7.323	95.0	75-125	3.71	20	
Selenium	48.2	1.00	ug/L	50.0	BLOD	96.4	75-125	7.03	20	
Silver	9.46	1.00	ug/L	10.0	BLOD	94.6	75-125	0.335	20	
Thallium	50	1.0	ug/L	50.0	BLOD	99.3	75-125	5.83	20	
Tin	52.0	1.00	ug/L	50.0	BLOD	104	75-125	2.63	20	
Vanadium	51.3	5.00	ug/L	50.0	BLOD	103	75-125	5.51	20	
Zinc	46.7	5.00	ug/L	50.0	BLOD	93.4	75-125	4.98	20	
Matrix Spike Dup (BFE1163-MSD2)										
			Source: 22E1454-09		Prepared: 05/31/2022 Analyzed: 06/02/2022					
Antimony	52	1.0	ug/L	50.0	BLOD	104	75-125	2.16	20	
Arsenic	52	1.0	ug/L	50.0	BLOD	104	75-125	2.77	20	
Barium	49.6	5.00	ug/L	50.0	BLOD	99.1	75-125	2.10	20	
Beryllium	50.3	1.00	ug/L	50.0	BLOD	101	75-125	5.08	20	

Certificate of Analysis

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Metals (Total) by EPA 6000/7000 Series Methods - Quality Control

Enthalpy Analytical

Analyte	Result	LOQ	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Qual
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Batch BFE1163 - EPA200.8 R5.4

Matrix Spike Dup (BFE1163-MSD2)	Source: 22E1454-09			Prepared: 05/31/2022 Analyzed: 06/02/2022						
Cadmium	51.6	1.00	ug/L	50.0	BLOD	103	75-125	2.21	20	
Chromium	50.5	1.00	ug/L	50.0	BLOD	101	75-125	3.17	20	
Cobalt	50.7	1.00	ug/L	50.0	BLOD	101	75-125	3.37	20	
Copper	51.9	1.00	ug/L	50.0	BLOD	104	75-125	2.67	20	
Lead	51	1.0	ug/L	50.0	BLOD	102	75-125	2.03	20	
Nickel	51.97	1.000	ug/L	50.0	BLOD	104	75-125	1.17	20	
Selenium	52.9	1.00	ug/L	50.0	BLOD	106	75-125	2.38	20	
Silver	9.79	1.00	ug/L	10.0	BLOD	97.9	75-125	2.29	20	
Thallium	51	1.0	ug/L	50.0	BLOD	103	75-125	2.62	20	
Tin	50.2	1.00	ug/L	50.0	BLOD	100	75-125	2.17	20	
Vanadium	50.2	5.00	ug/L	50.0	BLOD	100	75-125	3.66	20	
Zinc	53.0	5.00	ug/L	50.0	14.6	76.9	75-125	0.592	20	

Matrix Spike Dup (BFE1163-MSD3)	Source: 22E1388-11RE1			Prepared: 05/31/2022 Analyzed: 06/08/2022						
Antimony	53	10	ug/L	50.0	BLOD	105	75-125	1.78	20	
Arsenic	54	10	ug/L	50.0	BLOD	108	75-125	3.84	20	
Barium	347	50.0	ug/L	50.0	290	114	75-125	1.03	20	
Cobalt	56.1	10.0	ug/L	50.0	5.43	101	75-125	0.204	20	
Copper	49.6	10.0	ug/L	50.0	BLOD	99.2	75-125	4.26	20	
Selenium	51.8	10.0	ug/L	50.0	BLOD	104	75-125	2.68	20	
Silver	9.97	10.0	ug/L	10.0	BLOD	99.7	75-125	2.14	20	
Thallium	53	10	ug/L	50.0	BLOD	107	75-125	0.660	20	

Batch BFF0266 - SW7470A

Blank (BFF0266-BLK1)	Prepared & Analyzed: 06/07/2022										
Mercury	ND	0.00020	mg/L								

Certificate of Analysis

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Metals (Total) by EPA 6000/7000 Series Methods - Quality Control

Enthalpy Analytical

Analyte	Result	LOQ	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Qual
Batch BFF0266 - SW7470A										
Blank (BFF0266-BLK1)				Prepared & Analyzed: 06/07/2022						
LCS (BFF0266-BS1)				Prepared & Analyzed: 06/07/2022						
Mercury	0.00265	0.00020	mg/L	0.00250		106	80-120			
Matrix Spike (BFF0266-MS1)				Source: 22E1280-07		Prepared & Analyzed: 06/07/2022				
Mercury	0.00270	0.00020	mg/L	0.00250	BLOD	108	80-120			
Matrix Spike (BFF0266-MS2)				Source: 22E1388-01		Prepared & Analyzed: 06/07/2022				
Mercury	0.00275	0.00020	mg/L	0.00250	BLOD	110	80-120			
Matrix Spike Dup (BFF0266-MSD1)				Source: 22E1280-07		Prepared & Analyzed: 06/07/2022				
Mercury	0.00262	0.00020	mg/L	0.00250	BLOD	105	80-120	3.04	20	
Matrix Spike Dup (BFF0266-MSD2)				Source: 22E1388-01		Prepared & Analyzed: 06/07/2022				
Mercury	0.00266	0.00020	mg/L	0.00250	BLOD	107	80-120	3.16	20	
Batch BFF0393 - SW7470A										
Blank (BFF0393-BLK1)				Prepared & Analyzed: 06/09/2022						
Mercury	ND	0.00020	mg/L							
LCS (BFF0393-BS1)				Prepared & Analyzed: 06/09/2022						
Mercury	0.00251	0.00020	mg/L	0.00250		100	80-120			
Matrix Spike (BFF0393-MS1)				Source: 22E1463-02		Prepared & Analyzed: 06/09/2022				
Mercury	0.00274	0.00020	mg/L	0.00250	BLOD	110	80-120			

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Enthalpy Analytical

Analyte	Result	LOQ	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Qual
Batch BFF0393 - SW7470A										
Matrix Spike (BFF0393-MS2)										
					Source: 22E1463-03					Prepared & Analyzed: 06/09/2022
Mercury	0.00244	0.00020	mg/L	0.00250	BLOD	97.7	80-120			
Matrix Spike Dup (BFF0393-MSD1)										
					Source: 22E1463-02					Prepared & Analyzed: 06/09/2022
Mercury	0.00263	0.00020	mg/L	0.00250	BLOD	105	80-120	3.98	20	
Matrix Spike Dup (BFF0393-MSD2)										
					Source: 22E1463-03					Prepared & Analyzed: 06/09/2022
Mercury	0.00259	0.00020	mg/L	0.00250	BLOD	104	80-120	5.84	20	

Certificate of Analysis

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Volatile Organic Compounds by GCMS - Quality Control

Enthalpy Analytical

Analyte	Result	LOQ	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Qual
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Batch BFE1119 - SW5030B-MS

Blank (BFE1119-BLK1)

Prepared & Analyzed: 05/27/2022

1,1,1,2-Tetrachloroethane	ND	0.40	ug/L
1,1,1-Trichloroethane	ND	1.00	ug/L
1,1,2,2-Tetrachloroethane	ND	0.40	ug/L
1,1,2-Trichloroethane	ND	1.00	ug/L
1,1-Dichloroethane	ND	1.00	ug/L
1,1-Dichloroethylene	ND	1.00	ug/L
1,2,3-Trichloropropane	ND	1.00	ug/L
1,2-Dichlorobenzene	ND	1.00	ug/L
1,2-Dichloroethane	ND	1.00	ug/L
1,2-Dichloropropane	ND	1.00	ug/L
1,4-Dichlorobenzene	ND	1.00	ug/L
2-Butanone (MEK)	ND	10.0	ug/L
2-Hexanone (MBK)	ND	5.00	ug/L
4-Methyl-2-pentanone (MIBK)	ND	5.00	ug/L
Acetone	ND	10.0	ug/L
Acrylonitrile	ND	5.00	ug/L
Benzene	ND	1.00	ug/L
Bromochloromethane	ND	1.00	ug/L
Bromodichloromethane	ND	0.50	ug/L
Bromoform	ND	1.00	ug/L
Bromomethane	ND	1.00	ug/L
Carbon disulfide	ND	10.0	ug/L
Carbon tetrachloride	ND	1.00	ug/L
Chlorobenzene	ND	1.00	ug/L
Chloroethane	ND	1.00	ug/L

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Volatile Organic Compounds by GCMS - Quality Control

Enthalpy Analytical

Analyte	Result	LOQ	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Qual
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Batch BFE1119 - SW5030B-MS

Blank (BFE1119-BLK1)

Prepared & Analyzed: 05/27/2022

Chloroform	ND	0.50	ug/L							
Chloromethane	ND	1.00	ug/L							
cis-1,2-Dichloroethylene	ND	1.00	ug/L							
cis-1,3-Dichloropropene	ND	1.00	ug/L							
Dibromochloromethane	ND	0.50	ug/L							
Dibromomethane	ND	1.00	ug/L							
Ethylbenzene	ND	1.00	ug/L							
Iodomethane	ND	10.0	ug/L							
m+p-Xylenes	ND	2.00	ug/L							
Methylene chloride	ND	4.00	ug/L							
o-Xylene	ND	1.00	ug/L							
Styrene	ND	1.00	ug/L							
Tetrachloroethylene (PCE)	ND	1.00	ug/L							
Toluene	ND	1.00	ug/L							
trans-1,2-Dichloroethylene	ND	1.00	ug/L							
trans-1,3-Dichloropropene	ND	1.00	ug/L							
trans-1,4-Dichloro-2-butene	ND	4.00	ug/L							
Trichloroethylene	ND	1.00	ug/L							
Trichlorofluoromethane	ND	1.00	ug/L							
Vinyl acetate	ND	10.0	ug/L							
Vinyl chloride	ND	0.50	ug/L							
Xylenes, Total	ND	3.00	ug/L							
<hr/>										
<i>Surr: 1,2-Dichloroethane-d4 (Surr)</i>	<i>48.0</i>		<i>ug/L</i>	<i>50.0</i>		<i>96.0</i>	<i>70-120</i>			
<i>Surr: 4-Bromofluorobenzene (Surr)</i>	<i>46.9</i>		<i>ug/L</i>	<i>50.0</i>		<i>93.8</i>	<i>75-120</i>			
<i>Surr: Dibromofluoromethane (Surr)</i>	<i>48.1</i>		<i>ug/L</i>	<i>50.0</i>		<i>96.2</i>	<i>70-130</i>			

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Enthalpy Analytical

Analyte	Result	LOQ	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Qual
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Batch BFE1119 - SW5030B-MS

Blank (BFE1119-BLK1)

Prepared & Analyzed: 05/27/2022

<i>Surr: Toluene-d8 (Surr)</i>	49.9		ug/L	50.0		99.8	70-130			
LCS (BFE1119-BS1)										
Prepared & Analyzed: 05/27/2022										
1,1,1,2-Tetrachloroethane	55.0	0.4	ug/L	50.0		110	80-130			
1,1,1-Trichloroethane	52.0	1	ug/L	50.0		104	65-130			
1,1,2,2-Tetrachloroethane	51.1	0.4	ug/L	50.0		102	65-130			
1,1,2-Trichloroethane	55.2	1	ug/L	50.0		110	75-125			
1,1-Dichloroethane	51.5	1	ug/L	50.0		103	70-135			
1,1-Dichloroethylene	45.5	1	ug/L	50.0		91.0	70-130			
1,2,3-Trichloropropane	51.1	1	ug/L	50.0		102	75-125			
1,2-Dichlorobenzene	53.0	0.5	ug/L	50.0		106	70-120			
1,2-Dichloroethane	49.2	1	ug/L	50.0		98.5	70-130			
1,2-Dichloropropane	53.6	0.5	ug/L	50.0		107	75-125			
1,4-Dichlorobenzene	53.8	1	ug/L	50.0		108	75-125			
2-Butanone (MEK)	42.8	10	ug/L	50.0		85.7	30-150			
2-Hexanone (MBK)	45.3	5	ug/L	50.0		90.6	55-130			
4-Methyl-2-pentanone (MIBK)	44.5	5	ug/L	50.0		88.9	60-135			
Acetone	64.8	10	ug/L	50.0		130	40-140			
Acrylonitrile	0.00	5	ug/L	250			70-130			L
Benzene	53.1	1	ug/L	50.0		106	80-120			
Bromochloromethane	52.8	1	ug/L	50.0		106	65-130			
Bromodichloromethane	57.6	0.5	ug/L	50.0		115	75-120			
Bromoform	54.5	1	ug/L	50.0		109	70-130			
Bromomethane	34.8	1	ug/L	50.0		69.6	30-145			
Carbon disulfide	38.8	10	ug/L	50.0		77.6	35-160			

Certificate of Analysis

Client Name: SCS Engineers-Winchester
 Client Site I.D.: City of Bristol 1st Semi-Annual 2022
 Submitted To: Jennifer Robb

Date Issued: 7/12/2022 2:30:28PM

Volatile Organic Compounds by GCMS - Quality Control

Enthalpy Analytical

Analyte	Result	LOQ	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Qual
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Batch BFE1119 - SW5030B-MS

LCS (BFE1119-BS1)

Prepared & Analyzed: 05/27/2022

Carbon tetrachloride	52.6	1	ug/L	50.0		105	65-140			
Chlorobenzene	54.1	1	ug/L	50.0		108	80-120			
Chloroethane	47.1	1	ug/L	50.0		94.2	60-135			
Chloroform	49.4	0.5	ug/L	50.0		98.8	65-135			
Chloromethane	38.8	1	ug/L	50.0		77.6	40-125			
cis-1,2-Dichloroethylene	51.3	1	ug/L	50.0		103	70-125			
cis-1,3-Dichloropropene	46.2	1	ug/L	50.0		92.5	70-130			
Dibromochloromethane	54.2	0.5	ug/L	50.0		108	60-135			
Dibromomethane	52.7	1	ug/L	50.0		105	75-125			
Ethylbenzene	55.0	1	ug/L	50.0		110	75-125			
m+p-Xylenes	104	2	ug/L	100		104	75-130			
Methylene chloride	55.7	4	ug/L	50.0		111	55-140			
o-Xylene	53.6	1	ug/L	50.0		107	80-120			
Styrene	51.7	1	ug/L	50.0		103	65-135			
Tetrachloroethylene (PCE)	81.4	1	ug/L	50.0		163	45-150			L
Toluene	53.9	1	ug/L	50.0		108	75-120			
trans-1,2-Dichloroethylene	51.2	1	ug/L	50.0		102	60-140			
trans-1,3-Dichloropropene	46.2	1	ug/L	50.0		92.5	55-140			
Trichloroethylene	52.5	1	ug/L	50.0		105	70-125			
Trichlorofluoromethane	47.6	1	ug/L	50.0		95.2	60-145			
Vinyl chloride	47.7	0.5	ug/L	50.0		95.3	50-145			
<hr/>										
<i>Surr: 1,2-Dichloroethane-d4 (Surr)</i>	<i>48.2</i>		<i>ug/L</i>	<i>50.0</i>		<i>96.4</i>	<i>70-120</i>			
<i>Surr: 4-Bromofluorobenzene (Surr)</i>	<i>49.4</i>		<i>ug/L</i>	<i>50.0</i>		<i>98.9</i>	<i>75-120</i>			
<i>Surr: Dibromofluoromethane (Surr)</i>	<i>48.6</i>		<i>ug/L</i>	<i>50.0</i>		<i>97.2</i>	<i>70-130</i>			
<i>Surr: Toluene-d8 (Surr)</i>	<i>49.8</i>		<i>ug/L</i>	<i>50.0</i>		<i>99.7</i>	<i>70-130</i>			

Certificate of Analysis

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Volatile Organic Compounds by GCMS - Quality Control

Enthalpy Analytical

Analyte	Result	LOQ	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Qual
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Batch BFE1119 - SW5030B-MS

LCS (BFE1119-BS1)

Prepared & Analyzed: 05/27/2022

Matrix Spike (BFE1119-MS1)

Source: 22E1293-02

Prepared & Analyzed: 05/27/2022

1,1,1,2-Tetrachloroethane	49.7	0.4	ug/L	50.0	BLOD	99.4	80-130			
1,1,1-Trichloroethane	44.0	1	ug/L	50.0	BLOD	88.0	65-130			
1,1,2,2-Tetrachloroethane	47.7	0.4	ug/L	50.0	BLOD	95.4	65-130			
1,1,2-Trichloroethane	51.9	1	ug/L	50.0	BLOD	104	75-125			
1,1-Dichloroethane	44.2	1	ug/L	50.0	BLOD	88.3	70-135			
1,1-Dichloroethylene	36.3	1	ug/L	50.0	BLOD	72.5	70-130			
1,2,3-Trichloropropane	48.9	1	ug/L	50.0	BLOD	97.9	75-125			
1,2-Dichlorobenzene	49.2	0.5	ug/L	50.0	BLOD	98.3	70-120			
1,2-Dichloroethane	45.4	1	ug/L	50.0	BLOD	90.9	70-130			
1,2-Dichloropropane	48.2	0.5	ug/L	50.0	BLOD	96.4	75-125			
1,4-Dichlorobenzene	49.4	1	ug/L	50.0	BLOD	98.8	75-125			
2-Butanone (MEK)	40.2	10	ug/L	50.0	BLOD	80.4	30-150			
2-Hexanone (MBK)	41.4	5	ug/L	50.0	BLOD	82.8	55-130			
4-Methyl-2-pentanone (MIBK)	40.5	5	ug/L	50.0	BLOD	81.1	60-135			
Acetone	55.1	10	ug/L	50.0	BLOD	97.3	40-140			
Acrylonitrile	0.00	5	ug/L	250	BLOD		70-130			M
Benzene	46.8	1	ug/L	50.0	BLOD	93.5	80-120			
Bromochloromethane	48.3	1	ug/L	50.0	BLOD	96.6	65-130			
Bromodichloromethane	52.3	0.5	ug/L	50.0	BLOD	105	75-120			
Bromoform	51.5	1	ug/L	50.0	BLOD	103	70-130			
Bromomethane	28.5	1	ug/L	50.0	BLOD	57.1	30-145			
Carbon disulfide	33.7	10	ug/L	50.0	BLOD	67.4	35-160			
Carbon tetrachloride	45.1	1	ug/L	50.0	BLOD	90.2	65-140			

Certificate of Analysis

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Volatile Organic Compounds by GCMS - Quality Control

Enthalpy Analytical

Analyte	Result	LOQ	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Qual
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Batch BFE1119 - SW5030B-MS

Matrix Spike (BFE1119-MS1)	Source: 22E1293-02			Prepared & Analyzed: 05/27/2022						
Chlorobenzene	48.7	1	ug/L	50.0	BLOD	97.4	80-120			
Chloroethane	35.8	1	ug/L	50.0	BLOD	71.6	60-135			
Chloroform	42.7	0.5	ug/L	50.0	BLOD	85.5	65-135			
Chloromethane	26.2	1	ug/L	50.0	BLOD	52.4	40-125			
cis-1,2-Dichloroethylene	44.9	1	ug/L	50.0	BLOD	89.7	70-125			
cis-1,3-Dichloropropene	41.9	1	ug/L	50.0	BLOD	83.9	70-130			
Dibromochloromethane	49.1	0.5	ug/L	50.0	BLOD	98.2	60-135			
Dibromomethane	50.0	1	ug/L	50.0	BLOD	100	75-125			
Ethylbenzene	47.7	1	ug/L	50.0	BLOD	95.4	75-125			
m+p-Xylenes	92.2	2	ug/L	100	BLOD	92.2	75-130			
Methylene chloride	47.5	4	ug/L	50.0	27.4	40.2	55-140			M
o-Xylene	47.5	1	ug/L	50.0	BLOD	95.1	80-120			
Styrene	46.5	1	ug/L	50.0	BLOD	93.0	65-135			
Tetrachloroethylene (PCE)	74.0	1	ug/L	50.0	BLOD	148	45-150			
Toluene	47.5	1	ug/L	50.0	BLOD	95.0	75-120			
trans-1,2-Dichloroethylene	44.2	1	ug/L	50.0	BLOD	88.3	60-140			
trans-1,3-Dichloropropene	41.9	1	ug/L	50.0	BLOD	83.9	55-140			
Trichloroethylene	45.4	1	ug/L	50.0	BLOD	90.9	70-125			
Trichlorofluoromethane	36.0	1	ug/L	50.0	BLOD	72.1	60-145			
Vinyl chloride	18.7	0.5	ug/L	50.0	BLOD	37.5	50-145			M
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<i>Surr: 1,2-Dichloroethane-d4 (Surr)</i>	<i>47.6</i>		<i>ug/L</i>	<i>50.0</i>		<i>95.2</i>	<i>70-120</i>			
<i>Surr: 4-Bromofluorobenzene (Surr)</i>	<i>47.6</i>		<i>ug/L</i>	<i>50.0</i>		<i>95.2</i>	<i>75-120</i>			
<i>Surr: Dibromofluoromethane (Surr)</i>	<i>48.3</i>		<i>ug/L</i>	<i>50.0</i>		<i>96.6</i>	<i>70-130</i>			
<i>Surr: Toluene-d8 (Surr)</i>	<i>49.7</i>		<i>ug/L</i>	<i>50.0</i>		<i>99.4</i>	<i>70-130</i>			

Certificate of Analysis

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Volatile Organic Compounds by GCMS - Quality Control

Enthalpy Analytical

Analyte	Result	LOQ	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Qual
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Batch BFE1119 - SW5030B-MS

Matrix Spike Dup (BFE1119-MSD1)	Source: 22E1293-02			Prepared & Analyzed: 05/27/2022						
1,1,1,2-Tetrachloroethane	46.3	0.4	ug/L	50.0	BLOD	92.6	80-130	7.06	30	
1,1,1-Trichloroethane	41.9	1	ug/L	50.0	BLOD	83.8	65-130	4.94	30	
1,1,2,2-Tetrachloroethane	44.9	0.4	ug/L	50.0	BLOD	89.9	65-130	6.02	30	
1,1,2-Trichloroethane	47.8	1	ug/L	50.0	BLOD	95.7	75-125	8.18	30	
1,1-Dichloroethane	41.0	1	ug/L	50.0	BLOD	82.1	70-135	7.33	30	
1,1-Dichloroethylene	34.7	1	ug/L	50.0	BLOD	69.5	70-130	4.28	30	M
1,2,3-Trichloropropane	45.6	1	ug/L	50.0	BLOD	91.2	75-125	7.09	30	
1,2-Dichlorobenzene	45.1	0.5	ug/L	50.0	BLOD	90.2	70-120	8.59	30	
1,2-Dichloroethane	42.1	1	ug/L	50.0	BLOD	84.2	70-130	7.61	30	
1,2-Dichloropropane	44.2	0.5	ug/L	50.0	BLOD	88.4	75-125	8.72	30	
1,4-Dichlorobenzene	45.1	1	ug/L	50.0	BLOD	90.2	75-125	9.12	30	
2-Butanone (MEK)	39.3	10	ug/L	50.0	BLOD	78.6	30-150		30	
2-Hexanone (MBK)	40.5	5	ug/L	50.0	BLOD	80.9	55-130		30	
4-Methyl-2-pentanone (MIBK)	38.8	5	ug/L	50.0	BLOD	77.6	60-135	4.41	30	
Acetone	52.8	10	ug/L	50.0	BLOD	92.8	40-140		30	
Acrylonitrile	0.00	5	ug/L	250	BLOD		70-130		30	M
Benzene	43.3	1	ug/L	50.0	BLOD	86.5	80-120	7.75	30	
Bromochloromethane	44.0	1	ug/L	50.0	BLOD	87.9	65-130	9.39	30	
Bromodichloromethane	47.4	0.5	ug/L	50.0	BLOD	94.8	75-120	9.89	30	
Bromoform	48.3	1	ug/L	50.0	BLOD	96.6	70-130	6.41	30	
Bromomethane	29.1	1	ug/L	50.0	BLOD	58.2	30-145	1.94	30	
Carbon disulfide	33.4	10	ug/L	50.0	BLOD	66.8	35-160		30	
Carbon tetrachloride	42.1	1	ug/L	50.0	BLOD	84.2	65-140	6.88	30	
Chlorobenzene	44.8	1	ug/L	50.0	BLOD	89.5	80-120	8.41	30	
Chloroethane	34.2	1	ug/L	50.0	BLOD	68.5	60-135	4.51	30	

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Volatile Organic Compounds by GCMS - Quality Control

Enthalpy Analytical

Analyte	Result	LOQ	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Qual
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Batch BFE1119 - SW5030B-MS

Matrix Spike Dup (BFE1119-MSD1)	Source: 22E1293-02		Prepared & Analyzed: 05/27/2022							
Chloroform	39.7	0.5	ug/L	50.0	BLOD	79.3	65-135	7.45	30	
Chloromethane	24.4	1	ug/L	50.0	BLOD	48.9	40-125	6.99	30	
cis-1,2-Dichloroethylene	41.0	1	ug/L	50.0	BLOD	82.1	70-125	8.92	30	
cis-1,3-Dichloropropene	39.0	1	ug/L	50.0	BLOD	78.0	70-130	7.32	30	
Dibromochloromethane	45.8	0.5	ug/L	50.0	BLOD	91.7	60-135	6.91	30	
Dibromomethane	45.8	1	ug/L	50.0	BLOD	91.7	75-125	8.68	30	
Ethylbenzene	45.1	1	ug/L	50.0	BLOD	90.3	75-125	5.52	30	
m+p-Xylenes	86.7	2	ug/L	100	BLOD	86.7	75-130	6.08	30	
Methylene chloride	42.6	4	ug/L	50.0	27.4	30.4	55-140		30	M
o-Xylene	44.3	1	ug/L	50.0	BLOD	88.5	80-120	7.12	30	
Styrene	43.6	1	ug/L	50.0	BLOD	87.1	65-135	6.53	30	
Tetrachloroethylene (PCE)	70.0	1	ug/L	50.0	BLOD	140	45-150	5.56	30	
Toluene	44.3	1	ug/L	50.0	BLOD	88.6	75-120	6.97	30	
trans-1,2-Dichloroethylene	40.7	1	ug/L	50.0	BLOD	81.3	60-140	8.25	30	
trans-1,3-Dichloropropene	39.0	1	ug/L	50.0	BLOD	78.0	55-140	7.32	30	
Trichloroethylene	42.3	1	ug/L	50.0	BLOD	84.6	70-125	7.16	30	
Trichlorofluoromethane	34.2	1	ug/L	50.0	BLOD	68.4	60-145	5.15	30	
Vinyl chloride	29.3	0.5	ug/L	50.0	BLOD	58.5	50-145	43.9	30	M
<i>Surr: 1,2-Dichloroethane-d4 (Surr)</i>	<i>47.0</i>		<i>ug/L</i>	<i>50.0</i>		<i>94.1</i>	<i>70-120</i>			
<i>Surr: 4-Bromofluorobenzene (Surr)</i>	<i>48.7</i>		<i>ug/L</i>	<i>50.0</i>		<i>97.4</i>	<i>75-120</i>			
<i>Surr: Dibromofluoromethane (Surr)</i>	<i>48.1</i>		<i>ug/L</i>	<i>50.0</i>		<i>96.3</i>	<i>70-130</i>			
<i>Surr: Toluene-d8 (Surr)</i>	<i>50.0</i>		<i>ug/L</i>	<i>50.0</i>		<i>100</i>	<i>70-130</i>			

Batch BFE1120 - SW5030B-MS

Blank (BFE1120-BLK1)	Prepared & Analyzed: 05/27/2022									
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Certificate of Analysis

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Volatile Organic Compounds by GCMS - Quality Control

Enthalpy Analytical

Analyte	Result	LOQ	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Qual
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Batch BFE1120 - SW5030B-MS

Blank (BFE1120-BLK1)

Prepared & Analyzed: 05/27/2022

1,1,1,2-Tetrachloroethane	ND	0.40	ug/L
1,1,1-Trichloroethane	ND	1.00	ug/L
1,1,2,2-Tetrachloroethane	ND	0.40	ug/L
1,1,2-Trichloroethane	ND	1.00	ug/L
1,1-Dichloroethane	ND	1.00	ug/L
1,1-Dichloroethylene	ND	1.00	ug/L
1,1-Dichloropropene	ND	1.00	ug/L
1,2,3-Trichloropropane	ND	1.00	ug/L
1,2,4-Trichlorobenzene	ND	1.00	ug/L
1,2-Dichlorobenzene	ND	1.00	ug/L
1,2-Dichloroethane	ND	1.00	ug/L
1,2-Dichloropropane	ND	1.00	ug/L
1,3-Dichlorobenzene	ND	1.00	ug/L
1,3-Dichloropropane	ND	1.00	ug/L
1,4-Dichlorobenzene	ND	1.00	ug/L
2,2-Dichloropropane	ND	2.00	ug/L
2-Butanone (MEK)	ND	10.0	ug/L
2-Hexanone (MBK)	ND	5.00	ug/L
4-Methyl-2-pentanone (MIBK)	ND	5.00	ug/L
Acetone	ND	10.0	ug/L
Acetonitrile	ND	10.0	ug/L
Acrolein	ND	10.0	ug/L
Acrylonitrile	ND	5.00	ug/L
Allyl chloride	ND	1.00	ug/L
Benzene	ND	1.00	ug/L

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Volatile Organic Compounds by GCMS - Quality Control

Enthalpy Analytical

Analyte	Result	LOQ	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Qual
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Batch BFE1120 - SW5030B-MS

Blank (BFE1120-BLK1)

Prepared & Analyzed: 05/27/2022

Bromochloromethane	ND	1.00	ug/L
Bromodichloromethane	ND	0.50	ug/L
Bromoform	ND	1.00	ug/L
Bromomethane	ND	1.00	ug/L
Carbon disulfide	ND	10.0	ug/L
Carbon tetrachloride	ND	1.00	ug/L
Chlorobenzene	ND	1.00	ug/L
Chloroethane	ND	1.00	ug/L
Chloroform	ND	0.50	ug/L
Chloromethane	ND	1.00	ug/L
Chloroprene	ND	5.00	ug/L
cis-1,2-Dichloroethylene	ND	1.00	ug/L
cis-1,3-Dichloropropene	ND	1.00	ug/L
Dibromochloromethane	ND	0.50	ug/L
Dibromomethane	ND	1.00	ug/L
Dichlorodifluoromethane	ND	1.00	ug/L
Ethyl methacrylate	ND	5.00	ug/L
Ethylbenzene	ND	1.00	ug/L
Iodomethane	ND	10.0	ug/L
Isobutyl Alcohol	ND	40.0	ug/L
m+p-Xylenes	ND	2.00	ug/L
Methacrylonitrile	ND	1.50	ug/L
Methyl methacrylate	ND	2.00	ug/L
Methylene chloride	ND	4.00	ug/L
Naphthalene	ND	1.00	ug/L

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Volatile Organic Compounds by GCMS - Quality Control

Enthalpy Analytical

Analyte	Result	LOQ	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Qual
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Batch BFE1120 - SW5030B-MS

Blank (BFE1120-BLK1)

Prepared & Analyzed: 05/27/2022

o-Xylene	ND	1.00	ug/L							
Propionitrile	ND	40.0	ug/L							
Styrene	ND	1.00	ug/L							
Tetrachloroethylene (PCE)	ND	1.00	ug/L							
Toluene	ND	1.00	ug/L							
trans-1,2-Dichloroethylene	ND	1.00	ug/L							
trans-1,3-Dichloropropene	ND	1.00	ug/L							
trans-1,4-Dichloro-2-butene	ND	4.00	ug/L							
Trichloroethylene	ND	1.00	ug/L							
Trichlorofluoromethane	ND	1.00	ug/L							
Vinyl acetate	ND	10.0	ug/L							
Vinyl chloride	ND	0.50	ug/L							
Xylenes, Total	ND	3.00	ug/L							
<hr/>										
<i>Surr: 1,2-Dichloroethane-d4 (Surr)</i>	<i>51.7</i>		<i>ug/L</i>	<i>50.0</i>		<i>103</i>	<i>70-120</i>			
<i>Surr: 4-Bromofluorobenzene (Surr)</i>	<i>49.3</i>		<i>ug/L</i>	<i>50.0</i>		<i>98.6</i>	<i>75-120</i>			
<i>Surr: Dibromofluoromethane (Surr)</i>	<i>49.8</i>		<i>ug/L</i>	<i>50.0</i>		<i>99.6</i>	<i>70-130</i>			
<i>Surr: Toluene-d8 (Surr)</i>	<i>50.1</i>		<i>ug/L</i>	<i>50.0</i>		<i>100</i>	<i>70-130</i>			

LCS (BFE1120-BS1)

Prepared & Analyzed: 05/27/2022

1,1,1,2-Tetrachloroethane	53.9	0.4	ug/L	50.0		108	80-130			
1,1,1-Trichloroethane	54.5	1	ug/L	50.0		109	65-130			
1,1,2,2-Tetrachloroethane	50.2	0.4	ug/L	50.0		100	65-130			
1,1,2-Trichloroethane	49.2	1	ug/L	50.0		98.3	75-125			
1,1-Dichloroethane	50.1	1	ug/L	50.0		100	70-135			
1,1-Dichloroethylene	42.7	1	ug/L	50.0		85.3	70-130			

Certificate of Analysis

Client Name: SCS Engineers-Winchester
 Client Site I.D.: City of Bristol 1st Semi-Annual 2022
 Submitted To: Jennifer Robb

Date Issued: 7/12/2022 2:30:28PM

Volatile Organic Compounds by GCMS - Quality Control

Enthalpy Analytical

Analyte	Result	LOQ	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Qual
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Batch BFE1120 - SW5030B-MS

LCS (BFE1120-BS1)

Prepared & Analyzed: 05/27/2022

1,1-Dichloropropene	52.4	1	ug/L	50.0		105	75-135			
1,2,3-Trichloropropane	51.4	1	ug/L	50.0		103	75-125			
1,2,4-Trichlorobenzene	50.9	1	ug/L	50.0		102	65-135			
1,2-Dichlorobenzene	54.8	0.5	ug/L	50.0		110	70-120			
1,2-Dichloroethane	50.8	1	ug/L	50.0		102	70-130			
1,2-Dichloropropane	49.2	0.5	ug/L	50.0		98.5	75-125			
1,3-Dichlorobenzene	55.8	1	ug/L	50.0		112	75-125			
1,3-Dichloropropane	50.8	1	ug/L	50.0		102	75-125			
1,4-Dichlorobenzene	55.2	1	ug/L	50.0		110	75-125			
2,2-Dichloropropane	45.7	1	ug/L	50.0		91.4	70-135			
2-Butanone (MEK)	43.3	10	ug/L	50.0		86.5	30-150			
2-Hexanone (MBK)	53.6	5	ug/L	50.0		107	55-130			
4-Methyl-2-pentanone (MIBK)	49.6	5	ug/L	50.0		99.2	60-135			
Acetone	50.2	10	ug/L	50.0		100	40-140			
Acrylonitrile	301	5	ug/L	250		120	70-130			
Benzene	51.1	1	ug/L	50.0		102	80-120			
Bromochloromethane	48.0	1	ug/L	50.0		96.0	65-130			
Bromodichloromethane	55.5	0.5	ug/L	50.0		111	75-120			
Bromoform	49.7	1	ug/L	50.0		99.4	70-130			
Bromomethane	40.4	1	ug/L	50.0		80.9	30-145			
Carbon disulfide	55.4	10	ug/L	50.0		111	35-160			
Carbon tetrachloride	53.9	1	ug/L	50.0		108	65-140			
Chlorobenzene	52.6	1	ug/L	50.0		105	80-120			
Chloroethane	42.9	1	ug/L	50.0		85.9	60-135			
Chloroform	47.2	0.5	ug/L	50.0		94.5	65-135			

Certificate of Analysis

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Volatile Organic Compounds by GCMS - Quality Control

Enthalpy Analytical

Analyte	Result	LOQ	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Qual
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Batch BFE1120 - SW5030B-MS

LCS (BFE1120-BS1)

Prepared & Analyzed: 05/27/2022

Chloromethane	36.6	1	ug/L	50.0		73.2	40-125			
cis-1,2-Dichloroethylene	47.5	1	ug/L	50.0		95.0	70-125			
cis-1,3-Dichloropropene	38.8	1	ug/L	50.0		77.7	70-130			
Dibromochloromethane	49.3	0.5	ug/L	50.0		98.6	60-135			
Dibromomethane	46.3	1	ug/L	50.0		92.5	75-125			
Dichlorodifluoromethane	15.0	1	ug/L	50.0		30.0	30-155			
Ethylbenzene	56.9	1	ug/L	50.0		114	75-125			
m+p-Xylenes	105	2	ug/L	100		105	75-130			
Methylene chloride	47.3	4	ug/L	50.0		94.7	55-140			
Naphthalene	48.7	1	ug/L	50.0		97.4	55-140			
o-Xylene	54.6	1	ug/L	50.0		109	80-120			
Styrene	52.2	1	ug/L	50.0		104	65-135			
Tetrachloroethylene (PCE)	88.2	1	ug/L	50.0		176	45-150			L
Toluene	53.0	1	ug/L	50.0		106	75-120			
trans-1,2-Dichloroethylene	48.5	1	ug/L	50.0		97.0	60-140			
trans-1,3-Dichloropropene	42.6	1	ug/L	50.0		85.2	55-140			
Trichloroethylene	52.1	1	ug/L	50.0		104	70-125			
Trichlorofluoromethane	49.9	1	ug/L	50.0		99.7	60-145			
Vinyl chloride	39.6	0.5	ug/L	50.0		79.2	50-145			
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<i>Surr: 1,2-Dichloroethane-d4 (Surr)</i>	<i>50.2</i>		<i>ug/L</i>	<i>50.0</i>		<i>100</i>	<i>70-120</i>			
<i>Surr: 4-Bromofluorobenzene (Surr)</i>	<i>50.4</i>		<i>ug/L</i>	<i>50.0</i>		<i>101</i>	<i>75-120</i>			
<i>Surr: Dibromofluoromethane (Surr)</i>	<i>51.0</i>		<i>ug/L</i>	<i>50.0</i>		<i>102</i>	<i>70-130</i>			
<i>Surr: Toluene-d8 (Surr)</i>	<i>50.4</i>		<i>ug/L</i>	<i>50.0</i>		<i>101</i>	<i>70-130</i>			

Matrix Spike (BFE1120-MS1)

Source: 22E1388-02

Prepared & Analyzed: 05/27/2022

Certificate of Analysis

Client Name: SCS Engineers-Winchester
 Client Site I.D.: City of Bristol 1st Semi-Annual 2022
 Submitted To: Jennifer Robb

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Volatile Organic Compounds by GCMS - Quality Control

Enthalpy Analytical

Analyte	Result	LOQ	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Qual
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Batch BFE1120 - SW5030B-MS

Matrix Spike (BFE1120-MS1)

Source: 22E1388-02

Prepared & Analyzed: 05/27/2022

1,1,1,2-Tetrachloroethane	52.8	0.4	ug/L	50.0	BLOD	106	80-130			
1,1,1-Trichloroethane	52.7	1	ug/L	50.0	BLOD	105	65-130			
1,1,2,2-Tetrachloroethane	52.0	0.4	ug/L	50.0	BLOD	104	65-130			
1,1,2-Trichloroethane	51.0	1	ug/L	50.0	BLOD	102	75-125			
1,1-Dichloroethane	49.1	1	ug/L	50.0	BLOD	98.1	70-135			
1,1-Dichloroethylene	42.6	1	ug/L	50.0	BLOD	85.1	70-130			
1,1-Dichloropropene	48.5	1	ug/L	50.0	BLOD	97.0	75-135			
1,2,3-Trichloropropane	52.4	1	ug/L	50.0	BLOD	105	75-125			
1,2,4-Trichlorobenzene	52.3	1	ug/L	50.0	BLOD	105	65-135			
1,2-Dichlorobenzene	54.7	0.5	ug/L	50.0	BLOD	109	70-120			
1,2-Dichloroethane	51.0	1	ug/L	50.0	BLOD	102	70-130			
1,2-Dichloropropane	48.4	0.5	ug/L	50.0	BLOD	96.8	75-125			
1,3-Dichlorobenzene	55.1	1	ug/L	50.0	BLOD	110	75-125			
1,3-Dichloropropane	51.0	1	ug/L	50.0	BLOD	102	75-125			
1,4-Dichlorobenzene	54.9	1	ug/L	50.0	BLOD	110	75-125			
2,2-Dichloropropane	44.5	1	ug/L	50.0	BLOD	89.1	70-135			
2-Butanone (MEK)	44.0	10	ug/L	50.0	BLOD	87.9	30-150			
2-Hexanone (MBK)	53.8	5	ug/L	50.0	BLOD	108	55-130			
4-Methyl-2-pentanone (MIBK)	51.4	5	ug/L	50.0	BLOD	103	60-135			
Acetone	51.7	10	ug/L	50.0	BLOD	92.3	40-140			
Acrylonitrile	318	5	ug/L	250	BLOD	127	70-130			
Benzene	50.1	1	ug/L	50.0	BLOD	100	80-120			
Bromochloromethane	46.2	1	ug/L	50.0	BLOD	92.4	65-130			
Bromodichloromethane	54.7	0.5	ug/L	50.0	BLOD	109	75-120			
Bromoform	50.2	1	ug/L	50.0	BLOD	100	70-130			

Certificate of Analysis

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Volatile Organic Compounds by GCMS - Quality Control

Enthalpy Analytical

Analyte	Result	LOQ	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Qual
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Batch BFE1120 - SW5030B-MS

Matrix Spike (BFE1120-MS1)

Source: 22E1388-02

Prepared & Analyzed: 05/27/2022

Bromomethane	38.6	1	ug/L	50.0	BLOD	77.1	30-145			
Carbon disulfide	51.8	10	ug/L	50.0	BLOD	104	35-160			
Carbon tetrachloride	52.0	1	ug/L	50.0	BLOD	104	65-140			
Chlorobenzene	51.9	1	ug/L	50.0	BLOD	104	80-120			
Chloroethane	43.0	1	ug/L	50.0	BLOD	86.0	60-135			
Chloroform	46.2	0.5	ug/L	50.0	BLOD	92.5	65-135			
Chloromethane	35.9	1	ug/L	50.0	BLOD	71.8	40-125			
cis-1,2-Dichloroethylene	46.9	1	ug/L	50.0	BLOD	93.8	70-125			
cis-1,3-Dichloropropene	37.7	1	ug/L	50.0	BLOD	75.5	70-130			
Dibromochloromethane	49.2	0.5	ug/L	50.0	BLOD	98.4	60-135			
Dibromomethane	46.7	1	ug/L	50.0	BLOD	93.5	75-125			
Dichlorodifluoromethane	14.5	1	ug/L	50.0	BLOD	28.9	30-155			M
Ethylbenzene	55.8	1	ug/L	50.0	BLOD	112	75-125			
m+p-Xylenes	103	2	ug/L	100	BLOD	103	75-130			
Methylene chloride	45.5	4	ug/L	50.0	BLOD	91.0	55-140			
Naphthalene	53.2	1	ug/L	50.0	BLOD	106	55-140			
o-Xylene	52.8	1	ug/L	50.0	BLOD	106	80-120			
Styrene	51.6	1	ug/L	50.0	BLOD	103	65-135			
Tetrachloroethylene (PCE)	87.1	1	ug/L	50.0	BLOD	174	45-150			M
Toluene	51.2	1	ug/L	50.0	BLOD	102	75-120			
trans-1,2-Dichloroethylene	47.3	1	ug/L	50.0	BLOD	94.6	60-140			
trans-1,3-Dichloropropene	41.5	1	ug/L	50.0	BLOD	82.9	55-140			
Trichloroethylene	51.4	1	ug/L	50.0	BLOD	103	70-125			
Trichlorofluoromethane	47.7	1	ug/L	50.0	BLOD	95.3	60-145			
Vinyl chloride	37.8	0.5	ug/L	50.0	BLOD	75.5	50-145			

Certificate of Analysis

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Volatile Organic Compounds by GCMS - Quality Control

Enthalpy Analytical

Analyte	Result	LOQ	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Qual
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Batch BFE1120 - SW5030B-MS

Matrix Spike (BFE1120-MS1)

Source: 22E1388-02

Prepared & Analyzed: 05/27/2022

<i>Surr: 1,2-Dichloroethane-d4 (Surr)</i>	53.5		ug/L	50.0		107	70-120		
<i>Surr: 4-Bromofluorobenzene (Surr)</i>	49.4		ug/L	50.0		98.8	75-120		
<i>Surr: Dibromofluoromethane (Surr)</i>	51.5		ug/L	50.0		103	70-130		
<i>Surr: Toluene-d8 (Surr)</i>	50.5		ug/L	50.0		101	70-130		

Matrix Spike Dup (BFE1120-MSD1)

Source: 22E1388-02

Prepared & Analyzed: 05/27/2022

1,1,1,2-Tetrachloroethane	49.4	0.4	ug/L	50.0	BLOD	98.8	80-130	6.69	30
1,1,1-Trichloroethane	49.2	1	ug/L	50.0	BLOD	98.3	65-130	6.97	30
1,1,2,2-Tetrachloroethane	49.2	0.4	ug/L	50.0	BLOD	98.3	65-130	5.60	30
1,1,2-Trichloroethane	46.5	1	ug/L	50.0	BLOD	93.0	75-125	9.17	30
1,1-Dichloroethane	44.7	1	ug/L	50.0	BLOD	89.4	70-135	9.37	30
1,1-Dichloroethylene	38.8	1	ug/L	50.0	BLOD	77.6	70-130	9.29	30
1,1-Dichloropropene	47.0	1	ug/L	50.0	BLOD	93.9	75-135	3.21	30
1,2,3-Trichloropropane	50.2	1	ug/L	50.0	BLOD	100	75-125	4.27	30
1,2,4-Trichlorobenzene	48.0	1	ug/L	50.0	BLOD	96.1	65-135	8.45	30
1,2-Dichlorobenzene	50.6	0.5	ug/L	50.0	BLOD	101	70-120	7.65	30
1,2-Dichloroethane	46.5	1	ug/L	50.0	BLOD	93.1	70-130	9.17	30
1,2-Dichloropropane	44.1	0.5	ug/L	50.0	BLOD	88.2	75-125	9.32	30
1,3-Dichlorobenzene	51.9	1	ug/L	50.0	BLOD	104	75-125	6.04	30
1,3-Dichloropropane	45.5	1	ug/L	50.0	BLOD	90.9	75-125	11.4	30
1,4-Dichlorobenzene	51.0	1	ug/L	50.0	BLOD	102	75-125	7.50	30
2,2-Dichloropropane	40.0	1	ug/L	50.0	BLOD	80.1	70-135	10.6	30
2-Butanone (MEK)	40.3	10	ug/L	50.0	BLOD	80.6	30-150	8.74	30
2-Hexanone (MBK)	52.7	5	ug/L	50.0	BLOD	105	55-130	1.97	30
4-Methyl-2-pentanone (MIBK)	46.7	5	ug/L	50.0	BLOD	93.3	60-135	9.57	30

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Enthalpy Analytical

Analyte	Result	LOQ	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Qual
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Batch BFE1120 - SW5030B-MS

Matrix Spike Dup (BFE1120-MSD1)	Source: 22E1388-02			Prepared & Analyzed: 05/27/2022						
Acetone	51.2	10	ug/L	50.0	BLOD	91.3	40-140	0.914	30	
Acrylonitrile	299	5	ug/L	250	BLOD	120	70-130	6.04	30	
Benzene	45.5	1	ug/L	50.0	BLOD	91.0	80-120	9.60	30	
Bromochloromethane	42.1	1	ug/L	50.0	BLOD	84.1	65-130	9.36	30	
Bromodichloromethane	47.2	0.5	ug/L	50.0	BLOD	94.5	75-120	14.7	30	
Bromoform	46.5	1	ug/L	50.0	BLOD	93.1	70-130	7.57	30	
Bromomethane	35.3	1	ug/L	50.0	BLOD	70.7	30-145	8.69	30	
Carbon disulfide	47.2	10	ug/L	50.0	BLOD	94.3	35-160	9.44	30	
Carbon tetrachloride	49.7	1	ug/L	50.0	BLOD	99.4	65-140	4.48	30	
Chlorobenzene	47.8	1	ug/L	50.0	BLOD	95.5	80-120	8.25	30	
Chloroethane	38.8	1	ug/L	50.0	BLOD	77.6	60-135	10.3	30	
Chloroform	42.2	0.5	ug/L	50.0	BLOD	84.3	65-135	9.21	30	
Chloromethane	32.6	1	ug/L	50.0	BLOD	65.2	40-125	9.64	30	
cis-1,2-Dichloroethylene	42.1	1	ug/L	50.0	BLOD	84.1	70-125	10.9	30	
cis-1,3-Dichloropropene	33.5	1	ug/L	50.0	BLOD	67.0	70-130	11.9	30	M
Dibromochloromethane	45.8	0.5	ug/L	50.0	BLOD	91.5	60-135	7.20	30	
Dibromomethane	40.6	1	ug/L	50.0	BLOD	81.3	75-125	13.9	30	
Dichlorodifluoromethane	14.6	1	ug/L	50.0	BLOD	29.2	30-155	0.826	30	M
Ethylbenzene	51.2	1	ug/L	50.0	BLOD	102	75-125	8.62	30	
m+p-Xylenes	94.1	2	ug/L	100	BLOD	94.1	75-130	9.15	30	
Methylene chloride	40.7	4	ug/L	50.0	BLOD	81.4	55-140	11.1	30	
Naphthalene	50.5	1	ug/L	50.0	BLOD	101	55-140	5.15	30	
o-Xylene	49.6	1	ug/L	50.0	BLOD	99.2	80-120	6.36	30	
Styrene	47.0	1	ug/L	50.0	BLOD	94.1	65-135	9.19	30	
Tetrachloroethylene (PCE)	79.4	1	ug/L	50.0	BLOD	159	45-150	9.22	30	M

Certificate of Analysis

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Volatile Organic Compounds by GCMS - Quality Control

Enthalpy Analytical

Analyte	Result	LOQ	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Qual
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Batch BFE1120 - SW5030B-MS

Matrix Spike Dup (BFE1120-MSD1)

Source: 22E1388-02

Prepared & Analyzed: 05/27/2022

Toluene	46.6	1	ug/L	50.0	BLOD	93.1	75-120	9.40	30	
trans-1,2-Dichloroethylene	42.8	1	ug/L	50.0	BLOD	85.5	60-140	10.1	30	
trans-1,3-Dichloropropene	37.1	1	ug/L	50.0	BLOD	74.3	55-140	11.0	30	
Trichloroethylene	46.4	1	ug/L	50.0	BLOD	92.8	70-125	10.2	30	
Trichlorofluoromethane	46.4	1	ug/L	50.0	BLOD	92.9	60-145	2.64	30	
Vinyl chloride	34.9	0.5	ug/L	50.0	BLOD	69.8	50-145	7.96	30	
<i>Surr: 1,2-Dichloroethane-d4 (Surr)</i>	<i>51.5</i>		<i>ug/L</i>	<i>50.0</i>		<i>103</i>	<i>70-120</i>			
<i>Surr: 4-Bromofluorobenzene (Surr)</i>	<i>50.6</i>		<i>ug/L</i>	<i>50.0</i>		<i>101</i>	<i>75-120</i>			
<i>Surr: Dibromofluoromethane (Surr)</i>	<i>51.1</i>		<i>ug/L</i>	<i>50.0</i>		<i>102</i>	<i>70-130</i>			
<i>Surr: Toluene-d8 (Surr)</i>	<i>49.5</i>		<i>ug/L</i>	<i>50.0</i>		<i>99.1</i>	<i>70-130</i>			

Batch BFE1173 - SW5030B-MS

Blank (BFE1173-BLK1)

Prepared & Analyzed: 05/31/2022

1,1,1,2-Tetrachloroethane	ND	0.40	ug/L							
1,1,1-Trichloroethane	ND	1.00	ug/L							
1,1,2,2-Tetrachloroethane	ND	0.40	ug/L							
1,1,2-Trichloroethane	ND	1.00	ug/L							
1,1-Dichloroethane	ND	1.00	ug/L							
1,1-Dichloroethylene	ND	1.00	ug/L							
1,1-Dichloropropene	ND	1.00	ug/L							
1,2,3-Trichloropropane	ND	1.00	ug/L							
1,2,4-Trichlorobenzene	ND	1.00	ug/L							
1,2-Dichlorobenzene	ND	1.00	ug/L							
1,2-Dichloroethane	ND	1.00	ug/L							
1,2-Dichloropropane	ND	1.00	ug/L							

Certificate of Analysis

Client Name: SCS Engineers-Winchester
 Client Site I.D.: City of Bristol 1st Semi-Annual 2022
 Submitted To: Jennifer Robb

Date Issued: 7/12/2022 2:30:28PM

Volatile Organic Compounds by GCMS - Quality Control

Enthalpy Analytical

Analyte	Result	LOQ	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Qual
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Batch BFE1173 - SW5030B-MS

Blank (BFE1173-BLK1)

Prepared & Analyzed: 05/31/2022

1,3-Dichlorobenzene	ND	1.00	ug/L
1,3-Dichloropropane	ND	1.00	ug/L
1,4-Dichlorobenzene	ND	1.00	ug/L
2,2-Dichloropropane	ND	2.00	ug/L
2-Butanone (MEK)	ND	10.0	ug/L
2-Hexanone (MBK)	ND	5.00	ug/L
4-Methyl-2-pentanone (MIBK)	ND	5.00	ug/L
Acetone	ND	10.0	ug/L
Acetonitrile	ND	10.0	ug/L
Acrolein	ND	10.0	ug/L
Acrylonitrile	ND	5.00	ug/L
Allyl chloride	ND	1.00	ug/L
Benzene	ND	1.00	ug/L
Bromochloromethane	ND	1.00	ug/L
Bromodichloromethane	ND	0.50	ug/L
Bromoform	ND	1.00	ug/L
Bromomethane	ND	1.00	ug/L
Carbon disulfide	ND	10.0	ug/L
Carbon tetrachloride	ND	1.00	ug/L
Chlorobenzene	ND	1.00	ug/L
Chloroethane	ND	1.00	ug/L
Chloroform	ND	0.50	ug/L
Chloromethane	ND	1.00	ug/L
Chloroprene	ND	5.00	ug/L
cis-1,2-Dichloroethylene	ND	1.00	ug/L

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Batch BFE1173 - SW5030B-MS

Blank (BFE1173-BLK1)

Prepared & Analyzed: 05/31/2022

cis-1,3-Dichloropropene	ND	1.00	ug/L
Dibromochloromethane	ND	0.50	ug/L
Dibromomethane	ND	1.00	ug/L
Dichlorodifluoromethane	ND	1.00	ug/L
Ethyl methacrylate	ND	5.00	ug/L
Ethylbenzene	ND	1.00	ug/L
Iodomethane	ND	10.0	ug/L
Isobutyl Alcohol	ND	40.0	ug/L
m+p-Xylenes	ND	2.00	ug/L
Methacrylonitrile	ND	1.50	ug/L
Methyl methacrylate	ND	2.00	ug/L
Methylene chloride	ND	4.00	ug/L
Naphthalene	ND	1.00	ug/L
o-Xylene	ND	1.00	ug/L
Propionitrile	ND	40.0	ug/L
Styrene	ND	1.00	ug/L
Tetrachloroethylene (PCE)	ND	1.00	ug/L
Toluene	ND	1.00	ug/L
trans-1,2-Dichloroethylene	ND	1.00	ug/L
trans-1,3-Dichloropropene	ND	1.00	ug/L
trans-1,4-Dichloro-2-butene	ND	4.00	ug/L
Trichloroethylene	ND	1.00	ug/L
Trichlorofluoromethane	ND	1.00	ug/L
Vinyl acetate	ND	10.0	ug/L
Vinyl chloride	ND	0.50	ug/L

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Batch BFE1173 - SW5030B-MS										
Blank (BFE1173-BLK1)				Prepared & Analyzed: 05/31/2022						
Xylenes, Total	ND	3.00	ug/L							
<i>Surr: 1,2-Dichloroethane-d4 (Surr)</i>	49.8		ug/L	50.0		99.5	70-120			
<i>Surr: 4-Bromofluorobenzene (Surr)</i>	50.1		ug/L	50.0		100	75-120			
<i>Surr: Dibromofluoromethane (Surr)</i>	50.1		ug/L	50.0		100	70-130			
<i>Surr: Toluene-d8 (Surr)</i>	50.5		ug/L	50.0		101	70-130			
LCS (BFE1173-BS1)				Prepared & Analyzed: 05/31/2022						
1,1,1,2-Tetrachloroethane	55.1	0.4	ug/L	50.0		110	80-130			
1,1,1-Trichloroethane	58.2	1	ug/L	50.0		116	65-130			
1,1,2,2-Tetrachloroethane	51.4	0.4	ug/L	50.0		103	65-130			
1,1,2-Trichloroethane	49.9	1	ug/L	50.0		99.7	75-125			
1,1-Dichloroethane	53.0	1	ug/L	50.0		106	70-135			
1,1-Dichloroethylene	53.3	1	ug/L	50.0		107	70-130			
1,1-Dichloropropene	53.7	1	ug/L	50.0		107	75-135			
1,2,3-Trichloropropane	52.9	1	ug/L	50.0		106	75-125			
1,2,4-Trichlorobenzene	51.3	1	ug/L	50.0		103	65-135			
1,2-Dichlorobenzene	53.4	0.5	ug/L	50.0		107	70-120			
1,2-Dichloroethane	51.4	1	ug/L	50.0		103	70-130			
1,2-Dichloropropane	50.1	0.5	ug/L	50.0		100	75-125			
1,3-Dichlorobenzene	53.8	1	ug/L	50.0		108	75-125			
1,3-Dichloropropane	51.2	1	ug/L	50.0		102	75-125			
1,4-Dichlorobenzene	54.4	1	ug/L	50.0		109	75-125			
2,2-Dichloropropane	52.1	1	ug/L	50.0		104	70-135			
2-Butanone (MEK)	46.9	10	ug/L	50.0		93.8	30-150			
2-Hexanone (MBK)	59.9	5	ug/L	50.0		120	55-130			

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Volatile Organic Compounds by GCMS - Quality Control

Enthalpy Analytical

Analyte	Result	LOQ	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Qual
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Batch BFE1173 - SW5030B-MS

LCS (BFE1173-BS1)

Prepared & Analyzed: 05/31/2022

4-Methyl-2-pentanone (MIBK)	53.5	5	ug/L	50.0		107	60-135			
Acetone	53.1	10	ug/L	50.0		106	40-140			
Acrylonitrile	116	5	ug/L	250		46.4	70-130			L
Benzene	52.0	1	ug/L	50.0		104	80-120			
Bromochloromethane	48.8	1	ug/L	50.0		97.6	65-130			
Bromodichloromethane	52.9	0.5	ug/L	50.0		106	75-120			
Bromoform	48.9	1	ug/L	50.0		97.8	70-130			
Bromomethane	40.3	1	ug/L	50.0		80.6	30-145			
Carbon disulfide	66.6	10	ug/L	50.0		133	35-160			
Carbon tetrachloride	59.6	1	ug/L	50.0		119	65-140			
Chlorobenzene	52.5	1	ug/L	50.0		105	80-120			
Chloroethane	50.6	1	ug/L	50.0		101	60-135			
Chloroform	48.5	0.5	ug/L	50.0		97.0	65-135			
Chloromethane	44.0	1	ug/L	50.0		88.1	40-125			
cis-1,2-Dichloroethylene	50.5	1	ug/L	50.0		101	70-125			
cis-1,3-Dichloropropene	53.4	1	ug/L	50.0		107	70-130			
Dibromochloromethane	52.4	0.5	ug/L	50.0		105	60-135			
Dibromomethane	47.3	1	ug/L	50.0		94.6	75-125			
Dichlorodifluoromethane	47.1	1	ug/L	50.0		94.1	30-155			
Ethylbenzene	56.4	1	ug/L	50.0		113	75-125			
m+p-Xylenes	108	2	ug/L	100		108	75-130			
Methylene chloride	47.8	4	ug/L	50.0		95.6	55-140			
Naphthalene	49.5	1	ug/L	50.0		99.1	55-140			
o-Xylene	53.7	1	ug/L	50.0		107	80-120			
Styrene	55.9	1	ug/L	50.0		112	65-135			

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Volatile Organic Compounds by GCMS - Quality Control

Enthalpy Analytical

Analyte	Result	LOQ	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Qual
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Batch BFE1173 - SW5030B-MS

LCS (BFE1173-BS1)

Prepared & Analyzed: 05/31/2022

Tetrachloroethylene (PCE)	55.7	1	ug/L	50.0		111	45-150			
Toluene	52.2	1	ug/L	50.0		104	75-120			
trans-1,2-Dichloroethylene	51.4	1	ug/L	50.0		103	60-140			
trans-1,3-Dichloropropene	54.4	1	ug/L	50.0		109	55-140			
Trichloroethylene	53.1	1	ug/L	50.0		106	70-125			
Trichlorofluoromethane	62.7	1	ug/L	50.0		125	60-145			
Vinyl chloride	53.0	0.5	ug/L	50.0		106	50-145			
<i>Surr: 1,2-Dichloroethane-d4 (Surr)</i>	48.7		ug/L	50.0		97.4	70-120			
<i>Surr: 4-Bromofluorobenzene (Surr)</i>	51.6		ug/L	50.0		103	75-120			
<i>Surr: Dibromofluoromethane (Surr)</i>	50.9		ug/L	50.0		102	70-130			
<i>Surr: Toluene-d8 (Surr)</i>	50.8		ug/L	50.0		102	70-130			

Matrix Spike (BFE1173-MS1)

Source: 22E1478-03

Prepared & Analyzed: 05/31/2022

1,1,1,2-Tetrachloroethane	53.6	0.4	ug/L	50.0	BLOD	107	80-130			
1,1,1-Trichloroethane	57.2	1	ug/L	50.0	BLOD	114	65-130			
1,1,2,2-Tetrachloroethane	50.0	0.4	ug/L	50.0	BLOD	99.9	65-130			
1,1,2-Trichloroethane	49.5	1	ug/L	50.0	BLOD	99.0	75-125			
1,1-Dichloroethane	51.8	1	ug/L	50.0	BLOD	104	70-135			
1,1-Dichloroethylene	51.4	1	ug/L	50.0	BLOD	103	70-130			
1,1-Dichloropropene	53.6	1	ug/L	50.0	BLOD	107	75-135			
1,2,3-Trichloropropane	51.1	1	ug/L	50.0	BLOD	102	75-125			
1,2,4-Trichlorobenzene	51.3	1	ug/L	50.0	BLOD	103	65-135			
1,2-Dichlorobenzene	52.9	0.5	ug/L	50.0	BLOD	106	70-120			
1,2-Dichloroethane	51.3	1	ug/L	50.0	BLOD	103	70-130			
1,2-Dichloropropane	48.6	0.5	ug/L	50.0	BLOD	97.1	75-125			

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Enthalpy Analytical

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Batch BFE1173 - SW5030B-MS

Matrix Spike (BFE1173-MS1)

Source: 22E1478-03

Prepared & Analyzed: 05/31/2022

1,3-Dichlorobenzene	53.1	1	ug/L	50.0	BLOD	106	75-125			
1,3-Dichloropropane	51.1	1	ug/L	50.0	BLOD	102	75-125			
1,4-Dichlorobenzene	53.0	1	ug/L	50.0	BLOD	106	75-125			
2,2-Dichloropropane	50.2	1	ug/L	50.0	BLOD	100	70-135			
2-Butanone (MEK)	46.2	10	ug/L	50.0	BLOD	92.3	30-150			
2-Hexanone (MBK)	56.2	5	ug/L	50.0	BLOD	112	55-130			
4-Methyl-2-pentanone (MIBK)	54.7	5	ug/L	50.0	BLOD	109	60-135			
Acetone	47.4	10	ug/L	50.0	8.35	78.2	40-140			
Acrylonitrile	281	5	ug/L	250	BLOD	112	70-130			
Benzene	51.0	1	ug/L	50.0	BLOD	102	80-120			
Bromochloromethane	48.1	1	ug/L	50.0	BLOD	96.3	65-130			
Bromodichloromethane	50.7	0.5	ug/L	50.0	BLOD	101	75-120			
Bromoform	48.3	1	ug/L	50.0	BLOD	96.6	70-130			
Bromomethane	41.3	1	ug/L	50.0	BLOD	82.7	30-145			
Carbon disulfide	64.3	10	ug/L	50.0	BLOD	129	35-160			
Carbon tetrachloride	57.0	1	ug/L	50.0	BLOD	114	65-140			
Chlorobenzene	50.9	1	ug/L	50.0	BLOD	102	80-120			
Chloroethane	51.1	1	ug/L	50.0	BLOD	102	60-135			
Chloroform	47.5	0.5	ug/L	50.0	BLOD	95.0	65-135			
Chloromethane	45.5	1	ug/L	50.0	BLOD	89.4	40-125			
cis-1,2-Dichloroethylene	49.2	1	ug/L	50.0	BLOD	98.5	70-125			
cis-1,3-Dichloropropene	51.5	1	ug/L	50.0	BLOD	103	70-130			
Dibromochloromethane	51.0	0.5	ug/L	50.0	BLOD	102	60-135			
Dibromomethane	46.5	1	ug/L	50.0	BLOD	93.0	75-125			
Dichlorodifluoromethane	44.1	1	ug/L	50.0	BLOD	88.2	30-155			

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Enthalpy Analytical

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Batch BFE1173 - SW5030B-MS

Matrix Spike (BFE1173-MS1)

Source: 22E1478-03

Prepared & Analyzed: 05/31/2022

Ethylbenzene	54.6	1	ug/L	50.0	BLOD	109	75-125			
m+p-Xylenes	105	2	ug/L	100	BLOD	105	75-130			
Methylene chloride	46.8	4	ug/L	50.0	BLOD	93.7	55-140			
Naphthalene	52.7	1	ug/L	50.0	BLOD	105	55-140			
o-Xylene	53.1	1	ug/L	50.0	BLOD	106	80-120			
Styrene	53.5	1	ug/L	50.0	BLOD	107	65-135			
Tetrachloroethylene (PCE)	52.3	1	ug/L	50.0	BLOD	105	45-150			
Toluene	51.5	1	ug/L	50.0	BLOD	103	75-120			
trans-1,2-Dichloroethylene	50.6	1	ug/L	50.0	BLOD	101	60-140			
trans-1,3-Dichloropropene	51.3	1	ug/L	50.0	BLOD	103	55-140			
Trichloroethylene	51.3	1	ug/L	50.0	BLOD	103	70-125			
Trichlorofluoromethane	59.5	1	ug/L	50.0	BLOD	119	60-145			
Vinyl chloride	50.6	0.5	ug/L	50.0	BLOD	101	50-145			
<i>Surr: 1,2-Dichloroethane-d4 (Surr)</i>	<i>48.6</i>		<i>ug/L</i>	<i>50.0</i>		<i>97.1</i>	<i>70-120</i>			
<i>Surr: 4-Bromofluorobenzene (Surr)</i>	<i>51.1</i>		<i>ug/L</i>	<i>50.0</i>		<i>102</i>	<i>75-120</i>			
<i>Surr: Dibromofluoromethane (Surr)</i>	<i>51.4</i>		<i>ug/L</i>	<i>50.0</i>		<i>103</i>	<i>70-130</i>			
<i>Surr: Toluene-d8 (Surr)</i>	<i>50.4</i>		<i>ug/L</i>	<i>50.0</i>		<i>101</i>	<i>70-130</i>			

Matrix Spike Dup (BFE1173-MSD1)

Source: 22E1478-03

Prepared & Analyzed: 05/31/2022

1,1,1,2-Tetrachloroethane	53.6	0.4	ug/L	50.0	BLOD	107	80-130	0.0186	30	
1,1,1-Trichloroethane	55.8	1	ug/L	50.0	BLOD	112	65-130	2.48	30	
1,1,2,2-Tetrachloroethane	51.0	0.4	ug/L	50.0	BLOD	102	65-130	2.14	30	
1,1,2-Trichloroethane	48.7	1	ug/L	50.0	BLOD	97.4	75-125	1.63	30	
1,1-Dichloroethane	51.8	1	ug/L	50.0	BLOD	104	70-135	0.154	30	
1,1-Dichloroethylene	49.9	1	ug/L	50.0	BLOD	99.8	70-130	2.88	30	

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Batch BFE1173 - SW5030B-MS

Matrix Spike Dup (BFE1173-MSD1)	Source: 22E1478-03			Prepared & Analyzed: 05/31/2022						
1,1-Dichloropropene	52.3	1	ug/L	50.0	BLOD	105	75-135	2.51	30	
1,2,3-Trichloropropane	51.8	1	ug/L	50.0	BLOD	104	75-125	1.19	30	
1,2,4-Trichlorobenzene	49.8	1	ug/L	50.0	BLOD	99.7	65-135	2.89	30	
1,2-Dichlorobenzene	53.2	0.5	ug/L	50.0	BLOD	106	70-120	0.509	30	
1,2-Dichloroethane	51.2	1	ug/L	50.0	BLOD	102	70-130	0.117	30	
1,2-Dichloropropane	49.4	0.5	ug/L	50.0	BLOD	98.7	75-125	1.63	30	
1,3-Dichlorobenzene	53.5	1	ug/L	50.0	BLOD	107	75-125	0.882	30	
1,3-Dichloropropane	50.5	1	ug/L	50.0	BLOD	101	75-125	1.14	30	
1,4-Dichlorobenzene	54.5	1	ug/L	50.0	BLOD	109	75-125	2.68	30	
2,2-Dichloropropane	49.9	1	ug/L	50.0	BLOD	99.9	70-135	0.440	30	
2-Butanone (MEK)	46.4	10	ug/L	50.0	BLOD	92.9	30-150	0.626	30	
2-Hexanone (MBK)	54.4	5	ug/L	50.0	BLOD	109	55-130	3.18	30	
4-Methyl-2-pentanone (MIBK)	55.0	5	ug/L	50.0	BLOD	110	60-135	0.419	30	
Acetone	46.1	10	ug/L	50.0	8.35	75.5	40-140	2.89	30	
Acrylonitrile	281	5	ug/L	250	BLOD	112	70-130	0.0213	30	
Benzene	51.2	1	ug/L	50.0	BLOD	102	80-120	0.587	30	
Bromochloromethane	47.9	1	ug/L	50.0	BLOD	95.9	65-130	0.416	30	
Bromodichloromethane	52.2	0.5	ug/L	50.0	BLOD	104	75-120	2.84	30	
Bromoform	48.1	1	ug/L	50.0	BLOD	96.2	70-130	0.436	30	
Bromomethane	42.4	1	ug/L	50.0	BLOD	84.8	30-145	2.53	30	
Carbon disulfide	62.5	10	ug/L	50.0	BLOD	125	35-160	2.74	30	
Carbon tetrachloride	55.8	1	ug/L	50.0	BLOD	112	65-140	1.97	30	
Chlorobenzene	50.9	1	ug/L	50.0	BLOD	102	80-120	0.118	30	
Chloroethane	49.8	1	ug/L	50.0	BLOD	99.6	60-135	2.60	30	
Chloroform	47.8	0.5	ug/L	50.0	BLOD	95.5	65-135	0.546	30	

Certificate of Analysis

Client Name: SCS Engineers-Winchester
 Client Site I.D.: City of Bristol 1st Semi-Annual 2022
 Submitted To: Jennifer Robb

Date Issued: 7/12/2022 2:30:28PM

Volatile Organic Compounds by GCMS - Quality Control

Enthalpy Analytical

Analyte	Result	LOQ	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Qual
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Batch BFE1173 - SW5030B-MS

Matrix Spike Dup (BFE1173-MSD1)	Source: 22E1478-03			Prepared & Analyzed: 05/31/2022						
Chloromethane	46.8	1	ug/L	50.0	BLOD	92.0	40-125	2.88	30	
cis-1,2-Dichloroethylene	49.6	1	ug/L	50.0	BLOD	99.1	70-125	0.648	30	
cis-1,3-Dichloropropene	52.4	1	ug/L	50.0	BLOD	105	70-130	1.67	30	
Dibromochloromethane	51.0	0.5	ug/L	50.0	BLOD	102	60-135	0.0196	30	
Dibromomethane	47.6	1	ug/L	50.0	BLOD	95.3	75-125	2.42	30	
Dichlorodifluoromethane	44.0	1	ug/L	50.0	BLOD	88.1	30-155	0.0681	30	
Ethylbenzene	54.2	1	ug/L	50.0	BLOD	108	75-125	0.827	30	
m+p-Xylenes	105	2	ug/L	100	BLOD	105	75-130	0.438	30	
Methylene chloride	46.1	4	ug/L	50.0	BLOD	92.2	55-140	1.55	30	
Naphthalene	52.7	1	ug/L	50.0	BLOD	105	55-140	0.0380	30	
o-Xylene	52.6	1	ug/L	50.0	BLOD	105	80-120	0.870	30	
Styrene	53.6	1	ug/L	50.0	BLOD	107	65-135	0.261	30	
Tetrachloroethylene (PCE)	51.9	1	ug/L	50.0	BLOD	104	45-150	0.787	30	
Toluene	51.2	1	ug/L	50.0	BLOD	102	75-120	0.565	30	
trans-1,2-Dichloroethylene	50.1	1	ug/L	50.0	BLOD	100	60-140	0.913	30	
trans-1,3-Dichloropropene	53.5	1	ug/L	50.0	BLOD	107	55-140	4.24	30	
Trichloroethylene	50.0	1	ug/L	50.0	BLOD	99.9	70-125	2.55	30	
Trichlorofluoromethane	56.6	1	ug/L	50.0	BLOD	113	60-145	5.07	30	
Vinyl chloride	49.4	0.5	ug/L	50.0	BLOD	98.9	50-145	2.36	30	
<i>Surr: 1,2-Dichloroethane-d4 (Surr)</i>	<i>47.7</i>		<i>ug/L</i>	<i>50.0</i>		<i>95.4</i>	<i>70-120</i>			
<i>Surr: 4-Bromofluorobenzene (Surr)</i>	<i>50.6</i>		<i>ug/L</i>	<i>50.0</i>		<i>101</i>	<i>75-120</i>			
<i>Surr: Dibromofluoromethane (Surr)</i>	<i>50.5</i>		<i>ug/L</i>	<i>50.0</i>		<i>101</i>	<i>70-130</i>			
<i>Surr: Toluene-d8 (Surr)</i>	<i>49.7</i>		<i>ug/L</i>	<i>50.0</i>		<i>99.3</i>	<i>70-130</i>			

Certificate of Analysis

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Semivolatile Organic Compounds by GCMS - Quality Control

Enthalpy Analytical

Analyte	Result	LOQ	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Qual
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Batch BFE1145 - SW3580A-MS

Blank (BFE1145-BLK1)

Prepared & Analyzed: 05/31/2022

1,2,4,5-Tetrachlorobenzene	ND	10.0	ug/L
1,3,5-Trinitrobenzene	ND	5.00	ug/L
1,3-Dinitrobenzene	ND	2.50	ug/L
1,4-Naphthoquinone	ND	10.0	ug/L
1-Naphthylamine	ND	10.0	ug/L
2,3,4,6-Tetrachlorophenol	ND	10.0	ug/L
2,4,5-Trichlorophenol	ND	10.0	ug/L
2,4,6-Trichlorophenol	ND	10.0	ug/L
2,4-Dichlorophenol	ND	10.0	ug/L
2,4-Dimethylphenol	ND	5.00	ug/L
2,4-Dinitrophenol	ND	50.0	ug/L
2,4-Dinitrotoluene	ND	10.0	ug/L
2,6-Dichlorophenol	ND	10.0	ug/L
2,6-Dinitrotoluene	ND	10.0	ug/L
2-Acetylaminofluorene	ND	2.50	ug/L
2-Chloronaphthalene	ND	10.0	ug/L
2-Chlorophenol	ND	10.0	ug/L
2-Methylnaphthalene	ND	10.0	ug/L
2-Naphthylamine	ND	10.0	ug/L
2-Nitroaniline	ND	20.0	ug/L
2-Nitrophenol	ND	10.0	ug/L
3,3'-Dichlorobenzidine	ND	10.0	ug/L
3,3'-Dimethylbenzidine	ND	2.50	ug/L
3-Methylcholanthrene	ND	10.0	ug/L
3-Nitroaniline	ND	20.0	ug/L

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Semivolatile Organic Compounds by GCMS - Quality Control

Enthalpy Analytical

Analyte	Result	LOQ	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Qual
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Batch BFE1145 - SW3580A-MS

Blank (BFE1145-BLK1)

Prepared & Analyzed: 05/31/2022

4,6-Dinitro-2-methylphenol	ND	50.0	ug/L
4-Aminobiphenyl	ND	10.0	ug/L
4-Bromophenyl phenyl ether	ND	10.0	ug/L
4-Chloroaniline	ND	10.0	ug/L
4-Chlorophenyl phenyl ether	ND	10.0	ug/L
4-Nitroaniline	ND	20.0	ug/L
4-Nitrophenol	ND	50.0	ug/L
5-Nitro-o-toluidine	ND	10.0	ug/L
7,12-Dimethylbenz (a) anthracene	ND	10.0	ug/L
Acenaphthene	ND	10.0	ug/L
Acenaphthylene	ND	10.0	ug/L
Acetophenone	ND	20.0	ug/L
Anthracene	ND	10.0	ug/L
Benzo (a) anthracene	ND	10.0	ug/L
Benzo (a) pyrene	ND	10.0	ug/L
Benzo (b) fluoranthene	ND	10.0	ug/L
Benzo (g,h,i) perylene	ND	10.0	ug/L
Benzo (k) fluoranthene	ND	10.0	ug/L
Benzyl alcohol	ND	20.0	ug/L
bis (2-Chloroethoxy) methane	ND	10.0	ug/L
bis (2-Chloroethyl) ether	ND	10.0	ug/L
2,2'-Oxybis (1-chloropropane)	ND	10.0	ug/L
bis (2-Ethylhexyl) phthalate	ND	5.00	ug/L
Butyl benzyl phthalate	ND	10.0	ug/L
Chlorobenzilate	ND	2.50	ug/L

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Semivolatile Organic Compounds by GCMS - Quality Control

Enthalpy Analytical

Analyte	Result	LOQ	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Qual
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Batch BFE1145 - SW3580A-MS

Blank (BFE1145-BLK1)

Prepared & Analyzed: 05/31/2022

Chrysene	ND	10.0	ug/L
Diallate	ND	2.50	ug/L
Dibenz (a,h) anthracene	ND	10.0	ug/L
Dibenzofuran	ND	5.00	ug/L
Diethyl phthalate	ND	10.0	ug/L
Dimethoate	ND	2.50	ug/L
Dimethyl phthalate	ND	10.0	ug/L
Di-n-butyl phthalate	ND	10.0	ug/L
Di-n-octyl phthalate	ND	10.0	ug/L
Diphenylamine	ND	10.0	ug/L
Disulfoton	ND	2.50	ug/L
Ethyl methanesulfonate	ND	20.0	ug/L
Ethyl parathion	ND	2.50	ug/L
Famphur	ND	2.50	ug/L
Fluoranthene	ND	10.0	ug/L
Fluorene	ND	10.0	ug/L
Hexachlorobenzene	ND	1.00	ug/L
Hexachlorobutadiene	ND	10.0	ug/L
Hexachlorocyclopentadiene	ND	10.0	ug/L
Hexachloroethane	ND	10.0	ug/L
Hexachloropropene	ND	2.50	ug/L
Indeno (1,2,3-cd) pyrene	ND	10.0	ug/L
Isodrin	ND	10.0	ug/L
Isophorone	ND	10.0	ug/L
Isosafrole	ND	10.0	ug/L

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Semivolatile Organic Compounds by GCMS - Quality Control

Enthalpy Analytical

Analyte	Result	LOQ	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Qual
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Batch BFE1145 - SW3580A-MS

Blank (BFE1145-BLK1)

Prepared & Analyzed: 05/31/2022

Kepone	ND	10.0	ug/L							
m+p-Cresols	ND	10.0	ug/L							
Methapyrilene	ND	10.0	ug/L							
Methyl methanesulfonate	ND	10.0	ug/L							
Methyl parathion	ND	2.50	ug/L							
Naphthalene	0.38	0.10	ug/L							B
Nitrobenzene	ND	10.0	ug/L							
n-Nitrosodiethylamine	ND	2.50	ug/L							
n-Nitrosodimethylamine	ND	10.0	ug/L							
n-Nitrosodi-n-butylamine	ND	10.0	ug/L							
n-Nitrosodi-n-propylamine	ND	10.0	ug/L							
n-Nitrosodiphenylamine	ND	10.0	ug/L							
n-Nitrosomethylethylamine	ND	2.50	ug/L							
n-Nitrosopiperidine	ND	10.0	ug/L							
n-Nitrosopyrrolidine	ND	2.50	ug/L							
o,o,o-Triethyl phosphorothioate	ND	10.0	ug/L							
o,o-Diethyl o-2-pyrazinyl phosphorothioate	ND	10.0	ug/L							
o+m+p-Cresols	ND	10.0	ug/L							
o-Cresol	ND	10.0	ug/L							
o-Toluidine	ND	2.50	ug/L							
p-(Dimethylamino) azobenzene	ND	2.50	ug/L							
p-Chloro-m-cresol	ND	10.0	ug/L							
Pentachlorobenzene	ND	10.0	ug/L							
Pentachloronitrobenzene (quintozene)	ND	10.0	ug/L							
Phenacetin	ND	10.0	ug/L							

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Semivolatile Organic Compounds by GCMS - Quality Control

Enthalpy Analytical

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Batch BFE1145 - SW3580A-MS

Blank (BFE1145-BLK1)

Prepared & Analyzed: 05/31/2022

Phenanthrene	ND	10.0	ug/L							
Phenol	ND	10.0	ug/L							
Phorate	ND	2.50	ug/L							
p-Phenylenediamine	ND	10.0	ug/L							
Pronamide	ND	10.0	ug/L							
Pyrene	ND	10.0	ug/L							
Safrole	ND	2.50	ug/L							
<i>Surr: 2,4,6-Tribromophenol (Surr)</i>	58.1		ug/L	100		58.1	10-86			
<i>Surr: 2-Fluorobiphenyl (Surr)</i>	37.6		ug/L	50.0		75.3	9-87			
<i>Surr: 2-Fluorophenol (Surr)</i>	44.8		ug/L	100		44.8	10-52			
<i>Surr: Nitrobenzene-d5 (Surr)</i>	41.5		ug/L	50.0		83.0	10-98.5			
<i>Surr: Phenol-d5 (Surr)</i>	30.6		ug/L	100		30.6	5-33			
<i>Surr: p-Terphenyl-d14 (Surr)</i>	41.1		ug/L	50.0		82.3	27-133			

LCS (BFE1145-BS1)

Prepared & Analyzed: 05/31/2022

1,2,4-Trichlorobenzene	33.3	10.0	ug/L	50.0		66.6	22-135			
1,2-Dichlorobenzene	21.2	10.0	ug/L	50.0		42.4	22-115			
1,3-Dichlorobenzene	18.3	10.0	ug/L	50.0		36.6	22-112			
1,4-Dichlorobenzene	19.1	10.0	ug/L	50.0		38.1	13-112			
2,4,6-Trichlorophenol	33.0	10.0	ug/L	50.0		66.0	11-145			
2,4-Dichlorophenol	41.5	10.0	ug/L	50.0		83.0	11-75			L
2,4-Dimethylphenol	35.7	5.00	ug/L	50.0		71.4	11-121			
2,4-Dinitrophenol	68.9	50.0	ug/L	50.0		138	11-165			
2,4-Dinitrotoluene	45.8	10.0	ug/L	50.0		91.5	17-155			
2,6-Dinitrotoluene	35.4	10.0	ug/L	50.0		70.7	15-125			

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Semivolatile Organic Compounds by GCMS - Quality Control

Enthalpy Analytical

Analyte	Result	LOQ	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Qual
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Batch BFE1145 - SW3580A-MS

LCS (BFE1145-BS1)

Prepared & Analyzed: 05/31/2022

2-Chloronaphthalene	29.8	10.0	ug/L	50.0		59.6	27-89			
2-Chlorophenol	26.2	10.0	ug/L	50.0		52.4	15-110			
2-Nitrophenol	35.9	10.0	ug/L	50.0		71.8	11-115			
3,3'-Dichlorobenzidine	24.1	10.0	ug/L	50.0		48.3	25-95			
4,6-Dinitro-2-methylphenol	59.9	50.0	ug/L	50.0		120	25-130			
4-Bromophenyl phenyl ether	31.9	10.0	ug/L	50.0		63.8	15-110			
4-Chlorophenyl phenyl ether	34.8	10.0	ug/L	50.0		69.6	15-110			
4-Nitrophenol	20.6	50.0	ug/L	50.0		41.3	12-70			
Acenaphthene	29.7	10.0	ug/L	50.0		59.5	18-85			
Acenaphthylene	28.3	10.0	ug/L	50.0		56.6	20-75			
Acetophenone	29.4	20.0	ug/L	50.0		58.8	0-200			
alpha-Terpineol	25.1	2.50	ug/L	50.0		50.3	0-200			
Anthracene	30.4	10.0	ug/L	50.0		60.8	35-95			
Benzo (a) anthracene	36.6	10.0	ug/L	50.0		73.2	25-95			
Benzo (a) pyrene	37.8	10.0	ug/L	50.0		75.7	37-110			
Benzo (b) fluoranthene	42.1	10.0	ug/L	50.0		84.3	25-75			L
Benzo (g,h,i) perylene	35.7	10.0	ug/L	50.0		71.4	25-90			
Benzo (k) fluoranthene	37.9	10.0	ug/L	50.0		75.8	25-95			
bis (2-Chloroethoxy) methane	35.2	10.0	ug/L	50.0		70.4	25-110			
bis (2-Chloroethyl) ether	26.8	10.0	ug/L	50.0		53.6	25-85			
2,2'-Oxybis (1-chloropropane)	27.1	10.0	ug/L	50.0		54.1	25-95			
bis (2-Ethylhexyl) phthalate	38.8	5.00	ug/L	50.0		77.7	30-125			
Butyl benzyl phthalate	37.9	10.0	ug/L	50.0		75.7	30-115			
Carbazole	36.4	2.50	ug/L	50.0		72.8	0-200			
Chrysene	38.3	10.0	ug/L	50.0		76.6	20-90			

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Semivolatile Organic Compounds by GCMS - Quality Control

Enthalpy Analytical

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Batch BFE1145 - SW3580A-MS

LCS (BFE1145-BS1)

Prepared & Analyzed: 05/31/2022

Dibenz (a,h) anthracene	41.9	10.0	ug/L	50.0		83.8	27-125			
Diethyl phthalate	33.2	10.0	ug/L	50.0		66.3	25-120			
Dimethyl phthalate	33.4	10.0	ug/L	50.0		66.8	25-125			
Di-n-butyl phthalate	33.1	10.0	ug/L	50.0		66.1	35-115			
Di-n-octyl phthalate	37.9	10.0	ug/L	50.0		75.7	25-105			
Fluoranthene	42.0	10.0	ug/L	50.0		84.0	33-95			
Fluorene	31.7	10.0	ug/L	50.0		63.4	15-97			
Hexachlorobenzene	32.9	1.00	ug/L	50.0		65.8	25-125			
Hexachlorobutadiene	39.8	10.0	ug/L	50.0		79.5	25-125			
Hexachlorocyclopentadiene	29.0	10.0	ug/L	50.0		57.9	25-125			
Hexachloroethane	25.6	10.0	ug/L	50.0		51.1	25-125			
Indeno (1,2,3-cd) pyrene	40.6	10.0	ug/L	50.0		81.1	25-125			
Isophorone	25.5	10.0	ug/L	50.0		51.0	10-110			
Naphthalene	27.6	0.10	ug/L	50.0		55.1	12-100			
Nitrobenzene	38.4	10.0	ug/L	50.0		76.9	30-97			
n-Nitrosodimethylamine	18.2	10.0	ug/L	50.0		36.4	10-85			
n-Nitrosodi-n-propylamine	30.3	10.0	ug/L	50.0		60.5	12-97			
n-Nitrosodiphenylamine	27.4	10.0	ug/L	50.0		54.8	12-97			
p-Chloro-m-cresol	47.9	10.0	ug/L	50.0		95.7	10-91			L
Pentachlorophenol	33.3	20.0	ug/L	50.0		66.5	30-109			
Phenanthrene	33.6	10.0	ug/L	50.0		67.1	30-88			
Phenol	14.0	10.0	ug/L	50.5		27.8	10-70			
Pyrene	36.9	10.0	ug/L	50.0		73.8	27-110			
Pyridine	28.6	10.0	ug/L	50.0		57.3	0-200			
<i>Surr: 2,4,6-Tribromophenol (Surr)</i>	<i>58.5</i>		ug/L	<i>100</i>		<i>58.5</i>	<i>10-86</i>			

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Semivolatile Organic Compounds by GCMS - Quality Control

Enthalpy Analytical

Analyte	Result	LOQ	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Qual
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Batch BFE1145 - SW3580A-MS

LCS (BFE1145-BS1)

Prepared & Analyzed: 05/31/2022

<i>Surr: 2-Fluorobiphenyl (Surr)</i>	32.2		ug/L	50.0		64.4	9-87			
<i>Surr: 2-Fluorophenol (Surr)</i>	33.6		ug/L	100		33.6	10-52			
<i>Surr: Nitrobenzene-d5 (Surr)</i>	33.5		ug/L	50.0		67.0	10-98.5			
<i>Surr: Phenol-d5 (Surr)</i>	25.7		ug/L	100		25.7	5-33			
<i>Surr: p-Terphenyl-d14 (Surr)</i>	41.8		ug/L	50.0		83.7	27-133			

Matrix Spike (BFE1145-MS1)

Source: 22E1478-02

Prepared: 05/31/2022 Analyzed: 06/01/2022

1,2,4-Trichlorobenzene	33.4	10.0	ug/L	52.6	BLOD	63.4	22-65			
1,2-Dichlorobenzene	24.3	10.0	ug/L	52.6	BLOD	46.2	22-60			
1,3-Dichlorobenzene	22.6	10.0	ug/L	52.6	BLOD	43.0	22-60			
1,4-Dichlorobenzene	23.7	10.0	ug/L	52.6	BLOD	45.1	13-60			
2,4,6-Trichlorophenol	32.2	10.0	ug/L	52.6	BLOD	61.2	11-75			
2,4-Dichlorophenol	37.7	10.0	ug/L	52.6	BLOD	71.6	11-75			
2,4-Dimethylphenol	30.2	2.63	ug/L	52.6	BLOD	57.5	11-65			
2,4-Dinitrophenol	61.2	50.0	ug/L	52.6	BLOD	116	11-110			M
2,4-Dinitrotoluene	41.0	10.0	ug/L	52.6	BLOD	78.0	17-95			
2,6-Dinitrotoluene	31.9	10.0	ug/L	52.6	BLOD	60.6	15-125			
2-Chloronaphthalene	28.8	10.0	ug/L	52.6	BLOD	54.7	27-89			
2-Chlorophenol	27.0	10.0	ug/L	52.6	BLOD	51.2	19-64			
2-Nitrophenol	32.3	10.0	ug/L	52.6	BLOD	61.4	11-75			
3,3'-Dichlorobenzidine	14.3	10.0	ug/L	52.6	BLOD	27.2	10-85			
4,6-Dinitro-2-methylphenol	59.3	50.0	ug/L	52.6	BLOD	113	40-130			
4-Bromophenyl phenyl ether	33.4	10.0	ug/L	52.6	BLOD	63.5	15-110			
4-Chlorophenyl phenyl ether	33.8	10.0	ug/L	52.6	BLOD	64.2	15-110			
4-Nitrophenol	27.7	50.0	ug/L	52.6	BLOD	52.7	12-70			

Certificate of Analysis

Client Name: SCS Engineers-Winchester
 Client Site I.D.: City of Bristol 1st Semi-Annual 2022
 Submitted To: Jennifer Robb

Date Issued: 7/12/2022 2:30:28PM

Semivolatile Organic Compounds by GCMS - Quality Control

Enthalpy Analytical

Analyte	Result	LOQ	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Qual
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Batch BFE1145 - SW3580A-MS

Matrix Spike (BFE1145-MS1)

Source: 22E1478-02

Prepared: 05/31/2022 Analyzed: 06/01/2022

Acenaphthene	30.2	10.0	ug/L	52.6	BLOD	57.4	15-90			
Acenaphthylene	26.9	10.0	ug/L	52.6	BLOD	51.2	15-99			
Acetophenone	29.6	20.0	ug/L	52.6	BLOD	56.2	0-200			
alpha-Terpineol	21.4	2.50	ug/L	52.6	BLOD	40.7	0-200			
Anthracene	32.0	10.0	ug/L	52.6	BLOD	60.7	20-95			
Benzo (a) anthracene	34.1	5.26	ug/L	52.6	BLOD	64.7	25-95			
Benzo (a) pyrene	35.8	5.26	ug/L	52.6	BLOD	68.0	25-82			
Benzo (b) fluoranthene	42.0	10.0	ug/L	52.6	BLOD	79.8	25-75			M
Benzo (g,h,i) perylene	24.0	10.0	ug/L	52.6	BLOD	45.5	25-90			
Benzo (k) fluoranthene	39.2	10.0	ug/L	52.6	BLOD	74.4	25-95			
bis (2-Chloroethoxy) methane	31.1	10.0	ug/L	52.6	BLOD	59.1	25-85			
bis (2-Chloroethyl) ether	26.4	10.0	ug/L	52.6	BLOD	50.2	25-85			
2,2'-Oxybis (1-chloropropane)	28.2	10.0	ug/L	52.6	BLOD	53.6	25-87			
bis (2-Ethylhexyl) phthalate	32.7	5.00	ug/L	52.6	BLOD	62.2	30-125			
Butyl benzyl phthalate	33.4	10.0	ug/L	52.6	BLOD	63.5	30-115			
Carbazole	35.9	2.50	ug/L	52.6	BLOD	68.3	0-200			
Chrysene	30.3	10.0	ug/L	52.6	BLOD	57.7	20-90			
Dibenz (a,h) anthracene	32.2	10.0	ug/L	52.6	BLOD	61.2	27-125			
Diethyl phthalate	30.6	10.0	ug/L	52.6	BLOD	58.0	25-120			
Dimethyl phthalate	31.8	10.0	ug/L	52.6	BLOD	60.4	25-125			
Di-n-butyl phthalate	33.2	10.0	ug/L	52.6	BLOD	63.2	25-115			
Di-n-octyl phthalate	33.8	10.0	ug/L	52.6	BLOD	64.2	22-105			
Fluoranthene	37.6	10.0	ug/L	52.6	BLOD	71.5	25-96			
Fluorene	31.6	10.0	ug/L	52.6	BLOD	60.0	15-97			
Hexachlorobenzene	33.9	0.53	ug/L	52.6	BLOD	64.5	25-125			

Certificate of Analysis

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Semivolatile Organic Compounds by GCMS - Quality Control

Enthalpy Analytical

Analyte	Result	LOQ	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Qual
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Batch BFE1145 - SW3580A-MS

Matrix Spike (BFE1145-MS1)

Source: 22E1478-02

Prepared: 05/31/2022 Analyzed: 06/01/2022

Hexachlorobutadiene	43.6	10.0	ug/L	52.6	BLOD	82.8	25-125			
Hexachlorocyclopentadiene	31.4	10.0	ug/L	52.6	BLOD	59.6	10-90			
Hexachloroethane	30.6	10.0	ug/L	52.6	BLOD	58.2	25-125			
Indeno (1,2,3-cd) pyrene	29.9	10.0	ug/L	52.6	BLOD	56.8	25-125			
Isophorone	23.4	10.0	ug/L	52.6	BLOD	44.4	10-110			
Naphthalene	30.0	0.10	ug/L	52.6	0.32	56.4	12-100			
Nitrobenzene	39.1	10.0	ug/L	52.6	BLOD	74.3	27-77			
n-Nitrosodimethylamine	18.2	10.0	ug/L	52.6	BLOD	34.7	10-85			
n-Nitrosodi-n-propylamine	29.0	10.0	ug/L	52.6	BLOD	55.1	12-97			
n-Nitrosodiphenylamine	25.8	10.0	ug/L	52.6	BLOD	48.9	12-97			
p-Chloro-m-cresol	41.1	10.0	ug/L	52.6	BLOD	78.1	10-91			
Pentachlorophenol	39.3	20.0	ug/L	52.6	BLOD	74.6	27-109			
Phenanthrene	36.8	10.0	ug/L	52.6	BLOD	70.0	35-115			
Phenol	13.3	10.0	ug/L	53.2	BLOD	25.0	10-70			
Pyrene	30.8	10.0	ug/L	52.6	BLOD	58.5	23-110			
Pyridine	29.8	10.0	ug/L	52.6	BLOD	56.6	0-200			
<hr/>										
<i>Surr: 2,4,6-Tribromophenol (Surr)</i>	75.7		ug/L	105		72.0	10-86			
<i>Surr: 2-Fluorobiphenyl (Surr)</i>	30.7		ug/L	52.6		58.3	9-87			
<i>Surr: 2-Fluorophenol (Surr)</i>	33.0		ug/L	105		31.3	10-52			
<i>Surr: Nitrobenzene-d5 (Surr)</i>	34.8		ug/L	52.6		66.1	10-98.5			
<i>Surr: Phenol-d5 (Surr)</i>	25.0		ug/L	105		23.8	5-33			
<i>Surr: p-Terphenyl-d14 (Surr)</i>	34.7		ug/L	52.6		65.9	27-133			

Matrix Spike Dup (BFE1145-MSD1)

Source: 22E1478-02

Prepared: 05/31/2022 Analyzed: 06/01/2022

1,2,4-Trichlorobenzene	31.9	10.0	ug/L	51.5	BLOD	61.8	22-65	4.51	20	
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Semivolatile Organic Compounds by GCMS - Quality Control

Enthalpy Analytical

Analyte	Result	LOQ	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Qual
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Batch BFE1145 - SW3580A-MS

Matrix Spike Dup (BFE1145-MSD1)	Source: 22E1478-02		Prepared: 05/31/2022 Analyzed: 06/01/2022							
1,2-Dichlorobenzene	21.7	10.0	ug/L	51.5	BLOD	42.2	22-60	11.1	20	
1,3-Dichlorobenzene	20.8	10.0	ug/L	51.5	BLOD	40.4	22-60	8.46	20	
1,4-Dichlorobenzene	21.8	10.0	ug/L	51.5	BLOD	42.3	13-60	8.58	20	
2,4,6-Trichlorophenol	31.3	10.0	ug/L	51.5	BLOD	60.7	11-75	2.94	20	
2,4-Dichlorophenol	36.0	10.0	ug/L	51.5	BLOD	69.9	11-75	4.58	20	
2,4-Dimethylphenol	27.7	2.58	ug/L	51.5	BLOD	53.6	11-65	8.94	20	
2,4-Dinitrophenol	57.0	50.0	ug/L	51.5	BLOD	111	11-110	7.09	20	M
2,4-Dinitrotoluene	37.8	10.0	ug/L	51.5	BLOD	73.3	17-95	8.32	20	
2,6-Dinitrotoluene	30.9	10.0	ug/L	51.5	BLOD	60.0	15-125	3.11	20	
2-Chloronaphthalene	27.4	10.0	ug/L	51.5	BLOD	53.1	27-89	5.11	20	
2-Chlorophenol	24.8	10.0	ug/L	51.5	BLOD	48.1	19-64	8.48	20	
2-Nitrophenol	30.8	10.0	ug/L	51.5	BLOD	59.7	11-75	4.87	20	
3,3'-Dichlorobenzidine	12.5	10.0	ug/L	51.5	BLOD	24.2	10-85	13.6	20	
4,6-Dinitro-2-methylphenol	54.3	50.0	ug/L	51.5	BLOD	105	40-130	8.74	20	
4-Bromophenyl phenyl ether	32.0	10.0	ug/L	51.5	BLOD	62.0	15-110	4.47	20	
4-Chlorophenyl phenyl ether	32.9	10.0	ug/L	51.5	BLOD	63.8	15-110	2.65	20	
4-Nitrophenol	24.0	50.0	ug/L	51.5	BLOD	46.6	12-70	14.3	20	
Acenaphthene	28.4	10.0	ug/L	51.5	BLOD	55.0	15-90	6.35	20	
Acenaphthylene	25.9	10.0	ug/L	51.5	BLOD	50.2	15-99	4.04	20	
Acetophenone	27.6	20.0	ug/L	51.5	BLOD	53.6	0-200	6.74	20	
alpha-Terpineol	20.6	2.50	ug/L	51.5	BLOD	40.0	0-200	3.72	20	
Anthracene	30.7	10.0	ug/L	51.5	BLOD	59.5	20-95	4.21	20	
Benzo (a) anthracene	30.5	5.15	ug/L	51.5	BLOD	59.2	25-95	10.9	20	
Benzo (a) pyrene	32.6	5.15	ug/L	51.5	BLOD	63.3	25-82	9.23	20	
Benzo (b) fluoranthene	37.0	10.0	ug/L	51.5	BLOD	71.7	25-75	12.8	20	

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Semivolatile Organic Compounds by GCMS - Quality Control

Enthalpy Analytical

Analyte	Result	LOQ	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Qual
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Batch BFE1145 - SW3580A-MS

Matrix Spike Dup (BFE1145-MSD1)	Source: 22E1478-02		Prepared: 05/31/2022 Analyzed: 06/01/2022							
Benzo (g,h,i) perylene	19.6	10.0	ug/L	51.5	BLOD	38.1	25-90	19.8	20	
Benzo (k) fluoranthene	36.3	10.0	ug/L	51.5	BLOD	70.5	25-95	7.49	20	
bis (2-Chloroethoxy) methane	29.9	10.0	ug/L	51.5	BLOD	57.9	25-85	4.05	20	
bis (2-Chloroethyl) ether	23.6	10.0	ug/L	51.5	BLOD	45.8	25-85	11.1	20	
2,2'-Oxybis (1-chloropropane)	24.8	10.0	ug/L	51.5	BLOD	48.0	25-87	13.1	20	
bis (2-Ethylhexyl) phthalate	28.8	5.00	ug/L	51.5	BLOD	55.9	30-125	12.7	20	
Butyl benzyl phthalate	28.5	10.0	ug/L	51.5	BLOD	55.3	30-115	15.9	20	
Carbazole	33.0	2.50	ug/L	51.5	BLOD	64.0	0-200	8.54	20	
Chrysene	27.0	10.0	ug/L	51.5	BLOD	52.3	20-90	11.8	20	
Dibenz (a,h) anthracene	27.6	10.0	ug/L	51.5	BLOD	53.6	27-125	15.4	20	
Diethyl phthalate	29.9	10.0	ug/L	51.5	BLOD	58.0	25-120	2.12	20	
Dimethyl phthalate	30.1	10.0	ug/L	51.5	BLOD	58.4	25-125	5.47	20	
Di-n-butyl phthalate	31.1	10.0	ug/L	51.5	BLOD	60.4	25-115	6.65	20	
Di-n-octyl phthalate	29.0	10.0	ug/L	51.5	BLOD	56.2	22-105	15.5	20	
Fluoranthene	36.1	10.0	ug/L	51.5	BLOD	70.0	25-96	4.16	20	
Fluorene	30.9	10.0	ug/L	51.5	BLOD	59.9	15-97	2.22	20	
Hexachlorobenzene	32.3	0.52	ug/L	51.5	BLOD	62.7	25-125	4.82	20	
Hexachlorobutadiene	41.8	10.0	ug/L	51.5	BLOD	81.0	25-125	4.22	20	
Hexachlorocyclopentadiene	30.6	10.0	ug/L	51.5	BLOD	59.3	10-90	2.57	20	
Hexachloroethane	28.6	10.0	ug/L	51.5	BLOD	55.5	25-125	6.82	20	
Indeno (1,2,3-cd) pyrene	25.2	10.0	ug/L	51.5	BLOD	48.9	25-125	17.0	20	
Isophorone	22.6	10.0	ug/L	51.5	BLOD	43.8	10-110	3.56	20	
Naphthalene	28.4	0.10	ug/L	51.5	0.32	54.5	12-100	5.37	20	
Nitrobenzene	36.4	10.0	ug/L	51.5	BLOD	70.6	27-77	7.19	20	
n-Nitrosodimethylamine	16.9	10.0	ug/L	51.5	BLOD	32.8	10-85	7.57	20	

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Semivolatile Organic Compounds by GCMS - Quality Control

Enthalpy Analytical

Analyte	Result	LOQ	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Qual
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Batch BFE1145 - SW3580A-MS

Matrix Spike Dup (BFE1145-MSD1)

Source: 22E1478-02

Prepared: 05/31/2022 Analyzed: 06/01/2022

n-Nitrosodi-n-propylamine	26.7	10.0	ug/L	51.5	BLOD	51.7	12-97	8.46	20	
n-Nitrosodiphenylamine	22.5	10.0	ug/L	51.5	BLOD	43.6	12-97	13.5	20	
p-Chloro-m-cresol	40.2	10.0	ug/L	51.5	BLOD	78.0	10-91	2.17	20	
Pentachlorophenol	35.7	20.0	ug/L	51.5	BLOD	69.3	27-109	9.40	20	
Phenanthrene	35.1	10.0	ug/L	51.5	BLOD	68.2	35-115	4.72	20	
Phenol	12.5	10.0	ug/L	52.1	BLOD	24.0	10-70	6.12	20	
Pyrene	26.4	10.0	ug/L	51.5	BLOD	51.3	23-110	15.3	20	
Pyridine	24.7	10.0	ug/L	51.5	BLOD	47.8	0-200	18.9	20	
<i>Surr: 2,4,6-Tribromophenol (Surr)</i>	71.7		ug/L	103		69.5	10-86			
<i>Surr: 2-Fluorobiphenyl (Surr)</i>	29.1		ug/L	51.5		56.5	9-87			
<i>Surr: 2-Fluorophenol (Surr)</i>	30.5		ug/L	103		29.6	10-52			
<i>Surr: Nitrobenzene-d5 (Surr)</i>	32.0		ug/L	51.5		62.1	10-98.5			
<i>Surr: Phenol-d5 (Surr)</i>	23.7		ug/L	103		23.0	5-33			
<i>Surr: p-Terphenyl-d14 (Surr)</i>	29.4		ug/L	51.5		57.1	27-133			

Batch BFF0013 - SW3580A-MS

Blank (BFF0013-BLK1)

Prepared & Analyzed: 06/01/2022

1,2,4,5-Tetrachlorobenzene	ND	10.0	ug/L							
1,3,5-Trinitrobenzene	ND	5.00	ug/L							
1,3-Dinitrobenzene	ND	2.50	ug/L							
1,4-Naphthoquinone	ND	10.0	ug/L							
1-Naphthylamine	ND	10.0	ug/L							
2,3,4,6-Tetrachlorophenol	ND	10.0	ug/L							
2,4,5-Trichlorophenol	ND	10.0	ug/L							
2,4,6-Trichlorophenol	ND	10.0	ug/L							

Certificate of Analysis

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Semivolatile Organic Compounds by GCMS - Quality Control

Enthalpy Analytical

Analyte	Result	LOQ	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Qual
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Batch BFF0013 - SW3580A-MS

Blank (BFF0013-BLK1)

Prepared & Analyzed: 06/01/2022

2,4-Dichlorophenol	ND	10.0	ug/L
2,4-Dimethylphenol	ND	5.00	ug/L
2,4-Dinitrophenol	ND	50.0	ug/L
2,4-Dinitrotoluene	ND	10.0	ug/L
2,6-Dichlorophenol	ND	10.0	ug/L
2,6-Dinitrotoluene	ND	10.0	ug/L
2-Acetylaminofluorene	ND	2.50	ug/L
2-Chloronaphthalene	ND	10.0	ug/L
2-Chlorophenol	ND	10.0	ug/L
2-Methylnaphthalene	ND	10.0	ug/L
2-Naphthylamine	ND	10.0	ug/L
2-Nitroaniline	ND	20.0	ug/L
2-Nitrophenol	ND	10.0	ug/L
3,3'-Dichlorobenzidine	ND	10.0	ug/L
3,3'-Dimethylbenzidine	ND	2.50	ug/L
3-Methylcholanthrene	ND	10.0	ug/L
3-Nitroaniline	ND	20.0	ug/L
4,6-Dinitro-2-methylphenol	ND	50.0	ug/L
4-Aminobiphenyl	ND	10.0	ug/L
4-Bromophenyl phenyl ether	ND	10.0	ug/L
4-Chloroaniline	ND	10.0	ug/L
4-Chlorophenyl phenyl ether	ND	10.0	ug/L
4-Nitroaniline	ND	20.0	ug/L
4-Nitrophenol	ND	50.0	ug/L
5-Nitro-o-toluidine	ND	10.0	ug/L

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Enthalpy Analytical

Analyte	Result	LOQ	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Qual
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Batch BFF0013 - SW3580A-MS

Blank (BFF0013-BLK1)

Prepared & Analyzed: 06/01/2022

7,12-Dimethylbenz (a) anthracene	ND	10.0	ug/L
Acenaphthene	ND	10.0	ug/L
Acenaphthylene	ND	10.0	ug/L
Acetophenone	ND	20.0	ug/L
Anthracene	ND	10.0	ug/L
Benzo (a) anthracene	ND	10.0	ug/L
Benzo (a) pyrene	ND	10.0	ug/L
Benzo (b) fluoranthene	ND	10.0	ug/L
Benzo (g,h,i) perylene	ND	10.0	ug/L
Benzo (k) fluoranthene	ND	10.0	ug/L
Benzyl alcohol	ND	20.0	ug/L
bis (2-Chloroethoxy) methane	ND	10.0	ug/L
bis (2-Chloroethyl) ether	ND	10.0	ug/L
2,2'-Oxybis (1-chloropropane)	ND	10.0	ug/L
bis (2-Ethylhexyl) phthalate	ND	5.00	ug/L
Butyl benzyl phthalate	ND	10.0	ug/L
Chlorobenzilate	ND	2.50	ug/L
Chrysene	ND	10.0	ug/L
Diallate	ND	2.50	ug/L
Dibenz (a,h) anthracene	ND	10.0	ug/L
Dibenzofuran	ND	5.00	ug/L
Diethyl phthalate	ND	10.0	ug/L
Dimethoate	ND	2.50	ug/L
Dimethyl phthalate	ND	10.0	ug/L
Di-n-butyl phthalate	ND	10.0	ug/L

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Semivolatile Organic Compounds by GCMS - Quality Control

Enthalpy Analytical

Analyte	Result	LOQ	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Qual
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Batch BFF0013 - SW3580A-MS

Blank (BFF0013-BLK1)

Prepared & Analyzed: 06/01/2022

Di-n-octyl phthalate	ND	10.0	ug/L							
Diphenylamine	ND	10.0	ug/L							
Disulfoton	ND	2.50	ug/L							
Ethyl methanesulfonate	ND	20.0	ug/L							
Ethyl parathion	ND	2.50	ug/L							
Famphur	ND	2.50	ug/L							
Fluoranthene	ND	10.0	ug/L							
Fluorene	ND	10.0	ug/L							
Hexachlorobenzene	ND	1.00	ug/L							
Hexachlorobutadiene	ND	10.0	ug/L							
Hexachlorocyclopentadiene	ND	10.0	ug/L							
Hexachloroethane	ND	10.0	ug/L							
Hexachloropropene	ND	2.50	ug/L							
Indeno (1,2,3-cd) pyrene	ND	10.0	ug/L							
Isodrin	ND	10.0	ug/L							
Isophorone	ND	10.0	ug/L							
Isosafrole	ND	10.0	ug/L							
Kepone	ND	10.0	ug/L							
m+p-Cresols	ND	10.0	ug/L							
Methapyrilene	ND	10.0	ug/L							
Methyl methanesulfonate	ND	10.0	ug/L							
Methyl parathion	ND	2.50	ug/L							
Naphthalene	0.26	0.10	ug/L							B
Nitrobenzene	ND	10.0	ug/L							
n-Nitrosodiethylamine	ND	2.50	ug/L							

Certificate of Analysis

Client Name: SCS Engineers-Winchester
 Client Site I.D.: City of Bristol 1st Semi-Annual 2022
 Submitted To: Jennifer Robb

Date Issued: 7/12/2022 2:30:28PM

Semivolatile Organic Compounds by GCMS - Quality Control

Enthalpy Analytical

Analyte	Result	LOQ	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Qual
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Batch BFF0013 - SW3580A-MS

Blank (BFF0013-BLK1)

Prepared & Analyzed: 06/01/2022

n-Nitrosodimethylamine	ND	10.0	ug/L							
n-Nitrosodi-n-butylamine	ND	10.0	ug/L							
n-Nitrosodi-n-propylamine	ND	10.0	ug/L							
n-Nitrosodiphenylamine	ND	10.0	ug/L							
n-Nitrosomethylethylamine	ND	2.50	ug/L							
n-Nitrosopiperidine	ND	10.0	ug/L							
n-Nitrosopyrrolidine	ND	2.50	ug/L							
o,o,o-Triethyl phosphorothioate	ND	10.0	ug/L							
o,o-Diethyl o-2-pyrazinyl phosphorothioate	ND	10.0	ug/L							
o+m+p-Cresols	ND	10.0	ug/L							
o-Cresol	ND	10.0	ug/L							
o-Toluidine	ND	2.50	ug/L							
p-(Dimethylamino) azobenzene	ND	2.50	ug/L							
p-Chloro-m-cresol	ND	10.0	ug/L							
Pentachlorobenzene	ND	10.0	ug/L							
Pentachloronitrobenzene (quintozene)	ND	10.0	ug/L							
Phenacetin	ND	10.0	ug/L							
Phenanthrene	ND	10.0	ug/L							
Phenol	ND	10.0	ug/L							
Phorate	ND	2.50	ug/L							
p-Phenylenediamine	ND	10.0	ug/L							
Pronamide	ND	10.0	ug/L							
Pyrene	ND	10.0	ug/L							
Safrole	ND	2.50	ug/L							
<i>Surr: 2,4,6-Tribromophenol (Surr)</i>	55.4		ug/L	100		55.4	10-86			

Certificate of Analysis

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Semivolatile Organic Compounds by GCMS - Quality Control

Enthalpy Analytical

Analyte	Result	LOQ	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Qual
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Batch BFF0013 - SW3580A-MS

Blank (BFF0013-BLK1)

Prepared & Analyzed: 06/01/2022

<i>Surr: 2-Fluorobiphenyl (Surr)</i>	33.8		ug/L	50.0		67.5	9-87			
<i>Surr: 2-Fluorophenol (Surr)</i>	45.2		ug/L	100		45.2	10-52			
<i>Surr: Nitrobenzene-d5 (Surr)</i>	34.4		ug/L	50.0		68.9	10-98.5			
<i>Surr: Phenol-d5 (Surr)</i>	31.6		ug/L	100		31.6	5-33			
<i>Surr: p-Terphenyl-d14 (Surr)</i>	40.5		ug/L	50.0		81.0	27-133			

LCS (BFF0013-BS1)

Prepared & Analyzed: 06/01/2022

1,2,4-Trichlorobenzene	17.2	10.0	ug/L	50.0		34.5	22-135			
1,2-Dichlorobenzene	12.3	10.0	ug/L	50.0		24.7	22-115			
1,3-Dichlorobenzene	10.7	10.0	ug/L	50.0		21.5	22-112			L
1,4-Dichlorobenzene	11.7	10.0	ug/L	50.0		23.3	13-112			
2,4,6-Trichlorophenol	26.0	10.0	ug/L	50.0		51.9	11-145			
2,4-Dichlorophenol	28.3	10.0	ug/L	50.0		56.7	11-75			
2,4-Dimethylphenol	23.8	5.00	ug/L	50.0		47.5	11-121			
2,4-Dinitrophenol	31.7	50.0	ug/L	50.0		63.4	11-165			
2,4-Dinitrotoluene	35.6	10.0	ug/L	50.0		71.1	17-155			
2,6-Dinitrotoluene	26.7	10.0	ug/L	50.0		53.4	15-125			
2-Chloronaphthalene	25.8	10.0	ug/L	50.0		51.5	27-89			
2-Chlorophenol	20.5	10.0	ug/L	50.0		41.1	15-110			
2-Nitrophenol	22.9	10.0	ug/L	50.0		45.8	11-115			
3,3'-Dichlorobenzidine	19.7	10.0	ug/L	50.0		39.4	25-95			
4,6-Dinitro-2-methylphenol	36.0	50.0	ug/L	50.0		72.1	25-130			
4-Bromophenyl phenyl ether	23.7	10.0	ug/L	50.0		47.4	15-110			
4-Chlorophenyl phenyl ether	25.2	10.0	ug/L	50.0		50.4	15-110			
4-Nitrophenol	13.7	50.0	ug/L	50.0		27.4	12-70			

Certificate of Analysis

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Semivolatile Organic Compounds by GCMS - Quality Control

Enthalpy Analytical

Analyte	Result	LOQ	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Qual
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Batch BFF0013 - SW3580A-MS

LCS (BFF0013-BS1)

Prepared & Analyzed: 06/01/2022

Acenaphthene	27.2	10.0	ug/L	50.0		54.5	18-85			
Acenaphthylene	30.0	10.0	ug/L	50.0		60.1	20-75			
Acetophenone	20.9	20.0	ug/L	50.0		41.8	0-200			
alpha-Terpineol	19.8	2.50	ug/L	50.0		39.6	0-200			
Anthracene	33.3	10.0	ug/L	50.0		66.6	35-95			
Benzo (a) anthracene	40.2	10.0	ug/L	50.0		80.3	25-95			
Benzo (a) pyrene	46.3	10.0	ug/L	50.0		92.7	37-110			
Benzo (b) fluoranthene	49.3	10.0	ug/L	50.0		98.5	25-75			L
Benzo (g,h,i) perylene	16.2	10.0	ug/L	50.0		32.4	25-90			
Benzo (k) fluoranthene	42.8	10.0	ug/L	50.0		85.6	25-95			
bis (2-Chloroethoxy) methane	23.6	10.0	ug/L	50.0		47.1	25-110			
bis (2-Chloroethyl) ether	19.4	10.0	ug/L	50.0		38.8	25-85			
2,2'-Oxybis (1-chloropropane)	20.4	10.0	ug/L	50.0		40.9	25-95			
bis (2-Ethylhexyl) phthalate	46.0	5.00	ug/L	50.0		91.9	30-125			
Butyl benzyl phthalate	45.3	10.0	ug/L	50.0		90.6	30-115			
Carbazole	42.8	2.50	ug/L	50.0		85.5	0-200			
Chrysene	42.6	10.0	ug/L	50.0		85.2	20-90			
Dibenz (a,h) anthracene	21.5	10.0	ug/L	50.0		43.1	27-125			
Diethyl phthalate	32.9	10.0	ug/L	50.0		65.8	25-120			
Dimethyl phthalate	32.1	10.0	ug/L	50.0		64.3	25-125			
Di-n-butyl phthalate	44.7	10.0	ug/L	50.0		89.4	35-115			
Di-n-octyl phthalate	73.4	10.0	ug/L	50.0		147	25-105			L
Fluoranthene	42.7	10.0	ug/L	50.0		85.3	33-95			
Fluorene	30.3	10.0	ug/L	50.0		60.5	15-97			
Hexachlorobenzene	26.3	1.00	ug/L	50.0		52.6	25-125			

Certificate of Analysis

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Semivolatile Organic Compounds by GCMS - Quality Control

Enthalpy Analytical

Analyte	Result	LOQ	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Qual
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Batch BFF0013 - SW3580A-MS

LCS (BFF0013-BS1)

Prepared & Analyzed: 06/01/2022

Hexachlorobutadiene	15.4	10.0	ug/L	50.0		30.8	25-125			
Hexachlorocyclopentadiene	10.3	10.0	ug/L	50.0		20.6	25-125			L
Hexachloroethane	9.46	10.0	ug/L	50.0		18.9	25-125			L
Indeno (1,2,3-cd) pyrene	21.8	10.0	ug/L	50.0		43.6	25-125			
Isophorone	16.4	10.0	ug/L	50.0		32.9	10-110			
Naphthalene	19.0	0.10	ug/L	50.0		38.0	12-100			
Nitrobenzene	21.8	10.0	ug/L	50.0		43.5	30-97			
n-Nitrosodimethylamine	11.6	10.0	ug/L	50.0		23.2	10-85			
n-Nitrosodi-n-propylamine	24.8	10.0	ug/L	50.0		49.6	12-97			
n-Nitrosodiphenylamine	23.0	10.0	ug/L	50.0		46.0	12-97			
p-Chloro-m-cresol	28.5	10.0	ug/L	50.0		57.0	10-91			
Pentachlorophenol	28.8	20.0	ug/L	50.0		57.6	30-109			
Phenanthrene	35.8	10.0	ug/L	50.0		71.7	30-88			
Phenol	9.42	10.0	ug/L	50.5		18.7	10-70			
Pyrene	44.5	10.0	ug/L	50.0		89.0	27-110			
Pyridine	18.9	10.0	ug/L	50.0		37.8	0-200			
<hr/>										
<i>Surr: 2,4,6-Tribromophenol (Surr)</i>	55.7		ug/L	100		55.7	10-86			
<i>Surr: 2-Fluorobiphenyl (Surr)</i>	28.0		ug/L	50.0		56.0	9-87			
<i>Surr: 2-Fluorophenol (Surr)</i>	26.7		ug/L	100		26.7	10-52			
<i>Surr: Nitrobenzene-d5 (Surr)</i>	24.7		ug/L	50.0		49.4	10-98.5			
<i>Surr: Phenol-d5 (Surr)</i>	22.5		ug/L	100		22.5	5-33			
<i>Surr: p-Terphenyl-d14 (Surr)</i>	46.9		ug/L	50.0		93.8	27-133			

Matrix Spike (BFF0013-MS1)

Source: 22E1463-02

Prepared: 06/01/2022 Analyzed: 06/02/2022

1,2,4-Trichlorobenzene	20.1	10.0	ug/L	46.7	BLOD	43.0	22-65			
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Certificate of Analysis

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Semivolatile Organic Compounds by GCMS - Quality Control

Enthalpy Analytical

Analyte	Result	LOQ	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Qual
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Batch BFF0013 - SW3580A-MS

Matrix Spike (BFF0013-MS1)

Source: 22E1463-02

Prepared: 06/01/2022 Analyzed: 06/02/2022

1,2-Dichlorobenzene	18.0	10.0	ug/L	46.7	BLOD	38.6	22-60			
1,3-Dichlorobenzene	16.8	10.0	ug/L	46.7	BLOD	36.0	22-60			
1,4-Dichlorobenzene	18.1	10.0	ug/L	46.7	BLOD	38.7	13-60			
2,4,6-Trichlorophenol	23.1	10.0	ug/L	46.7	BLOD	49.4	11-75			
2,4-Dichlorophenol	25.3	10.0	ug/L	46.7	BLOD	54.1	11-75			
2,4-Dimethylphenol	22.0	4.67	ug/L	46.7	BLOD	47.1	11-65			
2,4-Dinitrophenol	31.6	50.0	ug/L	46.7	BLOD	67.7	11-110			
2,4-Dinitrotoluene	35.6	10.0	ug/L	46.7	BLOD	76.3	17-95			
2,6-Dinitrotoluene	28.1	10.0	ug/L	46.7	BLOD	60.2	15-125			
2-Chloronaphthalene	25.3	10.0	ug/L	46.7	BLOD	54.1	27-89			
2-Chlorophenol	22.8	10.0	ug/L	46.7	BLOD	48.9	19-64			
2-Nitrophenol	23.1	10.0	ug/L	46.7	BLOD	49.4	11-75			
3,3'-Dichlorobenzidine	14.1	10.0	ug/L	46.7	BLOD	30.2	10-85			
4,6-Dinitro-2-methylphenol	32.2	50.0	ug/L	46.7	BLOD	69.0	40-130			
4-Bromophenyl phenyl ether	24.5	10.0	ug/L	46.7	BLOD	52.4	15-110			
4-Chlorophenyl phenyl ether	26.4	10.0	ug/L	46.7	BLOD	56.5	15-110			
4-Nitrophenol	11.8	50.0	ug/L	46.7	BLOD	25.3	12-70			
Acenaphthene	27.4	10.0	ug/L	46.7	BLOD	58.6	15-90			
Acenaphthylene	29.9	10.0	ug/L	46.7	BLOD	63.9	15-99			
Acetophenone	20.5	20.0	ug/L	46.7	BLOD	43.9	0-200			
alpha-Terpineol	16.7	2.50	ug/L	46.7	BLOD	35.8	0-200			
Anthracene	34.4	10.0	ug/L	46.7	BLOD	73.7	20-95			
Benzo (a) anthracene	36.4	9.35	ug/L	46.7	BLOD	77.9	25-95			
Benzo (a) pyrene	43.9	9.35	ug/L	46.7	BLOD	94.0	25-82			M
Benzo (b) fluoranthene	44.4	10.0	ug/L	46.7	BLOD	95.0	25-75			M

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Semivolatile Organic Compounds by GCMS - Quality Control

Enthalpy Analytical

Analyte	Result	LOQ	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Qual
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Batch BFF0013 - SW3580A-MS

Matrix Spike (BFF0013-MS1)	Source: 22E1463-02		Prepared: 06/01/2022 Analyzed: 06/02/2022							
Benzo (g,h,i) perylene	14.2	10.0	ug/L	46.7	BLOD	30.4	25-90			
Benzo (k) fluoranthene	47.9	10.0	ug/L	46.7	BLOD	102	25-95			M
bis (2-Chloroethoxy) methane	22.1	10.0	ug/L	46.7	BLOD	47.3	25-85			
bis (2-Chloroethyl) ether	22.1	10.0	ug/L	46.7	BLOD	47.3	25-85			
2,2'-Oxybis (1-chloropropane)	21.8	10.0	ug/L	46.7	BLOD	46.7	25-87			
bis (2-Ethylhexyl) phthalate	42.8	5.00	ug/L	46.7	BLOD	91.6	30-125			
Butyl benzyl phthalate	42.3	10.0	ug/L	46.7	BLOD	90.6	30-115			
Carbazole	38.9	2.50	ug/L	46.7	BLOD	83.1	0-200			
Chrysene	38.8	10.0	ug/L	46.7	BLOD	83.0	20-90			
Dibenz (a,h) anthracene	18.9	10.0	ug/L	46.7	BLOD	40.5	27-125			
Diethyl phthalate	33.6	10.0	ug/L	46.7	BLOD	71.9	25-120			
Dimethyl phthalate	33.3	10.0	ug/L	46.7	BLOD	71.3	25-125			
Di-n-butyl phthalate	40.6	10.0	ug/L	46.7	BLOD	87.0	25-115			
Di-n-octyl phthalate	84.0	10.0	ug/L	46.7	BLOD	180	22-105			M
Fluoranthene	38.7	10.0	ug/L	46.7	BLOD	82.9	25-96			
Fluorene	32.6	10.0	ug/L	46.7	BLOD	69.8	15-97			
Hexachlorobenzene	26.0	0.93	ug/L	46.7	BLOD	55.6	25-125			
Hexachlorobutadiene	19.2	10.0	ug/L	46.7	BLOD	41.0	25-125			
Hexachlorocyclopentadiene	8.53	10.0	ug/L	46.7	BLOD	18.3	10-90			
Hexachloroethane	16.5	10.0	ug/L	46.7	BLOD	35.4	25-125			
Indeno (1,2,3-cd) pyrene	19.1	10.0	ug/L	46.7	BLOD	40.9	25-125			
Isophorone	14.3	10.0	ug/L	46.7	BLOD	30.7	10-110			
Naphthalene	21.3	0.10	ug/L	46.7	0.20	45.1	12-100			
Nitrobenzene	22.5	10.0	ug/L	46.7	BLOD	48.1	27-77			
n-Nitrosodimethylamine	13.9	10.0	ug/L	46.7	BLOD	29.8	10-85			

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Semivolatile Organic Compounds by GCMS - Quality Control

Enthalpy Analytical

Analyte	Result	LOQ	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Qual
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Batch BFF0013 - SW3580A-MS

Matrix Spike (BFF0013-MS1)

Source: 22E1463-02

Prepared: 06/01/2022 Analyzed: 06/02/2022

n-Nitrosodi-n-propylamine	21.8	10.0	ug/L	46.7	BLOD	46.6	12-97			
n-Nitrosodiphenylamine	24.1	10.0	ug/L	46.7	BLOD	51.6	12-97			
p-Chloro-m-cresol	25.6	10.0	ug/L	46.7	BLOD	54.8	10-91			
Pentachlorophenol	25.4	20.0	ug/L	46.7	BLOD	54.4	27-109			
Phenanthrene	38.2	10.0	ug/L	46.7	BLOD	81.8	35-115			
Phenol	8.69	10.0	ug/L	47.2	BLOD	18.4	10-70			
Pyrene	43.1	10.0	ug/L	46.7	BLOD	92.2	23-110			
Pyridine	5.50	10.0	ug/L	46.7	BLOD	11.8	0-200			
<i>Surr: 2,4,6-Tribromophenol (Surr)</i>	55.4		ug/L	93.5		59.3	10-86			
<i>Surr: 2-Fluorobiphenyl (Surr)</i>	27.7		ug/L	46.7		59.3	9-87			
<i>Surr: 2-Fluorophenol (Surr)</i>	33.1		ug/L	93.5		35.4	10-52			
<i>Surr: Nitrobenzene-d5 (Surr)</i>	26.7		ug/L	46.7		57.1	10-98.5			
<i>Surr: Phenol-d5 (Surr)</i>	22.0		ug/L	93.5		23.5	5-33			
<i>Surr: p-Terphenyl-d14 (Surr)</i>	44.7		ug/L	46.7		95.6	27-133			

Matrix Spike Dup (BFF0013-MSD1)

Source: 22E1463-02

Prepared: 06/01/2022 Analyzed: 06/02/2022

1,2,4-Trichlorobenzene	28.4	10.0	ug/L	46.7	BLOD	60.7	22-65	34.2	20	P
1,2-Dichlorobenzene	27.2	10.0	ug/L	46.7	BLOD	58.2	22-60	40.5	20	P
1,3-Dichlorobenzene	25.6	10.0	ug/L	46.7	BLOD	54.8	22-60	41.4	20	P
1,4-Dichlorobenzene	27.3	10.0	ug/L	46.7	BLOD	58.4	13-60	40.6	20	P
2,4,6-Trichlorophenol	31.5	10.0	ug/L	46.7	BLOD	67.3	11-75	30.7	20	P
2,4-Dichlorophenol	36.4	10.0	ug/L	46.7	BLOD	77.9	11-75	36.1	20	M, P
2,4-Dimethylphenol	30.1	4.67	ug/L	46.7	BLOD	64.5	11-65	31.2	20	P
2,4-Dinitrophenol	51.7	50.0	ug/L	46.7	BLOD	111	11-110	48.2	20	M, P
2,4-Dinitrotoluene	47.6	10.0	ug/L	46.7	BLOD	102	17-95	28.8	20	M, P

Certificate of Analysis

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Semivolatile Organic Compounds by GCMS - Quality Control

Enthalpy Analytical

Analyte	Result	LOQ	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Qual
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Batch BFF0013 - SW3580A-MS

Matrix Spike Dup (BFF0013-MSD1)	Source: 22E1463-02		Prepared: 06/01/2022 Analyzed: 06/02/2022							
2,6-Dinitrotoluene	36.4	10.0	ug/L	46.7	BLOD	77.9	15-125	25.6	20	P
2-Chloronaphthalene	37.7	10.0	ug/L	46.7	BLOD	80.6	27-89	39.4	20	P
2-Chlorophenol	33.9	10.0	ug/L	46.7	BLOD	72.4	19-64	38.8	20	M, P
2-Nitrophenol	32.2	10.0	ug/L	46.7	BLOD	68.8	11-75	33.0	20	P
3,3'-Dichlorobenzidine	20.7	10.0	ug/L	46.7	BLOD	44.4	10-85	37.9	20	P
4,6-Dinitro-2-methylphenol	47.4	50.0	ug/L	46.7	BLOD	102	40-130	38.2	20	P
4-Bromophenyl phenyl ether	29.5	10.0	ug/L	46.7	BLOD	63.2	15-110	18.7	20	
4-Chlorophenyl phenyl ether	36.6	10.0	ug/L	46.7	BLOD	78.2	15-110	32.3	20	P
4-Nitrophenol	16.9	50.0	ug/L	46.7	BLOD	36.1	12-70	35.1	20	P
Acenaphthene	38.7	10.0	ug/L	46.7	BLOD	82.9	15-90	34.4	20	P
Acenaphthylene	43.8	10.0	ug/L	46.7	BLOD	93.8	15-99	37.8	20	P
Acetophenone	29.1	20.0	ug/L	46.7	BLOD	62.2	0-200	34.6	20	P
alpha-Terpineol	22.6	2.50	ug/L	46.7	BLOD	48.4	0-200	30.0	20	P
Anthracene	44.9	10.0	ug/L	46.7	BLOD	96.1	20-95	26.4	20	M, P
Benzo (a) anthracene	48.0	9.35	ug/L	46.7	BLOD	103	25-95	27.5	20	M, P
Benzo (a) pyrene	57.3	9.35	ug/L	46.7	BLOD	123	25-82	26.4	20	M, P
Benzo (b) fluoranthene	55.7	10.0	ug/L	46.7	BLOD	119	25-75	22.6	20	M, P
Benzo (g,h,i) perylene	20.7	10.0	ug/L	46.7	BLOD	44.2	25-90	37.2	20	P
Benzo (k) fluoranthene	71.2	10.0	ug/L	46.7	BLOD	152	25-95	39.3	20	M, P
bis (2-Chloroethoxy) methane	32.4	10.0	ug/L	46.7	BLOD	69.2	25-85	37.7	20	P
bis (2-Chloroethyl) ether	32.8	10.0	ug/L	46.7	BLOD	70.3	25-85	39.2	20	P
2,2'-Oxybis (1-chloropropane)	33.5	10.0	ug/L	46.7	BLOD	71.7	25-87	42.2	20	P
bis (2-Ethylhexyl) phthalate	51.1	5.00	ug/L	46.7	BLOD	109	30-125	17.7	20	
Butyl benzyl phthalate	51.7	10.0	ug/L	46.7	BLOD	111	30-115	19.9	20	
Carbazole	52.1	2.50	ug/L	46.7	BLOD	112	0-200	29.2	20	P

Certificate of Analysis

Client Name: SCS Engineers-Winchester
 Client Site I.D.: City of Bristol 1st Semi-Annual 2022
 Submitted To: Jennifer Robb

Date Issued: 7/12/2022 2:30:28PM

Semivolatile Organic Compounds by GCMS - Quality Control

Enthalpy Analytical

Analyte	Result	LOQ	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Qual
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Batch BFF0013 - SW3580A-MS

Matrix Spike Dup (BFF0013-MSD1)	Source: 22E1463-02		Prepared: 06/01/2022 Analyzed: 06/02/2022							
Chrysene	51.6	10.0	ug/L	46.7	BLOD	110	20-90	28.4	20	M, P
Dibenz (a,h) anthracene	27.6	10.0	ug/L	46.7	BLOD	59.0	27-125	37.3	20	P
Diethyl phthalate	44.1	10.0	ug/L	46.7	BLOD	94.3	25-120	26.9	20	P
Dimethyl phthalate	45.5	10.0	ug/L	46.7	BLOD	97.3	25-125	30.9	20	P
Di-n-butyl phthalate	55.3	10.0	ug/L	46.7	BLOD	118	25-115	30.5	20	M, P
Di-n-octyl phthalate	69.6	10.0	ug/L	46.7	BLOD	149	22-105	18.8	20	M
Fluoranthene	52.7	10.0	ug/L	46.7	BLOD	113	25-96	30.6	20	M, P
Fluorene	44.8	10.0	ug/L	46.7	BLOD	95.9	15-97	31.5	20	P
Hexachlorobenzene	32.1	0.93	ug/L	46.7	BLOD	68.7	25-125	21.2	20	P
Hexachlorobutadiene	27.3	10.0	ug/L	46.7	BLOD	58.4	25-125	35.0	20	P
Hexachlorocyclopentadiene	14.2	10.0	ug/L	46.7	BLOD	30.5	10-90	50.1	20	P
Hexachloroethane	26.0	10.0	ug/L	46.7	BLOD	55.5	25-125	44.4	20	P
Indeno (1,2,3-cd) pyrene	28.0	10.0	ug/L	46.7	BLOD	59.9	25-125	37.7	20	P
Isophorone	22.1	10.0	ug/L	46.7	BLOD	47.3	10-110	42.7	20	P
Naphthalene	31.0	0.10	ug/L	46.7	0.20	66.0	12-100	37.4	20	P
Nitrobenzene	34.1	10.0	ug/L	46.7	BLOD	73.1	27-77	41.3	20	P
n-Nitrosodimethylamine	18.5	10.0	ug/L	46.7	BLOD	39.6	10-85	28.1	20	P
n-Nitrosodi-n-propylamine	31.0	10.0	ug/L	46.7	BLOD	66.4	12-97	35.0	20	P
n-Nitrosodiphenylamine	30.0	10.0	ug/L	46.7	BLOD	64.3	12-97	21.9	20	P
p-Chloro-m-cresol	35.9	10.0	ug/L	46.7	BLOD	76.9	10-91	33.6	20	P
Pentachlorophenol	36.1	20.0	ug/L	46.7	BLOD	77.3	27-109	34.8	20	P
Phenanthrene	50.0	10.0	ug/L	46.7	BLOD	107	35-115	26.7	20	P
Phenol	14.5	10.0	ug/L	47.2	BLOD	30.6	10-70	49.8	20	P
Pyrene	51.4	10.0	ug/L	46.7	BLOD	110	23-110	17.5	20	
Pyridine	27.2	10.0	ug/L	46.7	BLOD	58.2	0-200	133	20	P

Certificate of Analysis

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Semivolatile Organic Compounds by GCMS - Quality Control

Enthalpy Analytical

Analyte	Result	LOQ	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Qual
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Batch BFF0013 - SW3580A-MS

Matrix Spike Dup (BFF0013-MSD1) **Source: 22E1463-02** Prepared: 06/01/2022 Analyzed: 06/02/2022

<i>Surr: 2,4,6-Tribromophenol (Surr)</i>	67.0		ug/L	93.5		71.7	10-86			
<i>Surr: 2-Fluorobiphenyl (Surr)</i>	38.8		ug/L	46.7		82.9	9-87			
<i>Surr: 2-Fluorophenol (Surr)</i>	45.7		ug/L	93.5		48.9	10-52			
<i>Surr: Nitrobenzene-d5 (Surr)</i>	36.8		ug/L	46.7		78.8	10-98.5			
<i>Surr: Phenol-d5 (Surr)</i>	31.7		ug/L	93.5		33.9	5-33			S
<i>Surr: p-Terphenyl-d14 (Surr)</i>	51.6		ug/L	46.7		110	27-133			

Certificate of Analysis

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Organochlorine Pesticides and PCBs by GC/ECD - Quality Control

Enthalpy Analytical

Analyte	Result	LOQ	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Qual
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Batch BFE1147 - SW3510C/EPA600-ECD

Blank (BFE1147-BLK1)

Prepared: 05/31/2022 Analyzed: 06/01/2022

PCB as Aroclor 1016	ND	0.200	ug/L							
4,4'-DDD	ND	0.050	ug/L							
PCB as Aroclor 1221	ND	0.200	ug/L							
PCB as Aroclor 1232	ND	0.200	ug/L							
4,4'-DDE	ND	0.050	ug/L							
PCB as Aroclor 1242	ND	0.200	ug/L							
PCB as Aroclor 1248	ND	0.200	ug/L							
4,4'-DDT	ND	0.050	ug/L							
PCB as Aroclor 1254	ND	0.200	ug/L							
PCB as Aroclor 1260	ND	0.200	ug/L							
Aldrin	ND	0.050	ug/L							
alpha-BHC	ND	0.050	ug/L							
alpha-Chlordane	ND	0.050	ug/L							
beta-BHC	ND	0.050	ug/L							
Chlordane	ND	0.200	ug/L							
delta-BHC	ND	0.050	ug/L							
Dieldrin	ND	0.050	ug/L							
Endosulfan I	ND	0.050	ug/L							
Endosulfan II	ND	0.050	ug/L							
Endosulfan sulfate	ND	0.050	ug/L							
Endrin	ND	0.050	ug/L							
Endrin aldehyde	ND	0.050	ug/L							
Endrin ketone	ND	0.050	ug/L							
gamma-BHC (Lindane)	ND	0.050	ug/L							
gamma-Chlordane	ND	0.050	ug/L							

Certificate of Analysis

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Organochlorine Pesticides and PCBs by GC/ECD - Quality Control

Enthalpy Analytical

Analyte	Result	LOQ	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Qual
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Batch BFE1147 - SW3510C/EPA600-ECD

Blank (BFE1147-BLK1)

Prepared: 05/31/2022 Analyzed: 06/01/2022

Heptachlor	ND	0.050	ug/L							
Heptachlor epoxide	ND	0.050	ug/L							
Methoxychlor	ND	0.050	ug/L							
Toxaphene	ND	1.00	ug/L							
<i>Surr: DCB</i>	<i>0.158</i>		ug/L	<i>0.200</i>		<i>79.2</i>	<i>30-105</i>			
<i>Surr: TCMX</i>	<i>0.126</i>		ug/L	<i>0.200</i>		<i>63.2</i>	<i>30-105</i>			
<i>Surr: TCMX</i>	<i>0.117</i>		ug/L	<i>0.200</i>		<i>58.5</i>	<i>18-112</i>			
<i>Surr: DCB</i>	<i>0.154</i>		ug/L	<i>0.200</i>		<i>76.9</i>	<i>27-131</i>			

LCS (BFE1147-BS1)

Prepared: 05/31/2022 Analyzed: 06/01/2022

4,4'-DDD	0.108	0.050	ug/L	0.100		108	23-134			
4,4'-DDE	0.096	0.050	ug/L	0.100		96.5	23-134			
4,4'-DDT	0.101	0.050	ug/L	0.100		101	23-134			
Aldrin	0.061	0.050	ug/L	0.100		61.4	23-134			
alpha-BHC	0.070	0.050	ug/L	0.100		69.8	23-134			
beta-BHC	0.068	0.050	ug/L	0.100		68.2	23-134			
delta-BHC	0.080	0.050	ug/L	0.100		79.9	23-134			
Dieldrin	0.091	0.050	ug/L	0.100		90.7	23-134			
Endosulfan I	0.085	0.050	ug/L	0.100		85.0	23-134			
Endosulfan II	0.097	0.050	ug/L	0.100		96.9	23-134			
Endosulfan sulfate	0.103	0.050	ug/L	0.100		103	23-134			
Endrin	0.100	0.050	ug/L	0.100		100	23-134			
Endrin aldehyde	0.107	0.050	ug/L	0.100		107	23-134			
gamma-BHC (Lindane)	0.069	0.050	ug/L	0.100		69.5	23-134			
Heptachlor	0.071	0.050	ug/L	0.100		71.3	23-134			

Certificate of Analysis

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Organochlorine Pesticides and PCBs by GC/ECD - Quality Control

Enthalpy Analytical

Analyte	Result	LOQ	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Qual
Batch BFE1147 - SW3510C/EPA600-ECD										
LCS (BFE1147-BS1) Prepared: 05/31/2022 Analyzed: 06/01/2022										
Heptachlor epoxide	0.090	0.050	ug/L	0.100		90.4	23-134			
Methoxychlor	0.111	0.050	ug/L	0.100		111	23-134			
Mirex	0.104	0.050	ug/L	0.100		104	23-134			
<i>Surr: TCMX</i>	<i>0.0998</i>		ug/L	<i>0.200</i>		<i>49.9</i>	<i>18-112</i>			
<i>Surr: DCB</i>	<i>0.222</i>		ug/L	<i>0.200</i>		<i>111</i>	<i>27-131</i>			
LCS (BFE1147-BS2) Prepared: 05/31/2022 Analyzed: 06/01/2022										
PCB as Aroclor 1016	0.831	0.200	ug/L	1.00		83.1	70-130			
PCB as Aroclor 1260	0.780	0.200	ug/L	1.00		78.0	70-130			
<i>Surr: DCB</i>	<i>0.170</i>		ug/L	<i>0.200</i>		<i>84.9</i>	<i>30-105</i>			
<i>Surr: TCMX</i>	<i>0.123</i>		ug/L	<i>0.200</i>		<i>61.3</i>	<i>30-105</i>			
LCS (BFE1147-BS3) Prepared: 05/31/2022 Analyzed: 06/01/2022										
Toxaphene	1.94	1.00	ug/L	2.50		77.5	23-134			
<i>Surr: TCMX</i>	<i>0.136</i>		ug/L	<i>0.200</i>		<i>68.2</i>	<i>18-112</i>			
<i>Surr: DCB</i>	<i>0.174</i>		ug/L	<i>0.200</i>		<i>86.9</i>	<i>27-131</i>			
LCS (BFE1147-BS4) Prepared: 05/31/2022 Analyzed: 06/01/2022										
Chlordane	1.80	0.200	ug/L	2.50		71.9	23-134			
<i>Surr: TCMX</i>	<i>0.136</i>		ug/L	<i>0.200</i>		<i>68.2</i>	<i>18-112</i>			
<i>Surr: DCB</i>	<i>0.152</i>		ug/L	<i>0.200</i>		<i>76.2</i>	<i>27-131</i>			
Matrix Spike (BFE1147-MS1) Prepared & Analyzed: 06/01/2022										
4,4'-DDD	0.125	0.050	ug/L	0.0935	BLOD	133	23-134			
4,4'-DDE	0.116	0.050	ug/L	0.0935	BLOD	124	23-134			
4,4'-DDT	0.119	0.050	ug/L	0.0935	BLOD	127	23-134			

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Organochlorine Pesticides and PCBs by GC/ECD - Quality Control

Enthalpy Analytical

Analyte	Result	LOQ	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Qual
Batch BFE1147 - SW3510C/EPA600-ECD										
Matrix Spike (BFE1147-MS1)		Source: 22E1463-02			Prepared & Analyzed: 06/01/2022					
Aldrin	0.083	0.050	ug/L	0.0935	BLOD	89.3	23-134			
alpha-BHC	0.095	0.050	ug/L	0.0935	BLOD	102	23-134			
beta-BHC	0.085	0.050	ug/L	0.0935	BLOD	91.3	23-134			
delta-BHC	0.116	0.050	ug/L	0.0935	BLOD	125	23-134			
Dieldrin	0.110	0.050	ug/L	0.0935	BLOD	118	23-134			
Endosulfan I	0.101	0.050	ug/L	0.0935	BLOD	108	23-134			
Endosulfan II	0.118	0.050	ug/L	0.0935	BLOD	126	23-134			
Endosulfan sulfate	0.121	0.050	ug/L	0.0935	BLOD	129	23-134			
Endrin	0.120	0.050	ug/L	0.0935	BLOD	129	23-134			
Endrin aldehyde	0.117	0.050	ug/L	0.0935	BLOD	126	23-134			
gamma-BHC (Lindane)	0.094	0.050	ug/L	0.0935	BLOD	101	23-134			
Heptachlor	0.097	0.050	ug/L	0.0935	BLOD	104	23-134			
Heptachlor epoxide	0.111	0.050	ug/L	0.0935	BLOD	118	23-134			
Methoxychlor	0.125	0.050	ug/L	0.0935	BLOD	134	23-134			
Mirex	0.078	0.050	ug/L	0.0935	BLOD	83.5	23-134			
<i>Surr: TCMX</i>	<i>0.0951</i>		ug/L	<i>0.187</i>		<i>50.9</i>	<i>18-112</i>			
<i>Surr: DCB</i>	<i>0.125</i>		ug/L	<i>0.187</i>		<i>67.0</i>	<i>27-131</i>			
Matrix Spike (BFE1147-MS2)		Source: 22E1463-02			Prepared & Analyzed: 06/01/2022					
PCB as Aroclor 1016	1.27	0.200	ug/L	0.935	BLOD	135	70-130			M
PCB as Aroclor 1260	0.990	0.200	ug/L	0.935	BLOD	106	70-130			
<i>Surr: DCB</i>	<i>0.202</i>		ug/L	<i>0.187</i>		<i>108</i>	<i>30-105</i>			S
<i>Surr: TCMX</i>	<i>0.102</i>		ug/L	<i>0.187</i>		<i>54.6</i>	<i>30-105</i>			
Matrix Spike Dup (BFE1147-MSD1)		Source: 22E1463-02			Prepared & Analyzed: 06/01/2022					
4,4'-DDD	0.140	0.050	ug/L	0.0935	BLOD	150	23-134	11.5	20	M

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Organochlorine Pesticides and PCBs by GC/ECD - Quality Control

Enthalpy Analytical

Analyte	Result	LOQ	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Qual
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Batch BFE1147 - SW3510C/EPA600-ECD

Matrix Spike Dup (BFE1147-MSD1)		Source: 22E1463-02			Prepared & Analyzed: 06/01/2022					
4,4'-DDE	0.125	0.050	ug/L	0.0935	BLOD	134	23-134	7.64	20	M
4,4'-DDT	0.137	0.050	ug/L	0.0935	BLOD	147	23-134	14.3	20	M
Aldrin	0.094	0.050	ug/L	0.0935	BLOD	101	23-134	12.2	20	
alpha-BHC	0.104	0.050	ug/L	0.0935	BLOD	111	23-134	8.82	20	
beta-BHC	0.102	0.050	ug/L	0.0935	BLOD	109	23-134	17.7	20	
delta-BHC	0.116	0.050	ug/L	0.0935	BLOD	125	23-134	0.0401	20	
Dieldrin	0.119	0.050	ug/L	0.0935	BLOD	127	23-134	7.17	20	
Endosulfan I	0.110	0.050	ug/L	0.0935	BLOD	117	23-134	8.63	20	
Endosulfan II	0.132	0.050	ug/L	0.0935	BLOD	142	23-134	11.8	20	M
Endosulfan sulfate	0.139	0.050	ug/L	0.0935	BLOD	148	23-134	13.7	20	M
Endrin	0.129	0.050	ug/L	0.0935	BLOD	138	23-134	6.84	20	M
Endrin aldehyde	0.130	0.050	ug/L	0.0935	BLOD	139	23-134	10.0	20	M
gamma-BHC (Lindane)	0.103	0.050	ug/L	0.0935	BLOD	110	23-134	8.44	20	
Heptachlor	0.097	0.050	ug/L	0.0935	BLOD	104	23-134	0.154	20	
Heptachlor epoxide	0.108	0.050	ug/L	0.0935	BLOD	115	23-134	2.53	20	
Methoxychlor	0.145	0.050	ug/L	0.0935	BLOD	155	23-134	14.7	20	M
Mirex	0.094	0.050	ug/L	0.0935	BLOD	101	23-134	18.6	20	
<i>Surr: TCMX</i>	<i>0.102</i>		ug/L	<i>0.187</i>		<i>54.7</i>	<i>18-112</i>			
<i>Surr: DCB</i>	<i>0.140</i>		ug/L	<i>0.187</i>		<i>74.7</i>	<i>27-131</i>			
Matrix Spike Dup (BFE1147-MSD2)		Source: 22E1463-02			Prepared & Analyzed: 06/01/2022					
PCB as Aroclor 1016	0.839	0.200	ug/L	0.935	BLOD	89.8	70-130	40.5	20	P
PCB as Aroclor 1260	0.760	0.200	ug/L	0.935	BLOD	81.3	70-130	26.3	20	P
<i>Surr: DCB</i>	<i>0.163</i>		ug/L	<i>0.187</i>		<i>87.0</i>	<i>30-105</i>			
<i>Surr: TCMX</i>	<i>0.130</i>		ug/L	<i>0.187</i>		<i>69.6</i>	<i>30-105</i>			

Certificate of Analysis

Client Name: SCS Engineers-Winchester
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Organochlorine Herbicides by GC/ECD - Quality Control

Enthalpy Analytical

Analyte	Result	LOQ	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Qual
Batch BFE1204 - SW8151A/EPA600										
Blank (BFE1204-BLK1)										
				Prepared: 05/31/2022 Analyzed: 06/09/2022						
2,4,5-T	ND	0.500	ug/L							
2,4,5-TP (Silvex)	ND	0.500	ug/L							
2,4-D	ND	0.500	ug/L							
Dinoseb	ND	0.500	ug/L							
Pentachlorophenol	ND	0.500	ug/L							
<i>Surr: DCAA (Surr)</i>	<i>1.01</i>		ug/L	<i>1.11</i>		<i>90.5</i>	<i>48.5-134</i>			
LCS (BFE1204-BS1)										
				Prepared: 05/31/2022 Analyzed: 06/09/2022						
2,4,5-T	0.548	0.500	ug/L	0.556		98.7	62-145			
2,4,5-TP (Silvex)	0.601	0.500	ug/L	0.556		108	62-132			
2,4-D	0.652	0.500	ug/L	0.556		117	74-139			
Dinoseb	0.467	0.500	ug/L	0.556		84.0	59-136			
Pentachlorophenol	0.523	0.500	ug/L	0.556		94.1	62-118			
<i>Surr: DCAA (Surr)</i>	<i>1.00</i>		ug/L	<i>1.11</i>		<i>90.4</i>	<i>70-130</i>			
Matrix Spike (BFE1204-MS1)										
		Source: 22E1463-02		Prepared: 06/01/2022 Analyzed: 06/09/2022						
2,4,5-T	0.530	0.500	ug/L	0.556	BLOD	95.3	53-144			
2,4,5-TP (Silvex)	0.576	0.500	ug/L	0.556	BLOD	104	52-129			
2,4-D	0.502	0.500	ug/L	0.556	BLOD	90.3	53-126			
Dinoseb	0.446	0.500	ug/L	0.556	BLOD	80.3	60-137			
Pentachlorophenol	0.602	0.500	ug/L	0.556	BLOD	108	52-124			
<i>Surr: DCAA (Surr)</i>	<i>1.08</i>		ug/L	<i>1.11</i>		<i>97.5</i>	<i>70-130</i>			
Matrix Spike Dup (BFE1204-MSD1)										
		Source: 22E1463-02		Prepared: 06/01/2022 Analyzed: 06/09/2022						
2,4,5-T	0.511	0.500	ug/L	0.556	BLOD	91.9	53-144	3.63	20	
2,4,5-TP (Silvex)	0.528	0.500	ug/L	0.556	BLOD	94.9	52-129	8.76	20	

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Organochlorine Herbicides by GC/ECD - Quality Control

Enthalpy Analytical

Analyte	Result	LOQ	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Qual
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Batch BFE1204 - SW8151A/EPA600

Matrix Spike Dup (BFE1204-MSD1)	Source: 22E1463-02		Prepared: 06/01/2022 Analyzed: 06/09/2022							
2,4-D	0.411	0.500	ug/L	0.556	BLOD	74.0	53-126	19.8	20	
Dinoseb	0.423	0.500	ug/L	0.556	BLOD	76.2	60-137	5.20	20	
Pentachlorophenol	0.521	0.500	ug/L	0.556	BLOD	93.7	52-124	14.4	20	
<i>Surr: DCAA (Surr)</i>	<i>1.06</i>		ug/L	<i>1.11</i>		<i>95.7</i>	<i>70-130</i>			

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Micro-extractables by GC/ECD - Quality Control

Enthalpy Analytical

Analyte	Result	LOQ	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Qual
Batch BFF0016 - SW8011										
Blank (BFF0016-BLK1)				Prepared: 06/01/2022 Analyzed: 06/02/2022						
1,2-Dibromoethane (EDB)	ND	0.010	ug/L							
1,2,3-Trichloropropane	ND	0.010	ug/L							
1,2-Dibromo-3-chloropropane (DBCP)	ND	0.010	ug/L							
LCS (BFF0016-BS1)				Prepared: 06/01/2022 Analyzed: 06/02/2022						
1,2-Dibromoethane (EDB)	0.300	0.010	ug/L	0.250		120	65-135			
1,2,3-Trichloropropane	0.265	0.010	ug/L	0.250		106	65-135			
1,2-Dibromo-3-chloropropane (DBCP)	0.318	0.010	ug/L	0.250		127	65-135			
Matrix Spike (BFF0016-MS1)				Source: 22E1280-03		Prepared: 06/01/2022 Analyzed: 06/02/2022				
1,2-Dibromoethane (EDB)	0.312	0.010	ug/L	0.250	BLOD	125	65-135			
1,2,3-Trichloropropane	0.271	0.010	ug/L	0.250	BLOD	108	65-135			
1,2-Dibromo-3-chloropropane (DBCP)	0.319	0.010	ug/L	0.250	BLOD	127	65-135			
Matrix Spike Dup (BFF0016-MSD1)				Source: 22E1280-03		Prepared: 06/01/2022 Analyzed: 06/02/2022				
1,2-Dibromoethane (EDB)	0.303	0.010	ug/L	0.250	BLOD	121	65-135	2.75	20	
1,2,3-Trichloropropane	0.253	0.010	ug/L	0.250	BLOD	101	65-135	6.97	20	
1,2-Dibromo-3-chloropropane (DBCP)	0.316	0.010	ug/L	0.250	BLOD	126	65-135	0.870	20	

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Head Space Analysis by GC - Quality Control

Enthalpy Analytical

Analyte	Result	LOQ	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Qual
Batch BFF0087 - No Prep VOC										
Blank (BFF0087-BLK1)										
				Prepared & Analyzed: 06/02/2022						
Ethane	ND	5.00	ug/L							
Ethene	ND	5.00	ug/L							
Methane	ND	5.00	ug/L							
<i>Surr: Acetylene (Surr)</i>	449		ug/L	432		104	70-130			
LCS (BFF0087-BS1)										
				Prepared & Analyzed: 06/02/2022						
Ethane	540	5.00	ug/L	500		108	70-130			
Ethene	488	5.00	ug/L	464		105	70-130			
Methane	276	5.00	ug/L	266		104	70-130			
<i>Surr: Acetylene (Surr)</i>	496		ug/L	432		115	70-130			
Duplicate (BFF0087-DUP1)										
				Source: 22E1463-02			Prepared & Analyzed: 06/02/2022			
Ethane	ND	5.00	ug/L		BLOD			NA	20	
Ethene	ND	5.00	ug/L		BLOD			NA	20	
Methane	379	5.00	ug/L		378			0.346	20	
<i>Surr: Acetylene (Surr)</i>	510		ug/L	432		118	70-130			
Matrix Spike (BFF0087-MS1)										
				Source: 22E1463-02			Prepared & Analyzed: 06/02/2022			
Ethane	612	5.00	ug/L	500	BLOD	122	70-130			
Ethene	544	5.00	ug/L	464	BLOD	117	70-130			
Methane	547	5.00	ug/L	266	378	63.7	70-130			M
<i>Surr: Acetylene (Surr)</i>	489		ug/L	432		113	70-130			
Matrix Spike Dup (BFF0087-MSD1)										
				Source: 22E1463-02			Prepared & Analyzed: 06/02/2022			
Ethane	716	5.00	ug/L	500	BLOD	143	70-130	15.7	20	M
Ethene	635	5.00	ug/L	464	BLOD	137	70-130	15.4	20	M

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Head Space Analysis by GC - Quality Control

Enthalpy Analytical

Analyte	Result	LOQ	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Qual
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Batch BFF0087 - No Prep VOC

Matrix Spike Dup (BFF0087-MSD1)	Source: 22E1463-02		Prepared & Analyzed: 06/02/2022							
Methane	597	5.00	ug/L	266	378	82.5	70-130	8.74	20	
<i>Surr: Acetylene (Surr)</i>	591		ug/L	432		137	70-130			S

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Wet Chemistry Analysis - Quality Control

Enthalpy Analytical

Analyte	Result	LOQ	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Qual
Batch BFE1123 - No Prep IC										
Blank (BFE1123-BLK1)				Prepared & Analyzed: 05/27/2022						
Chloride	ND	1.0	mg/L							
LCS (BFE1123-BS1)				Prepared & Analyzed: 05/27/2022						
Chloride	18.6	1	mg/L	20.0		92.8	90-110			
LCS Dup (BFE1123-BSD1)				Prepared & Analyzed: 05/27/2022						
Chloride	18.8	1	mg/L	20.0		93.8	90-110	1.06	15	
Matrix Spike (BFE1123-MS1)				Source: 22E1388-01 Prepared & Analyzed: 05/27/2022						
Chloride	33.3	1.0	mg/L	11.1	21.7	104	90-110			
Matrix Spike (BFE1123-MS2)				Source: 22E1388-05 Prepared & Analyzed: 05/28/2022						
Chloride	14.1	1.0	mg/L	11.1	4.0	90.9	90-110			
Matrix Spike Dup (BFE1123-MSD1)				Source: 22E1388-01 Prepared & Analyzed: 05/27/2022						
Chloride	32.0	1.0	mg/L	11.1	21.7	92.5	90-110	4.03	15	
Matrix Spike Dup (BFE1123-MSD2)				Source: 22E1388-05 Prepared & Analyzed: 05/28/2022						
Chloride	15.1	1.0	mg/L	11.1	4.0	100	90-110	6.89	15	
Batch BFE1151 - No Prep Wet Chem										
Blank (BFE1151-BLK1)				Prepared & Analyzed: 05/27/2022						
Sulfide	ND	1.00	mg/L							
LCS (BFE1151-BS1)				Prepared & Analyzed: 05/27/2022						
Sulfide	4.89	1	mg/L	5.00		97.8	80-120			

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Wet Chemistry Analysis - Quality Control
 Enthalpy Analytical

Analyte	Result	LOQ	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Qual
Batch BFE1151 - No Prep Wet Chem										
Matrix Spike (BFE1151-MS1)		Source: 22E1249-01			Prepared & Analyzed: 05/27/2022					
Sulfide	5.21	1.00	mg/L	5.00	BLOD	104	75-125			
Matrix Spike Dup (BFE1151-MSD1)		Source: 22E1249-01			Prepared & Analyzed: 05/27/2022					
Sulfide	5.29	1.00	mg/L	5.00	BLOD	106	75-125	1.52	20	
Batch BFF0256 - No Prep Wet Chem										
LCS (BFF0256-BS1)		Prepared & Analyzed: 06/06/2022								
Cyanide	0.27	0.01	mg/L	0.250		109	80-120			
Matrix Spike (BFF0256-MS1)		Source: 22E1249-12			Prepared & Analyzed: 06/06/2022					
Cyanide	0.25	0.01	mg/L	0.250	BLOD	98.4	80-120			
Matrix Spike (BFF0256-MS2)		Source: 22E1463-02			Prepared & Analyzed: 06/06/2022					
Cyanide	0.23	0.01	mg/L	0.250	BLOD	90.0	80-120			
Matrix Spike Dup (BFF0256-MSD1)		Source: 22E1249-12			Prepared & Analyzed: 06/06/2022					
Cyanide	0.25	0.01	mg/L	0.250	BLOD	101	80-120	2.93	20	
Matrix Spike Dup (BFF0256-MSD2)		Source: 22E1463-02			Prepared & Analyzed: 06/06/2022					
Cyanide	0.23	0.01	mg/L	0.250	BLOD	92.4	80-120	2.54	20	
Batch BFF0313 - No Prep Wet Chem										
Blank (BFF0313-BLK1)		Prepared & Analyzed: 06/07/2022								
Alkalinity	ND	5.0	mg/L							

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Wet Chemistry Analysis - Quality Control
 Enthalpy Analytical

Analyte	Result	LOQ	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Qual
Batch BFF0313 - No Prep Wet Chem										
LCS (BFF0313-BS1)				Prepared & Analyzed: 06/07/2022						
Alkalinity	51.0	5.0	mg/L	50.0		102	80-120			
Duplicate (BFF0313-DUP1)				Source: 22E1303-03 Prepared & Analyzed: 06/07/2022						
Alkalinity	33.0	5.0	mg/L		34.0			2.99	20	
Batch BFF0367 - No Prep Wet Chem										
Blank (BFF0367-BLK1)				Prepared & Analyzed: 06/08/2022						
Alkalinity	ND	5.0	mg/L							
LCS (BFF0367-BS1)				Prepared & Analyzed: 06/08/2022						
Alkalinity	47.0	5.0	mg/L	50.0		94.0	80-120			
Duplicate (BFF0367-DUP1)				Source: 22E1388-05 Prepared & Analyzed: 06/08/2022						
Alkalinity	144	5.0	mg/L		148			2.74	20	
Duplicate (BFF0367-DUP2)				Source: 22E1463-02 Prepared & Analyzed: 06/08/2022						
Alkalinity	313	5.0	mg/L		309			1.29	20	

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Analytical Summary

Sample ID	Preparation Factors Initial / Final	Method	Batch ID	Sequence ID	Calibration ID
Metals (Total) by EPA 6000/7000 Series Methods			Preparation Method:	EPA200.8 R5.4	
22E1388-01	50.0 mL / 50.0 mL	SW6020B	BFE1163	SFF0106	AF20015
22E1388-02	50.0 mL / 50.0 mL	SW6020B	BFE1163	SFF0106	AF20015
22E1388-03	50.0 mL / 50.0 mL	SW6020B	BFE1163	SFF0106	AF20015
22E1388-04	50.0 mL / 50.0 mL	SW6020B	BFE1163	SFF0106	AF20015
22E1388-05	50.0 mL / 50.0 mL	SW6020B	BFE1163	SFF0106	AF20015
22E1388-06	50.0 mL / 50.0 mL	SW6020B	BFE1163	SFF0106	AF20015
22E1388-07	50.0 mL / 50.0 mL	SW6020B	BFE1163	SFF0106	AF20015
22E1388-08	50.0 mL / 50.0 mL	SW6020B	BFE1163	SFF0106	AF20015
22E1388-09	50.0 mL / 50.0 mL	SW6020B	BFE1163	SFF0106	AF20015
22E1388-10	50.0 mL / 50.0 mL	SW6020B	BFE1163	SFF0106	AF20015
22E1388-11	50.0 mL / 50.0 mL	SW6020B	BFE1163	SFF0106	AF20015
22E1388-11RE1	50.0 mL / 50.0 mL	SW6020B	BFE1163	SFF0327	AF20045

Sample ID	Preparation Factors Initial / Final	Method	Batch ID	Sequence ID	Calibration ID
Wet Chemistry Analysis			Preparation Method:	No Prep IC	
22E1388-01	1.00 mL / 1.00 mL	SW9056A	BFE1123	SFF0018	AB20130
22E1388-02	1.00 mL / 1.00 mL	SW9056A	BFE1123	SFF0018	AB20130
22E1388-03	1.00 mL / 1.00 mL	SW9056A	BFE1123	SFF0018	AB20130
22E1388-04	1.00 mL / 1.00 mL	SW9056A	BFE1123	SFF0018	AB20130
22E1388-05	1.00 mL / 1.00 mL	SW9056A	BFE1123	SFF0018	AB20130

Sample ID	Preparation Factors Initial / Final	Method	Batch ID	Sequence ID	Calibration ID
Head Space Analysis by GC			Preparation Method:	No Prep VOC	
22E1388-01	5.00 mL / 5.00 mL	RSK175M	BFF0087	SFF0075	AB20185
22E1388-02	5.00 mL / 5.00 mL	RSK175M	BFF0087	SFF0075	AB20185

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Sample ID	Preparation Factors Initial / Final	Method	Batch ID	Sequence ID	Calibration ID
Head Space Analysis by GC			Preparation Method:	No Prep VOC	
22E1388-03	5.00 mL / 5.00 mL	RSK175M	BFF0087	SFF0075	AB20185
22E1388-04	5.00 mL / 5.00 mL	RSK175M	BFF0087	SFF0075	AB20185
22E1388-05	5.00 mL / 5.00 mL	RSK175M	BFF0087	SFF0075	AB20185
22E1388-12	5.00 mL / 5.00 mL	RSK175M	BFF0087	SFF0075	AB20185

Sample ID	Preparation Factors Initial / Final	Method	Batch ID	Sequence ID	Calibration ID
Wet Chemistry Analysis			Preparation Method:	No Prep Wet Chem	
22E1388-07	6.00 mL / 6.00 mL	SW9215	BFE1151	SFE1072	
22E1388-08	6.00 mL / 6.00 mL	SW9215	BFE1151	SFE1072	
22E1388-09	6.00 mL / 6.00 mL	SW9215	BFE1151	SFE1072	
22E1388-11	6.00 mL / 6.00 mL	SW9215	BFE1151	SFE1072	
22E1388-07	6.00 mL / 6.00 mL	SW9012B	BFF0256	SFF0305	AF20043
22E1388-08	6.00 mL / 6.00 mL	SW9012B	BFF0256	SFF0305	AF20043
22E1388-09	6.00 mL / 6.00 mL	SW9012B	BFF0256	SFF0305	AF20043
22E1388-11	6.00 mL / 6.00 mL	SW9012B	BFF0256	SFF0305	AF20043
22E1388-01	50.0 mL / 50.0 mL	SM22 2320B-2011	BFF0313	SFF0270	
22E1388-02	50.0 mL / 50.0 mL	SM22 2320B-2011	BFF0313	SFF0270	
22E1388-03	50.0 mL / 50.0 mL	SM22 2320B-2011	BFF0313	SFF0270	
22E1388-04	50.0 mL / 50.0 mL	SM22 2320B-2011	BFF0313	SFF0270	
22E1388-05	50.0 mL / 50.0 mL	SM22 2320B-2011	BFF0367	SFF0426	

Sample ID	Preparation Factors Initial / Final	Method	Batch ID	Sequence ID	Calibration ID
Organochlorine Pesticides and PCBs by GC/ECD			Preparation Method:	SW3510C/EPA600-ECD	
22E1388-07	1070 mL / 1.00 mL	SW8081B	BFE1147	SFF0056	AE20143
22E1388-08	1070 mL / 1.00 mL	SW8081B	BFE1147	SFF0056	AE20143
22E1388-09	1070 mL / 1.00 mL	SW8081B	BFE1147	SFF0056	AE20143
22E1388-11	1070 mL / 1.00 mL	SW8081B	BFE1147	SFF0056	AE20143

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Sample ID	Preparation Factors Initial / Final	Method	Batch ID	Sequence ID	Calibration ID
Organochlorine Pesticides and PCBs by GC/ECD			Preparation Method: SW3510C/EPA600-ECD		
22E1388-07	1070 mL / 1.00 mL	SW8082A	BFE1147	SFF0059	AC20077
22E1388-08	1070 mL / 1.00 mL	SW8082A	BFE1147	SFF0059	AC20077
22E1388-09	1070 mL / 1.00 mL	SW8082A	BFE1147	SFF0059	AC20077
22E1388-11	1070 mL / 1.00 mL	SW8082A	BFE1147	SFF0059	AC20077

Sample ID	Preparation Factors Initial / Final	Method	Batch ID	Sequence ID	Calibration ID
Semivolatile Organic Compounds by GCMS			Preparation Method: SW3580A-MS		
22E1388-01	1070 mL / 1.00 mL	SW8270E	BFE1098	SFF0213	AE20006
22E1388-02	1070 mL / 1.00 mL	SW8270E	BFE1098	SFF0213	AE20006
22E1388-03	1070 mL / 1.00 mL	SW8270E	BFE1098	SFF0213	AE20006
22E1388-04	1070 mL / 1.00 mL	SW8270E	BFE1098	SFF0213	AE20006
22E1388-05	1070 mL / 1.00 mL	SW8270E	BFE1098	SFF0213	AE20006
22E1388-07	1070 mL / 1.00 mL	SW8270E	BFE1145	SFF0004	AC20134
22E1388-08	1070 mL / 1.00 mL	SW8270E	BFE1145	SFF0004	AC20134
22E1388-09	1070 mL / 1.00 mL	SW8270E	BFF0013	SFF0089	AE20006
22E1388-11	1070 mL / 1.00 mL	SW8270E	BFF0013	SFF0089	AE20006

Sample ID	Preparation Factors Initial / Final	Method	Batch ID	Sequence ID	Calibration ID
Volatile Organic Compounds by GCMS			Preparation Method: SW5030B-MS		
22E1388-01	5.00 mL / 5.00 mL	SW8260D	BFE1119	SFE1046	AE20123
22E1388-04	5.00 mL / 5.00 mL	SW8260D	BFE1119	SFE1046	AE20123
22E1388-05	5.00 mL / 5.00 mL	SW8260D	BFE1119	SFE1046	AE20123
22E1388-02	5.00 mL / 5.00 mL	SW8260D	BFE1120	SFE1047	AE20066
22E1388-03	5.00 mL / 5.00 mL	SW8260D	BFE1120	SFE1047	AE20066
22E1388-06	5.00 mL / 5.00 mL	SW8260D	BFE1120	SFE1047	AE20066
22E1388-07	5.00 mL / 5.00 mL	SW8260D	BFE1120	SFE1047	AE20066
22E1388-08	5.00 mL / 5.00 mL	SW8260D	BFE1120	SFE1047	AE20066

Certificate of Analysis

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Sample ID	Preparation Factors Initial / Final	Method	Batch ID	Sequence ID	Calibration ID
Volatile Organic Compounds by GCMS			Preparation Method: SW5030B-MS		
22E1388-09	5.00 mL / 5.00 mL	SW8260D	BFE1120	SFE1047	AE20066
22E1388-10	5.00 mL / 5.00 mL	SW8260D	BFE1120	SFE1047	AE20066
22E1388-11	5.00 mL / 5.00 mL	SW8260D	BFE1120	SFE1047	AE20066
22E1388-12	5.00 mL / 5.00 mL	SW8260D	BFE1120	SFE1047	AE20066
22E1388-12RE1	5.00 mL / 5.00 mL	SW8260D	BFE1173	SFE1103	AE20066

Sample ID	Preparation Factors Initial / Final	Method	Batch ID	Sequence ID	Calibration ID
Metals (Total) by EPA 6000/7000 Series Methods			Preparation Method: SW7470A		
22E1388-01	20.0 mL / 20.0 mL	SW7470A	BFF0266	SFF0265	AF20037
22E1388-02	20.0 mL / 20.0 mL	SW7470A	BFF0393	SFF0385	AF20056
22E1388-03	20.0 mL / 20.0 mL	SW7470A	BFF0393	SFF0385	AF20056
22E1388-04	20.0 mL / 20.0 mL	SW7470A	BFF0393	SFF0385	AF20056
22E1388-05	20.0 mL / 20.0 mL	SW7470A	BFF0393	SFF0385	AF20056
22E1388-07	20.0 mL / 20.0 mL	SW7470A	BFF0393	SFF0385	AF20056
22E1388-08	20.0 mL / 20.0 mL	SW7470A	BFF0393	SFF0385	AF20056
22E1388-09	20.0 mL / 20.0 mL	SW7470A	BFF0393	SFF0385	AF20056
22E1388-11	20.0 mL / 20.0 mL	SW7470A	BFF0393	SFF0385	AF20056

Sample ID	Preparation Factors Initial / Final	Method	Batch ID	Sequence ID	Calibration ID
Micro-extractables by GC/ECD			Preparation Method: SW8011		
22E1388-02	60.0 mL / 2.00 mL	SW8011	BFF0016	SFF0088	AE20047
22E1388-03	60.0 mL / 2.00 mL	SW8011	BFF0016	SFF0088	AE20047
22E1388-06	60.0 mL / 2.00 mL	SW8011	BFF0016	SFF0088	AE20047
22E1388-07	60.0 mL / 2.00 mL	SW8011	BFF0016	SFF0088	AE20047
22E1388-08	60.0 mL / 2.00 mL	SW8011	BFF0016	SFF0088	AE20047
22E1388-09	60.0 mL / 2.00 mL	SW8011	BFF0016	SFF0088	AE20047
22E1388-10	60.0 mL / 2.00 mL	SW8011	BFF0016	SFF0088	AE20047

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Sample ID	Preparation Factors Initial / Final	Method	Batch ID	Sequence ID	Calibration ID
Micro-extractables by GC/ECD			Preparation Method: SW8011		
22E1388-11	60.0 mL / 2.00 mL	SW8011	BFF0016	SFF0088	AE20047
22E1388-12	60.0 mL / 2.00 mL	SW8011	BFF0016	SFF0088	AE20047
Sample ID	Preparation Factors Initial / Final	Method	Batch ID	Sequence ID	Calibration ID
Organochlorine Herbicides by GC/ECD			Preparation Method: SW8151A/EPA600		
22E1388-07	900 mL / 5.00 mL	SW8151A	BFE1204	SFF0393	AD20156
22E1388-08	900 mL / 5.00 mL	SW8151A	BFE1204	SFF0393	AD20156
22E1388-09	900 mL / 5.00 mL	SW8151A	BFE1204	SFF0393	AD20156
22E1388-11	900 mL / 5.00 mL	SW8151A	BFE1204	SFF0386	AE20149

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QC Analytical Summary

Sample ID	Preparation Factors Initial / Final	Method	Batch ID	Sequence ID	Calibration ID
Metals (Total) by EPA 6000/7000 Series Methods			Preparation Method:	EPA200.8 R5.4	
BFE1163-BLK1	50.0 mL / 50.0 mL	SW6020B	BFE1163	SFF0106	AF20015
BFE1163-BS1	50.0 mL / 50.0 mL	SW6020B	BFE1163	SFF0106	AF20015
BFE1163-MS1	50.0 mL / 50.0 mL	SW6020B	BFE1163	SFF0106	AF20015
BFE1163-MS2	50.0 mL / 50.0 mL	SW6020B	BFE1163	SFF0106	AF20015
BFE1163-MS3		SW6020B	BFE1163	SFF0327	AF20045
BFE1163-MS3	50.0 mL / 50.0 mL	SW6020B	BFE1163	SFF0327	AF20045
BFE1163-MSD1	50.0 mL / 50.0 mL	SW6020B	BFE1163	SFF0106	AF20015
BFE1163-MSD2	50.0 mL / 50.0 mL	SW6020B	BFE1163	SFF0106	AF20015
BFE1163-MSD3		SW6020B	BFE1163	SFF0327	AF20045
BFE1163-MSD3	50.0 mL / 50.0 mL	SW6020B	BFE1163	SFF0327	AF20045

Sample ID	Preparation Factors Initial / Final	Method	Batch ID	Sequence ID	Calibration ID
Wet Chemistry Analysis			Preparation Method:	No Prep IC	
BFE1123-BLK1	1.00 mL / 1.00 mL	SW9056A	BFE1123	SFF0018	AB20130
BFE1123-BS1	1.00 mL / 1.00 mL	SW9056A	BFE1123	SFF0018	AB20130
BFE1123-BSD1	1.00 mL / 1.00 mL	SW9056A	BFE1123	SFF0018	AB20130
BFE1123-MS1	4.50 mL / 5.00 mL	SW9056A	BFE1123	SFF0018	AB20130
BFE1123-MS2	4.50 mL / 5.00 mL	SW9056A	BFE1123	SFF0018	AB20130
BFE1123-MSD1	4.50 mL / 5.00 mL	SW9056A	BFE1123	SFF0018	AB20130
BFE1123-MSD2	4.50 mL / 5.00 mL	SW9056A	BFE1123	SFF0018	AB20130

Sample ID	Preparation Factors Initial / Final	Method	Batch ID	Sequence ID	Calibration ID
Head Space Analysis by GC			Preparation Method:	No Prep VOC	

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Sample ID	Preparation Factors Initial / Final	Method	Batch ID	Sequence ID	Calibration ID
Head Space Analysis by GC			Preparation Method:	No Prep VOC	
BFF0087-BLK1	5.00 mL / 5.00 mL	RSK175M	BFF0087	SFF0075	AB20185
BFF0087-BS1	5.00 mL / 5.00 mL	RSK175M	BFF0087	SFF0075	AB20185
BFF0087-DUP1	5.00 mL / 5.00 mL	RSK175M	BFF0087	SFF0075	AB20185
BFF0087-MRL1	5.00 mL / 5.00 mL	RSK175M	BFF0087	SFF0075	AB20185
BFF0087-MS1	5.00 mL / 5.00 mL	RSK175M	BFF0087	SFF0075	AB20185
BFF0087-MSD1	5.00 mL / 5.00 mL	RSK175M	BFF0087	SFF0075	AB20185

Sample ID	Preparation Factors Initial / Final	Method	Batch ID	Sequence ID	Calibration ID
Wet Chemistry Analysis			Preparation Method:	No Prep Wet Chem	
BFE1151-BLK1	6.00 mL / 6.00 mL	SW9215	BFE1151	SFE1072	
BFE1151-BS1	6.00 mL / 6.00 mL	SW9215	BFE1151	SFE1072	
BFE1151-MRL1	6.00 mL / 6.00 mL	SW9215	BFE1151	SFE1072	
BFE1151-MS1	6.00 mL / 6.00 mL	SW9215	BFE1151	SFE1072	
BFE1151-MSD1	6.00 mL / 6.00 mL	SW9215	BFE1151	SFE1072	
BFF0256-BLK1		SW9012B	BFF0256	SFF0305	AF20043
BFF0256-BS1	6.00 mL / 6.00 mL	SW9012B	BFF0256	SFF0305	AF20043
BFF0256-MS1	6.00 mL / 6.00 mL	SW9012B	BFF0256	SFF0305	AF20043
BFF0256-MS2	6.00 mL / 6.00 mL	SW9012B	BFF0256	SFF0305	AF20043
BFF0256-MSD1	6.00 mL / 6.00 mL	SW9012B	BFF0256	SFF0305	AF20043
BFF0256-MSD2	6.00 mL / 6.00 mL	SW9012B	BFF0256	SFF0305	AF20043
BFF0313-BLK1	200 mL / 200 mL	SM22 2320B-2011	BFF0313	SFF0270	
BFF0313-BS1	50.0 mL / 50.0 mL	SM22 2320B-2011	BFF0313	SFF0270	
BFF0313-DUP1	50.0 mL / 50.0 mL	SM22 2320B-2011	BFF0313	SFF0270	
BFF0367-BLK1	50.0 mL / 50.0 mL	SM22 2320B-2011	BFF0367	SFF0426	
BFF0367-BS1	50.0 mL / 50.0 mL	SM22 2320B-2011	BFF0367	SFF0426	
BFF0367-DUP1	50.0 mL / 50.0 mL	SM22 2320B-2011	BFF0367	SFF0426	
BFF0367-DUP2	50.0 mL / 50.0 mL	SM22 2320B-2011	BFF0367	SFF0426	

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Sample ID	Preparation Factors Initial / Final	Method	Batch ID	Sequence ID	Calibration ID
Organochlorine Pesticides and PCBs by GC/ECD			Preparation Method:	SW3510C/EPA600-ECD	
BFE1147-BLK1	1000 mL / 1.00 mL	SW8081B	BFE1147	SFF0056	AE20143
BFE1147-BS1	1000 mL / 1.00 mL	SW8081B	BFE1147	SFF0056	AE20143
BFE1147-BS2		SW8081B	BFE1147	SFF0059	AC20077
BFE1147-BS3	1000 mL / 1.00 mL	SW8081B	BFE1147	SFF0056	AE20143
BFE1147-BS4	1000 mL / 1.00 mL	SW8081B	BFE1147	SFF0056	AE20143
BFE1147-MS1	1070 mL / 1.00 mL	SW8081B	BFE1147	SFF0056	AE20143
BFE1147-MS2		SW8081B	BFE1147	SFF0059	AC20077
BFE1147-MSD1	1070 mL / 1.00 mL	SW8081B	BFE1147	SFF0056	AE20143
BFE1147-MSD2		SW8081B	BFE1147	SFF0059	AC20077
BFE1147-BLK1	1000 mL / 1.00 mL	SW8082A	BFE1147	SFF0056	AE20143
BFE1147-BS1		SW8082A	BFE1147	SFF0056	AE20143
BFE1147-BS2	1000 mL / 1.00 mL	SW8082A	BFE1147	SFF0059	AC20077
BFE1147-BS3		SW8082A	BFE1147	SFF0056	AE20143
BFE1147-BS4		SW8082A	BFE1147	SFF0056	AE20143
BFE1147-MS1		SW8082A	BFE1147	SFF0056	AE20143
BFE1147-MS2	1070 mL / 1.00 mL	SW8082A	BFE1147	SFF0059	AC20077
BFE1147-MSD1		SW8082A	BFE1147	SFF0056	AE20143
BFE1147-MSD2	1070 mL / 1.00 mL	SW8082A	BFE1147	SFF0059	AC20077

Sample ID	Preparation Factors Initial / Final	Method	Batch ID	Sequence ID	Calibration ID
Semivolatile Organic Compounds by GCMS			Preparation Method:	SW3580A-MS	
BFE1098-BLK1		SW8270E	BFE1098	SFF0012	AE20006
BFE1098-BS1		SW8270E	BFE1098	SFF0012	AE20006
BFE1098-BS2		SW8270E	BFE1098	SFF0013	AE20034
BFE1145-BLK1	1000 mL / 1.00 mL	SW8270E	BFE1145	SFF0004	AC20134
BFE1145-BS1	1000 mL / 1.00 mL	SW8270E	BFE1145	SFF0004	AC20134
BFE1145-MS1	950 mL / 0.500 mL	SW8270E	BFE1145	SFF0004	AC20134
BFE1145-MSD1	970 mL / 0.500 mL	SW8270E	BFE1145	SFF0004	AC20134

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Sample ID	Preparation Factors Initial / Final	Method	Batch ID	Sequence ID	Calibration ID
Semivolatile Organic Compounds by GCMS			Preparation Method:	SW3580A-MS	
BFF0013-BLK1	1000 mL / 1.00 mL	SW8270E	BFF0013	SFF0089	AE20006
BFF0013-BS1	1000 mL / 1.00 mL	SW8270E	BFF0013	SFF0089	AE20006
BFF0013-MS1	1070 mL / 1.00 mL	SW8270E	BFF0013	SFF0089	AE20006
BFF0013-MSD1	1070 mL / 1.00 mL	SW8270E	BFF0013	SFF0089	AE20006

Sample ID	Preparation Factors Initial / Final	Method	Batch ID	Sequence ID	Calibration ID
Volatile Organic Compounds by GCMS			Preparation Method:	SW5030B-MS	
BFE1119-BLK1	5.00 mL / 5.00 mL	SW8260D	BFE1119	SFE1046	AE20123
BFE1119-BLK2		SW8260D	BFE1119	SFE1046	AE20123
BFE1119-BS1	5.00 mL / 5.00 mL	SW8260D	BFE1119	SFE1046	AE20123
BFE1119-BS2	5.00 mL / 5.00 mL	SW8260D	BFE1119	SFE1046	AE20123
BFE1119-MS1	5.00 mL / 5.00 mL	SW8260D	BFE1119	SFE1046	AE20123
BFE1119-MSD1	5.00 mL / 5.00 mL	SW8260D	BFE1119	SFE1046	AE20123
BFE1120-BLK1	5.00 mL / 5.00 mL	SW8260D	BFE1120	SFE1047	AE20066
BFE1120-BS1	5.00 mL / 5.00 mL	SW8260D	BFE1120	SFE1047	AE20066
BFE1120-MS1	5.00 mL / 5.00 mL	SW8260D	BFE1120	SFE1047	AE20066
BFE1120-MSD1	5.00 mL / 5.00 mL	SW8260D	BFE1120	SFE1047	AE20066
BFE1173-BLK1	5.00 mL / 5.00 mL	SW8260D	BFE1173	SFE1103	AE20066
BFE1173-BS1	5.00 mL / 5.00 mL	SW8260D	BFE1173	SFE1103	AE20066
BFE1173-MS1	5.00 mL / 5.00 mL	SW8260D	BFE1173	SFE1103	AE20066
BFE1173-MSD1	5.00 mL / 5.00 mL	SW8260D	BFE1173	SFE1103	AE20066

Sample ID	Preparation Factors Initial / Final	Method	Batch ID	Sequence ID	Calibration ID
Metals (Total) by EPA 6000/7000 Series Methods			Preparation Method:	SW7470A	
BFF0266-BLK1	20.0 mL / 20.0 mL	SW7470A	BFF0266	SFF0265	AF20037
BFF0266-BS1	20.0 mL / 20.0 mL	SW7470A	BFF0266	SFF0265	AF20037
BFF0266-MS1	20.0 mL / 20.0 mL	SW7470A	BFF0266	SFF0265	AF20037

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Sample ID	Preparation Factors Initial / Final	Method	Batch ID	Sequence ID	Calibration ID
Metals (Total) by EPA 6000/7000 Series Methods			Preparation Method:	SW7470A	
BFF0266-MS2	20.0 mL / 20.0 mL	SW7470A	BFF0266	SFF0265	AF20037
BFF0266-MSD1	20.0 mL / 20.0 mL	SW7470A	BFF0266	SFF0265	AF20037
BFF0266-MSD2	20.0 mL / 20.0 mL	SW7470A	BFF0266	SFF0265	AF20037
BFF0393-BLK1	20.0 mL / 20.0 mL	SW7470A	BFF0393	SFF0385	AF20056
BFF0393-BS1	20.0 mL / 20.0 mL	SW7470A	BFF0393	SFF0385	AF20056
BFF0393-MS1	20.0 mL / 20.0 mL	SW7470A	BFF0393	SFF0385	AF20056
BFF0393-MS2	20.0 mL / 20.0 mL	SW7470A	BFF0393	SFF0385	AF20056
BFF0393-MSD1	20.0 mL / 20.0 mL	SW7470A	BFF0393	SFF0385	AF20056
BFF0393-MSD2	20.0 mL / 20.0 mL	SW7470A	BFF0393	SFF0385	AF20056

Sample ID	Preparation Factors Initial / Final	Method	Batch ID	Sequence ID	Calibration ID
Micro-extractables by GC/ECD			Preparation Method:	SW8011	
BFF0016-BLK1	60.0 mL / 2.00 mL	SW8011	BFF0016	SFF0088	AE20047
BFF0016-BS1	60.0 mL / 2.00 mL	SW8011	BFF0016	SFF0088	AE20047
BFF0016-MS1	60.0 mL / 2.00 mL	SW8011	BFF0016	SFF0088	AE20047
BFF0016-MSD1	60.0 mL / 2.00 mL	SW8011	BFF0016	SFF0088	AE20047

Sample ID	Preparation Factors Initial / Final	Method	Batch ID	Sequence ID	Calibration ID
Organochlorine Herbicides by GC/ECD			Preparation Method:	SW8151A/EPA600	
BFE1204-BLK1	900 mL / 5.00 mL	SW8151A	BFE1204	SFF0393	AD20156
BFE1204-BS1	900 mL / 5.00 mL	SW8151A	BFE1204	SFF0393	AD20156
BFE1204-MS1	900 mL / 5.00 mL	SW8151A	BFE1204	SFF0393	AD20156
BFE1204-MSD1	900 mL / 5.00 mL	SW8151A	BFE1204	SFF0393	AD20156

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Certified Analyses included in this Report

Analyte	Certifications
<i>RSK175M in Non-Potable Water</i>	
Ethane	VELAP
Ethene	VELAP
Methane	VELAP
<i>SM22 2320B-2011 in Non-Potable Water</i>	
Alkalinity	VELAP,PADEP,WVDEP,NHDES,MADEP
<i>SW6020B in Non-Potable Water</i>	
Antimony	VELAP,NCDEQ,WVDEP,NHDES
Arsenic	VELAP,WVDEP,NHDES
Barium	VELAP,WVDEP,NHDES
Beryllium	VELAP,WVDEP,NHDES
Cadmium	VELAP,WVDEP,NHDES
Chromium	VELAP,WVDEP,NHDES
Cobalt	VELAP,WVDEP,NHDES
Copper	VELAP,WVDEP,NHDES
Lead	VELAP,WVDEP,NHDES
Nickel	VELAP,WVDEP
Selenium	VELAP,WVDEP,NHDES
Silver	VELAP,WVDEP,NHDES
Thallium	VELAP,WVDEP,NHDES
Tin	VELAP,WVDEP
Vanadium	VELAP,WVDEP,NHDES
Zinc	VELAP,WVDEP,NHDES
<i>SW7470A in Non-Potable Water</i>	
Mercury	VELAP,NCDEQ,WVDEP,NHDES
<i>SW8011 in Non-Potable Water</i>	

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Analyte	Certifications
1,2-Dibromoethane (EDB)	VELAP,NCDEQ
1,2,3-Trichloropropane	VELAP,NCDEQ
1,2-Dibromo-3-chloropropane (DBCP)	VELAP,NCDEQ
SW8081B in Non-Potable Water	
4,4'-DDD	NCDEQ,VELAP,WVDEP,PADEP,NHDES
4,4'-DDE	NCDEQ,VELAP,WVDEP,PADEP,NHDES
4,4'-DDT	NCDEQ,VELAP,WVDEP,PADEP,NHDES
Aldrin	NCDEQ,VELAP,WVDEP,PADEP,NHDES
alpha-BHC	NCDEQ,VELAP,WVDEP,PADEP,NHDES
alpha-Chlordane	NCDEQ,VELAP,WVDEP,PADEP,NHDES
beta-BHC	NCDEQ,VELAP,WVDEP,PADEP,NHDES
Chlordane	NCDEQ,VELAP,WVDEP,PADEP,NHDES
delta-BHC	NCDEQ,VELAP,WVDEP,PADEP,NHDES
Dieldrin	NCDEQ,VELAP,WVDEP,PADEP,NHDES
Endosulfan I	NCDEQ,VELAP,WVDEP,PADEP,NHDES
Endosulfan II	NCDEQ,VELAP,WVDEP,PADEP,NHDES
Endosulfan sulfate	NCDEQ,VELAP,WVDEP,PADEP,NHDES
Endrin	NCDEQ,VELAP,WVDEP,PADEP,NHDES
Endrin aldehyde	NCDEQ,VELAP,WVDEP,PADEP,NHDES
gamma-BHC (Lindane)	NCDEQ,VELAP,WVDEP,PADEP,NHDES
gamma-Chlordane	NCDEQ,VELAP,WVDEP,PADEP,NHDES
Heptachlor	NCDEQ,VELAP,WVDEP,PADEP,NHDES
Heptachlor epoxide	NCDEQ,VELAP,WVDEP,PADEP,NHDES
Methoxychlor	NCDEQ,VELAP,WVDEP,PADEP,NHDES
Toxaphene	NCDEQ,VELAP,WVDEP,PADEP,NHDES
SW8082A in Non-Potable Water	
PCB as Aroclor 1016	VELAP,PADEP,NCDEQ,WVDEP,NHDES
PCB as Aroclor 1221	VELAP,PADEP,NCDEQ,WVDEP,NHDES

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Certified Analyses included in this Report

Analyte	Certifications
PCB as Aroclor 1232	VELAP,PADEP,NCDEQ,WVDEP,NHDES
PCB as Aroclor 1242	VELAP,PADEP,NCDEQ,WVDEP,NHDES
PCB as Aroclor 1248	VELAP,PADEP,NCDEQ,WVDEP,NHDES
PCB as Aroclor 1254	VELAP,PADEP,NCDEQ,WVDEP,NHDES
PCB as Aroclor 1260	VELAP,PADEP,NCDEQ,WVDEP,NHDES
SW8151A in Non-Potable Water	
2,4,5-T	VELAP,PADEP,NCDEQ,WVDEP
2,4,5-TP (Silvex)	VELAP,PADEP,NCDEQ,WVDEP
2,4-D	VELAP,PADEP,NCDEQ,WVDEP
Dinoseb	VELAP,PADEP,NCDEQ,WVDEP
Pentachlorophenol	VELAP,PADEP,NCDEQ,WVDEP
SW8260D in Non-Potable Water	
1,1,1,2-Tetrachloroethane	NCDEQ,WVDEP,VELAP
1,1,1-Trichloroethane	NCDEQ,WVDEP,VELAP
1,1,2,2-Tetrachloroethane	NCDEQ,WVDEP,VELAP
1,1,2-Trichloroethane	NCDEQ,WVDEP,VELAP
1,1-Dichloroethane	NCDEQ,WVDEP,VELAP
1,1-Dichloroethylene	NCDEQ,WVDEP,VELAP
1,1-Dichloropropene	NCDEQ,WVDEP,VELAP
1,2,3-Trichloropropane	NCDEQ,WVDEP,VELAP
1,2,4-Trichlorobenzene	NCDEQ,WVDEP,VELAP
1,2-Dichlorobenzene	NCDEQ,WVDEP,VELAP
1,2-Dichloroethane	NCDEQ,WVDEP,VELAP
1,2-Dichloropropane	NCDEQ,WVDEP,VELAP
1,3-Dichlorobenzene	NCDEQ,WVDEP,VELAP
1,3-Dichloropropane	NCDEQ,WVDEP,VELAP
1,4-Dichlorobenzene	NCDEQ,WVDEP,VELAP
2,2-Dichloropropane	NCDEQ,WVDEP,VELAP

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Certified Analyses included in this Report

Analyte	Certifications
2-Butanone (MEK)	NCDEQ, WVDEP, VELAP
2-Hexanone (MBK)	NCDEQ, WVDEP, VELAP
4-Methyl-2-pentanone (MIBK)	NCDEQ, WVDEP, VELAP
Acetone	NCDEQ, WVDEP, VELAP
Acetonitrile	NCDEQ, WVDEP, VELAP
Acrolein	NCDEQ, WVDEP, VELAP
Acrylonitrile	NCDEQ, WVDEP, VELAP
Allyl chloride	NCDEQ, WVDEP, VELAP
Benzene	NCDEQ, WVDEP, VELAP
Bromochloromethane	NCDEQ, WVDEP, VELAP
Bromodichloromethane	NCDEQ, WVDEP, VELAP
Bromoform	NCDEQ, WVDEP, VELAP
Bromomethane	NCDEQ, WVDEP, VELAP
Carbon disulfide	NCDEQ, WVDEP, VELAP
Carbon tetrachloride	NCDEQ, WVDEP, VELAP
Chlorobenzene	NCDEQ, WVDEP, VELAP
Chloroethane	NCDEQ, WVDEP, VELAP
Chloroform	NCDEQ, WVDEP, VELAP
Chloromethane	NCDEQ, WVDEP, VELAP
Chloroprene	NCDEQ, WVDEP, VELAP
cis-1,2-Dichloroethylene	NCDEQ, WVDEP, VELAP
cis-1,3-Dichloropropene	NCDEQ, WVDEP, VELAP
Dibromochloromethane	NCDEQ, WVDEP, VELAP
Dibromomethane	NCDEQ, WVDEP, VELAP
Dichlorodifluoromethane	NCDEQ, WVDEP, VELAP
Ethyl methacrylate	NCDEQ, WVDEP, VELAP
Ethylbenzene	NCDEQ, WVDEP, VELAP
Iodomethane	NCDEQ, WVDEP, VELAP

Certificate of Analysis

Client Name: SCS Engineers-Winchester
 Client Site I.D.: City of Bristol 1st Semi-Annual 2022
 Submitted To: Jennifer Robb

Date Issued: 7/12/2022 2:30:28PM

Certified Analyses included in this Report

Analyte	Certifications
Isobutyl Alcohol	NCDEQ, WVDEP, VELAP
m+p-Xylenes	NCDEQ, WVDEP, VELAP
Methacrylonitrile	NCDEQ, WVDEP, VELAP
Methyl methacrylate	NCDEQ, WVDEP, VELAP
Methylene chloride	NCDEQ, WVDEP, VELAP
Naphthalene	NCDEQ, WVDEP, VELAP
o-Xylene	NCDEQ, WVDEP, VELAP
Propionitrile	NCDEQ, WVDEP, VELAP
Styrene	NCDEQ, WVDEP, VELAP
Tetrachloroethylene (PCE)	NCDEQ, WVDEP, VELAP
Toluene	NCDEQ, WVDEP, VELAP
trans-1,2-Dichloroethylene	NCDEQ, WVDEP, VELAP
trans-1,3-Dichloropropene	NCDEQ, WVDEP, VELAP
trans-1,4-Dichloro-2-butene	NCDEQ, WVDEP, VELAP
Trichloroethylene	NCDEQ, WVDEP, VELAP
Trichlorofluoromethane	NCDEQ, WVDEP, VELAP
Vinyl acetate	NCDEQ, WVDEP, VELAP
Vinyl chloride	NCDEQ, WVDEP, VELAP
Xylenes, Total	NCDEQ, WVDEP, VELAP
SW8270E in Non-Potable Water	
1,2,4,5-Tetrachlorobenzene	VELAP, NCDEQ, WVDEP
1,3,5-Trinitrobenzene	VELAP, NCDEQ, WVDEP
1,3-Dinitrobenzene	VELAP, NCDEQ, WVDEP
1,4-Naphthoquinone	VELAP, NCDEQ, WVDEP
1-Naphthylamine	VELAP, NCDEQ, WVDEP
2,3,4,6-Tetrachlorophenol	VELAP, NCDEQ, WVDEP
2,4,5-Trichlorophenol	VELAP, NCDEQ, WVDEP
2,4,6-Trichlorophenol	VELAP, NCDEQ, WVDEP

Certificate of Analysis

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Certified Analyses included in this Report

Analyte	Certifications
2,4-Dichlorophenol	VELAP,NCDEQ,WVDEP
2,4-Dimethylphenol	VELAP,NCDEQ,WVDEP
2,4-Dinitrophenol	VELAP,NCDEQ,WVDEP
2,4-Dinitrotoluene	VELAP,NCDEQ,WVDEP
2,6-Dichlorophenol	VELAP,NCDEQ,WVDEP
2,6-Dinitrotoluene	VELAP,NCDEQ,WVDEP
2-Acetylaminofluorene	VELAP,NCDEQ,WVDEP
2-Chloronaphthalene	VELAP,NCDEQ,WVDEP
2-Chlorophenol	VELAP,NCDEQ,WVDEP
2-Methylnaphthalene	VELAP,NCDEQ,WVDEP
2-Naphthylamine	VELAP,NCDEQ,WVDEP
2-Nitroaniline	VELAP,NCDEQ,WVDEP
2-Nitrophenol	VELAP,NCDEQ,WVDEP
3,3'-Dichlorobenzidine	VELAP,NCDEQ,WVDEP
3,3'-Dimethylbenzidine	VELAP,NCDEQ,WVDEP
3-Methylcholanthrene	VELAP,NCDEQ,WVDEP
3-Nitroaniline	VELAP,NCDEQ,WVDEP
4,6-Dinitro-2-methylphenol	VELAP,NCDEQ,WVDEP
4-Aminobiphenyl	VELAP,NCDEQ,WVDEP
4-Bromophenyl phenyl ether	VELAP,NCDEQ,WVDEP
4-Chloroaniline	VELAP,NCDEQ,WVDEP
4-Chlorophenyl phenyl ether	VELAP,NCDEQ,WVDEP
4-Nitroaniline	VELAP,NCDEQ,WVDEP
4-Nitrophenol	VELAP,NCDEQ,WVDEP
5-Nitro-o-toluidine	VELAP,NCDEQ,WVDEP
7,12-Dimethylbenz (a) anthracene	VELAP,NCDEQ,WVDEP
Acenaphthene	VELAP,NCDEQ,WVDEP
Acenaphthylene	VELAP,NCDEQ,WVDEP

Certificate of Analysis

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Certified Analyses included in this Report

Analyte	Certifications
Acetophenone	VELAP,NCDEQ,WVDEP
Anthracene	VELAP,NCDEQ,WVDEP
Benzo (a) anthracene	VELAP,NCDEQ,WVDEP
Benzo (a) pyrene	VELAP,NCDEQ,WVDEP
Benzo (b) fluoranthene	VELAP,NCDEQ,WVDEP
Benzo (g,h,i) perylene	VELAP,NCDEQ,WVDEP
Benzo (k) fluoranthene	VELAP,NCDEQ,WVDEP
Benzyl alcohol	VELAP,NCDEQ,WVDEP
bis (2-Chloroethoxy) methane	VELAP,NCDEQ,WVDEP
bis (2-Chloroethyl) ether	VELAP,NCDEQ,WVDEP
2,2'-Oxybis (1-chloropropane)	VELAP,NCDEQ,WVDEP
bis (2-Ethylhexyl) phthalate	VELAP,NCDEQ,WVDEP
Butyl benzyl phthalate	VELAP,NCDEQ,WVDEP
Chlorobenzilate	VELAP,NCDEQ,WVDEP
Chrysene	VELAP,NCDEQ,WVDEP
Diallate	VELAP,NCDEQ,WVDEP
Dibenz (a,h) anthracene	VELAP,NCDEQ,WVDEP
Dibenzofuran	VELAP,NCDEQ,WVDEP
Diethyl phthalate	VELAP,NCDEQ,WVDEP
Dimethoate	VELAP,NCDEQ,WVDEP
Dimethyl phthalate	VELAP,NCDEQ,WVDEP
Di-n-butyl phthalate	VELAP,NCDEQ,WVDEP
Di-n-octyl phthalate	VELAP,NCDEQ,WVDEP
Diphenylamine	VELAP,NCDEQ,WVDEP
Disulfoton	VELAP,NCDEQ,WVDEP
Ethyl methanesulfonate	VELAP,NCDEQ,WVDEP
Ethyl parathion	VELAP,NCDEQ,WVDEP
Famphur	VELAP,NCDEQ,WVDEP

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Certified Analyses included in this Report

Analyte	Certifications
Fluoranthene	VELAP,NCDEQ,WVDEP
Fluorene	VELAP,NCDEQ,WVDEP
Hexachlorobenzene	VELAP,NCDEQ,WVDEP
Hexachlorobutadiene	VELAP,NCDEQ,WVDEP
Hexachlorocyclopentadiene	VELAP,NCDEQ,WVDEP
Hexachloroethane	VELAP,NCDEQ,WVDEP
Hexachloropropene	VELAP,NCDEQ,WVDEP
Indeno (1,2,3-cd) pyrene	VELAP,NCDEQ,WVDEP
Isodrin	VELAP,NCDEQ,WVDEP
Isophorone	VELAP,NCDEQ,WVDEP
Isosafrole	VELAP,NCDEQ,WVDEP
Kepone	VELAP,NCDEQ,WVDEP
m+p-Cresols	VELAP,NCDEQ,WVDEP
Methapyrilene	VELAP,NCDEQ,WVDEP
Methyl methanesulfonate	VELAP,NCDEQ,WVDEP
Methyl parathion	VELAP,NCDEQ,WVDEP
Nitrobenzene	VELAP,NCDEQ,WVDEP
n-Nitrosodiethylamine	VELAP,NCDEQ,WVDEP
n-Nitrosodimethylamine	VELAP,NCDEQ,WVDEP
n-Nitrosodi-n-butylamine	VELAP,NCDEQ,WVDEP
n-Nitrosodi-n-propylamine	VELAP,NCDEQ,WVDEP
n-Nitrosodiphenylamine	VELAP,NCDEQ,WVDEP
n-Nitrosomethylethylamine	VELAP,NCDEQ,WVDEP
n-Nitrosopiperidine	VELAP,NCDEQ,WVDEP
n-Nitrosopyrrolidine	VELAP,NCDEQ,WVDEP
o,o,o-Triethyl phosphorothioate	VELAP,NCDEQ,WVDEP
o,o-Diethyl o-2-pyrazinyl phosphorothioate	VELAP,NCDEQ,WVDEP
o+m+p-Cresols	VELAP,WVDEP

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Certified Analyses included in this Report

Analyte	Certifications
o-Cresol	VELAP,NCDEQ,WVDEP
o-Toluidine	VELAP,NCDEQ,WVDEP
p-(Dimethylamino) azobenzene	VELAP,NCDEQ,WVDEP
p-Chloro-m-cresol	VELAP,NCDEQ,WVDEP
Pentachlorobenzene	VELAP,NCDEQ,WVDEP
Pentachloronitrobenzene (quintozene)	VELAP,NCDEQ,WVDEP
Phenacetin	VELAP,NCDEQ,WVDEP
Phenanthrene	VELAP,NCDEQ,WVDEP
Phenol	VELAP,NCDEQ,WVDEP
Phorate	VELAP,NCDEQ,WVDEP
p-Phenylenediamine	VELAP,NCDEQ,WVDEP
Pronamide	VELAP,NCDEQ,WVDEP
Pyrene	VELAP,NCDEQ,WVDEP
Safrole	VELAP,NCDEQ,WVDEP
SW9012B in Non-Potable Water	
Cyanide	VELAP,WVDEP
SW9056A in Non-Potable Water	
Chloride	VELAP
SW9215 in Non-Potable Water	
Sulfide	VELAP

Certificate of Analysis

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Submitted To: Jennifer Robb

Date Issued: 7/12/2022 2:30:28PM

Code	Description	Laboratory ID	Expires
MADEP	Massachusetts DEP	M-VA913	06/30/2022
MdDOE	Maryland DE Drinking Water	341	12/31/2022
NC	North Carolina DENR	495	07/31/2022
NCDEQ	North Carolina DEQ	495	12/31/2022
NCDOH	North Carolina Department of Health	51714	07/31/2022
NJDEP	NELAP-New Jersey DEP	VA015	06/30/2022
NYDOH	New York DOH Drinking Water	12096	04/01/2023
PADEP	NELAP-Pennsylvania Certificate #007	68-03503	10/31/2022
VELAP	NELAP-Virginia Certificate #11900	460021	06/14/2023
WVDEP	West Virginia DEP	350	11/30/2022

Certificate of Analysis

Client Name: SCS Engineers-Winchester
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Qualifiers and Definitions

B	Blank contamination. The recorded result is associated with a contaminated blank.
C	Continuing calibration verification response for this analyte is outside specifications.
Cl	Residual Chlorine or other oxidizing agent was detected in the container used to analyze this sample.
J	The reported result is an estimated value.
L	LCS recovery is outside of established acceptance limits
M	Matrix spike recovery is outside established acceptance limits
P	Duplicate analysis does not meet the acceptance criteria for precision
S	Surrogate recovery was outside acceptance criteria
RPD	Relative Percent Difference
Qual	Qualifiers
-RE	Denotes sample was re-analyzed
LOD	Limit of Detection
BLOD	Below Limit of Detection
LOQ	Limit of Quantitation
DF	Dilution Factor
TIC	Tentatively Identified Compounds are compounds that are identified by comparing the analyte mass spectral pattern with the NIST spectral library. A TIC spectral match is reported when the pattern is at least 75% consistent with the published pattern. Compound concentrations are estimated and are calculated using an internal standard response factor of 1.
PCBs, Total	Total PCBs are defined as the sum of detected Aroclors 1016, 1221, 1232, 1248, 1254, 1260, 1262, and 1268.

Certificate of Analysis

Client Name: SCS Engineers-Winchester
 Client Site I.D.: City of Bristol 1st Semi-Annual 2022
 Submitted To: Jennifer Robb

Date Issued: 7/12/2022 2:25:23PM

Metals (Total) by EPA 6000/7000 Series Methods - Quality Control

Enthalpy Analytical

Analyte	Result	LOQ	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Qual
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Batch BFF0097 - EPA200.8 R5.4

Blank (BFF0097-BLK1)

Prepared: 06/02/2022 Analyzed: 06/07/2022

Antimony	ND	1.0	ug/L
Arsenic	ND	1.0	ug/L
Barium	ND	5.00	ug/L
Beryllium	ND	1.00	ug/L
Cadmium	ND	1.00	ug/L
Chromium	ND	1.00	ug/L
Cobalt	ND	1.00	ug/L
Copper	ND	1.00	ug/L
Lead	ND	1.0	ug/L
Nickel	ND	1.000	ug/L
Selenium	ND	1.00	ug/L
Silver	ND	1.00	ug/L
Thallium	ND	1.0	ug/L
Tin	ND	1.00	ug/L
Vanadium	ND	5.00	ug/L
Zinc	ND	5.00	ug/L

LCS (BFF0097-BS1)

Prepared: 06/02/2022 Analyzed: 06/07/2022

Antimony	50	1.0	ug/L	50.0	99.6	80-120
Arsenic	50	1.0	ug/L	50.0	100	80-120
Barium	46.7	5.00	ug/L	50.0	93.4	80-120
Beryllium	50.6	1.00	ug/L	50.0	101	80-120
Cadmium	49.0	1.00	ug/L	50.0	98.1	80-120
Chromium	48.4	1.00	ug/L	50.0	96.8	80-120
Cobalt	47.7	1.00	ug/L	50.0	95.4	80-120

Certificate of Analysis

Client Name: SCS Engineers-Winchester
 Client Site I.D.: City of Bristol 1st Semi-Annual 2022
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Metals (Total) by EPA 6000/7000 Series Methods - Quality Control

Enthalpy Analytical

Analyte	Result	LOQ	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Qual
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Batch BFF0097 - EPA200.8 R5.4

LCS (BFF0097-BS1)

Prepared: 06/02/2022 Analyzed: 06/07/2022

Copper	48.0	1.00	ug/L	50.0		96.0	80-120			
Lead	50	1.0	ug/L	50.0		99.0	80-120			
Nickel	47.49	1.000	ug/L	50.0		95.0	80-120			
Selenium	52.6	1.00	ug/L	50.0		105	80-120			
Silver	9.44	1.00	ug/L	10.0		94.4	80-120			
Thallium	50	1.0	ug/L	50.0		100	80-120			
Tin	49.0	1.00	ug/L	50.0		98.0	80-120			
Vanadium	48.5	5.00	ug/L	50.0		96.9	80-120			
Zinc	51.9	5.00	ug/L	50.0		104	80-120			

Matrix Spike (BFF0097-MS1)

Source: 22E1463-02

Prepared: 06/02/2022 Analyzed: 06/07/2022

Antimony	50	1.0	ug/L	50.0	BLOD	99.8	75-125			
Arsenic	50	1.0	ug/L	50.0	0.56	99.0	75-125			
Barium	143	5.00	ug/L	50.0	93.3	100	75-125			
Beryllium	52.8	1.00	ug/L	50.0	BLOD	106	75-125			
Cadmium	47.9	1.00	ug/L	50.0	BLOD	95.8	75-125			
Chromium	49.2	1.00	ug/L	50.0	BLOD	98.3	75-125			
Cobalt	46.1	1.00	ug/L	50.0	BLOD	92.1	75-125			
Copper	45.4	1.00	ug/L	50.0	BLOD	90.7	75-125			
Lead	49	1.0	ug/L	50.0	BLOD	97.4	75-125			
Nickel	46.48	1.000	ug/L	50.0	BLOD	93.0	75-125			
Selenium	51.6	1.00	ug/L	50.0	BLOD	103	75-125			
Silver	9.00	1.00	ug/L	10.0	BLOD	90.0	75-125			
Thallium	51	1.0	ug/L	50.0	BLOD	101	75-125			
Tin	50.3	1.00	ug/L	50.0	BLOD	101	75-125			

Certificate of Analysis

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Metals (Total) by EPA 6000/7000 Series Methods - Quality Control

Enthalpy Analytical

Analyte	Result	LOQ	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Qual
Batch BFF0097 - EPA200.8 R5.4										
Matrix Spike (BFF0097-MS1)		Source: 22E1463-02			Prepared: 06/02/2022 Analyzed: 06/07/2022					
Vanadium	50.5	5.00	ug/L	50.0	BLOD	101	75-125			
Zinc	50.2	5.00	ug/L	50.0	3.43	93.6	75-125			
Matrix Spike (BFF0097-MS2)		Source: 22F0064-03			Prepared: 06/02/2022 Analyzed: 06/07/2022					
Antimony	51	1.0	ug/L	50.0	BLOD	102	75-125			
Arsenic	51	1.0	ug/L	50.0	BLOD	103	75-125			
Barium	82.0	5.00	ug/L	50.0	33.6	96.8	75-125			
Beryllium	57.3	1.00	ug/L	50.0	BLOD	115	75-125			
Cadmium	50.2	1.00	ug/L	50.0	BLOD	100	75-125			
Chromium	50.7	1.00	ug/L	50.0	BLOD	101	75-125			
Cobalt	49.1	1.00	ug/L	50.0	BLOD	98.2	75-125			
Copper	48.4	1.00	ug/L	50.0	BLOD	96.9	75-125			
Lead	49	1.0	ug/L	50.0	BLOD	98.4	75-125			
Nickel	49.03	1.000	ug/L	50.0	BLOD	98.1	75-125			
Selenium	54.5	1.00	ug/L	50.0	BLOD	109	75-125			
Silver	9.39	1.00	ug/L	10.0	BLOD	93.9	75-125			
Thallium	50	1.0	ug/L	50.0	BLOD	101	75-125			
Tin	51.8	1.00	ug/L	50.0	BLOD	104	75-125			
Vanadium	52.4	5.00	ug/L	50.0	BLOD	105	75-125			
Zinc	51.4	5.00	ug/L	50.0	BLOD	103	75-125			
Matrix Spike Dup (BFF0097-MSD1)		Source: 22E1463-02			Prepared: 06/02/2022 Analyzed: 06/07/2022					
Antimony	51	1.0	ug/L	50.0	BLOD	101	75-125	1.62	20	
Arsenic	51	1.0	ug/L	50.0	0.56	102	75-125	2.82	20	
Barium	144	5.00	ug/L	50.0	93.3	101	75-125	0.458	20	
Beryllium	50.1	1.00	ug/L	50.0	BLOD	100	75-125	5.20	20	

Certificate of Analysis

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Metals (Total) by EPA 6000/7000 Series Methods - Quality Control

Enthalpy Analytical

Analyte	Result	LOQ	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Qual
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Batch BFF0097 - EPA200.8 R5.4

Matrix Spike Dup (BFF0097-MSD1)	Source: 22E1463-02		Prepared: 06/02/2022 Analyzed: 06/07/2022							
Cadmium	48.3	1.00	ug/L	50.0	BLOD	96.5	75-125	0.752	20	
Chromium	50.2	1.00	ug/L	50.0	BLOD	100	75-125	1.99	20	
Cobalt	46.9	1.00	ug/L	50.0	BLOD	93.8	75-125	1.81	20	
Copper	45.8	1.00	ug/L	50.0	BLOD	91.6	75-125	0.892	20	
Lead	48	1.0	ug/L	50.0	BLOD	96.6	75-125	0.831	20	
Nickel	46.90	1.000	ug/L	50.0	BLOD	93.8	75-125	0.903	20	
Selenium	52.2	1.00	ug/L	50.0	BLOD	104	75-125	1.26	20	
Silver	8.96	1.00	ug/L	10.0	BLOD	89.6	75-125	0.376	20	
Thallium	50	1.0	ug/L	50.0	BLOD	101	75-125	0.565	20	
Tin	51.0	1.00	ug/L	50.0	BLOD	102	75-125	1.25	20	
Vanadium	50.8	5.00	ug/L	50.0	BLOD	102	75-125	0.608	20	
Zinc	51.3	5.00	ug/L	50.0	3.43	95.8	75-125	2.20	20	

Matrix Spike Dup (BFF0097-MSD2)	Source: 22F0064-03		Prepared: 06/02/2022 Analyzed: 06/07/2022							
Antimony	50	1.0	ug/L	50.0	BLOD	99.2	75-125	3.13	20	
Arsenic	50	1.0	ug/L	50.0	BLOD	99.2	75-125	3.30	20	
Barium	80.9	5.00	ug/L	50.0	33.6	94.7	75-125	1.33	20	
Beryllium	54.3	1.00	ug/L	50.0	BLOD	109	75-125	5.32	20	
Cadmium	48.6	1.00	ug/L	50.0	BLOD	97.2	75-125	3.34	20	
Chromium	49.5	1.00	ug/L	50.0	BLOD	98.9	75-125	2.43	20	
Cobalt	47.0	1.00	ug/L	50.0	BLOD	94.0	75-125	4.42	20	
Copper	47.0	1.00	ug/L	50.0	BLOD	94.0	75-125	3.02	20	
Lead	48	1.0	ug/L	50.0	BLOD	96.7	75-125	1.74	20	
Nickel	47.05	1.000	ug/L	50.0	BLOD	94.1	75-125	4.11	20	
Selenium	52.5	1.00	ug/L	50.0	BLOD	105	75-125	3.65	20	

Certificate of Analysis

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Metals (Total) by EPA 6000/7000 Series Methods - Quality Control

Enthalpy Analytical

Analyte	Result	LOQ	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Qual
Batch BFF0097 - EPA200.8 R5.4										
Matrix Spike Dup (BFF0097-MSD2)		Source: 22F0064-03		Prepared: 06/02/2022 Analyzed: 06/07/2022						
Silver	9.07	1.00	ug/L	10.0	BLOD	90.7	75-125	3.47	20	
Thallium	49	1.0	ug/L	50.0	BLOD	98.2	75-125	2.67	20	
Tin	50.3	1.00	ug/L	50.0	BLOD	101	75-125	2.87	20	
Vanadium	50.9	5.00	ug/L	50.0	BLOD	102	75-125	2.82	20	
Zinc	50.3	5.00	ug/L	50.0	BLOD	101	75-125	2.17	20	
Batch BFF0393 - SW7470A										
Blank (BFF0393-BLK1)		Prepared & Analyzed: 06/09/2022								
Mercury	ND	0.00020	mg/L							
LCS (BFF0393-BS1)		Prepared & Analyzed: 06/09/2022								
Mercury	0.00251	0.00020	mg/L	0.00250	100		80-120			
Matrix Spike (BFF0393-MS1)		Source: 22E1463-02		Prepared & Analyzed: 06/09/2022						
Mercury	0.00274	0.00020	mg/L	0.00250	BLOD	110	80-120			
Matrix Spike (BFF0393-MS2)		Source: 22E1463-03		Prepared & Analyzed: 06/09/2022						
Mercury	0.00244	0.00020	mg/L	0.00250	BLOD	97.7	80-120			
Matrix Spike Dup (BFF0393-MSD1)		Source: 22E1463-02		Prepared & Analyzed: 06/09/2022						
Mercury	0.00263	0.00020	mg/L	0.00250	BLOD	105	80-120	3.98	20	
Matrix Spike Dup (BFF0393-MSD2)		Source: 22E1463-03		Prepared & Analyzed: 06/09/2022						
Mercury	0.00259	0.00020	mg/L	0.00250	BLOD	104	80-120	5.84	20	

Certificate of Analysis

Client Name: SCS Engineers-Winchester
 Client Site I.D.: City of Bristol 1st Semi-Annual 2022
 Submitted To: Jennifer Robb

Date Issued: 7/12/2022 2:25:23PM

Volatile Organic Compounds by GCMS - Quality Control

Enthalpy Analytical

Analyte	Result	LOQ	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Qual
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Batch BFF0032 - SW5030B-MS

Blank (BFF0032-BLK1)

Prepared & Analyzed: 06/02/2022

1,1,1,2-Tetrachloroethane	ND	0.40	ug/L
1,1,1-Trichloroethane	ND	1.00	ug/L
1,1,2,2-Tetrachloroethane	ND	0.40	ug/L
1,1,2-Trichloroethane	ND	1.00	ug/L
1,1-Dichloroethane	ND	1.00	ug/L
1,1-Dichloroethylene	ND	1.00	ug/L
1,1-Dichloropropene	ND	1.00	ug/L
1,2,3-Trichloropropane	ND	1.00	ug/L
1,2,4-Trichlorobenzene	ND	1.00	ug/L
1,2-Dichlorobenzene	ND	1.00	ug/L
1,2-Dichloroethane	ND	1.00	ug/L
1,2-Dichloropropane	ND	1.00	ug/L
1,3-Dichlorobenzene	ND	1.00	ug/L
1,3-Dichloropropane	ND	1.00	ug/L
1,4-Dichlorobenzene	ND	1.00	ug/L
2,2-Dichloropropane	ND	2.00	ug/L
2-Butanone (MEK)	ND	10.0	ug/L
2-Hexanone (MBK)	ND	5.00	ug/L
4-Methyl-2-pentanone (MIBK)	ND	5.00	ug/L
Acetone	ND	10.0	ug/L
Acetonitrile	ND	10.0	ug/L
Acrolein	ND	10.0	ug/L
Acrylonitrile	ND	5.00	ug/L
Allyl chloride	ND	1.00	ug/L
Benzene	ND	1.00	ug/L

Certificate of Analysis

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Volatile Organic Compounds by GCMS - Quality Control

Enthalpy Analytical

Analyte	Result	LOQ	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Qual
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Batch BFF0032 - SW5030B-MS

Blank (BFF0032-BLK1)

Prepared & Analyzed: 06/02/2022

Bromochloromethane	ND	1.00	ug/L
Bromodichloromethane	ND	0.50	ug/L
Bromoform	ND	1.00	ug/L
Bromomethane	ND	1.00	ug/L
Carbon disulfide	ND	10.0	ug/L
Carbon tetrachloride	ND	1.00	ug/L
Chlorobenzene	ND	1.00	ug/L
Chloroethane	ND	1.00	ug/L
Chloroform	ND	0.50	ug/L
Chloromethane	ND	1.00	ug/L
Chloroprene	ND	5.00	ug/L
cis-1,2-Dichloroethylene	ND	1.00	ug/L
cis-1,3-Dichloropropene	ND	1.00	ug/L
Dibromochloromethane	ND	0.50	ug/L
Dibromomethane	ND	1.00	ug/L
Dichlorodifluoromethane	ND	1.00	ug/L
Dichlorodifluoromethane	ND	1.00	ug/L
Ethyl methacrylate	ND	5.00	ug/L
Ethylbenzene	ND	1.00	ug/L
Iodomethane	ND	10.0	ug/L
Isobutyl Alcohol	ND	40.0	ug/L
m+p-Xylenes	ND	2.00	ug/L
Methacrylonitrile	ND	1.50	ug/L
Methyl methacrylate	ND	2.00	ug/L
Methylene chloride	ND	4.00	ug/L

Certificate of Analysis

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Volatile Organic Compounds by GCMS - Quality Control

Enthalpy Analytical

Analyte	Result	LOQ	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Qual
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Batch BFF0032 - SW5030B-MS

Blank (BFF0032-BLK1)

Prepared & Analyzed: 06/02/2022

o-Xylene	ND	1.00	ug/L							
Propionitrile	ND	40.0	ug/L							
Styrene	ND	1.00	ug/L							
Tetrachloroethylene (PCE)	ND	1.00	ug/L							
Toluene	ND	1.00	ug/L							
trans-1,2-Dichloroethylene	ND	1.00	ug/L							
trans-1,3-Dichloropropene	ND	1.00	ug/L							
trans-1,4-Dichloro-2-butene	ND	4.00	ug/L							
Trichloroethylene	ND	1.00	ug/L							
Trichlorofluoromethane	ND	1.00	ug/L							
Vinyl acetate	ND	10.0	ug/L							
Vinyl chloride	ND	0.50	ug/L							
Xylenes, Total	ND	3.00	ug/L							
<i>Surr: 1,2-Dichloroethane-d4 (Surr)</i>	49.1		ug/L	50.0		98.2	70-120			
<i>Surr: 4-Bromofluorobenzene (Surr)</i>	47.5		ug/L	50.0		95.0	75-120			
<i>Surr: Dibromofluoromethane (Surr)</i>	49.0		ug/L	50.0		98.1	70-130			
<i>Surr: Toluene-d8 (Surr)</i>	50.8		ug/L	50.0		102	70-130			

LCS (BFF0032-BS1)

Prepared & Analyzed: 06/02/2022

1,1,1,2-Tetrachloroethane	45.8	0.4	ug/L	50.0		91.6	80-130			
1,1,1-Trichloroethane	50.4	1	ug/L	50.0		101	65-130			
1,1,2,2-Tetrachloroethane	47.8	0.4	ug/L	50.0		95.6	65-130			
1,1,2-Trichloroethane	50.5	1	ug/L	50.0		101	75-125			
1,1-Dichloroethane	48.6	1	ug/L	50.0		97.3	70-135			
1,1-Dichloroethylene	41.3	1	ug/L	50.0		82.6	70-130			

Certificate of Analysis

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Volatile Organic Compounds by GCMS - Quality Control

Enthalpy Analytical

Analyte	Result	LOQ	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Qual
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Batch BFF0032 - SW5030B-MS

LCS (BFF0032-BS1)

Prepared & Analyzed: 06/02/2022

1,1-Dichloropropene	49.6	1	ug/L	50.0		99.1	75-135			
1,2,3-Trichloropropane	45.7	1	ug/L	50.0		91.4	75-125			
1,2,4-Trichlorobenzene	49.5	1	ug/L	50.0		98.9	65-135			
1,2-Dichlorobenzene	45.9	0.5	ug/L	50.0		91.8	70-120			
1,2-Dichloroethane	45.2	1	ug/L	50.0		90.5	70-130			
1,2-Dichloropropane	48.8	0.5	ug/L	50.0		97.6	75-125			
1,3-Dichlorobenzene	45.2	1	ug/L	50.0		90.4	75-125			
1,3-Dichloropropane	47.0	1	ug/L	50.0		94.0	75-125			
1,4-Dichlorobenzene	45.3	1	ug/L	50.0		90.6	75-125			
2,2-Dichloropropane	49.7	1	ug/L	50.0		99.5	70-135			
2-Butanone (MEK)	49.0	10	ug/L	50.0		98.0	30-150			
2-Hexanone (MBK)	44.5	5	ug/L	50.0		89.0	55-130			
4-Methyl-2-pentanone (MIBK)	47.8	5	ug/L	50.0		95.6	60-135			
Acetone	56.1	10	ug/L	50.0		112	40-140			
Acrylonitrile	252	5	ug/L	250		101	70-130			
Benzene	46.8	1	ug/L	50.0		93.5	80-120			
Bromochloromethane	43.0	1	ug/L	50.0		86.1	65-130			
Bromodichloromethane	53.1	0.5	ug/L	50.0		106	75-120			
Bromoform	41.6	1	ug/L	50.0		83.1	70-130			
Bromomethane	57.0	1	ug/L	50.0		114	30-145			
Carbon disulfide	43.4	10	ug/L	50.0		86.8	35-160			
Carbon tetrachloride	51.2	1	ug/L	50.0		102	65-140			
Chlorobenzene	45.3	1	ug/L	50.0		90.5	80-120			
Chloroethane	50.9	1	ug/L	50.0		102	60-135			
Chloroform	48.0	0.5	ug/L	50.0		96.0	65-135			

Certificate of Analysis

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Volatile Organic Compounds by GCMS - Quality Control

Enthalpy Analytical

Analyte	Result	LOQ	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Qual
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Batch BFF0032 - SW5030B-MS

LCS (BFF0032-BS1)

Prepared & Analyzed: 06/02/2022

Chloromethane	50.0	1	ug/L	50.0		100	40-125			
cis-1,2-Dichloroethylene	44.2	1	ug/L	50.0		88.5	70-125			
cis-1,3-Dichloropropene	38.5	1	ug/L	50.0		77.0	70-130			
Dibromochloromethane	42.3	0.5	ug/L	50.0		84.6	60-135			
Dibromomethane	46.2	1	ug/L	50.0		92.4	75-125			
Dichlorodifluoromethane	45.5	1	ug/L	50.0		91.1	30-155			
Dichlorodifluoromethane	45.5	1	ug/L	50.0		91.1	30-155			
Ethylbenzene	51.1	1	ug/L	50.0		102	75-125			
m+p-Xylenes	92.9	2	ug/L	100		92.9	75-130			
Methylene chloride	47.0	4	ug/L	50.0		94.0	55-140			
o-Xylene	48.0	1	ug/L	50.0		96.0	80-120			
Styrene	41.4	1	ug/L	50.0		82.7	65-135			
Tetrachloroethylene (PCE)	77.4	1	ug/L	50.0		155	45-150			L
Toluene	46.0	1	ug/L	50.0		92.1	75-120			
trans-1,2-Dichloroethylene	47.0	1	ug/L	50.0		94.1	60-140			
trans-1,3-Dichloropropene	36.1	1	ug/L	50.0		72.2	55-140			
Trichloroethylene	47.9	1	ug/L	50.0		95.7	70-125			
Trichlorofluoromethane	54.1	1	ug/L	50.0		108	60-145			
Vinyl chloride	56.8	0.5	ug/L	50.0		114	50-145			
<hr/>										
<i>Surr: 1,2-Dichloroethane-d4 (Surr)</i>	<i>49.1</i>		ug/L	<i>50.0</i>		<i>98.3</i>	<i>70-120</i>			
<i>Surr: 4-Bromofluorobenzene (Surr)</i>	<i>51.4</i>		ug/L	<i>50.0</i>		<i>103</i>	<i>75-120</i>			
<i>Surr: Dibromofluoromethane (Surr)</i>	<i>46.8</i>		ug/L	<i>50.0</i>		<i>93.6</i>	<i>70-130</i>			
<i>Surr: Toluene-d8 (Surr)</i>	<i>50.9</i>		ug/L	<i>50.0</i>		<i>102</i>	<i>70-130</i>			

Duplicate (BFF0032-DUP1)

Source: 22E1463-08

Prepared & Analyzed: 06/02/2022

Certificate of Analysis

Client Name: SCS Engineers-Winchester
 Client Site I.D.: City of Bristol 1st Semi-Annual 2022
 Submitted To: Jennifer Robb

Date Issued: 7/12/2022 2:25:23PM

Volatile Organic Compounds by GCMS - Quality Control

Enthalpy Analytical

Analyte	Result	LOQ	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Qual
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Batch BFF0032 - SW5030B-MS

Duplicate (BFF0032-DUP1)	Source: 22E1463-08			Prepared & Analyzed: 06/02/2022						
1,1,1,2-Tetrachloroethane	ND	0.40	ug/L		BLOD			NA	30	
1,1,1-Trichloroethane	ND	1.00	ug/L		BLOD			NA	30	
1,1,2,2-Tetrachloroethane	ND	0.40	ug/L		BLOD			NA	30	
1,1,2-Trichloroethane	ND	1.00	ug/L		BLOD			NA	30	
1,1-Dichloroethane	6.12	1.00	ug/L		6.28			2.58	30	
1,1-Dichloroethylene	ND	1.00	ug/L		BLOD			NA	30	
1,1-Dichloropropene	ND	1.00	ug/L		BLOD			NA	30	
1,2,3-Trichloropropane	ND	1.00	ug/L		BLOD			NA	30	
1,2,4-Trichlorobenzene	ND	1.00	ug/L		BLOD			NA	30	
1,2-Dichlorobenzene	ND	1.00	ug/L		BLOD			NA	30	
1,2-Dichloroethane	ND	1.00	ug/L		BLOD			NA	30	
1,2-Dichloropropane	ND	1.00	ug/L		BLOD			NA	30	
1,3-Dichlorobenzene	ND	1.00	ug/L		BLOD			NA	30	
1,3-Dichloropropane	ND	1.00	ug/L		BLOD			NA	30	
1,4-Dichlorobenzene	1.93	1.00	ug/L		BLOD			NA	30	
2,2-Dichloropropane	ND	2.00	ug/L		BLOD			NA	30	
2-Butanone (MEK)	ND	10.0	ug/L		BLOD			NA	30	
2-Hexanone (MBK)	ND	5.00	ug/L		BLOD			NA	30	
4-Methyl-2-pentanone (MIBK)	ND	5.00	ug/L		BLOD			NA	30	
Acetone	ND	10.0	ug/L		BLOD			NA	30	
Acetonitrile	ND	10.0	ug/L		BLOD			NA	30	
Acrolein	ND	10.0	ug/L		BLOD			NA	30	
Acrylonitrile	ND	5.00	ug/L		BLOD			NA	30	
Allyl chloride	ND	1.00	ug/L		BLOD			NA	30	
Benzene	7.46	1.00	ug/L		7.30			2.17	30	

Certificate of Analysis

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Volatile Organic Compounds by GCMS - Quality Control

Enthalpy Analytical

Analyte	Result	LOQ	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Qual
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Batch BFF0032 - SW5030B-MS

Duplicate (BFF0032-DUP1)

Source: 22E1463-08

Prepared & Analyzed: 06/02/2022

Bromochloromethane	ND	1.00	ug/L		BLOD			NA	30	
Bromodichloromethane	ND	0.50	ug/L		BLOD			NA	30	
Bromoform	ND	1.00	ug/L		BLOD			NA	30	
Bromomethane	ND	1.00	ug/L		BLOD			NA	30	
Carbon disulfide	ND	10.0	ug/L		BLOD			NA	30	
Carbon tetrachloride	ND	1.00	ug/L		BLOD			NA	30	
Chlorobenzene	1.35	1.00	ug/L		1.31			3.01	30	
Chloroethane	1.36	1.00	ug/L		1.07			23.9	30	
Chloroform	ND	0.50	ug/L		BLOD			NA	30	
Chloromethane	ND	1.00	ug/L		BLOD			NA	30	
Chloroprene	ND	5.00	ug/L		BLOD			NA	30	
cis-1,2-Dichloroethylene	59.9	1.00	ug/L		61.3			2.41	30	
cis-1,3-Dichloropropene	ND	1.00	ug/L		BLOD			NA	30	
Dibromochloromethane	ND	0.50	ug/L		BLOD			NA	30	
Dibromomethane	ND	1.00	ug/L		BLOD			NA	30	
Dichlorodifluoromethane	ND	1.00	ug/L		BLOD			NA	30	
Dichlorodifluoromethane	ND	1.00	ug/L		BLOD			NA	30	
Ethyl methacrylate	ND	5.00	ug/L		BLOD			NA	30	
Ethylbenzene	ND	1.00	ug/L		BLOD			NA	30	
Iodomethane	ND	10.0	ug/L		BLOD			NA	30	
Isobutyl Alcohol	ND	40.0	ug/L		BLOD			NA	30	
m+p-Xylenes	ND	2.00	ug/L		BLOD			NA	30	
Methacrylonitrile	ND	1.50	ug/L		BLOD			NA	30	
Methyl methacrylate	ND	2.00	ug/L		BLOD			NA	30	
Methylene chloride	ND	4.00	ug/L		BLOD			NA	30	

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Enthalpy Analytical

Analyte	Result	LOQ	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Qual
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Batch BFF0032 - SW5030B-MS

Duplicate (BFF0032-DUP1)

Source: 22E1463-08

Prepared & Analyzed: 06/02/2022

o-Xylene	ND	1.00	ug/L		BLOD			NA	30	
Propionitrile	ND	40.0	ug/L		BLOD			NA	30	
Styrene	ND	1.00	ug/L		BLOD			NA	30	
Tetrachloroethylene (PCE)	ND	1.00	ug/L		BLOD			NA	30	
Toluene	10.8	1.00	ug/L		10.9			0.551	30	
trans-1,2-Dichloroethylene	ND	1.00	ug/L		BLOD			NA	30	
trans-1,3-Dichloropropene	ND	1.00	ug/L		BLOD			NA	30	
trans-1,4-Dichloro-2-butene	ND	4.00	ug/L		BLOD			NA	30	
Trichloroethylene	ND	1.00	ug/L		BLOD			NA	30	
Trichlorofluoromethane	ND	1.00	ug/L		BLOD			NA	30	
Vinyl acetate	ND	10.0	ug/L		BLOD			NA	30	
Vinyl chloride	7.56	0.50	ug/L		7.98			5.41	30	
Xylenes, Total	ND	3.00	ug/L		BLOD			NA	30	
Tetrahydrofuran	ND	10.0	ug/L		BLOD			NA	30	
<i>Surr: 1,2-Dichloroethane-d4 (Surr)</i>	48.4		ug/L	50.0		96.9	70-120			
<i>Surr: 4-Bromofluorobenzene (Surr)</i>	47.5		ug/L	50.0		95.0	75-120			
<i>Surr: Dibromofluoromethane (Surr)</i>	44.8		ug/L	50.0		89.6	70-130			
<i>Surr: Toluene-d8 (Surr)</i>	51.3		ug/L	50.0		103	70-130			

Matrix Spike (BFF0032-MS1)

Source: 22E1463-08

Prepared & Analyzed: 06/02/2022

1,1,1,2-Tetrachloroethane	50.7	0.4	ug/L	50.0	BLOD	101	80-130			
1,1,1-Trichloroethane	50.8	1	ug/L	50.0	BLOD	102	65-130			
1,1,2,2-Tetrachloroethane	48.6	0.4	ug/L	50.0	BLOD	97.2	65-130			
1,1,2-Trichloroethane	51.6	1	ug/L	50.0	BLOD	103	75-125			
1,1-Dichloroethane	53.2	1	ug/L	50.0	6.28	93.9	70-135			

Certificate of Analysis

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Volatile Organic Compounds by GCMS - Quality Control

Enthalpy Analytical

Analyte	Result	LOQ	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Qual
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Batch BFF0032 - SW5030B-MS

Matrix Spike (BFF0032-MS1)

Source: 22E1463-08

Prepared & Analyzed: 06/02/2022

1,1-Dichloroethylene	40.7	1	ug/L	50.0	BLOD	81.4	70-130			
1,1-Dichloropropene	49.1	1	ug/L	50.0	BLOD	98.3	75-135			
1,2,3-Trichloropropane	47.5	1	ug/L	50.0	BLOD	95.0	75-125			
1,2,4-Trichlorobenzene	52.3	1	ug/L	50.0	BLOD	105	65-135			
1,2-Dichlorobenzene	48.3	0.5	ug/L	50.0	BLOD	96.7	70-120			
1,2-Dichloroethane	45.6	1	ug/L	50.0	BLOD	91.3	70-130			
1,2-Dichloropropane	49.4	0.5	ug/L	50.0	BLOD	98.9	75-125			
1,3-Dichlorobenzene	50.8	1	ug/L	50.0	BLOD	102	75-125			
1,3-Dichloropropane	47.7	1	ug/L	50.0	BLOD	95.4	75-125			
1,4-Dichlorobenzene	51.2	1	ug/L	50.0	BLOD	102	75-125			
2,2-Dichloropropane	50.4	1	ug/L	50.0	BLOD	101	70-135			
2-Butanone (MEK)	39.5	10	ug/L	50.0	BLOD	79.0	30-150			
2-Hexanone (MBK)	41.6	5	ug/L	50.0	BLOD	83.3	55-130			
4-Methyl-2-pentanone (MIBK)	44.6	5	ug/L	50.0	BLOD	89.1	60-135			
Acetone	44.2	10	ug/L	50.0	BLOD	80.7	40-140			
Acrylonitrile	224	5	ug/L	250	BLOD	89.8	70-130			
Benzene	57.7	1	ug/L	50.0	7.30	101	80-120			
Bromochloromethane	43.2	1	ug/L	50.0	BLOD	86.3	65-130			
Bromodichloromethane	54.2	0.5	ug/L	50.0	BLOD	108	75-120			
Bromoform	43.8	1	ug/L	50.0	BLOD	87.6	70-130			
Bromomethane	46.4	1	ug/L	50.0	BLOD	92.8	30-145			
Carbon disulfide	42.1	10	ug/L	50.0	BLOD	84.1	35-160			
Carbon tetrachloride	53.7	1	ug/L	50.0	BLOD	107	65-140			
Chlorobenzene	50.3	1	ug/L	50.0	1.31	97.9	80-120			
Chloroethane	47.1	1	ug/L	50.0	1.07	92.0	60-135			

Certificate of Analysis

Client Name: SCS Engineers-Winchester
 Client Site I.D.: City of Bristol 1st Semi-Annual 2022
 Submitted To: Jennifer Robb

Date Issued: 7/12/2022 2:25:23PM

Volatile Organic Compounds by GCMS - Quality Control

Enthalpy Analytical

Analyte	Result	LOQ	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Qual
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Batch BFF0032 - SW5030B-MS

Matrix Spike (BFF0032-MS1)

Source: 22E1463-08

Prepared & Analyzed: 06/02/2022

Chloroform	47.6	0.5	ug/L	50.0	BLOD	95.2	65-135			
Chloromethane	55.1	1	ug/L	50.0	BLOD	110	40-125			
cis-1,2-Dichloroethylene	103	1	ug/L	50.0	61.3	83.7	70-125			
cis-1,2-Dichloroethylene	103	1	ug/L	50.0	61.3	83.7	70-125			M
cis-1,3-Dichloropropene	39.6	1	ug/L	50.0	BLOD	79.1	70-130			
Dibromochloromethane	43.9	0.5	ug/L	50.0	BLOD	87.7	60-135			
Dibromomethane	46.2	1	ug/L	50.0	BLOD	92.5	75-125			
Dichlorodifluoromethane	45.2	1	ug/L	50.0	BLOD	90.3	30-155			
Dichlorodifluoromethane	45.2	1	ug/L	50.0	BLOD	90.3	30-155			
Ethylbenzene	54.6	1	ug/L	50.0	BLOD	109	75-125			
m+p-Xylenes	100	2	ug/L	100	BLOD	100	75-130			
Methylene chloride	45.2	4	ug/L	50.0	BLOD	90.3	55-140			
o-Xylene	51.1	1	ug/L	50.0	BLOD	102	80-120			
Styrene	44.8	1	ug/L	50.0	BLOD	89.5	65-135			
Tetrachloroethylene (PCE)	84.1	1	ug/L	50.0	BLOD	168	45-150			M
Toluene	59.3	1	ug/L	50.0	10.9	96.9	75-120			
trans-1,2-Dichloroethylene	45.8	1	ug/L	50.0	BLOD	90.6	60-140			
trans-1,3-Dichloropropene	37.3	1	ug/L	50.0	BLOD	74.5	55-140			
Trichloroethylene	50.0	1	ug/L	50.0	BLOD	99.9	70-125			
Trichlorofluoromethane	51.9	1	ug/L	50.0	BLOD	104	60-145			
Vinyl chloride	64.3	0.5	ug/L	50.0	7.98	113	50-145			
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Surr: 1,2-Dichloroethane-d4 (Surr)	49.1		ug/L	50.0		98.2	70-120			
Surr: 4-Bromofluorobenzene (Surr)	54.3		ug/L	50.0		109	75-120			
Surr: Dibromofluoromethane (Surr)	44.9		ug/L	50.0		89.9	70-130			
Surr: Toluene-d8 (Surr)	50.8		ug/L	50.0		102	70-130			

Certificate of Analysis

Client Name: SCS Engineers-Winchester
 Client Site I.D.: City of Bristol 1st Semi-Annual 2022
 Submitted To: Jennifer Robb

Date Issued: 7/12/2022 2:25:23PM

Volatile Organic Compounds by GCMS - Quality Control

Enthalpy Analytical

Analyte	Result	LOQ	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Qual
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Batch BFF0032 - SW5030B-MS

Matrix Spike (BFF0032-MS1) Source: 22E1463-08 Prepared & Analyzed: 06/02/2022

Batch BFF0033 - SW5030B-MS

Blank (BFF0033-BLK1) Prepared & Analyzed: 06/01/2022

1,1,1,2-Tetrachloroethane	ND	0.40	ug/L
1,1,1-Trichloroethane	ND	1.00	ug/L
1,1,2,2-Tetrachloroethane	ND	0.40	ug/L
1,1,2-Trichloroethane	ND	1.00	ug/L
1,1-Dichloroethane	ND	1.00	ug/L
1,1-Dichloroethylene	ND	1.00	ug/L
1,1-Dichloropropene	ND	1.00	ug/L
1,2,3-Trichloropropane	ND	1.00	ug/L
1,2,4-Trichlorobenzene	ND	1.00	ug/L
1,2-Dichlorobenzene	ND	1.00	ug/L
1,2-Dichloroethane	ND	1.00	ug/L
1,2-Dichloropropane	ND	1.00	ug/L
1,3-Dichlorobenzene	ND	1.00	ug/L
1,3-Dichloropropane	ND	1.00	ug/L
1,4-Dichlorobenzene	ND	1.00	ug/L
2,2-Dichloropropane	ND	2.00	ug/L
2-Butanone (MEK)	ND	10.0	ug/L
2-Hexanone (MBK)	ND	5.00	ug/L
4-Methyl-2-pentanone (MIBK)	ND	5.00	ug/L
Acetone	ND	10.0	ug/L
Acetonitrile	ND	10.0	ug/L
Acrolein	ND	10.0	ug/L

Certificate of Analysis

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Volatile Organic Compounds by GCMS - Quality Control

Enthalpy Analytical

Analyte	Result	LOQ	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Qual
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Batch BFF0033 - SW5030B-MS

Blank (BFF0033-BLK1)

Prepared & Analyzed: 06/01/2022

Acrylonitrile	ND	5.00	ug/L
Allyl chloride	ND	1.00	ug/L
Benzene	ND	1.00	ug/L
Bromochloromethane	ND	1.00	ug/L
Bromodichloromethane	ND	0.50	ug/L
Bromoform	ND	1.00	ug/L
Bromomethane	ND	1.00	ug/L
Carbon disulfide	ND	10.0	ug/L
Carbon tetrachloride	ND	1.00	ug/L
Chlorobenzene	ND	1.00	ug/L
Chloroethane	ND	1.00	ug/L
Chloroform	ND	0.50	ug/L
Chloromethane	ND	1.00	ug/L
Chloroprene	ND	5.00	ug/L
cis-1,2-Dichloroethylene	ND	1.00	ug/L
cis-1,3-Dichloropropene	ND	1.00	ug/L
Dibromochloromethane	ND	0.50	ug/L
Dibromomethane	ND	1.00	ug/L
Dichlorodifluoromethane	ND	1.00	ug/L
Ethyl methacrylate	ND	5.00	ug/L
Ethylbenzene	ND	1.00	ug/L
Iodomethane	ND	10.0	ug/L
Isobutyl Alcohol	ND	40.0	ug/L
m+p-Xylenes	ND	2.00	ug/L
Methacrylonitrile	ND	1.50	ug/L

Certificate of Analysis

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Volatile Organic Compounds by GCMS - Quality Control

Enthalpy Analytical

Analyte	Result	LOQ	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Qual
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Batch BFF0033 - SW5030B-MS

Blank (BFF0033-BLK1)

Prepared & Analyzed: 06/01/2022

Methyl methacrylate	ND	2.00	ug/L							
Methylene chloride	ND	4.00	ug/L							
o-Xylene	ND	1.00	ug/L							
Propionitrile	ND	40.0	ug/L							
Styrene	ND	1.00	ug/L							
Tetrachloroethylene (PCE)	ND	1.00	ug/L							
Toluene	ND	1.00	ug/L							
trans-1,2-Dichloroethylene	ND	1.00	ug/L							
trans-1,3-Dichloropropene	ND	1.00	ug/L							
trans-1,4-Dichloro-2-butene	ND	4.00	ug/L							
Trichloroethylene	ND	1.00	ug/L							
Trichlorofluoromethane	ND	1.00	ug/L							
Vinyl acetate	ND	10.0	ug/L							
Vinyl chloride	ND	0.50	ug/L							
Xylenes, Total	ND	3.00	ug/L							
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<i>Surr: 1,2-Dichloroethane-d4 (Surr)</i>	<i>54.1</i>		ug/L	<i>50.0</i>		<i>108</i>	<i>70-120</i>			
<i>Surr: 4-Bromofluorobenzene (Surr)</i>	<i>49.6</i>		ug/L	<i>50.0</i>		<i>99.2</i>	<i>75-120</i>			
<i>Surr: Dibromofluoromethane (Surr)</i>	<i>51.5</i>		ug/L	<i>50.0</i>		<i>103</i>	<i>70-130</i>			
<i>Surr: Toluene-d8 (Surr)</i>	<i>51.0</i>		ug/L	<i>50.0</i>		<i>102</i>	<i>70-130</i>			

LCS (BFF0033-BS1)

Prepared & Analyzed: 06/01/2022

1,1,1,2-Tetrachloroethane	52.8	0.4	ug/L	50.0		106	80-130			
1,1,1-Trichloroethane	53.9	1	ug/L	50.0		108	65-130			
1,1,2,2-Tetrachloroethane	53.5	0.4	ug/L	50.0		107	65-130			
1,1,2-Trichloroethane	49.2	1	ug/L	50.0		98.4	75-125			

Certificate of Analysis

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Volatile Organic Compounds by GCMS - Quality Control

Enthalpy Analytical

Analyte	Result	LOQ	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Qual
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Batch BFF0033 - SW5030B-MS

LCS (BFF0033-BS1)

Prepared & Analyzed: 06/01/2022

1,1-Dichloroethane	48.4	1	ug/L	50.0		96.9	70-135			
1,1-Dichloroethylene	42.1	1	ug/L	50.0		84.2	70-130			
1,1-Dichloropropene	50.6	1	ug/L	50.0		101	75-135			
1,2,3-Trichloropropane	55.1	1	ug/L	50.0		110	75-125			
1,2,4-Trichlorobenzene	48.7	1	ug/L	50.0		97.4	65-135			
1,2-Dichlorobenzene	51.2	0.5	ug/L	50.0		102	70-120			
1,2-Dichloroethane	50.4	1	ug/L	50.0		101	70-130			
1,2-Dichloropropane	47.2	0.5	ug/L	50.0		94.5	75-125			
1,3-Dichlorobenzene	52.0	1	ug/L	50.0		104	75-125			
1,3-Dichloropropane	48.3	1	ug/L	50.0		96.6	75-125			
1,4-Dichlorobenzene	51.3	1	ug/L	50.0		103	75-125			
2,2-Dichloropropane	44.8	1	ug/L	50.0		89.6	70-135			
2-Butanone (MEK)	41.1	10	ug/L	50.0		82.1	30-150			
2-Hexanone (MBK)	58.8	5	ug/L	50.0		118	55-130			
4-Methyl-2-pentanone (MIBK)	48.6	5	ug/L	50.0		97.2	60-135			
Acetone	48.0	10	ug/L	50.0		96.0	40-140			
Acrylonitrile	301	5	ug/L	250		120	70-130			
Benzene	47.3	1	ug/L	50.0		94.6	80-120			
Bromochloromethane	44.1	1	ug/L	50.0		88.2	65-130			
Bromodichloromethane	53.0	0.5	ug/L	50.0		106	75-120			
Bromoform	50.6	1	ug/L	50.0		101	70-130			
Bromomethane	42.6	1	ug/L	50.0		85.3	30-145			
Carbon disulfide	51.3	10	ug/L	50.0		103	35-160			
Carbon tetrachloride	53.1	1	ug/L	50.0		106	65-140			
Chlorobenzene	52.4	1	ug/L	50.0		105	80-120			

Certificate of Analysis

 Client Name: SCS Engineers-Winchester
 Client Site I.D.: City of Bristol 1st Semi-Annual 2022
 Submitted To: Jennifer Robb

Date Issued: 7/12/2022 2:25:23PM

Volatile Organic Compounds by GCMS - Quality Control

Enthalpy Analytical

Analyte	Result	LOQ	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Qual
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Batch BFF0033 - SW5030B-MS

LCS (BFF0033-BS1)

Prepared & Analyzed: 06/01/2022

Chloroethane	48.2	1	ug/L	50.0		96.5	60-135			
Chloroform	45.4	0.5	ug/L	50.0		90.9	65-135			
Chloromethane	49.8	1	ug/L	50.0		99.5	40-125			
cis-1,2-Dichloroethylene	45.3	1	ug/L	50.0		90.5	70-125			
cis-1,3-Dichloropropene	35.9	1	ug/L	50.0		71.8	70-130			
Dibromochloromethane	47.7	0.5	ug/L	50.0		95.5	60-135			
Dibromomethane	44.6	1	ug/L	50.0		89.3	75-125			
Dichlorodifluoromethane	42.1	1	ug/L	50.0		84.2	30-155			
Ethylbenzene	56.7	1	ug/L	50.0		113	75-125			
m+p-Xylenes	104	2	ug/L	100		104	75-130			
Methylene chloride	44.8	4	ug/L	50.0		89.7	55-140			
o-Xylene	53.6	1	ug/L	50.0		107	80-120			
Styrene	52.2	1	ug/L	50.0		104	65-135			
Tetrachloroethylene (PCE)	90.5	1	ug/L	50.0		181	45-150			L
Toluene	49.1	1	ug/L	50.0		98.1	75-120			
trans-1,2-Dichloroethylene	45.8	1	ug/L	50.0		91.7	60-140			
trans-1,3-Dichloropropene	39.4	1	ug/L	50.0		78.8	55-140			
Trichloroethylene	49.0	1	ug/L	50.0		98.0	70-125			
Trichlorofluoromethane	61.1	1	ug/L	50.0		122	60-145			
Vinyl chloride	50.6	0.5	ug/L	50.0		101	50-145			
<hr/>										
<i>Surr: 1,2-Dichloroethane-d4 (Surr)</i>	<i>52.9</i>		<i>ug/L</i>	<i>50.0</i>		<i>106</i>	<i>70-120</i>			
<i>Surr: 4-Bromofluorobenzene (Surr)</i>	<i>55.6</i>		<i>ug/L</i>	<i>50.0</i>		<i>111</i>	<i>75-120</i>			
<i>Surr: Dibromofluoromethane (Surr)</i>	<i>52.3</i>		<i>ug/L</i>	<i>50.0</i>		<i>105</i>	<i>70-130</i>			
<i>Surr: Toluene-d8 (Surr)</i>	<i>50.7</i>		<i>ug/L</i>	<i>50.0</i>		<i>101</i>	<i>70-130</i>			

Certificate of Analysis

 Client Name: SCS Engineers-Winchester
 Client Site I.D.: City of Bristol 1st Semi-Annual 2022
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Volatile Organic Compounds by GCMS - Quality Control

Enthalpy Analytical

Analyte	Result	LOQ	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Qual
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Batch BFF0033 - SW5030B-MS

Matrix Spike (BFF0033-MS1)

Source: 22E1463-02

Prepared & Analyzed: 06/01/2022

1,1,1,2-Tetrachloroethane	47.9	0.4	ug/L	50.0	BLOD	95.8	80-130			
1,1,1-Trichloroethane	52.0	1	ug/L	50.0	BLOD	104	65-130			
1,1,2,2-Tetrachloroethane	48.1	0.4	ug/L	50.0	BLOD	96.2	65-130			
1,1,2-Trichloroethane	46.6	1	ug/L	50.0	BLOD	93.2	75-125			
1,1-Dichloroethane	47.1	1	ug/L	50.0	BLOD	94.3	70-135			
1,1-Dichloroethylene	41.4	1	ug/L	50.0	BLOD	82.9	70-130			
1,1-Dichloropropene	49.3	1	ug/L	50.0	BLOD	98.7	75-135			
1,2,3-Trichloropropane	49.5	1	ug/L	50.0	BLOD	99.0	75-125			
1,2,4-Trichlorobenzene	46.5	1	ug/L	50.0	BLOD	92.9	65-135			
1,2-Dichlorobenzene	49.1	0.5	ug/L	50.0	BLOD	98.2	70-120			
1,2-Dichloroethane	48.4	1	ug/L	50.0	BLOD	96.9	70-130			
1,2-Dichloropropane	44.7	0.5	ug/L	50.0	BLOD	89.5	75-125			
1,3-Dichlorobenzene	49.6	1	ug/L	50.0	BLOD	99.3	75-125			
1,3-Dichloropropane	48.2	1	ug/L	50.0	BLOD	96.4	75-125			
1,4-Dichlorobenzene	50.0	1	ug/L	50.0	BLOD	100	75-125			
2,2-Dichloropropane	44.6	1	ug/L	50.0	BLOD	89.2	70-135			
2-Butanone (MEK)	40.6	10	ug/L	50.0	BLOD	81.3	30-150			
2-Hexanone (MBK)	51.7	5	ug/L	50.0	BLOD	103	55-130			
4-Methyl-2-pentanone (MIBK)	48.0	5	ug/L	50.0	BLOD	96.0	60-135			
Acetone	50.0	10	ug/L	50.0	BLOD	92.9	40-140			
Acrylonitrile	290	5	ug/L	250	BLOD	116	70-130			
Benzene	46.7	1	ug/L	50.0	BLOD	93.4	80-120			
Bromochloromethane	43.9	1	ug/L	50.0	BLOD	87.8	65-130			
Bromodichloromethane	48.8	0.5	ug/L	50.0	BLOD	97.5	75-120			
Bromoform	45.7	1	ug/L	50.0	BLOD	91.4	70-130			

Certificate of Analysis

Client Name: SCS Engineers-Winchester
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Volatile Organic Compounds by GCMS - Quality Control

Enthalpy Analytical

Analyte	Result	LOQ	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Qual
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Batch BFF0033 - SW5030B-MS

Matrix Spike (BFF0033-MS1)	Source: 22E1463-02			Prepared & Analyzed: 06/01/2022						
Bromomethane	44.0	1	ug/L	50.0	BLOD	88.1	30-145			
Carbon disulfide	48.0	10	ug/L	50.0	BLOD	96.0	35-160			
Carbon tetrachloride	52.0	1	ug/L	50.0	BLOD	104	65-140			
Chlorobenzene	47.4	1	ug/L	50.0	BLOD	94.8	80-120			
Chloroethane	47.8	1	ug/L	50.0	BLOD	95.7	60-135			
Chloroform	43.4	0.5	ug/L	50.0	BLOD	86.8	65-135			
Chloromethane	50.3	1	ug/L	50.0	BLOD	101	40-125			
cis-1,2-Dichloroethylene	43.9	1	ug/L	50.0	BLOD	87.8	70-125			
cis-1,3-Dichloropropene	35.2	1	ug/L	50.0	BLOD	70.4	70-130			
Dibromochloromethane	46.0	0.5	ug/L	50.0	BLOD	92.0	60-135			
Dibromomethane	43.2	1	ug/L	50.0	BLOD	86.5	75-125			
Dichlorodifluoromethane	42.5	1	ug/L	50.0	BLOD	84.9	30-155			
Ethylbenzene	51.8	1	ug/L	50.0	BLOD	104	75-125			
m+p-Xylenes	94.8	2	ug/L	100	BLOD	94.8	75-130			
Methylene chloride	42.4	4	ug/L	50.0	BLOD	84.9	55-140			
o-Xylene	49.1	1	ug/L	50.0	BLOD	98.3	80-120			
Styrene	47.1	1	ug/L	50.0	BLOD	94.2	65-135			
Tetrachloroethylene (PCE)	84.9	1	ug/L	50.0	BLOD	170	45-150			M
Toluene	47.6	1	ug/L	50.0	BLOD	95.2	75-120			
trans-1,2-Dichloroethylene	45.5	1	ug/L	50.0	BLOD	91.1	60-140			
trans-1,3-Dichloropropene	38.7	1	ug/L	50.0	BLOD	77.5	55-140			
Trichloroethylene	46.9	1	ug/L	50.0	BLOD	93.8	70-125			
Trichlorofluoromethane	59.4	1	ug/L	50.0	BLOD	119	60-145			
Vinyl chloride	50.3	0.5	ug/L	50.0	BLOD	101	50-145			
<i>Surr: 1,2-Dichloroethane-d4 (Surr)</i>	<i>55.0</i>		<i>ug/L</i>	<i>50.0</i>		<i>110</i>	<i>70-120</i>			

Certificate of Analysis

 Client Name: SCS Engineers-Winchester
 Client Site I.D.: City of Bristol 1st Semi-Annual 2022
 Submitted To: Jennifer Robb

Date Issued: 7/12/2022 2:25:23PM

Volatile Organic Compounds by GCMS - Quality Control

Enthalpy Analytical

Analyte	Result	LOQ	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Qual
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Batch BFF0033 - SW5030B-MS

Matrix Spike (BFF0033-MS1)

Source: 22E1463-02

Prepared & Analyzed: 06/01/2022

Surr: 4-Bromofluorobenzene (Surr)	50.8		ug/L	50.0		102	75-120
Surr: Dibromofluoromethane (Surr)	50.6		ug/L	50.0		101	70-130
Surr: Toluene-d8 (Surr)	50.7		ug/L	50.0		101	70-130

Matrix Spike Dup (BFF0033-MSD1)

Source: 22E1463-02

Prepared & Analyzed: 06/01/2022

1,1,1,2-Tetrachloroethane	48.7	0.4	ug/L	50.0	BLOD	97.4	80-130	1.72	30
1,1,1-Trichloroethane	51.4	1	ug/L	50.0	BLOD	103	65-130	1.10	30
1,1,2,2-Tetrachloroethane	48.7	0.4	ug/L	50.0	BLOD	97.4	65-130	1.24	30
1,1,2-Trichloroethane	47.6	1	ug/L	50.0	BLOD	95.3	75-125	2.19	30
1,1-Dichloroethane	46.2	1	ug/L	50.0	BLOD	92.3	70-135	2.08	30
1,1-Dichloroethylene	39.9	1	ug/L	50.0	BLOD	79.8	70-130	3.76	30
1,1-Dichloropropene	47.7	1	ug/L	50.0	BLOD	95.5	75-135	3.30	30
1,2,3-Trichloropropane	49.8	1	ug/L	50.0	BLOD	99.5	75-125	0.564	30
1,2,4-Trichlorobenzene	49.0	1	ug/L	50.0	BLOD	98.1	65-135	5.38	30
1,2-Dichlorobenzene	49.9	0.5	ug/L	50.0	BLOD	99.8	70-120	1.58	30
1,2-Dichloroethane	48.0	1	ug/L	50.0	BLOD	95.9	70-130	0.975	30
1,2-Dichloropropane	45.6	0.5	ug/L	50.0	BLOD	91.2	75-125	1.95	30
1,3-Dichlorobenzene	50.4	1	ug/L	50.0	BLOD	101	75-125	1.58	30
1,3-Dichloropropane	46.9	1	ug/L	50.0	BLOD	93.9	75-125	2.69	30
1,4-Dichlorobenzene	50.3	1	ug/L	50.0	BLOD	101	75-125	0.618	30
2,2-Dichloropropane	42.4	1	ug/L	50.0	BLOD	84.8	70-135	5.01	30
2-Butanone (MEK)	43.4	10	ug/L	50.0	BLOD	86.7	30-150	6.45	30
2-Hexanone (MBK)	56.8	5	ug/L	50.0	BLOD	114	55-130	9.36	30
4-Methyl-2-pentanone (MIBK)	53.0	5	ug/L	50.0	BLOD	106	60-135	9.79	30
Acetone	48.7	10	ug/L	50.0	BLOD	90.2	40-140	2.70	30

Certificate of Analysis

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 Submitted To: Jennifer Robb

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Volatile Organic Compounds by GCMS - Quality Control

Enthalpy Analytical

Analyte	Result	LOQ	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Qual
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Batch BFF0033 - SW5030B-MS

Matrix Spike Dup (BFF0033-MSD1)	Source: 22E1463-02			Prepared & Analyzed: 06/01/2022						
Acrylonitrile	294	5	ug/L	250	BLOD	118	70-130	1.41	30	
Benzene	46.4	1	ug/L	50.0	BLOD	92.7	80-120	0.752	30	
Bromochloromethane	41.9	1	ug/L	50.0	BLOD	83.8	65-130	4.64	30	
Bromodichloromethane	50.3	0.5	ug/L	50.0	BLOD	101	75-120	3.13	30	
Bromoform	46.7	1	ug/L	50.0	BLOD	93.5	70-130	2.23	30	
Bromomethane	44.6	1	ug/L	50.0	BLOD	89.3	30-145	1.40	30	
Carbon disulfide	51.1	10	ug/L	50.0	BLOD	102	35-160	6.23	30	
Carbon tetrachloride	50.5	1	ug/L	50.0	BLOD	101	65-140	2.85	30	
Chlorobenzene	47.5	1	ug/L	50.0	BLOD	95.0	80-120	0.211	30	
Chloroethane	46.9	1	ug/L	50.0	BLOD	93.7	60-135	2.05	30	
Chloroform	43.7	0.5	ug/L	50.0	BLOD	87.5	65-135	0.780	30	
Chloromethane	48.7	1	ug/L	50.0	BLOD	97.5	40-125	3.21	30	
cis-1,2-Dichloroethylene	43.6	1	ug/L	50.0	BLOD	87.2	70-125	0.617	30	
cis-1,3-Dichloropropene	35.5	1	ug/L	50.0	BLOD	70.9	70-130	0.679	30	
Dibromochloromethane	45.2	0.5	ug/L	50.0	BLOD	90.4	60-135	1.82	30	
Dibromomethane	42.3	1	ug/L	50.0	BLOD	84.6	75-125	2.17	30	
Dichlorodifluoromethane	37.0	1	ug/L	50.0	BLOD	74.0	30-155	13.7	30	
Ethylbenzene	51.9	1	ug/L	50.0	BLOD	104	75-125	0.328	30	
m+p-Xylenes	95.3	2	ug/L	100	BLOD	95.3	75-130	0.558	30	
Methylene chloride	42.5	4	ug/L	50.0	BLOD	85.0	55-140	0.0942	30	
o-Xylene	49.8	1	ug/L	50.0	BLOD	99.6	80-120	1.35	30	
Styrene	46.5	1	ug/L	50.0	BLOD	93.0	65-135	1.26	30	
Tetrachloroethylene (PCE)	81.8	1	ug/L	50.0	BLOD	164	45-150	3.80	30	M
Toluene	47.3	1	ug/L	50.0	BLOD	94.7	75-120	0.506	30	
trans-1,2-Dichloroethylene	44.3	1	ug/L	50.0	BLOD	88.7	60-140	2.67	30	

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Enthalpy Analytical

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Batch BFF0033 - SW5030B-MS

Matrix Spike Dup (BFF0033-MSD1)	Source: 22E1463-02			Prepared & Analyzed: 06/01/2022						
trans-1,3-Dichloropropene	38.6	1	ug/L	50.0	BLOD	77.2	55-140	0.362	30	
Trichloroethylene	47.1	1	ug/L	50.0	BLOD	94.2	70-125	0.447	30	
Trichlorofluoromethane	54.2	1	ug/L	50.0	BLOD	108	60-145	9.18	30	
Vinyl chloride	47.2	0.5	ug/L	50.0	BLOD	94.4	50-145	6.34	30	
<i>Surr: 1,2-Dichloroethane-d4 (Surr)</i>	<i>50.3</i>		<i>ug/L</i>	<i>50.0</i>		<i>101</i>	<i>70-120</i>			
<i>Surr: 4-Bromofluorobenzene (Surr)</i>	<i>50.8</i>		<i>ug/L</i>	<i>50.0</i>		<i>102</i>	<i>75-120</i>			
<i>Surr: Dibromofluoromethane (Surr)</i>	<i>51.9</i>		<i>ug/L</i>	<i>50.0</i>		<i>104</i>	<i>70-130</i>			
<i>Surr: Toluene-d8 (Surr)</i>	<i>50.4</i>		<i>ug/L</i>	<i>50.0</i>		<i>101</i>	<i>70-130</i>			

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Enthalpy Analytical

Analyte	Result	LOQ	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Qual
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Batch BFF0013 - SW3580A-MS

Blank (BFF0013-BLK1)

Prepared & Analyzed: 06/01/2022

1,2,4,5-Tetrachlorobenzene	ND	10.0	ug/L
1,3,5-Trinitrobenzene	ND	5.00	ug/L
1,3-Dinitrobenzene	ND	2.50	ug/L
1,4-Naphthoquinone	ND	10.0	ug/L
1-Naphthylamine	ND	10.0	ug/L
2,3,4,6-Tetrachlorophenol	ND	10.0	ug/L
2,4,5-Trichlorophenol	ND	10.0	ug/L
2,4,6-Trichlorophenol	ND	10.0	ug/L
2,4-Dichlorophenol	ND	10.0	ug/L
2,4-Dimethylphenol	ND	5.00	ug/L
2,4-Dinitrophenol	ND	50.0	ug/L
2,4-Dinitrotoluene	ND	10.0	ug/L
2,6-Dichlorophenol	ND	10.0	ug/L
2,6-Dinitrotoluene	ND	10.0	ug/L
2-Acetylaminofluorene	ND	2.50	ug/L
2-Chloronaphthalene	ND	10.0	ug/L
2-Chlorophenol	ND	10.0	ug/L
2-Methylnaphthalene	ND	10.0	ug/L
2-Naphthylamine	ND	10.0	ug/L
2-Nitroaniline	ND	20.0	ug/L
2-Nitrophenol	ND	10.0	ug/L
3,3'-Dichlorobenzidine	ND	10.0	ug/L
3,3'-Dimethylbenzidine	ND	2.50	ug/L
3-Methylcholanthrene	ND	10.0	ug/L
3-Nitroaniline	ND	20.0	ug/L

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Enthalpy Analytical

Analyte	Result	LOQ	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Qual
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Batch BFF0013 - SW3580A-MS

Blank (BFF0013-BLK1)

Prepared & Analyzed: 06/01/2022

4,6-Dinitro-2-methylphenol	ND	50.0	ug/L
4-Aminobiphenyl	ND	10.0	ug/L
4-Bromophenyl phenyl ether	ND	10.0	ug/L
4-Chloroaniline	ND	10.0	ug/L
4-Chlorophenyl phenyl ether	ND	10.0	ug/L
4-Nitroaniline	ND	20.0	ug/L
4-Nitrophenol	ND	50.0	ug/L
5-Nitro-o-toluidine	ND	10.0	ug/L
7,12-Dimethylbenz (a) anthracene	ND	10.0	ug/L
Acenaphthene	ND	10.0	ug/L
Acenaphthylene	ND	10.0	ug/L
Acetophenone	ND	20.0	ug/L
Anthracene	ND	10.0	ug/L
Benzo (a) anthracene	ND	10.0	ug/L
Benzo (a) pyrene	ND	10.0	ug/L
Benzo (b) fluoranthene	ND	10.0	ug/L
Benzo (g,h,i) perylene	ND	10.0	ug/L
Benzo (k) fluoranthene	ND	10.0	ug/L
Benzyl alcohol	ND	20.0	ug/L
bis (2-Chloroethoxy) methane	ND	10.0	ug/L
bis (2-Chloroethyl) ether	ND	10.0	ug/L
2,2'-Oxybis (1-chloropropane)	ND	10.0	ug/L
bis (2-Ethylhexyl) phthalate	ND	5.00	ug/L
Butyl benzyl phthalate	ND	10.0	ug/L
Chlorobenzilate	ND	2.50	ug/L

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Enthalpy Analytical

Analyte	Result	LOQ	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Qual
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Batch BFF0013 - SW3580A-MS

Blank (BFF0013-BLK1)

Prepared & Analyzed: 06/01/2022

Chrysene	ND	10.0	ug/L
Diallate	ND	2.50	ug/L
Dibenz (a,h) anthracene	ND	10.0	ug/L
Dibenzofuran	ND	5.00	ug/L
Diethyl phthalate	ND	10.0	ug/L
Dimethoate	ND	2.50	ug/L
Dimethyl phthalate	ND	10.0	ug/L
Di-n-butyl phthalate	ND	10.0	ug/L
Di-n-octyl phthalate	ND	10.0	ug/L
Diphenylamine	ND	10.0	ug/L
Disulfoton	ND	2.50	ug/L
Ethyl methanesulfonate	ND	20.0	ug/L
Ethyl parathion	ND	2.50	ug/L
Famphur	ND	2.50	ug/L
Fluoranthene	ND	10.0	ug/L
Fluorene	ND	10.0	ug/L
Hexachlorobenzene	ND	1.00	ug/L
Hexachlorobutadiene	ND	10.0	ug/L
Hexachlorocyclopentadiene	ND	10.0	ug/L
Hexachloroethane	ND	10.0	ug/L
Hexachloropropene	ND	2.50	ug/L
Indeno (1,2,3-cd) pyrene	ND	10.0	ug/L
Isodrin	ND	10.0	ug/L
Isophorone	ND	10.0	ug/L
Isosafrole	ND	10.0	ug/L

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Batch BFF0013 - SW3580A-MS

Blank (BFF0013-BLK1)

Prepared & Analyzed: 06/01/2022

Kepone	ND	10.0	ug/L							
m+p-Cresols	ND	10.0	ug/L							
Methapyrilene	ND	10.0	ug/L							
Methyl methanesulfonate	ND	10.0	ug/L							
Methyl parathion	ND	2.50	ug/L							
Naphthalene	0.26	0.10	ug/L							B
Nitrobenzene	ND	10.0	ug/L							
n-Nitrosodiethylamine	ND	2.50	ug/L							
n-Nitrosodimethylamine	ND	10.0	ug/L							
n-Nitrosodi-n-butylamine	ND	10.0	ug/L							
n-Nitrosodi-n-propylamine	ND	10.0	ug/L							
n-Nitrosodiphenylamine	ND	10.0	ug/L							
n-Nitrosomethylethylamine	ND	2.50	ug/L							
n-Nitrosopiperidine	ND	10.0	ug/L							
n-Nitrosopyrrolidine	ND	2.50	ug/L							
o,o,o-Triethyl phosphorothioate	ND	10.0	ug/L							
o,o-Diethyl o-2-pyrazinyl phosphorothioate	ND	10.0	ug/L							
o+m+p-Cresols	ND	10.0	ug/L							
o-Cresol	ND	10.0	ug/L							
o-Toluidine	ND	2.50	ug/L							
p-(Dimethylamino) azobenzene	ND	2.50	ug/L							
p-Chloro-m-cresol	ND	10.0	ug/L							
Pentachlorobenzene	ND	10.0	ug/L							
Pentachloronitrobenzene (quintozene)	ND	10.0	ug/L							
Phenacetin	ND	10.0	ug/L							

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Batch BFF0013 - SW3580A-MS

Blank (BFF0013-BLK1)

Prepared & Analyzed: 06/01/2022

Phenanthrene	ND	10.0	ug/L							
Phenol	ND	10.0	ug/L							
Phorate	ND	2.50	ug/L							
p-Phenylenediamine	ND	10.0	ug/L							
Pronamide	ND	10.0	ug/L							
Pyrene	ND	10.0	ug/L							
Safrole	ND	2.50	ug/L							
<i>Surr: 2,4,6-Tribromophenol (Surr)</i>	55.4		ug/L	100		55.4	10-86			
<i>Surr: 2-Fluorobiphenyl (Surr)</i>	33.8		ug/L	50.0		67.5	9-87			
<i>Surr: 2-Fluorophenol (Surr)</i>	45.2		ug/L	100		45.2	10-52			
<i>Surr: Nitrobenzene-d5 (Surr)</i>	34.4		ug/L	50.0		68.9	10-98.5			
<i>Surr: Phenol-d5 (Surr)</i>	31.6		ug/L	100		31.6	5-33			
<i>Surr: p-Terphenyl-d14 (Surr)</i>	40.5		ug/L	50.0		81.0	27-133			

LCS (BFF0013-BS1)

Prepared & Analyzed: 06/01/2022

1,2,4-Trichlorobenzene	17.2	10.0	ug/L	50.0		34.5	22-135			
1,2-Dichlorobenzene	12.3	10.0	ug/L	50.0		24.7	22-115			
1,3-Dichlorobenzene	10.7	10.0	ug/L	50.0		21.5	22-112			L
1,4-Dichlorobenzene	11.7	10.0	ug/L	50.0		23.3	13-112			
2,4,6-Trichlorophenol	26.0	10.0	ug/L	50.0		51.9	11-145			
2,4-Dichlorophenol	28.3	10.0	ug/L	50.0		56.7	11-75			
2,4-Dimethylphenol	23.8	5.00	ug/L	50.0		47.5	11-121			
2,4-Dinitrophenol	31.7	50.0	ug/L	50.0		63.4	11-165			
2,4-Dinitrotoluene	35.6	10.0	ug/L	50.0		71.1	17-155			
2,6-Dinitrotoluene	26.7	10.0	ug/L	50.0		53.4	15-125			

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Enthalpy Analytical

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Batch BFF0013 - SW3580A-MS

LCS (BFF0013-BS1)

Prepared & Analyzed: 06/01/2022

2-Chloronaphthalene	25.8	10.0	ug/L	50.0		51.5	27-89			
2-Chlorophenol	20.5	10.0	ug/L	50.0		41.1	15-110			
2-Nitrophenol	22.9	10.0	ug/L	50.0		45.8	11-115			
3,3'-Dichlorobenzidine	19.7	10.0	ug/L	50.0		39.4	25-95			
4,6-Dinitro-2-methylphenol	36.0	50.0	ug/L	50.0		72.1	25-130			
4-Bromophenyl phenyl ether	23.7	10.0	ug/L	50.0		47.4	15-110			
4-Chlorophenyl phenyl ether	25.2	10.0	ug/L	50.0		50.4	15-110			
4-Nitrophenol	13.7	50.0	ug/L	50.0		27.4	12-70			
Acenaphthene	27.2	10.0	ug/L	50.0		54.5	18-85			
Acenaphthylene	30.0	10.0	ug/L	50.0		60.1	20-75			
Acetophenone	20.9	20.0	ug/L	50.0		41.8	0-200			
alpha-Terpineol	19.8	2.50	ug/L	50.0		39.6	0-200			
Anthracene	33.3	10.0	ug/L	50.0		66.6	35-95			
Benzo (a) anthracene	40.2	10.0	ug/L	50.0		80.3	25-95			
Benzo (a) pyrene	46.3	10.0	ug/L	50.0		92.7	37-110			
Benzo (b) fluoranthene	49.3	10.0	ug/L	50.0		98.5	25-75			L
Benzo (g,h,i) perylene	16.2	10.0	ug/L	50.0		32.4	25-90			
Benzo (k) fluoranthene	42.8	10.0	ug/L	50.0		85.6	25-95			
bis (2-Chloroethoxy) methane	23.6	10.0	ug/L	50.0		47.1	25-110			
bis (2-Chloroethyl) ether	19.4	10.0	ug/L	50.0		38.8	25-85			
2,2'-Oxybis (1-chloropropane)	20.4	10.0	ug/L	50.0		40.9	25-95			
bis (2-Ethylhexyl) phthalate	46.0	5.00	ug/L	50.0		91.9	30-125			
Butyl benzyl phthalate	45.3	10.0	ug/L	50.0		90.6	30-115			
Carbazole	42.8	2.50	ug/L	50.0		85.5	0-200			
Chrysene	42.6	10.0	ug/L	50.0		85.2	20-90			

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Enthalpy Analytical

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Batch BFF0013 - SW3580A-MS

LCS (BFF0013-BS1)

Prepared & Analyzed: 06/01/2022

Dibenz (a,h) anthracene	21.5	10.0	ug/L	50.0		43.1	27-125			
Diethyl phthalate	32.9	10.0	ug/L	50.0		65.8	25-120			
Dimethyl phthalate	32.1	10.0	ug/L	50.0		64.3	25-125			
Di-n-butyl phthalate	44.7	10.0	ug/L	50.0		89.4	35-115			
Di-n-octyl phthalate	73.4	10.0	ug/L	50.0		147	25-105			L
Fluoranthene	42.7	10.0	ug/L	50.0		85.3	33-95			
Fluorene	30.3	10.0	ug/L	50.0		60.5	15-97			
Hexachlorobenzene	26.3	1.00	ug/L	50.0		52.6	25-125			
Hexachlorobutadiene	15.4	10.0	ug/L	50.0		30.8	25-125			
Hexachlorocyclopentadiene	10.3	10.0	ug/L	50.0		20.6	25-125			L
Hexachloroethane	9.46	10.0	ug/L	50.0		18.9	25-125			L
Indeno (1,2,3-cd) pyrene	21.8	10.0	ug/L	50.0		43.6	25-125			
Isophorone	16.4	10.0	ug/L	50.0		32.9	10-110			
Naphthalene	19.0	0.10	ug/L	50.0		38.0	12-100			
Nitrobenzene	21.8	10.0	ug/L	50.0		43.5	30-97			
n-Nitrosodimethylamine	11.6	10.0	ug/L	50.0		23.2	10-85			
n-Nitrosodi-n-propylamine	24.8	10.0	ug/L	50.0		49.6	12-97			
n-Nitrosodiphenylamine	23.0	10.0	ug/L	50.0		46.0	12-97			
p-Chloro-m-cresol	28.5	10.0	ug/L	50.0		57.0	10-91			
Pentachlorophenol	28.8	20.0	ug/L	50.0		57.6	30-109			
Phenanthrene	35.8	10.0	ug/L	50.0		71.7	30-88			
Phenol	9.42	10.0	ug/L	50.5		18.7	10-70			
Pyrene	44.5	10.0	ug/L	50.0		89.0	27-110			
Pyridine	18.9	10.0	ug/L	50.0		37.8	0-200			
<i>Surr: 2,4,6-Tribromophenol (Surr)</i>	<i>55.7</i>		<i>ug/L</i>	<i>100</i>		<i>55.7</i>	<i>10-86</i>			

Certificate of Analysis

 Client Name: SCS Engineers-Winchester
 Client Site I.D.: City of Bristol 1st Semi-Annual 2022
 Submitted To: Jennifer Robb

Date Issued: 7/12/2022 2:25:23PM

Semivolatile Organic Compounds by GCMS - Quality Control

Enthalpy Analytical

Analyte	Result	LOQ	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Qual
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Batch BFF0013 - SW3580A-MS

LCS (BFF0013-BS1)

Prepared & Analyzed: 06/01/2022

<i>Surr: 2-Fluorobiphenyl (Surr)</i>	28.0		ug/L	50.0		56.0	9-87			
<i>Surr: 2-Fluorophenol (Surr)</i>	26.7		ug/L	100		26.7	10-52			
<i>Surr: Nitrobenzene-d5 (Surr)</i>	24.7		ug/L	50.0		49.4	10-98.5			
<i>Surr: Phenol-d5 (Surr)</i>	22.5		ug/L	100		22.5	5-33			
<i>Surr: p-Terphenyl-d14 (Surr)</i>	46.9		ug/L	50.0		93.8	27-133			

Matrix Spike (BFF0013-MS1)

Source: 22E1463-02

Prepared: 06/01/2022 Analyzed: 06/02/2022

1,2,4-Trichlorobenzene	20.1	10.0	ug/L	46.7	BLOD	43.0	22-65			
1,2-Dichlorobenzene	18.0	10.0	ug/L	46.7	BLOD	38.6	22-60			
1,3-Dichlorobenzene	16.8	10.0	ug/L	46.7	BLOD	36.0	22-60			
1,4-Dichlorobenzene	18.1	10.0	ug/L	46.7	BLOD	38.7	13-60			
2,4,6-Trichlorophenol	23.1	10.0	ug/L	46.7	BLOD	49.4	11-75			
2,4-Dichlorophenol	25.3	10.0	ug/L	46.7	BLOD	54.1	11-75			
2,4-Dimethylphenol	22.0	4.67	ug/L	46.7	BLOD	47.1	11-65			
2,4-Dinitrophenol	31.6	50.0	ug/L	46.7	BLOD	67.7	11-110			
2,4-Dinitrotoluene	35.6	10.0	ug/L	46.7	BLOD	76.3	17-95			
2,6-Dinitrotoluene	28.1	10.0	ug/L	46.7	BLOD	60.2	15-125			
2-Chloronaphthalene	25.3	10.0	ug/L	46.7	BLOD	54.1	27-89			
2-Chlorophenol	22.8	10.0	ug/L	46.7	BLOD	48.9	19-64			
2-Nitrophenol	23.1	10.0	ug/L	46.7	BLOD	49.4	11-75			
3,3'-Dichlorobenzidine	14.1	10.0	ug/L	46.7	BLOD	30.2	10-85			
4,6-Dinitro-2-methylphenol	32.2	50.0	ug/L	46.7	BLOD	69.0	40-130			
4-Bromophenyl phenyl ether	24.5	10.0	ug/L	46.7	BLOD	52.4	15-110			
4-Chlorophenyl phenyl ether	26.4	10.0	ug/L	46.7	BLOD	56.5	15-110			
4-Nitrophenol	11.8	50.0	ug/L	46.7	BLOD	25.3	12-70			

Certificate of Analysis

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Semivolatile Organic Compounds by GCMS - Quality Control

Enthalpy Analytical

Analyte	Result	LOQ	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Qual
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Batch BFF0013 - SW3580A-MS

Matrix Spike (BFF0013-MS1)

Source: 22E1463-02

Prepared: 06/01/2022 Analyzed: 06/02/2022

Acenaphthene	27.4	10.0	ug/L	46.7	BLOD	58.6	15-90			
Acenaphthylene	29.9	10.0	ug/L	46.7	BLOD	63.9	15-99			
Acetophenone	20.5	20.0	ug/L	46.7	BLOD	43.9	0-200			
alpha-Terpineol	16.7	2.50	ug/L	46.7	BLOD	35.8	0-200			
Anthracene	34.4	10.0	ug/L	46.7	BLOD	73.7	20-95			
Benzo (a) anthracene	36.4	9.35	ug/L	46.7	BLOD	77.9	25-95			
Benzo (a) pyrene	43.9	9.35	ug/L	46.7	BLOD	94.0	25-82			M
Benzo (b) fluoranthene	44.4	10.0	ug/L	46.7	BLOD	95.0	25-75			M
Benzo (g,h,i) perylene	14.2	10.0	ug/L	46.7	BLOD	30.4	25-90			
Benzo (k) fluoranthene	47.9	10.0	ug/L	46.7	BLOD	102	25-95			M
bis (2-Chloroethoxy) methane	22.1	10.0	ug/L	46.7	BLOD	47.3	25-85			
bis (2-Chloroethyl) ether	22.1	10.0	ug/L	46.7	BLOD	47.3	25-85			
2,2'-Oxybis (1-chloropropane)	21.8	10.0	ug/L	46.7	BLOD	46.7	25-87			
bis (2-Ethylhexyl) phthalate	42.8	5.00	ug/L	46.7	BLOD	91.6	30-125			
Butyl benzyl phthalate	42.3	10.0	ug/L	46.7	BLOD	90.6	30-115			
Carbazole	38.9	2.50	ug/L	46.7	BLOD	83.1	0-200			
Chrysene	38.8	10.0	ug/L	46.7	BLOD	83.0	20-90			
Dibenz (a,h) anthracene	18.9	10.0	ug/L	46.7	BLOD	40.5	27-125			
Diethyl phthalate	33.6	10.0	ug/L	46.7	BLOD	71.9	25-120			
Dimethyl phthalate	33.3	10.0	ug/L	46.7	BLOD	71.3	25-125			
Di-n-butyl phthalate	40.6	10.0	ug/L	46.7	BLOD	87.0	25-115			
Di-n-octyl phthalate	84.0	10.0	ug/L	46.7	BLOD	180	22-105			M
Fluoranthene	38.7	10.0	ug/L	46.7	BLOD	82.9	25-96			
Fluorene	32.6	10.0	ug/L	46.7	BLOD	69.8	15-97			
Hexachlorobenzene	26.0	0.93	ug/L	46.7	BLOD	55.6	25-125			

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Semivolatile Organic Compounds by GCMS - Quality Control

Enthalpy Analytical

Analyte	Result	LOQ	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Qual
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Batch BFF0013 - SW3580A-MS

Matrix Spike (BFF0013-MS1)

Source: 22E1463-02

Prepared: 06/01/2022 Analyzed: 06/02/2022

Hexachlorobutadiene	19.2	10.0	ug/L	46.7	BLOD	41.0	25-125			
Hexachlorocyclopentadiene	8.53	10.0	ug/L	46.7	BLOD	18.3	10-90			
Hexachloroethane	16.5	10.0	ug/L	46.7	BLOD	35.4	25-125			
Indeno (1,2,3-cd) pyrene	19.1	10.0	ug/L	46.7	BLOD	40.9	25-125			
Isophorone	14.3	10.0	ug/L	46.7	BLOD	30.7	10-110			
Naphthalene	21.3	0.10	ug/L	46.7	0.20	45.1	12-100			
Nitrobenzene	22.5	10.0	ug/L	46.7	BLOD	48.1	27-77			
n-Nitrosodimethylamine	13.9	10.0	ug/L	46.7	BLOD	29.8	10-85			
n-Nitrosodi-n-propylamine	21.8	10.0	ug/L	46.7	BLOD	46.6	12-97			
n-Nitrosodiphenylamine	24.1	10.0	ug/L	46.7	BLOD	51.6	12-97			
p-Chloro-m-cresol	25.6	10.0	ug/L	46.7	BLOD	54.8	10-91			
Pentachlorophenol	25.4	20.0	ug/L	46.7	BLOD	54.4	27-109			
Phenanthrene	38.2	10.0	ug/L	46.7	BLOD	81.8	35-115			
Phenol	8.69	10.0	ug/L	47.2	BLOD	18.4	10-70			
Pyrene	43.1	10.0	ug/L	46.7	BLOD	92.2	23-110			
Pyridine	5.50	10.0	ug/L	46.7	BLOD	11.8	0-200			
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<i>Surr: 2,4,6-Tribromophenol (Surr)</i>	55.4		ug/L	93.5		59.3	10-86			
<i>Surr: 2-Fluorobiphenyl (Surr)</i>	27.7		ug/L	46.7		59.3	9-87			
<i>Surr: 2-Fluorophenol (Surr)</i>	33.1		ug/L	93.5		35.4	10-52			
<i>Surr: Nitrobenzene-d5 (Surr)</i>	26.7		ug/L	46.7		57.1	10-98.5			
<i>Surr: Phenol-d5 (Surr)</i>	22.0		ug/L	93.5		23.5	5-33			
<i>Surr: p-Terphenyl-d14 (Surr)</i>	44.7		ug/L	46.7		95.6	27-133			

Matrix Spike Dup (BFF0013-MSD1)

Source: 22E1463-02

Prepared: 06/01/2022 Analyzed: 06/02/2022

1,2,4-Trichlorobenzene	28.4	10.0	ug/L	46.7	BLOD	60.7	22-65	34.2	20	P
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Semivolatile Organic Compounds by GCMS - Quality Control

Enthalpy Analytical

Analyte	Result	LOQ	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Qual
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Batch BFF0013 - SW3580A-MS

Matrix Spike Dup (BFF0013-MSD1)	Source: 22E1463-02		Prepared: 06/01/2022 Analyzed: 06/02/2022							
1,2-Dichlorobenzene	27.2	10.0	ug/L	46.7	BLOD	58.2	22-60	40.5	20	P
1,3-Dichlorobenzene	25.6	10.0	ug/L	46.7	BLOD	54.8	22-60	41.4	20	P
1,4-Dichlorobenzene	27.3	10.0	ug/L	46.7	BLOD	58.4	13-60	40.6	20	P
2,4,6-Trichlorophenol	31.5	10.0	ug/L	46.7	BLOD	67.3	11-75	30.7	20	P
2,4-Dichlorophenol	36.4	10.0	ug/L	46.7	BLOD	77.9	11-75	36.1	20	M, P
2,4-Dimethylphenol	30.1	4.67	ug/L	46.7	BLOD	64.5	11-65	31.2	20	P
2,4-Dinitrophenol	51.7	50.0	ug/L	46.7	BLOD	111	11-110	48.2	20	M, P
2,4-Dinitrotoluene	47.6	10.0	ug/L	46.7	BLOD	102	17-95	28.8	20	M, P
2,6-Dinitrotoluene	36.4	10.0	ug/L	46.7	BLOD	77.9	15-125	25.6	20	P
2-Chloronaphthalene	37.7	10.0	ug/L	46.7	BLOD	80.6	27-89	39.4	20	P
2-Chlorophenol	33.9	10.0	ug/L	46.7	BLOD	72.4	19-64	38.8	20	M, P
2-Nitrophenol	32.2	10.0	ug/L	46.7	BLOD	68.8	11-75	33.0	20	P
3,3'-Dichlorobenzidine	20.7	10.0	ug/L	46.7	BLOD	44.4	10-85	37.9	20	P
4,6-Dinitro-2-methylphenol	47.4	50.0	ug/L	46.7	BLOD	102	40-130	38.2	20	P
4-Bromophenyl phenyl ether	29.5	10.0	ug/L	46.7	BLOD	63.2	15-110	18.7	20	
4-Chlorophenyl phenyl ether	36.6	10.0	ug/L	46.7	BLOD	78.2	15-110	32.3	20	P
4-Nitrophenol	16.9	50.0	ug/L	46.7	BLOD	36.1	12-70	35.1	20	P
Acenaphthene	38.7	10.0	ug/L	46.7	BLOD	82.9	15-90	34.4	20	P
Acenaphthylene	43.8	10.0	ug/L	46.7	BLOD	93.8	15-99	37.8	20	P
Acetophenone	29.1	20.0	ug/L	46.7	BLOD	62.2	0-200	34.6	20	P
alpha-Terpineol	22.6	2.50	ug/L	46.7	BLOD	48.4	0-200	30.0	20	P
Anthracene	44.9	10.0	ug/L	46.7	BLOD	96.1	20-95	26.4	20	M, P
Benzo (a) anthracene	48.0	9.35	ug/L	46.7	BLOD	103	25-95	27.5	20	M, P
Benzo (a) pyrene	57.3	9.35	ug/L	46.7	BLOD	123	25-82	26.4	20	M, P
Benzo (b) fluoranthene	55.7	10.0	ug/L	46.7	BLOD	119	25-75	22.6	20	M, P

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Semivolatile Organic Compounds by GCMS - Quality Control

Enthalpy Analytical

Analyte	Result	LOQ	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Qual
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Batch BFF0013 - SW3580A-MS

Matrix Spike Dup (BFF0013-MSD1)	Source: 22E1463-02		Prepared: 06/01/2022 Analyzed: 06/02/2022							
Benzo (g,h,i) perylene	20.7	10.0	ug/L	46.7	BLOD	44.2	25-90	37.2	20	P
Benzo (k) fluoranthene	71.2	10.0	ug/L	46.7	BLOD	152	25-95	39.3	20	M, P
bis (2-Chloroethoxy) methane	32.4	10.0	ug/L	46.7	BLOD	69.2	25-85	37.7	20	P
bis (2-Chloroethyl) ether	32.8	10.0	ug/L	46.7	BLOD	70.3	25-85	39.2	20	P
2,2'-Oxybis (1-chloropropane)	33.5	10.0	ug/L	46.7	BLOD	71.7	25-87	42.2	20	P
bis (2-Ethylhexyl) phthalate	51.1	5.00	ug/L	46.7	BLOD	109	30-125	17.7	20	
Butyl benzyl phthalate	51.7	10.0	ug/L	46.7	BLOD	111	30-115	19.9	20	
Carbazole	52.1	2.50	ug/L	46.7	BLOD	112	0-200	29.2	20	P
Chrysene	51.6	10.0	ug/L	46.7	BLOD	110	20-90	28.4	20	M, P
Dibenz (a,h) anthracene	27.6	10.0	ug/L	46.7	BLOD	59.0	27-125	37.3	20	P
Diethyl phthalate	44.1	10.0	ug/L	46.7	BLOD	94.3	25-120	26.9	20	P
Dimethyl phthalate	45.5	10.0	ug/L	46.7	BLOD	97.3	25-125	30.9	20	P
Di-n-butyl phthalate	55.3	10.0	ug/L	46.7	BLOD	118	25-115	30.5	20	M, P
Di-n-octyl phthalate	69.6	10.0	ug/L	46.7	BLOD	149	22-105	18.8	20	M
Fluoranthene	52.7	10.0	ug/L	46.7	BLOD	113	25-96	30.6	20	M, P
Fluorene	44.8	10.0	ug/L	46.7	BLOD	95.9	15-97	31.5	20	P
Hexachlorobenzene	32.1	0.93	ug/L	46.7	BLOD	68.7	25-125	21.2	20	P
Hexachlorobutadiene	27.3	10.0	ug/L	46.7	BLOD	58.4	25-125	35.0	20	P
Hexachlorocyclopentadiene	14.2	10.0	ug/L	46.7	BLOD	30.5	10-90	50.1	20	P
Hexachloroethane	26.0	10.0	ug/L	46.7	BLOD	55.5	25-125	44.4	20	P
Indeno (1,2,3-cd) pyrene	28.0	10.0	ug/L	46.7	BLOD	59.9	25-125	37.7	20	P
Isophorone	22.1	10.0	ug/L	46.7	BLOD	47.3	10-110	42.7	20	P
Naphthalene	31.0	0.10	ug/L	46.7	0.20	66.0	12-100	37.4	20	P
Nitrobenzene	34.1	10.0	ug/L	46.7	BLOD	73.1	27-77	41.3	20	P
n-Nitrosodimethylamine	18.5	10.0	ug/L	46.7	BLOD	39.6	10-85	28.1	20	P

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Enthalpy Analytical

Analyte	Result	LOQ	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Qual
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Batch BFF0013 - SW3580A-MS

Matrix Spike Dup (BFF0013-MSD1)	Source: 22E1463-02		Prepared: 06/01/2022 Analyzed: 06/02/2022							
n-Nitrosodi-n-propylamine	31.0	10.0	ug/L	46.7	BLOD	66.4	12-97	35.0	20	P
n-Nitrosodiphenylamine	30.0	10.0	ug/L	46.7	BLOD	64.3	12-97	21.9	20	P
p-Chloro-m-cresol	35.9	10.0	ug/L	46.7	BLOD	76.9	10-91	33.6	20	P
Pentachlorophenol	36.1	20.0	ug/L	46.7	BLOD	77.3	27-109	34.8	20	P
Phenanthrene	50.0	10.0	ug/L	46.7	BLOD	107	35-115	26.7	20	P
Phenol	14.5	10.0	ug/L	47.2	BLOD	30.6	10-70	49.8	20	P
Pyrene	51.4	10.0	ug/L	46.7	BLOD	110	23-110	17.5	20	
Pyridine	27.2	10.0	ug/L	46.7	BLOD	58.2	0-200	133	20	P
<i>Surr: 2,4,6-Tribromophenol (Surr)</i>	<i>67.0</i>		ug/L	<i>93.5</i>		<i>71.7</i>	<i>10-86</i>			
<i>Surr: 2-Fluorobiphenyl (Surr)</i>	<i>38.8</i>		ug/L	<i>46.7</i>		<i>82.9</i>	<i>9-87</i>			
<i>Surr: 2-Fluorophenol (Surr)</i>	<i>45.7</i>		ug/L	<i>93.5</i>		<i>48.9</i>	<i>10-52</i>			
<i>Surr: Nitrobenzene-d5 (Surr)</i>	<i>36.8</i>		ug/L	<i>46.7</i>		<i>78.8</i>	<i>10-98.5</i>			
<i>Surr: Phenol-d5 (Surr)</i>	<i>31.7</i>		ug/L	<i>93.5</i>		<i>33.9</i>	<i>5-33</i>			S
<i>Surr: p-Terphenyl-d14 (Surr)</i>	<i>51.6</i>		ug/L	<i>46.7</i>		<i>110</i>	<i>27-133</i>			

Batch BFF0088 - SW3580A-MS

Blank (BFF0088-BLK1)	Prepared: 06/02/2022 Analyzed: 06/03/2022									
1,2,4,5-Tetrachlorobenzene	ND	10.0	ug/L							
1,3,5-Trinitrobenzene	ND	5.00	ug/L							
1,3-Dinitrobenzene	ND	2.50	ug/L							
1,4-Naphthoquinone	ND	10.0	ug/L							
1-Naphthylamine	ND	10.0	ug/L							
2,3,4,6-Tetrachlorophenol	ND	10.0	ug/L							
2,4,5-Trichlorophenol	ND	10.0	ug/L							
2,4,6-Trichlorophenol	ND	10.0	ug/L							

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Semivolatile Organic Compounds by GCMS - Quality Control

Enthalpy Analytical

Analyte	Result	LOQ	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Qual
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Batch BFF0088 - SW3580A-MS

Blank (BFF0088-BLK1)

Prepared: 06/02/2022 Analyzed: 06/03/2022

2,4-Dichlorophenol	ND	10.0	ug/L
2,4-Dimethylphenol	ND	5.00	ug/L
2,4-Dinitrophenol	ND	50.0	ug/L
2,4-Dinitrotoluene	ND	10.0	ug/L
2,6-Dichlorophenol	ND	10.0	ug/L
2,6-Dinitrotoluene	ND	10.0	ug/L
2-Acetylaminofluorene	ND	2.50	ug/L
2-Chloronaphthalene	ND	10.0	ug/L
2-Chlorophenol	ND	10.0	ug/L
2-Methylnaphthalene	ND	10.0	ug/L
2-Naphthylamine	ND	10.0	ug/L
2-Nitroaniline	ND	20.0	ug/L
2-Nitrophenol	ND	10.0	ug/L
3,3'-Dichlorobenzidine	ND	10.0	ug/L
3,3'-Dimethylbenzidine	ND	2.50	ug/L
3-Methylcholanthrene	ND	10.0	ug/L
3-Nitroaniline	ND	20.0	ug/L
4,6-Dinitro-2-methylphenol	ND	50.0	ug/L
4-Aminobiphenyl	ND	10.0	ug/L
4-Bromophenyl phenyl ether	ND	10.0	ug/L
4-Chloroaniline	ND	10.0	ug/L
4-Chlorophenyl phenyl ether	ND	10.0	ug/L
4-Nitroaniline	ND	20.0	ug/L
4-Nitrophenol	ND	50.0	ug/L
5-Nitro-o-toluidine	ND	10.0	ug/L

Certificate of Analysis

Client Name: SCS Engineers-Winchester
 Client Site I.D.: City of Bristol 1st Semi-Annual 2022
 Submitted To: Jennifer Robb

Date Issued: 7/12/2022 2:25:23PM

Semivolatile Organic Compounds by GCMS - Quality Control

Enthalpy Analytical

Analyte	Result	LOQ	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Qual
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Batch BFF0088 - SW3580A-MS

Blank (BFF0088-BLK1)

Prepared: 06/02/2022 Analyzed: 06/03/2022

7,12-Dimethylbenz (a) anthracene	ND	10.0	ug/L
Acenaphthene	ND	10.0	ug/L
Acenaphthylene	ND	10.0	ug/L
Acetophenone	ND	20.0	ug/L
Anthracene	ND	10.0	ug/L
Benzo (a) anthracene	ND	10.0	ug/L
Benzo (a) pyrene	ND	10.0	ug/L
Benzo (b) fluoranthene	ND	10.0	ug/L
Benzo (g,h,i) perylene	ND	10.0	ug/L
Benzo (k) fluoranthene	ND	10.0	ug/L
Benzyl alcohol	ND	20.0	ug/L
bis (2-Chloroethoxy) methane	ND	10.0	ug/L
bis (2-Chloroethyl) ether	ND	10.0	ug/L
2,2'-Oxybis (1-chloropropane)	ND	10.0	ug/L
bis (2-Ethylhexyl) phthalate	ND	5.00	ug/L
Butyl benzyl phthalate	ND	10.0	ug/L
Chlorobenzilate	ND	2.50	ug/L
Chrysene	ND	10.0	ug/L
Diallate	ND	2.50	ug/L
Dibenz (a,h) anthracene	ND	10.0	ug/L
Dibenzofuran	ND	5.00	ug/L
Diethyl phthalate	ND	10.0	ug/L
Dimethoate	ND	2.50	ug/L
Dimethyl phthalate	ND	10.0	ug/L
Di-n-butyl phthalate	ND	10.0	ug/L

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Enthalpy Analytical

Analyte	Result	LOQ	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Qual
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Batch BFF0088 - SW3580A-MS

Blank (BFF0088-BLK1)

Prepared: 06/02/2022 Analyzed: 06/03/2022

Di-n-octyl phthalate	ND	10.0	ug/L
Diphenylamine	ND	10.0	ug/L
Disulfoton	ND	2.50	ug/L
Ethyl methanesulfonate	ND	20.0	ug/L
Ethyl parathion	ND	2.50	ug/L
Famphur	ND	2.50	ug/L
Fluoranthene	ND	10.0	ug/L
Fluorene	ND	10.0	ug/L
Hexachlorobenzene	ND	1.00	ug/L
Hexachlorobutadiene	ND	10.0	ug/L
Hexachlorocyclopentadiene	ND	10.0	ug/L
Hexachloroethane	ND	10.0	ug/L
Hexachloropropene	ND	2.50	ug/L
Indeno (1,2,3-cd) pyrene	ND	10.0	ug/L
Isodrin	ND	10.0	ug/L
Isophorone	ND	10.0	ug/L
Isosafrole	ND	10.0	ug/L
Kepone	ND	10.0	ug/L
m+p-Cresols	ND	10.0	ug/L
Methapyrilene	ND	10.0	ug/L
Methyl methanesulfonate	ND	10.0	ug/L
Methyl parathion	ND	2.50	ug/L
Naphthalene	0.28	0.10	ug/L
Nitrobenzene	ND	10.0	ug/L
n-Nitrosodiethylamine	ND	2.50	ug/L

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Certificate of Analysis

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Semivolatile Organic Compounds by GCMS - Quality Control

Enthalpy Analytical

Analyte	Result	LOQ	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Qual
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Batch BFF0088 - SW3580A-MS

Blank (BFF0088-BLK1)

Prepared: 06/02/2022 Analyzed: 06/03/2022

n-Nitrosodimethylamine	ND	10.0	ug/L							
n-Nitrosodi-n-butylamine	ND	10.0	ug/L							
n-Nitrosodi-n-propylamine	ND	10.0	ug/L							
n-Nitrosodiphenylamine	ND	10.0	ug/L							
n-Nitrosomethylethylamine	ND	2.50	ug/L							
n-Nitrosopiperidine	ND	10.0	ug/L							
n-Nitrosopyrrolidine	ND	2.50	ug/L							
o,o,o-Triethyl phosphorothioate	ND	10.0	ug/L							
o,o-Diethyl o-2-pyrazinyl phosphorothioate	ND	10.0	ug/L							
o+m+p-Cresols	ND	10.0	ug/L							
o-Cresol	ND	10.0	ug/L							
o-Toluidine	ND	2.50	ug/L							
p-(Dimethylamino) azobenzene	ND	2.50	ug/L							
p-Chloro-m-cresol	ND	10.0	ug/L							
Pentachlorobenzene	ND	10.0	ug/L							
Pentachloronitrobenzene (quintozene)	ND	10.0	ug/L							
Phenacetin	ND	10.0	ug/L							
Phenanthrene	ND	10.0	ug/L							
Phenol	ND	10.0	ug/L							
Phorate	ND	2.50	ug/L							
p-Phenylenediamine	ND	10.0	ug/L							
Pronamide	ND	10.0	ug/L							
Pyrene	ND	10.0	ug/L							
Safrole	ND	2.50	ug/L							
Surr: 2,4,6-Tribromophenol (Surr)	49.8		ug/L	100		49.8	10-86			

Certificate of Analysis

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Semivolatile Organic Compounds by GCMS - Quality Control

Enthalpy Analytical

Analyte	Result	LOQ	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Qual
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Batch BFF0088 - SW3580A-MS

Blank (BFF0088-BLK1)

Prepared: 06/02/2022 Analyzed: 06/03/2022

<i>Surr: 2-Fluorobiphenyl (Surr)</i>	38.6		ug/L	50.0		77.1	9-87			
<i>Surr: 2-Fluorophenol (Surr)</i>	38.8		ug/L	100		38.8	10-52			
<i>Surr: Nitrobenzene-d5 (Surr)</i>	37.4		ug/L	50.0		74.7	10-98.5			
<i>Surr: Phenol-d5 (Surr)</i>	29.9		ug/L	100		29.9	5-33			
<i>Surr: p-Terphenyl-d14 (Surr)</i>	38.5		ug/L	50.0		76.9	27-133			

LCS (BFF0088-BS1)

Prepared: 06/02/2022 Analyzed: 06/03/2022

1,2,4-Trichlorobenzene	13.2	10.0	ug/L	50.0		26.5	22-135			
1,2-Dichlorobenzene	12.2	10.0	ug/L	50.0		24.4	22-115			
1,3-Dichlorobenzene	11.7	10.0	ug/L	50.0		23.3	22-112			
1,4-Dichlorobenzene	12.4	10.0	ug/L	50.0		24.7	13-112			
2,4,6-Trichlorophenol	17.4	10.0	ug/L	50.0		34.9	11-145			
2,4-Dichlorophenol	17.0	10.0	ug/L	50.0		34.0	11-75			
2,4-Dimethylphenol	14.4	5.00	ug/L	50.0		28.8	11-121			
2,4-Dinitrophenol	26.8	50.0	ug/L	50.0		53.6	11-165			
2,4-Dinitrotoluene	27.5	10.0	ug/L	50.0		55.1	17-155			
2,6-Dinitrotoluene	19.0	10.0	ug/L	50.0		38.1	15-125			
2-Chloronaphthalene	17.0	10.0	ug/L	50.0		33.9	27-89			
2-Chlorophenol	15.7	10.0	ug/L	50.0		31.4	15-110			
2-Nitrophenol	15.9	10.0	ug/L	50.0		31.7	11-115			
3,3'-Dichlorobenzidine	13.5	10.0	ug/L	50.0		27.0	25-95			
4,6-Dinitro-2-methylphenol	28.9	50.0	ug/L	50.0		57.8	25-130			
4-Bromophenyl phenyl ether	18.4	10.0	ug/L	50.0		36.8	15-110			
4-Chlorophenyl phenyl ether	18.0	10.0	ug/L	50.0		36.0	15-110			
4-Nitrophenol	9.83	50.0	ug/L	50.0		19.7	12-70			

Certificate of Analysis

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Semivolatile Organic Compounds by GCMS - Quality Control

Enthalpy Analytical

Analyte	Result	LOQ	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Qual
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Batch BFF0088 - SW3580A-MS

LCS (BFF0088-BS1)

Prepared: 06/02/2022 Analyzed: 06/03/2022

Acenaphthene	17.8	10.0	ug/L	50.0		35.6	18-85			
Acenaphthylene	19.2	10.0	ug/L	50.0		38.5	20-75			
Acetophenone	16.4	20.0	ug/L	50.0		32.9	0-200			
alpha-Terpineol	16.0	2.50	ug/L	50.0		32.1	0-200			
Anthracene	24.7	10.0	ug/L	50.0		49.4	35-95			
Benzo (a) anthracene	35.6	10.0	ug/L	50.0		71.2	25-95			
Benzo (a) pyrene	46.0	10.0	ug/L	50.0		91.9	37-110			
Benzo (b) fluoranthene	44.1	10.0	ug/L	50.0		88.2	25-75			L
Benzo (g,h,i) perylene	39.4	10.0	ug/L	50.0		78.8	25-90			
Benzo (k) fluoranthene	41.2	10.0	ug/L	50.0		82.5	25-95			
bis (2-Chloroethoxy) methane	16.8	10.0	ug/L	50.0		33.5	25-110			
bis (2-Chloroethyl) ether	16.4	10.0	ug/L	50.0		32.8	25-85			
2,2'-Oxybis (1-chloropropane)	14.9	10.0	ug/L	50.0		29.7	25-95			
bis (2-Ethylhexyl) phthalate	41.7	5.00	ug/L	50.0		83.3	30-125			
Butyl benzyl phthalate	38.6	10.0	ug/L	50.0		77.3	30-115			
Carbazole	34.3	2.50	ug/L	50.0		68.7	0-200			
Chrysene	41.2	10.0	ug/L	50.0		82.3	20-90			
Dibenz (a,h) anthracene	40.5	10.0	ug/L	50.0		80.9	27-125			
Diethyl phthalate	27.4	10.0	ug/L	50.0		54.7	25-120			
Dimethyl phthalate	22.0	10.0	ug/L	50.0		43.9	25-125			
Di-n-butyl phthalate	43.3	10.0	ug/L	50.0		86.6	35-115			
Di-n-octyl phthalate	55.5	10.0	ug/L	50.0		111	25-105			L
Fluoranthene	38.1	10.0	ug/L	50.0		76.2	33-95			
Fluorene	21.5	10.0	ug/L	50.0		43.0	15-97			
Hexachlorobenzene	22.4	1.00	ug/L	50.0		44.8	25-125			

Certificate of Analysis

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Semivolatile Organic Compounds by GCMS - Quality Control

Enthalpy Analytical

Analyte	Result	LOQ	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Qual
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Batch BFF0088 - SW3580A-MS

LCS (BFF0088-BS1)

Prepared: 06/02/2022 Analyzed: 06/03/2022

Hexachlorobutadiene	13.5	10.0	ug/L	50.0		27.0	25-125			
Hexachlorocyclopentadiene	ND	10.0	ug/L	50.0			25-125			L
Hexachloroethane	12.2	10.0	ug/L	50.0		24.3	25-125			L
Indeno (1,2,3-cd) pyrene	42.0	10.0	ug/L	50.0		84.0	25-125			
Isophorone	9.44	10.0	ug/L	50.0		18.9	10-110			
Naphthalene	15.2	0.10	ug/L	50.0		30.5	12-100			
Nitrobenzene	17.8	10.0	ug/L	50.0		35.6	30-97			
n-Nitrosodimethylamine	10.6	10.0	ug/L	50.0		21.1	10-85			
n-Nitrosodi-n-propylamine	19.1	10.0	ug/L	50.0		38.1	12-97			
n-Nitrosodiphenylamine	18.4	10.0	ug/L	50.0		36.8	12-97			
p-Chloro-m-cresol	17.6	10.0	ug/L	50.0		35.3	10-91			
Pentachlorophenol	20.2	20.0	ug/L	50.0		40.5	30-109			
Phenanthrene	31.2	10.0	ug/L	50.0		62.3	30-88			
Phenol	5.34	10.0	ug/L	50.5		10.6	10-70			
Pyrene	41.7	10.0	ug/L	50.0		83.4	27-110			
Pyridine	5.10	10.0	ug/L	50.0		10.2	0-200			
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<i>Surr: 2,4,6-Tribromophenol (Surr)</i>	38.1		ug/L	100		38.1	10-86			
<i>Surr: 2-Fluorobiphenyl (Surr)</i>	17.8		ug/L	50.0		35.5	9-87			
<i>Surr: 2-Fluorophenol (Surr)</i>	19.8		ug/L	100		19.8	10-52			
<i>Surr: Nitrobenzene-d5 (Surr)</i>	18.9		ug/L	50.0		37.8	10-98.5			
<i>Surr: Phenol-d5 (Surr)</i>	13.8		ug/L	100		13.8	5-33			
<i>Surr: p-Terphenyl-d14 (Surr)</i>	37.4		ug/L	50.0		74.9	27-133			

Matrix Spike (BFF0088-MS1)

Source: 22F0103-05

Prepared & Analyzed: 06/03/2022

1,2,4-Trichlorobenzene	45.1	10.0	ug/L	48.5	BLOD	92.8	22-65			M
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Certificate of Analysis

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Semivolatile Organic Compounds by GCMS - Quality Control

Enthalpy Analytical

Analyte	Result	LOQ	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Qual
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Batch BFF0088 - SW3580A-MS

Matrix Spike (BFF0088-MS1)

Source: 22F0103-05

Prepared & Analyzed: 06/03/2022

1,2-Dichlorobenzene	33.2	10.0	ug/L	48.5	BLOD	68.3	22-60			M
1,3-Dichlorobenzene	30.8	10.0	ug/L	48.5	BLOD	63.4	22-60			M
1,4-Dichlorobenzene	31.9	10.0	ug/L	48.5	BLOD	65.8	13-60			M
2,4,6-Trichlorophenol	38.8	10.0	ug/L	48.5	BLOD	79.8	11-75			M
2,4-Dichlorophenol	49.6	10.0	ug/L	48.5	BLOD	102	11-75			M
2,4-Dimethylphenol	39.9	4.85	ug/L	48.5	BLOD	82.1	11-65			M
2,4-Dinitrophenol	63.9	50.0	ug/L	48.5	BLOD	132	11-110			M
2,4-Dinitrotoluene	50.3	10.0	ug/L	48.5	BLOD	104	17-95			M
2,6-Dinitrotoluene	43.4	10.0	ug/L	48.5	BLOD	89.4	15-125			
2-Chloronaphthalene	38.3	10.0	ug/L	48.5	BLOD	78.8	27-89			
2-Chlorophenol	38.5	10.0	ug/L	48.5	BLOD	79.3	19-64			M
2-Nitrophenol	45.3	10.0	ug/L	48.5	BLOD	93.2	11-75			M
3,3'-Dichlorobenzidine	28.8	10.0	ug/L	48.5	BLOD	59.3	10-85			
4,6-Dinitro-2-methylphenol	60.3	50.0	ug/L	48.5	BLOD	124	40-130			
4-Bromophenyl phenyl ether	41.1	10.0	ug/L	48.5	BLOD	84.6	15-110			
4-Chlorophenyl phenyl ether	42.0	10.0	ug/L	48.5	BLOD	86.6	15-110			
4-Nitrophenol	24.2	50.0	ug/L	48.5	BLOD	49.9	12-70			
Acenaphthene	38.0	10.0	ug/L	48.5	BLOD	78.2	15-90			
Acenaphthylene	36.0	10.0	ug/L	48.5	BLOD	74.2	15-99			
Acetophenone	40.2	20.0	ug/L	48.5	BLOD	82.8	0-200			
alpha-Terpineol	30.2	2.50	ug/L	48.5	BLOD	62.3	0-200			
Anthracene	38.1	10.0	ug/L	48.5	BLOD	78.4	20-95			
Benzo (a) anthracene	43.9	9.71	ug/L	48.5	BLOD	90.4	25-95			
Benzo (a) pyrene	41.8	9.71	ug/L	48.5	BLOD	86.2	25-82			M
Benzo (b) fluoranthene	46.3	10.0	ug/L	48.5	BLOD	95.4	25-75			M

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Semivolatile Organic Compounds by GCMS - Quality Control

Enthalpy Analytical

Analyte	Result	LOQ	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Qual
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Batch BFF0088 - SW3580A-MS

Matrix Spike (BFF0088-MS1)
Source: 22F0103-05
Prepared & Analyzed: 06/03/2022

Benzo (g,h,i) perylene	31.1	10.0	ug/L	48.5	BLOD	64.1	25-90			
Benzo (k) fluoranthene	46.1	10.0	ug/L	48.5	BLOD	94.9	25-95			
bis (2-Chloroethoxy) methane	44.2	10.0	ug/L	48.5	BLOD	91.0	25-85			M
bis (2-Chloroethyl) ether	39.1	10.0	ug/L	48.5	BLOD	80.6	25-85			
2,2'-Oxybis (1-chloropropane)	39.1	10.0	ug/L	48.5	BLOD	80.6	25-87			
bis (2-Ethylhexyl) phthalate	41.7	5.00	ug/L	48.5	BLOD	85.9	30-125			
Butyl benzyl phthalate	38.8	10.0	ug/L	48.5	BLOD	80.0	30-115			
Carbazole	42.3	2.50	ug/L	48.5	BLOD	87.1	0-200			
Chrysene	43.0	10.0	ug/L	48.5	BLOD	88.7	20-90			
Dibenz (a,h) anthracene	39.8	10.0	ug/L	48.5	BLOD	82.1	27-125			
Diethyl phthalate	39.5	10.0	ug/L	48.5	BLOD	81.3	25-120			
Dimethyl phthalate	42.3	10.0	ug/L	48.5	BLOD	87.0	25-125			
Di-n-butyl phthalate	39.9	10.0	ug/L	48.5	BLOD	82.1	25-115			
Di-n-octyl phthalate	41.5	10.0	ug/L	48.5	BLOD	85.5	22-105			
Fluoranthene	48.9	10.0	ug/L	48.5	BLOD	101	25-96			M
Fluorene	39.1	10.0	ug/L	48.5	BLOD	80.6	15-97			
Hexachlorobenzene	39.6	0.97	ug/L	48.5	BLOD	81.6	25-125			
Hexachlorobutadiene	57.9	10.0	ug/L	48.5	BLOD	119	25-125			
Hexachlorocyclopentadiene	25.5	10.0	ug/L	48.5	BLOD	52.5	10-90			
Hexachloroethane	42.9	10.0	ug/L	48.5	BLOD	88.4	25-125			
Indeno (1,2,3-cd) pyrene	37.3	10.0	ug/L	48.5	BLOD	76.9	25-125			
Isophorone	30.1	10.0	ug/L	48.5	BLOD	62.0	10-110			
Naphthalene	37.4	0.10	ug/L	48.5	0.28	76.5	12-100			
Nitrobenzene	56.4	10.0	ug/L	48.5	BLOD	116	27-77			M
n-Nitrosodimethylamine	23.3	10.0	ug/L	48.5	BLOD	48.1	10-85			

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Semivolatile Organic Compounds by GCMS - Quality Control

Enthalpy Analytical

Analyte	Result	LOQ	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Qual
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Batch BFF0088 - SW3580A-MS

Matrix Spike (BFF0088-MS1)

Source: 22F0103-05

Prepared & Analyzed: 06/03/2022

n-Nitrosodi-n-propylamine	39.3	10.0	ug/L	48.5	BLOD	80.9	12-97			
n-Nitrosodiphenylamine	32.5	10.0	ug/L	48.5	BLOD	66.9	12-97			
p-Chloro-m-cresol	53.5	10.0	ug/L	48.5	BLOD	110	10-91			M
Pentachlorophenol	36.2	20.0	ug/L	48.5	BLOD	74.6	27-109			
Phenanthrene	41.8	10.0	ug/L	48.5	BLOD	86.1	35-115			
Phenol	17.8	10.0	ug/L	49.0	BLOD	36.3	10-70			
Pyrene	39.5	10.0	ug/L	48.5	BLOD	81.4	23-110			
Pyridine	35.9	10.0	ug/L	48.5	BLOD	73.9	0-200			
<i>Surr: 2,4,6-Tribromophenol (Surr)</i>	73.8		ug/L	97.1		76.0	10-86			
<i>Surr: 2-Fluorobiphenyl (Surr)</i>	40.1		ug/L	48.5		82.6	9-87			
<i>Surr: 2-Fluorophenol (Surr)</i>	45.3		ug/L	97.1		46.7	10-52			
<i>Surr: Nitrobenzene-d5 (Surr)</i>	49.3		ug/L	48.5		101	10-98.5			M
<i>Surr: Phenol-d5 (Surr)</i>	33.0		ug/L	97.1		34.0	5-33			M
<i>Surr: p-Terphenyl-d14 (Surr)</i>	37.6		ug/L	48.5		77.5	27-133			

Matrix Spike Dup (BFF0088-MSD1)

Source: 22F0103-05

Prepared: 06/03/2022 Analyzed: 06/04/2022

1,2,4-Trichlorobenzene	42.4	10.0	ug/L	48.5	BLOD	87.4	22-65	6.06	20	M
1,2-Dichlorobenzene	30.8	10.0	ug/L	48.5	BLOD	63.5	22-60	7.41	20	M
1,3-Dichlorobenzene	28.9	10.0	ug/L	48.5	BLOD	59.6	22-60	6.11	20	
1,4-Dichlorobenzene	29.9	10.0	ug/L	48.5	BLOD	61.5	13-60	6.73	20	M
2,4,6-Trichlorophenol	37.7	10.0	ug/L	48.5	BLOD	77.6	11-75	2.87	20	M
2,4-Dichlorophenol	48.0	10.0	ug/L	48.5	BLOD	98.8	11-75	3.26	20	M
2,4-Dimethylphenol	38.6	4.85	ug/L	48.5	BLOD	79.6	11-65	3.14	20	M
2,4-Dinitrophenol	69.1	50.0	ug/L	48.5	BLOD	142	11-110	7.84	20	M
2,4-Dinitrotoluene	48.9	10.0	ug/L	48.5	BLOD	101	17-95	2.70	20	M

Certificate of Analysis

Client Name: SCS Engineers-Winchester
 Client Site I.D.: City of Bristol 1st Semi-Annual 2022
 Submitted To: Jennifer Robb

Date Issued: 7/12/2022 2:25:23PM

Semivolatile Organic Compounds by GCMS - Quality Control

Enthalpy Analytical

Analyte	Result	LOQ	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Qual
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Batch BFF0088 - SW3580A-MS

Matrix Spike Dup (BFF0088-MSD1)	Source: 22F0103-05			Prepared: 06/03/2022 Analyzed: 06/04/2022						
2,6-Dinitrotoluene	41.0	10.0	ug/L	48.5	BLOD	84.4	15-125	5.73	20	
2-Chloronaphthalene	36.0	10.0	ug/L	48.5	BLOD	74.1	27-89	6.20	20	
2-Chlorophenol	36.2	10.0	ug/L	48.5	BLOD	74.7	19-64	5.98	20	M
2-Nitrophenol	44.0	10.0	ug/L	48.5	BLOD	90.7	11-75	2.74	20	M
3,3'-Dichlorobenzidine	28.0	10.0	ug/L	48.5	BLOD	57.7	10-85	2.67	20	
4,6-Dinitro-2-methylphenol	57.7	50.0	ug/L	48.5	BLOD	119	40-130	4.46	20	
4-Bromophenyl phenyl ether	38.9	10.0	ug/L	48.5	BLOD	80.1	15-110	5.51	20	
4-Chlorophenyl phenyl ether	39.7	10.0	ug/L	48.5	BLOD	81.7	15-110	5.77	20	
4-Nitrophenol	23.3	50.0	ug/L	48.5	BLOD	47.9	12-70	4.13	20	
Acenaphthene	36.0	10.0	ug/L	48.5	BLOD	74.2	15-90	5.25	20	
Acenaphthylene	33.9	10.0	ug/L	48.5	BLOD	69.8	15-99	6.11	20	
Acetophenone	38.1	20.0	ug/L	48.5	BLOD	78.6	0-200	5.23	20	
alpha-Terpineol	29.2	2.50	ug/L	48.5	BLOD	60.1	0-200	3.63	20	
Anthracene	36.0	10.0	ug/L	48.5	BLOD	74.1	20-95	5.74	20	
Benzo (a) anthracene	42.9	9.71	ug/L	48.5	BLOD	88.4	25-95	2.28	20	
Benzo (a) pyrene	41.9	9.71	ug/L	48.5	BLOD	86.4	25-82	0.209	20	M
Benzo (b) fluoranthene	43.1	10.0	ug/L	48.5	BLOD	88.9	25-75	7.03	20	M
Benzo (g,h,i) perylene	33.9	10.0	ug/L	48.5	BLOD	69.9	25-90	8.60	20	
Benzo (k) fluoranthene	43.6	10.0	ug/L	48.5	BLOD	89.7	25-95	5.59	20	
bis (2-Chloroethoxy) methane	41.2	10.0	ug/L	48.5	BLOD	84.9	25-85	6.94	20	
bis (2-Chloroethyl) ether	36.4	10.0	ug/L	48.5	BLOD	75.1	25-85	7.07	20	
2,2'-Oxybis (1-chloropropane)	35.2	10.0	ug/L	48.5	BLOD	72.5	25-87	10.7	20	
bis (2-Ethylhexyl) phthalate	43.4	5.00	ug/L	48.5	BLOD	89.4	30-125	4.01	20	
Butyl benzyl phthalate	40.2	10.0	ug/L	48.5	BLOD	82.8	30-115	3.44	20	
Carbazole	39.2	2.50	ug/L	48.5	BLOD	80.7	0-200	7.58	20	

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Semivolatile Organic Compounds by GCMS - Quality Control

Enthalpy Analytical

Analyte	Result	LOQ	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Qual
Batch BFF0088 - SW3580A-MS										
Matrix Spike Dup (BFF0088-MSD1)										
			Source: 22F0103-05		Prepared: 06/03/2022 Analyzed: 06/04/2022					
Chrysene	42.8	10.0	ug/L	48.5	BLOD	88.1	20-90	0.611	20	
Dibenz (a,h) anthracene	42.4	10.0	ug/L	48.5	BLOD	87.4	27-125	6.30	20	
Diethyl phthalate	38.5	10.0	ug/L	48.5	BLOD	79.3	25-120	2.57	20	
Dimethyl phthalate	39.8	10.0	ug/L	48.5	BLOD	82.1	25-125	5.87	20	
Di-n-butyl phthalate	37.5	10.0	ug/L	48.5	BLOD	77.2	25-115	6.20	20	
Di-n-octyl phthalate	41.5	10.0	ug/L	48.5	BLOD	85.6	22-105	0.0702	20	
Fluoranthene	47.4	10.0	ug/L	48.5	BLOD	97.7	25-96	3.00	20	M
Fluorene	36.5	10.0	ug/L	48.5	BLOD	75.2	15-97	6.93	20	
Hexachlorobenzene	37.7	0.97	ug/L	48.5	BLOD	77.6	25-125	5.05	20	
Hexachlorobutadiene	55.3	10.0	ug/L	48.5	BLOD	114	25-125	4.53	20	
Hexachlorocyclopentadiene	24.8	10.0	ug/L	48.5	BLOD	51.2	10-90	2.62	20	
Hexachloroethane	41.9	10.0	ug/L	48.5	BLOD	86.3	25-125	2.34	20	
Indeno (1,2,3-cd) pyrene	40.4	10.0	ug/L	48.5	BLOD	83.2	25-125	7.97	20	
Isophorone	27.8	10.0	ug/L	48.5	BLOD	57.3	10-110	7.81	20	
Naphthalene	34.6	0.10	ug/L	48.5	0.28	70.6	12-100	7.95	20	
Nitrobenzene	52.8	10.0	ug/L	48.5	BLOD	109	27-77	6.72	20	M
n-Nitrosodimethylamine	24.3	10.0	ug/L	48.5	BLOD	50.0	10-85	4.04	20	
n-Nitrosodi-n-propylamine	37.3	10.0	ug/L	48.5	BLOD	76.9	12-97	5.02	20	
n-Nitrosodiphenylamine	30.4	10.0	ug/L	48.5	BLOD	62.7	12-97	6.48	20	
p-Chloro-m-cresol	50.2	10.0	ug/L	48.5	BLOD	104	10-91	6.29	20	M
Pentachlorophenol	33.1	20.0	ug/L	48.5	BLOD	68.2	27-109	9.02	20	
Phenanthrene	38.0	10.0	ug/L	48.5	BLOD	78.4	35-115	9.44	20	
Phenol	16.4	10.0	ug/L	49.0	BLOD	33.4	10-70	8.25	20	
Pyrene	43.1	10.0	ug/L	48.5	BLOD	88.8	23-110	8.72	20	
Pyridine	32.4	10.0	ug/L	48.5	BLOD	66.8	0-200	10.1	20	

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Semivolatile Organic Compounds by GCMS - Quality Control

Enthalpy Analytical

Analyte	Result	LOQ	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Qual
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Batch BFF0088 - SW3580A-MS

Matrix Spike Dup (BFF0088-MSD1) **Source: 22F0103-05** Prepared: 06/03/2022 Analyzed: 06/04/2022

<i>Surr: 2,4,6-Tribromophenol (Surr)</i>	64.2		ug/L	97.1		66.1	10-86
<i>Surr: 2-Fluorobiphenyl (Surr)</i>	36.9		ug/L	48.5		76.0	9-87
<i>Surr: 2-Fluorophenol (Surr)</i>	45.0		ug/L	97.1		46.3	10-52
<i>Surr: Nitrobenzene-d5 (Surr)</i>	42.8		ug/L	48.5		88.2	10-98.5
<i>Surr: Phenol-d5 (Surr)</i>	29.0		ug/L	97.1		29.9	5-33
<i>Surr: p-Terphenyl-d14 (Surr)</i>	38.7		ug/L	48.5		79.8	27-133

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Organochlorine Pesticides and PCBs by GC/ECD - Quality Control

Enthalpy Analytical

Analyte	Result	LOQ	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Qual
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Batch BFE1147 - SW3510C/EPA600-ECD

Blank (BFE1147-BLK1)

Prepared: 05/31/2022 Analyzed: 06/01/2022

4,4'-DDD	ND	0.050	ug/L
PCB as Aroclor 1016	ND	0.200	ug/L
PCB as Aroclor 1221	ND	0.200	ug/L
4,4'-DDE	ND	0.050	ug/L
PCB as Aroclor 1232	ND	0.200	ug/L
PCB as Aroclor 1242	ND	0.200	ug/L
4,4'-DDT	ND	0.050	ug/L
PCB as Aroclor 1248	ND	0.200	ug/L
PCB as Aroclor 1254	ND	0.200	ug/L
Aldrin	ND	0.050	ug/L
PCB as Aroclor 1260	ND	0.200	ug/L
alpha-BHC	ND	0.050	ug/L
alpha-Chlordane	ND	0.050	ug/L
beta-BHC	ND	0.050	ug/L
Chlordane	ND	0.200	ug/L
delta-BHC	ND	0.050	ug/L
Dieldrin	ND	0.050	ug/L
Endosulfan I	ND	0.050	ug/L
Endosulfan II	ND	0.050	ug/L
Endosulfan sulfate	ND	0.050	ug/L
Endrin	ND	0.050	ug/L
Endrin aldehyde	ND	0.050	ug/L
Endrin ketone	ND	0.050	ug/L
gamma-BHC (Lindane)	ND	0.050	ug/L
gamma-Chlordane	ND	0.050	ug/L

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Organochlorine Pesticides and PCBs by GC/ECD - Quality Control

Enthalpy Analytical

Analyte	Result	LOQ	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Qual
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Batch BFE1147 - SW3510C/EPA600-ECD

Blank (BFE1147-BLK1)

Prepared: 05/31/2022 Analyzed: 06/01/2022

Heptachlor	ND	0.050	ug/L							
Heptachlor epoxide	ND	0.050	ug/L							
Methoxychlor	ND	0.050	ug/L							
Toxaphene	ND	1.00	ug/L							
<i>Surr: DCB</i>	<i>0.158</i>		ug/L	<i>0.200</i>		<i>79.2</i>	<i>30-105</i>			
<i>Surr: TCMX</i>	<i>0.117</i>		ug/L	<i>0.200</i>		<i>58.5</i>	<i>18-112</i>			
<i>Surr: TCMX</i>	<i>0.126</i>		ug/L	<i>0.200</i>		<i>63.2</i>	<i>30-105</i>			
<i>Surr: DCB</i>	<i>0.154</i>		ug/L	<i>0.200</i>		<i>76.9</i>	<i>27-131</i>			

LCS (BFE1147-BS1)

Prepared: 05/31/2022 Analyzed: 06/01/2022

4,4'-DDD	0.108	0.050	ug/L	0.100		108	23-134			
4,4'-DDE	0.096	0.050	ug/L	0.100		96.5	23-134			
4,4'-DDT	0.101	0.050	ug/L	0.100		101	23-134			
Aldrin	0.061	0.050	ug/L	0.100		61.4	23-134			
alpha-BHC	0.070	0.050	ug/L	0.100		69.8	23-134			
beta-BHC	0.068	0.050	ug/L	0.100		68.2	23-134			
delta-BHC	0.080	0.050	ug/L	0.100		79.9	23-134			
Dieldrin	0.091	0.050	ug/L	0.100		90.7	23-134			
Endosulfan I	0.085	0.050	ug/L	0.100		85.0	23-134			
Endosulfan II	0.097	0.050	ug/L	0.100		96.9	23-134			
Endosulfan sulfate	0.103	0.050	ug/L	0.100		103	23-134			
Endrin	0.100	0.050	ug/L	0.100		100	23-134			
Endrin aldehyde	0.107	0.050	ug/L	0.100		107	23-134			
gamma-BHC (Lindane)	0.069	0.050	ug/L	0.100		69.5	23-134			
Heptachlor	0.071	0.050	ug/L	0.100		71.3	23-134			

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Organochlorine Pesticides and PCBs by GC/ECD - Quality Control

Enthalpy Analytical

Analyte	Result	LOQ	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Qual
Batch BFE1147 - SW3510C/EPA600-ECD										
LCS (BFE1147-BS1)				Prepared: 05/31/2022 Analyzed: 06/01/2022						
Heptachlor epoxide	0.090	0.050	ug/L	0.100		90.4	23-134			
Methoxychlor	0.111	0.050	ug/L	0.100		111	23-134			
Mirex	0.104	0.050	ug/L	0.100		104	23-134			
<i>Surr: TCMX</i>	<i>0.0998</i>		ug/L	<i>0.200</i>		<i>49.9</i>	<i>18-112</i>			
<i>Surr: DCB</i>	<i>0.222</i>		ug/L	<i>0.200</i>		<i>111</i>	<i>27-131</i>			
LCS (BFE1147-BS2)				Prepared: 05/31/2022 Analyzed: 06/01/2022						
PCB as Aroclor 1016	0.831	0.200	ug/L	1.00		83.1	70-130			
PCB as Aroclor 1260	0.780	0.200	ug/L	1.00		78.0	70-130			
<i>Surr: DCB</i>	<i>0.170</i>		ug/L	<i>0.200</i>		<i>84.9</i>	<i>30-105</i>			
<i>Surr: TCMX</i>	<i>0.123</i>		ug/L	<i>0.200</i>		<i>61.3</i>	<i>30-105</i>			
LCS (BFE1147-BS3)				Prepared: 05/31/2022 Analyzed: 06/01/2022						
Toxaphene	1.94	1.00	ug/L	2.50		77.5	23-134			
<i>Surr: TCMX</i>	<i>0.136</i>		ug/L	<i>0.200</i>		<i>68.2</i>	<i>18-112</i>			
<i>Surr: DCB</i>	<i>0.174</i>		ug/L	<i>0.200</i>		<i>86.9</i>	<i>27-131</i>			
LCS (BFE1147-BS4)				Prepared: 05/31/2022 Analyzed: 06/01/2022						
Chlordane	1.80	0.200	ug/L	2.50		71.9	23-134			
<i>Surr: TCMX</i>	<i>0.136</i>		ug/L	<i>0.200</i>		<i>68.2</i>	<i>18-112</i>			
<i>Surr: DCB</i>	<i>0.152</i>		ug/L	<i>0.200</i>		<i>76.2</i>	<i>27-131</i>			
Matrix Spike (BFE1147-MS1)		Source: 22E1463-02		Prepared & Analyzed: 06/01/2022						
4,4'-DDD	0.125	0.050	ug/L	0.0935	BLOD	133	23-134			
4,4'-DDE	0.116	0.050	ug/L	0.0935	BLOD	124	23-134			
4,4'-DDT	0.119	0.050	ug/L	0.0935	BLOD	127	23-134			

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Enthalpy Analytical

Analyte	Result	LOQ	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Qual
Batch BFE1147 - SW3510C/EPA600-ECD										
Matrix Spike (BFE1147-MS1)		Source: 22E1463-02			Prepared & Analyzed: 06/01/2022					
Aldrin	0.083	0.050	ug/L	0.0935	BLOD	89.3	23-134			
alpha-BHC	0.095	0.050	ug/L	0.0935	BLOD	102	23-134			
beta-BHC	0.085	0.050	ug/L	0.0935	BLOD	91.3	23-134			
delta-BHC	0.116	0.050	ug/L	0.0935	BLOD	125	23-134			
Dieldrin	0.110	0.050	ug/L	0.0935	BLOD	118	23-134			
Endosulfan I	0.101	0.050	ug/L	0.0935	BLOD	108	23-134			
Endosulfan II	0.118	0.050	ug/L	0.0935	BLOD	126	23-134			
Endosulfan sulfate	0.121	0.050	ug/L	0.0935	BLOD	129	23-134			
Endrin	0.120	0.050	ug/L	0.0935	BLOD	129	23-134			
Endrin aldehyde	0.117	0.050	ug/L	0.0935	BLOD	126	23-134			
gamma-BHC (Lindane)	0.094	0.050	ug/L	0.0935	BLOD	101	23-134			
Heptachlor	0.097	0.050	ug/L	0.0935	BLOD	104	23-134			
Heptachlor epoxide	0.111	0.050	ug/L	0.0935	BLOD	118	23-134			
Methoxychlor	0.125	0.050	ug/L	0.0935	BLOD	134	23-134			
Mirex	0.078	0.050	ug/L	0.0935	BLOD	83.5	23-134			
<i>Surr: TCMX</i>	<i>0.0951</i>		ug/L	<i>0.187</i>		<i>50.9</i>	<i>18-112</i>			
<i>Surr: DCB</i>	<i>0.125</i>		ug/L	<i>0.187</i>		<i>67.0</i>	<i>27-131</i>			
Matrix Spike (BFE1147-MS2)		Source: 22E1463-02			Prepared & Analyzed: 06/01/2022					
PCB as Aroclor 1016	1.27	0.200	ug/L	0.935	BLOD	135	70-130			M
PCB as Aroclor 1260	0.990	0.200	ug/L	0.935	BLOD	106	70-130			
<i>Surr: DCB</i>	<i>0.202</i>		ug/L	<i>0.187</i>		<i>108</i>	<i>30-105</i>			S
<i>Surr: TCMX</i>	<i>0.102</i>		ug/L	<i>0.187</i>		<i>54.6</i>	<i>30-105</i>			
Matrix Spike Dup (BFE1147-MSD1)		Source: 22E1463-02			Prepared & Analyzed: 06/01/2022					
4,4'-DDD	0.140	0.050	ug/L	0.0935	BLOD	150	23-134	11.5	20	M

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Enthalpy Analytical

Analyte	Result	LOQ	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Qual
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Batch BFE1147 - SW3510C/EPA600-ECD

Matrix Spike Dup (BFE1147-MSD1)		Source: 22E1463-02		Prepared & Analyzed: 06/01/2022							
4,4'-DDE	0.125	0.050	ug/L	0.0935	BLOD	134	23-134	7.64	20	M	
4,4'-DDT	0.137	0.050	ug/L	0.0935	BLOD	147	23-134	14.3	20	M	
Aldrin	0.094	0.050	ug/L	0.0935	BLOD	101	23-134	12.2	20		
alpha-BHC	0.104	0.050	ug/L	0.0935	BLOD	111	23-134	8.82	20		
beta-BHC	0.102	0.050	ug/L	0.0935	BLOD	109	23-134	17.7	20		
delta-BHC	0.116	0.050	ug/L	0.0935	BLOD	125	23-134	0.0401	20		
Dieldrin	0.119	0.050	ug/L	0.0935	BLOD	127	23-134	7.17	20		
Endosulfan I	0.110	0.050	ug/L	0.0935	BLOD	117	23-134	8.63	20		
Endosulfan II	0.132	0.050	ug/L	0.0935	BLOD	142	23-134	11.8	20	M	
Endosulfan sulfate	0.139	0.050	ug/L	0.0935	BLOD	148	23-134	13.7	20	M	
Endrin	0.129	0.050	ug/L	0.0935	BLOD	138	23-134	6.84	20	M	
Endrin aldehyde	0.130	0.050	ug/L	0.0935	BLOD	139	23-134	10.0	20	M	
gamma-BHC (Lindane)	0.103	0.050	ug/L	0.0935	BLOD	110	23-134	8.44	20		
Heptachlor	0.097	0.050	ug/L	0.0935	BLOD	104	23-134	0.154	20		
Heptachlor epoxide	0.108	0.050	ug/L	0.0935	BLOD	115	23-134	2.53	20		
Methoxychlor	0.145	0.050	ug/L	0.0935	BLOD	155	23-134	14.7	20	M	
Mirex	0.094	0.050	ug/L	0.0935	BLOD	101	23-134	18.6	20		
<i>Surr: TCMX</i>	<i>0.102</i>		ug/L	<i>0.187</i>		<i>54.7</i>	<i>18-112</i>				
<i>Surr: DCB</i>	<i>0.140</i>		ug/L	<i>0.187</i>		<i>74.7</i>	<i>27-131</i>				
Matrix Spike Dup (BFE1147-MSD2)		Source: 22E1463-02		Prepared & Analyzed: 06/01/2022							
PCB as Aroclor 1016	0.839	0.200	ug/L	0.935	BLOD	89.8	70-130	40.5	20	P	
PCB as Aroclor 1260	0.760	0.200	ug/L	0.935	BLOD	81.3	70-130	26.3	20	P	
<i>Surr: DCB</i>	<i>0.163</i>		ug/L	<i>0.187</i>		<i>87.0</i>	<i>30-105</i>				
<i>Surr: TCMX</i>	<i>0.130</i>		ug/L	<i>0.187</i>		<i>69.6</i>	<i>30-105</i>				

Certificate of Analysis

 Client Name: SCS Engineers-Winchester
 Client Site I.D.: City of Bristol 1st Semi-Annual 2022
 Submitted To: Jennifer Robb

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Organochlorine Herbicides by GC/ECD - Quality Control

Enthalpy Analytical

Analyte	Result	LOQ	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Qual
Batch BFE1204 - SW8151A/EPA600										
Blank (BFE1204-BLK1)										
				Prepared: 05/31/2022 Analyzed: 06/09/2022						
2,4,5-T	ND	0.500	ug/L							
2,4,5-TP (Silvex)	ND	0.500	ug/L							
2,4-D	ND	0.500	ug/L							
Dinoseb	ND	0.500	ug/L							
Pentachlorophenol	ND	0.500	ug/L							
<i>Surr: DCAA (Surr)</i>	<i>1.01</i>		ug/L	<i>1.11</i>		<i>90.5</i>	<i>48.5-134</i>			
LCS (BFE1204-BS1)										
				Prepared: 05/31/2022 Analyzed: 06/09/2022						
2,4,5-T	0.548	0.500	ug/L	0.556		98.7	62-145			
2,4,5-TP (Silvex)	0.601	0.500	ug/L	0.556		108	62-132			
2,4-D	0.652	0.500	ug/L	0.556		117	74-139			
Dinoseb	0.467	0.500	ug/L	0.556		84.0	59-136			
Pentachlorophenol	0.523	0.500	ug/L	0.556		94.1	62-118			
<i>Surr: DCAA (Surr)</i>	<i>1.00</i>		ug/L	<i>1.11</i>		<i>90.4</i>	<i>70-130</i>			
Matrix Spike (BFE1204-MS1)										
		Source: 22E1463-02		Prepared: 06/01/2022 Analyzed: 06/09/2022						
2,4,5-T	0.530	0.500	ug/L	0.556	BLOD	95.3	53-144			
2,4,5-TP (Silvex)	0.576	0.500	ug/L	0.556	BLOD	104	52-129			
2,4-D	0.502	0.500	ug/L	0.556	BLOD	90.3	53-126			
Dinoseb	0.446	0.500	ug/L	0.556	BLOD	80.3	60-137			
Pentachlorophenol	0.602	0.500	ug/L	0.556	BLOD	108	52-124			
<i>Surr: DCAA (Surr)</i>	<i>1.08</i>		ug/L	<i>1.11</i>		<i>97.5</i>	<i>70-130</i>			
Matrix Spike Dup (BFE1204-MSD1)										
		Source: 22E1463-02		Prepared: 06/01/2022 Analyzed: 06/09/2022						
2,4,5-T	0.511	0.500	ug/L	0.556	BLOD	91.9	53-144	3.63	20	
2,4,5-TP (Silvex)	0.528	0.500	ug/L	0.556	BLOD	94.9	52-129	8.76	20	

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Organochlorine Herbicides by GC/ECD - Quality Control

Enthalpy Analytical

Analyte	Result	LOQ	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Qual
Batch BFE1204 - SW8151A/EPA600										
Matrix Spike Dup (BFE1204-MSD1)										
			Source: 22E1463-02		Prepared: 06/01/2022 Analyzed: 06/09/2022					
2,4-D	0.411	0.500	ug/L	0.556	BLOD	74.0	53-126	19.8	20	
Dinoseb	0.423	0.500	ug/L	0.556	BLOD	76.2	60-137	5.20	20	
Pentachlorophenol	0.521	0.500	ug/L	0.556	BLOD	93.7	52-124	14.4	20	
<i>Surr: DCAA (Surr)</i>	<i>1.06</i>		ug/L	<i>1.11</i>		<i>95.7</i>	<i>70-130</i>			
Batch BFF0117 - SW8151A/EPA600										
Blank (BFF0117-BLK1)										
			Prepared: 06/02/2022 Analyzed: 06/09/2022							
2,4,5-T	ND	0.500	ug/L							
2,4,5-TP (Silvex)	ND	0.500	ug/L							
2,4-D	ND	0.500	ug/L							
Dinoseb	ND	0.500	ug/L							
Pentachlorophenol	ND	0.500	ug/L							
<i>Surr: DCAA (Surr)</i>	<i>1.06</i>		ug/L	<i>1.11</i>		<i>95.5</i>	<i>48.5-134</i>			
LCS (BFF0117-BS1)										
			Prepared: 06/02/2022 Analyzed: 06/09/2022							
2,4,5-T	0.633	0.500	ug/L	0.556		114	62-145			
2,4,5-TP (Silvex)	0.562	0.500	ug/L	0.556		101	62-132			
2,4-D	0.579	0.500	ug/L	0.556		104	74-139			
Dinoseb	0.530	0.500	ug/L	0.556		95.4	59-136			
Pentachlorophenol	0.607	0.500	ug/L	0.556		109	62-118			
<i>Surr: DCAA (Surr)</i>	<i>1.04</i>		ug/L	<i>1.11</i>		<i>93.4</i>	<i>70-130</i>			
Matrix Spike (BFF0117-MS1)										
			Source: 22F0103-05		Prepared: 06/03/2022 Analyzed: 06/09/2022					
2,4,5-T	0.469	0.500	ug/L	0.556	BLOD	84.4	53-144			
2,4,5-TP (Silvex)	0.470	0.500	ug/L	0.556	BLOD	84.6	52-129			

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Organochlorine Herbicides by GC/ECD - Quality Control

Enthalpy Analytical

Analyte	Result	LOQ	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Qual
Batch BFF0117 - SW8151A/EPA600										
Matrix Spike (BFF0117-MS1)		Source: 22F0103-05			Prepared: 06/03/2022 Analyzed: 06/09/2022					
2,4-D	0.486	0.500	ug/L	0.556	BLOD	87.5	53-126			
Dinoseb	0.440	0.500	ug/L	0.556	BLOD	79.2	60-137			
Pentachlorophenol	0.482	0.500	ug/L	0.556	BLOD	86.8	52-124			
<i>Surr: DCAA (Surr)</i>	<i>1.08</i>		ug/L	<i>1.11</i>		<i>96.9</i>	<i>70-130</i>			
Matrix Spike Dup (BFF0117-MSD1)		Source: 22F0103-05			Prepared: 06/03/2022 Analyzed: 06/09/2022					
2,4,5-T	0.414	0.500	ug/L	0.556	BLOD	74.4	53-144	12.5	20	
2,4,5-TP (Silvex)	0.455	0.500	ug/L	0.556	BLOD	81.9	52-129	3.24	20	
2,4-D	0.484	0.500	ug/L	0.556	BLOD	87.2	53-126	0.389	20	
Dinoseb	0.392	0.500	ug/L	0.556	BLOD	70.6	60-137	11.5	20	
Pentachlorophenol	0.470	0.500	ug/L	0.556	BLOD	84.6	52-124	2.49	20	
<i>Surr: DCAA (Surr)</i>	<i>1.02</i>		ug/L	<i>1.11</i>		<i>91.4</i>	<i>70-130</i>			

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Micro-extractables by GC/ECD - Quality Control

Enthalpy Analytical

Analyte	Result	LOQ	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Qual
Batch BFF0301 - SW8011										
Blank (BFF0301-BLK1)				Prepared & Analyzed: 06/07/2022						
1,2-Dibromoethane (EDB)	ND	0.010	ug/L							
1,2,3-Trichloropropane	ND	0.010	ug/L							
1,2-Dibromo-3-chloropropane (DBCP)	ND	0.010	ug/L							
LCS (BFF0301-BS1)				Prepared & Analyzed: 06/07/2022						
1,2-Dibromoethane (EDB)	0.324	0.010	ug/L	0.250		130	65-135			
1,2,3-Trichloropropane	0.265	0.010	ug/L	0.250		106	65-135			
1,2-Dibromo-3-chloropropane (DBCP)	0.333	0.010	ug/L	0.250		133	65-135			
Matrix Spike (BFF0301-MS1)				Source: 22E1463-02		Prepared & Analyzed: 06/07/2022				
1,2-Dibromoethane (EDB)	0.247	0.010	ug/L	0.253	BLOD	97.7	65-135			
1,2,3-Trichloropropane	0.197	0.010	ug/L	0.253	BLOD	78.1	65-135			
1,2-Dibromo-3-chloropropane (DBCP)	0.243	0.010	ug/L	0.253	BLOD	96.4	65-135			
Matrix Spike (BFF0301-MS2)				Source: 22F0064-03		Prepared: 06/07/2022 Analyzed: 06/08/2022				
1,2-Dibromoethane (EDB)	0.201	0.010	ug/L	0.251	BLOD	80.3	65-135			
1,2,3-Trichloropropane	0.176	0.010	ug/L	0.251	BLOD	70.0	65-135			
1,2-Dibromo-3-chloropropane (DBCP)	0.188	0.010	ug/L	0.251	BLOD	74.8	65-135			
Matrix Spike Dup (BFF0301-MSD1)				Source: 22E1463-02		Prepared & Analyzed: 06/07/2022				
1,2-Dibromoethane (EDB)	0.261	0.010	ug/L	0.252	BLOD	104	65-135	5.73	20	
1,2,3-Trichloropropane	0.242	0.010	ug/L	0.252	BLOD	96.2	65-135	20.5	20	P
1,2-Dibromo-3-chloropropane (DBCP)	0.257	0.010	ug/L	0.252	BLOD	102	65-135	5.29	20	
Matrix Spike Dup (BFF0301-MSD2)				Source: 22F0064-03		Prepared: 06/07/2022 Analyzed: 06/08/2022				
1,2-Dibromoethane (EDB)	0.235	0.010	ug/L	0.254	BLOD	92.7	65-135	15.5	20	
1,2,3-Trichloropropane	0.206	0.010	ug/L	0.254	BLOD	81.0	65-135	15.6	20	
1,2-Dibromo-3-chloropropane (DBCP)	0.221	0.010	ug/L	0.254	BLOD	87.2	65-135	16.5	20	

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Head Space Analysis by GC - Quality Control

Enthalpy Analytical

Analyte	Result	LOQ	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Qual
Batch BFF0087 - No Prep VOC										
Blank (BFF0087-BLK1)										
				Prepared & Analyzed: 06/02/2022						
Ethane	ND	5.00	ug/L							
Ethene	ND	5.00	ug/L							
Methane	ND	5.00	ug/L							
<i>Surr: Acetylene (Surr)</i>	449		ug/L	432		104	70-130			
LCS (BFF0087-BS1)										
				Prepared & Analyzed: 06/02/2022						
Ethane	540	5.00	ug/L	500		108	70-130			
Ethene	488	5.00	ug/L	464		105	70-130			
Methane	276	5.00	ug/L	266		104	70-130			
<i>Surr: Acetylene (Surr)</i>	496		ug/L	432		115	70-130			
Duplicate (BFF0087-DUP1)										
				Source: 22E1463-02			Prepared & Analyzed: 06/02/2022			
Ethane	ND	5.00	ug/L		BLOD			NA	20	
Ethene	ND	5.00	ug/L		BLOD			NA	20	
Methane	379	5.00	ug/L		378			0.346	20	
<i>Surr: Acetylene (Surr)</i>	510		ug/L	432		118	70-130			
Matrix Spike (BFF0087-MS1)										
				Source: 22E1463-02			Prepared & Analyzed: 06/02/2022			
Ethane	612	5.00	ug/L	500	BLOD	122	70-130			
Ethene	544	5.00	ug/L	464	BLOD	117	70-130			
Methane	547	5.00	ug/L	266	378	63.7	70-130			M
<i>Surr: Acetylene (Surr)</i>	489		ug/L	432		113	70-130			
Matrix Spike Dup (BFF0087-MSD1)										
				Source: 22E1463-02			Prepared & Analyzed: 06/02/2022			
Ethane	716	5.00	ug/L	500	BLOD	143	70-130	15.7	20	M
Ethene	635	5.00	ug/L	464	BLOD	137	70-130	15.4	20	M

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Head Space Analysis by GC - Quality Control

Enthalpy Analytical

Analyte	Result	LOQ	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Qual
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Batch BFF0087 - No Prep VOC

Matrix Spike Dup (BFF0087-MSD1)	Source: 22E1463-02		Prepared & Analyzed: 06/02/2022							
Methane	597	5.00	ug/L	266	378	82.5	70-130	8.74	20	
<i>Surr: Acetylene (Surr)</i>	591		ug/L	432		137	70-130			S

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 Client Name: SCS Engineers-Winchester
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Wet Chemistry Analysis - Quality Control

Enthalpy Analytical

Analyte	Result	LOQ	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Qual
Batch BFE1202 - No Prep IC										
Blank (BFE1202-BLK1)				Prepared & Analyzed: 05/31/2022						
Chloride	ND	1.0	mg/L							
LCS (BFE1202-BS1)				Prepared & Analyzed: 05/31/2022						
Chloride	18.0	1	mg/L	20.0		90.2	90-110			
LCS Dup (BFE1202-BSD1)				Prepared & Analyzed: 05/31/2022						
Chloride	18.9	1	mg/L	20.0		94.3	90-110	4.48	15	
Matrix Spike (BFE1202-MS1)				Source: 22E1463-02 Prepared & Analyzed: 05/31/2022						
Chloride	20.8	1.0	mg/L	11.1	8.3	112	90-110			M
Matrix Spike (BFE1202-MS2)				Source: 22E1463-04 Prepared & Analyzed: 06/01/2022						
Chloride	11.8	1.0	mg/L	11.1	1.0	97.3	90-110			
Matrix Spike Dup (BFE1202-MSD1)				Source: 22E1463-02 Prepared & Analyzed: 05/31/2022						
Chloride	19.6	1.0	mg/L	11.1	8.3	101	90-110	6.12	15	
Matrix Spike Dup (BFE1202-MSD2)				Source: 22E1463-04 Prepared & Analyzed: 06/01/2022						
Chloride	11.8	1.0	mg/L	11.1	1.0	97.1	90-110	0.170	15	
Batch BFF0002 - No Prep Wet Chem										
Blank (BFF0002-BLK1)				Prepared & Analyzed: 05/31/2022						
Sulfide	ND	1.00	mg/L							
LCS (BFF0002-BS1)				Prepared & Analyzed: 05/31/2022						
Sulfide	4.90	1	mg/L	5.00		98.0	80-120			

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Wet Chemistry Analysis - Quality Control

Enthalpy Analytical

Analyte	Result	LOQ	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Qual
Batch BFF0002 - No Prep Wet Chem										
Matrix Spike (BFF0002-MS1)		Source: 22E1463-02			Prepared & Analyzed: 05/31/2022					
Sulfide	4.83	1.00	mg/L	5.00	BLOD	96.6	75-125			
Matrix Spike Dup (BFF0002-MSD1)		Source: 22E1463-02			Prepared & Analyzed: 05/31/2022					
Sulfide	4.87	1.00	mg/L	5.00	BLOD	97.4	75-125	0.825	20	
Batch BFF0256 - No Prep Wet Chem										
LCS (BFF0256-BS1)		Prepared & Analyzed: 06/06/2022								
Cyanide	0.27	0.01	mg/L	0.250		109	80-120			
Matrix Spike (BFF0256-MS1)		Source: 22E1249-12			Prepared & Analyzed: 06/06/2022					
Cyanide	0.25	0.01	mg/L	0.250	BLOD	98.4	80-120			
Matrix Spike (BFF0256-MS2)		Source: 22E1463-02			Prepared & Analyzed: 06/06/2022					
Cyanide	0.23	0.01	mg/L	0.250	BLOD	90.0	80-120			
Matrix Spike Dup (BFF0256-MSD1)		Source: 22E1249-12			Prepared & Analyzed: 06/06/2022					
Cyanide	0.25	0.01	mg/L	0.250	BLOD	101	80-120	2.93	20	
Matrix Spike Dup (BFF0256-MSD2)		Source: 22E1463-02			Prepared & Analyzed: 06/06/2022					
Cyanide	0.23	0.01	mg/L	0.250	BLOD	92.4	80-120	2.54	20	
Batch BFF0367 - No Prep Wet Chem										
Blank (BFF0367-BLK1)		Prepared & Analyzed: 06/08/2022								
Alkalinity	ND	5.0	mg/L							

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Wet Chemistry Analysis - Quality Control

Enthalpy Analytical

Analyte	Result	LOQ	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Qual
Batch BFF0367 - No Prep Wet Chem										
LCS (BFF0367-BS1)										
				Prepared & Analyzed: 06/08/2022						
Alkalinity	47.0	5.0	mg/L	50.0		94.0	80-120			
Duplicate (BFF0367-DUP1)										
				Source: 22E1388-05 Prepared & Analyzed: 06/08/2022						
Alkalinity	144	5.0	mg/L		148			2.74	20	
Duplicate (BFF0367-DUP2)										
				Source: 22E1463-02 Prepared & Analyzed: 06/08/2022						
Alkalinity	313	5.0	mg/L		309			1.29	20	

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Analytical Summary

Sample ID	Preparation Factors Initial / Final	Method	Batch ID	Sequence ID	Calibration ID
Metals (Total) by EPA 6000/7000 Series Methods			Preparation Method:	EPA200.8 R5.4	
22E1463-02	50.0 mL / 50.0 mL	SW6020B	BFF0097	SFF0273	AF20035
22E1463-03	50.0 mL / 50.0 mL	SW6020B	BFF0097	SFF0273	AF20035
22E1463-04	50.0 mL / 50.0 mL	SW6020B	BFF0097	SFF0273	AF20035
22E1463-05	50.0 mL / 50.0 mL	SW6020B	BFF0097	SFF0273	AF20035
22E1463-06	50.0 mL / 50.0 mL	SW6020B	BFF0097	SFF0273	AF20035
22E1463-07	50.0 mL / 50.0 mL	SW6020B	BFF0097	SFF0273	AF20035
22E1463-07RE1	50.0 mL / 50.0 mL	SW6020B	BFF0097	SFF0327	AF20045
22E1463-08	50.0 mL / 50.0 mL	SW6020B	BFF0097	SFF0273	AF20035
22E1463-08RE1	50.0 mL / 50.0 mL	SW6020B	BFF0097	SFF0327	AF20045

Sample ID	Preparation Factors Initial / Final	Method	Batch ID	Sequence ID	Calibration ID
Wet Chemistry Analysis			Preparation Method:	No Prep IC	
22E1463-02	1.00 mL / 1.00 mL	SW9056A	BFE1202	SFF0117	AB20130
22E1463-03	1.00 mL / 1.00 mL	SW9056A	BFE1202	SFF0117	AB20130
22E1463-04	1.00 mL / 1.00 mL	SW9056A	BFE1202	SFF0117	AB20130
22E1463-05	1.00 mL / 1.00 mL	SW9056A	BFE1202	SFF0117	AB20130
22E1463-06	1.00 mL / 1.00 mL	SW9056A	BFE1202	SFF0117	AB20130
22E1463-07	1.00 mL / 1.00 mL	SW9056A	BFE1202	SFF0117	AB20130
22E1463-08	1.00 mL / 1.00 mL	SW9056A	BFE1202	SFF0117	AB20130

Sample ID	Preparation Factors Initial / Final	Method	Batch ID	Sequence ID	Calibration ID
Head Space Analysis by GC			Preparation Method:	No Prep VOC	
22E1463-02	5.00 mL / 5.00 mL	RSK175M	BFF0087	SFF0075	AB20185
22E1463-03	5.00 mL / 5.00 mL	RSK175M	BFF0087	SFF0075	AB20185
22E1463-04	5.00 mL / 5.00 mL	RSK175M	BFF0087	SFF0075	AB20185

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Sample ID	Preparation Factors Initial / Final	Method	Batch ID	Sequence ID	Calibration ID
Head Space Analysis by GC			Preparation Method:	No Prep VOC	
22E1463-05	5.00 mL / 5.00 mL	RSK175M	BFF0087	SFF0075	AB20185
22E1463-06	5.00 mL / 5.00 mL	RSK175M	BFF0087	SFF0075	AB20185
22E1463-07	5.00 mL / 5.00 mL	RSK175M	BFF0087	SFF0075	AB20185
22E1463-07RE1	5.00 mL / 5.00 mL	RSK175M	BFF0087	SFF0075	AB20185
22E1463-08	5.00 mL / 5.00 mL	RSK175M	BFF0087	SFF0075	AB20185
22E1463-08RE1	5.00 mL / 5.00 mL	RSK175M	BFF0087	SFF0075	AB20185

Sample ID	Preparation Factors Initial / Final	Method	Batch ID	Sequence ID	Calibration ID
Wet Chemistry Analysis			Preparation Method:	No Prep Wet Chem	
22E1463-02	6.00 mL / 6.00 mL	SW9215	BFF0002	SFF0002	
22E1463-03	6.00 mL / 6.00 mL	SW9215	BFF0002	SFF0002	
22E1463-07	6.00 mL / 6.00 mL	SW9215	BFF0002	SFF0002	
22E1463-08	6.00 mL / 6.00 mL	SW9215	BFF0002	SFF0002	
22E1463-02	6.00 mL / 6.00 mL	SW9012B	BFF0256	SFF0305	AF20043
22E1463-03	6.00 mL / 6.00 mL	SW9012B	BFF0256	SFF0305	AF20043
22E1463-07	6.00 mL / 6.00 mL	SW9012B	BFF0256	SFF0305	AF20043
22E1463-08	6.00 mL / 6.00 mL	SW9012B	BFF0256	SFF0305	AF20043
22E1463-02	50.0 mL / 50.0 mL	SM22 2320B-2011	BFF0367	SFF0426	
22E1463-03	200 mL / 200 mL	SM22 2320B-2011	BFF0367	SFF0426	
22E1463-04	50.0 mL / 50.0 mL	SM22 2320B-2011	BFF0367	SFF0426	
22E1463-05	50.0 mL / 50.0 mL	SM22 2320B-2011	BFF0367	SFF0426	
22E1463-06	50.0 mL / 50.0 mL	SM22 2320B-2011	BFF0367	SFF0426	
22E1463-07	10.0 mL / 50.0 mL	SM22 2320B-2011	BFF0367	SFF0426	
22E1463-08	10.0 mL / 50.0 mL	SM22 2320B-2011	BFF0367	SFF0426	

Sample ID	Preparation Factors Initial / Final	Method	Batch ID	Sequence ID	Calibration ID
Organochlorine Pesticides and PCBs by GC/ECD			Preparation Method:	SW3510C/EPA600-ECD	

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Sample ID	Preparation Factors Initial / Final	Method	Batch ID	Sequence ID	Calibration ID
Organochlorine Pesticides and PCBs by GC/ECD			Preparation Method: SW3510C/EPA600-ECD		
22E1463-02	1070 mL / 1.00 mL	SW8081B	BFE1147	SFF0066	AE20143
22E1463-03	1070 mL / 1.00 mL	SW8081B	BFE1147	SFF0056	AE20143
22E1463-07	1070 mL / 1.00 mL	SW8081B	BFE1147	SFF0056	AE20143
22E1463-08	1070 mL / 1.00 mL	SW8081B	BFE1147	SFF0056	AE20143
22E1463-02	1070 mL / 1.00 mL	SW8082A	BFE1147	SFF0059	AC20077
22E1463-02RE1	1070 mL / 1.00 mL	SW8082A	BFE1147	SFF0059	AC20077
22E1463-03	1070 mL / 1.00 mL	SW8082A	BFE1147	SFF0059	AC20077
22E1463-07	1070 mL / 1.00 mL	SW8082A	BFE1147	SFF0059	AC20077
22E1463-08	1070 mL / 1.00 mL	SW8082A	BFE1147	SFF0059	AC20077
Sample ID	Preparation Factors Initial / Final	Method	Batch ID	Sequence ID	Calibration ID
Semivolatile Organic Compounds by GCMS			Preparation Method: SW3580A-MS		
22E1463-02	1070 mL / 1.00 mL	SW8270E	BFF0013	SFF0089	AE20006
22E1463-03	1070 mL / 1.00 mL	SW8270E	BFF0013	SFF0079	AC20134
22E1463-04	1070 mL / 1.00 mL	SW8270E	BFF0013	SFF0079	AC20134
22E1463-06	1070 mL / 1.00 mL	SW8270E	BFF0088	SFF0213	AE20006
22E1463-07	1070 mL / 1.00 mL	SW8270E	BFF0088	SFF0213	AE20006
22E1463-08	1070 mL / 1.00 mL	SW8270E	BFF0088	SFF0213	AE20006
Sample ID	Preparation Factors Initial / Final	Method	Batch ID	Sequence ID	Calibration ID
Volatile Organic Compounds by GCMS			Preparation Method: SW5030B-MS		
22E1463-01	5.00 mL / 5.00 mL	SW8260D	BFF0032	SFF0038	AE20157
22E1463-03	5.00 mL / 5.00 mL	SW8260D	BFF0032	SFF0038	AE20157
22E1463-04	5.00 mL / 5.00 mL	SW8260D	BFF0032	SFF0038	AE20157
22E1463-05	5.00 mL / 5.00 mL	SW8260D	BFF0032	SFF0038	AE20157
22E1463-06	5.00 mL / 5.00 mL	SW8260D	BFF0032	SFF0038	AE20157
22E1463-07	5.00 mL / 5.00 mL	SW8260D	BFF0032	SFF0038	AE20157
22E1463-08	5.00 mL / 5.00 mL	SW8260D	BFF0032	SFF0038	AE20157

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Volatile Organic Compounds by GCMS			Preparation Method: SW5030B-MS		
22E1463-02	5.00 mL / 5.00 mL	SW8260D	BFF0033	SFF0030	AE20066

Sample ID	Preparation Factors Initial / Final	Method	Batch ID	Sequence ID	Calibration ID
Metals (Total) by EPA 6000/7000 Series Methods			Preparation Method: SW7470A		
22E1463-02	20.0 mL / 20.0 mL	SW7470A	BFF0393	SFF0385	AF20056
22E1463-03	20.0 mL / 20.0 mL	SW7470A	BFF0393	SFF0385	AF20056
22E1463-04	20.0 mL / 20.0 mL	SW7470A	BFF0393	SFF0385	AF20056
22E1463-06	20.0 mL / 20.0 mL	SW7470A	BFF0393	SFF0385	AF20056
22E1463-07	20.0 mL / 20.0 mL	SW7470A	BFF0393	SFF0385	AF20056
22E1463-08	20.0 mL / 20.0 mL	SW7470A	BFF0393	SFF0385	AF20056

Sample ID	Preparation Factors Initial / Final	Method	Batch ID	Sequence ID	Calibration ID
Micro-extractables by GC/ECD			Preparation Method: SW8011		
22E1463-01	59.8 mL / 2.00 mL	SW8011	BFF0301	SFF0286	AE20047
22E1463-02	59.2 mL / 2.00 mL	SW8011	BFF0301	SFF0286	AE20047
22E1463-03	59.3 mL / 2.00 mL	SW8011	BFF0301	SFF0286	AE20047
22E1463-04	59.6 mL / 2.00 mL	SW8011	BFF0301	SFF0286	AE20047
22E1463-05	60.0 mL / 2.00 mL	SW8011	BFF0301	SFF0286	AE20047
22E1463-06	59.5 mL / 2.00 mL	SW8011	BFF0301	SFF0286	AE20047
22E1463-07	59.8 mL / 2.00 mL	SW8011	BFF0301	SFF0286	AE20047
22E1463-08	58.7 mL / 2.00 mL	SW8011	BFF0301	SFF0286	AE20047

Sample ID	Preparation Factors Initial / Final	Method	Batch ID	Sequence ID	Calibration ID
Organochlorine Herbicides by GC/ECD			Preparation Method: SW8151A/EPA600		
22E1463-02	900 mL / 5.00 mL	SW8151A	BFE1204	SFF0393	AD20156
22E1463-03	900 mL / 5.00 mL	SW8151A	BFE1204	SFF0393	AD20156

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Sample ID	Preparation Factors Initial / Final	Method	Batch ID	Sequence ID	Calibration ID
Organochlorine Herbicides by GC/ECD			Preparation Method: SW8151A/EPA600		
22E1463-07	900 mL / 5.00 mL	SW8151A	BFF0117	SFF0393	AD20156
22E1463-08	900 mL / 5.00 mL	SW8151A	BFF0117	SFF0393	AD20156

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QC Analytical Summary

Sample ID	Preparation Factors Initial / Final	Method	Batch ID	Sequence ID	Calibration ID
Metals (Total) by EPA 6000/7000 Series Methods			Preparation Method:	EPA200.8 R5.4	
BFF0097-BLK1	50.0 mL / 50.0 mL	SW6020B	BFF0097	SFF0273	AF20035
BFF0097-BS1	50.0 mL / 50.0 mL	SW6020B	BFF0097	SFF0273	AF20035
BFF0097-BS2		SW6020B	BFF0097		
BFF0097-MS1	50.0 mL / 50.0 mL	SW6020B	BFF0097	SFF0273	AF20035
BFF0097-MS2	50.0 mL / 50.0 mL	SW6020B	BFF0097	SFF0273	AF20035
BFF0097-MSD1	50.0 mL / 50.0 mL	SW6020B	BFF0097	SFF0273	AF20035
BFF0097-MSD2	50.0 mL / 50.0 mL	SW6020B	BFF0097	SFF0273	AF20035

Sample ID	Preparation Factors Initial / Final	Method	Batch ID	Sequence ID	Calibration ID
Wet Chemistry Analysis			Preparation Method:	No Prep IC	
BFE1202-BLK1	1.00 mL / 1.00 mL	SW9056A	BFE1202	SFF0117	AB20130
BFE1202-BS1	1.00 mL / 1.00 mL	SW9056A	BFE1202	SFF0117	AB20130
BFE1202-BSD1	1.00 mL / 1.00 mL	SW9056A	BFE1202	SFF0117	AB20130
BFE1202-MS1	4.50 mL / 5.00 mL	SW9056A	BFE1202	SFF0117	AB20130
BFE1202-MS2	4.50 mL / 5.00 mL	SW9056A	BFE1202	SFF0117	AB20130
BFE1202-MSD1	4.50 mL / 5.00 mL	SW9056A	BFE1202	SFF0117	AB20130
BFE1202-MSD2	4.50 mL / 5.00 mL	SW9056A	BFE1202	SFF0117	AB20130

Sample ID	Preparation Factors Initial / Final	Method	Batch ID	Sequence ID	Calibration ID
Head Space Analysis by GC			Preparation Method:	No Prep VOC	
BFF0087-BLK1	5.00 mL / 5.00 mL	RSK175M	BFF0087	SFF0075	AB20185
BFF0087-BS1	5.00 mL / 5.00 mL	RSK175M	BFF0087	SFF0075	AB20185
BFF0087-DUP1	5.00 mL / 5.00 mL	RSK175M	BFF0087	SFF0075	AB20185

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Sample ID	Preparation Factors Initial / Final	Method	Batch ID	Sequence ID	Calibration ID
Head Space Analysis by GC			Preparation Method:	No Prep VOC	
BFF0087-MRL1	5.00 mL / 5.00 mL	RSK175M	BFF0087	SFF0075	AB20185
BFF0087-MS1	5.00 mL / 5.00 mL	RSK175M	BFF0087	SFF0075	AB20185
BFF0087-MSD1	5.00 mL / 5.00 mL	RSK175M	BFF0087	SFF0075	AB20185

Sample ID	Preparation Factors Initial / Final	Method	Batch ID	Sequence ID	Calibration ID
Wet Chemistry Analysis			Preparation Method:	No Prep Wet Chem	
BFF0002-BLK1	6.00 mL / 6.00 mL	SW9215	BFF0002	SFF0002	
BFF0002-BS1	6.00 mL / 6.00 mL	SW9215	BFF0002	SFF0002	
BFF0002-MRL1	6.00 mL / 6.00 mL	SW9215	BFF0002	SFF0002	
BFF0002-MS1	6.00 mL / 6.00 mL	SW9215	BFF0002	SFF0002	
BFF0002-MSD1	6.00 mL / 6.00 mL	SW9215	BFF0002	SFF0002	
BFF0256-BLK1		SW9012B	BFF0256	SFF0305	AF20043
BFF0256-BS1	6.00 mL / 6.00 mL	SW9012B	BFF0256	SFF0305	AF20043
BFF0256-MS1	6.00 mL / 6.00 mL	SW9012B	BFF0256	SFF0305	AF20043
BFF0256-MS2	6.00 mL / 6.00 mL	SW9012B	BFF0256	SFF0305	AF20043
BFF0256-MSD1	6.00 mL / 6.00 mL	SW9012B	BFF0256	SFF0305	AF20043
BFF0256-MSD2	6.00 mL / 6.00 mL	SW9012B	BFF0256	SFF0305	AF20043
BFF0367-BLK1	50.0 mL / 50.0 mL	SM22 2320B-2011	BFF0367	SFF0426	
BFF0367-BS1	50.0 mL / 50.0 mL	SM22 2320B-2011	BFF0367	SFF0426	
BFF0367-DUP1	50.0 mL / 50.0 mL	SM22 2320B-2011	BFF0367	SFF0426	
BFF0367-DUP2	50.0 mL / 50.0 mL	SM22 2320B-2011	BFF0367	SFF0426	

Sample ID	Preparation Factors Initial / Final	Method	Batch ID	Sequence ID	Calibration ID
Organochlorine Pesticides and PCBs by GC/ECD			Preparation Method:	SW3510C/EPA600-ECD	
BFE1147-BLK1	1000 mL / 1.00 mL	SW8081B	BFE1147	SFF0056	AE20143
BFE1147-BS1	1000 mL / 1.00 mL	SW8081B	BFE1147	SFF0056	AE20143
BFE1147-BS2		SW8081B	BFE1147	SFF0059	AC20077

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Sample ID	Preparation Factors Initial / Final	Method	Batch ID	Sequence ID	Calibration ID
Organochlorine Pesticides and PCBs by GC/ECD			Preparation Method:	SW3510C/EPA600-ECD	
BFE1147-BS3	1000 mL / 1.00 mL	SW8081B	BFE1147	SFF0056	AE20143
BFE1147-BS4	1000 mL / 1.00 mL	SW8081B	BFE1147	SFF0056	AE20143
BFE1147-MS1	1070 mL / 1.00 mL	SW8081B	BFE1147	SFF0056	AE20143
BFE1147-MS2		SW8081B	BFE1147	SFF0059	AC20077
BFE1147-MSD1	1070 mL / 1.00 mL	SW8081B	BFE1147	SFF0056	AE20143
BFE1147-MSD2		SW8081B	BFE1147	SFF0059	AC20077
BFE1147-BLK1	1000 mL / 1.00 mL	SW8082A	BFE1147	SFF0056	AE20143
BFE1147-BS1		SW8082A	BFE1147	SFF0056	AE20143
BFE1147-BS2	1000 mL / 1.00 mL	SW8082A	BFE1147	SFF0059	AC20077
BFE1147-BS3		SW8082A	BFE1147	SFF0056	AE20143
BFE1147-BS4		SW8082A	BFE1147	SFF0056	AE20143
BFE1147-MS1		SW8082A	BFE1147	SFF0056	AE20143
BFE1147-MS2	1070 mL / 1.00 mL	SW8082A	BFE1147	SFF0059	AC20077
BFE1147-MSD1		SW8082A	BFE1147	SFF0056	AE20143
BFE1147-MSD2	1070 mL / 1.00 mL	SW8082A	BFE1147	SFF0059	AC20077

Sample ID	Preparation Factors Initial / Final	Method	Batch ID	Sequence ID	Calibration ID
Semivolatile Organic Compounds by GCMS			Preparation Method:	SW3580A-MS	
BFF0013-BLK1	1000 mL / 1.00 mL	SW8270E	BFF0013	SFF0089	AE20006
BFF0013-BS1	1000 mL / 1.00 mL	SW8270E	BFF0013	SFF0089	AE20006
BFF0013-MS1	1070 mL / 1.00 mL	SW8270E	BFF0013	SFF0089	AE20006
BFF0013-MSD1	1070 mL / 1.00 mL	SW8270E	BFF0013	SFF0089	AE20006
BFF0088-BLK1	1000 mL / 1.00 mL	SW8270E	BFF0088	SFF0213	AE20006
BFF0088-BS1	1000 mL / 1.00 mL	SW8270E	BFF0088	SFF0213	AE20006
BFF0088-MS1	1030 mL / 1.00 mL	SW8270E	BFF0088	SFF0188	AC20134
BFF0088-MSD1	1030 mL / 1.00 mL	SW8270E	BFF0088	SFF0188	AC20134

Sample ID	Preparation Factors Initial / Final	Method	Batch ID	Sequence ID	Calibration ID
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Volatile Organic Compounds by GCMS			Preparation Method:	SW5030B-MS	
BFF0032-BLK1	5.00 mL / 5.00 mL	SW8260D	BFF0032	SFF0038	AE20157
BFF0032-BS1	5.00 mL / 5.00 mL	SW8260D	BFF0032	SFF0038	AE20157
BFF0032-DUP1	5.00 mL / 5.00 mL	SW8260D	BFF0032	SFF0038	AE20157
BFF0032-MS1	5.00 mL / 5.00 mL	SW8260D	BFF0032	SFF0038	AE20157
BFF0033-BLK1	5.00 mL / 5.00 mL	SW8260D	BFF0033	SFF0030	AE20066
BFF0033-BS1	5.00 mL / 5.00 mL	SW8260D	BFF0033	SFF0030	AE20066
BFF0033-MS1	5.00 mL / 5.00 mL	SW8260D	BFF0033	SFF0030	AE20066
BFF0033-MSD1	5.00 mL / 5.00 mL	SW8260D	BFF0033	SFF0030	AE20066

Sample ID	Preparation Factors Initial / Final	Method	Batch ID	Sequence ID	Calibration ID
Metals (Total) by EPA 6000/7000 Series Methods			Preparation Method:	SW7470A	
BFF0393-BLK1	20.0 mL / 20.0 mL	SW7470A	BFF0393	SFF0385	AF20056
BFF0393-BS1	20.0 mL / 20.0 mL	SW7470A	BFF0393	SFF0385	AF20056
BFF0393-MS1	20.0 mL / 20.0 mL	SW7470A	BFF0393	SFF0385	AF20056
BFF0393-MS2	20.0 mL / 20.0 mL	SW7470A	BFF0393	SFF0385	AF20056
BFF0393-MSD1	20.0 mL / 20.0 mL	SW7470A	BFF0393	SFF0385	AF20056
BFF0393-MSD2	20.0 mL / 20.0 mL	SW7470A	BFF0393	SFF0385	AF20056

Sample ID	Preparation Factors Initial / Final	Method	Batch ID	Sequence ID	Calibration ID
Micro-extractables by GC/ECD			Preparation Method:	SW8011	
BFF0301-BLK1	60.0 mL / 2.00 mL	SW8011	BFF0301	SFF0286	AE20047
BFF0301-BS1	60.0 mL / 2.00 mL	SW8011	BFF0301	SFF0286	AE20047
BFF0301-MS1	59.4 mL / 2.00 mL	SW8011	BFF0301	SFF0286	AE20047
BFF0301-MS2	59.8 mL / 2.00 mL	SW8011	BFF0301	SFF0286	AE20047
BFF0301-MSD1	59.6 mL / 2.00 mL	SW8011	BFF0301	SFF0286	AE20047
BFF0301-MSD2	59.1 mL / 2.00 mL	SW8011	BFF0301	SFF0286	AE20047

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Sample ID	Preparation Factors Initial / Final	Method	Batch ID	Sequence ID	Calibration ID
Organochlorine Herbicides by GC/ECD			Preparation Method:	SW8151A/EPA600	
BFE1204-BLK1	900 mL / 5.00 mL	SW8151A	BFE1204	SFF0393	AD20156
BFE1204-BS1	900 mL / 5.00 mL	SW8151A	BFE1204	SFF0393	AD20156
BFE1204-MS1	900 mL / 5.00 mL	SW8151A	BFE1204	SFF0393	AD20156
BFE1204-MSD1	900 mL / 5.00 mL	SW8151A	BFE1204	SFF0393	AD20156
BFF0117-BLK1	900 mL / 5.00 mL	SW8151A	BFF0117	SFF0393	AD20156
BFF0117-BS1	900 mL / 5.00 mL	SW8151A	BFF0117	SFF0393	AD20156
BFF0117-MRL1	900 mL / 5.00 mL	SW8151A	BFF0117	SFF0915	AD20156
BFF0117-MRL2		SW8151A	BFF0117		
BFF0117-MS1	900 mL / 5.00 mL	SW8151A	BFF0117	SFF0393	AD20156
BFF0117-MSD1	900 mL / 5.00 mL	SW8151A	BFF0117	SFF0393	AD20156

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Certified Analyses included in this Report

Analyte	Certifications
<i>RSK175M in Non-Potable Water</i>	
Ethane	VELAP
Ethene	VELAP
Methane	VELAP
<i>SM22 2320B-2011 in Non-Potable Water</i>	
Alkalinity	VELAP,PADEP,WVDEP,NHDES,MADEP
<i>SW6020B in Non-Potable Water</i>	
Antimony	VELAP,NCDEQ,WVDEP,NHDES
Arsenic	VELAP,WVDEP,NHDES
Barium	VELAP,WVDEP,NHDES
Beryllium	VELAP,WVDEP,NHDES
Cadmium	VELAP,WVDEP,NHDES
Chromium	VELAP,WVDEP,NHDES
Cobalt	VELAP,WVDEP,NHDES
Copper	VELAP,WVDEP,NHDES
Lead	VELAP,WVDEP,NHDES
Nickel	VELAP,WVDEP
Selenium	VELAP,WVDEP,NHDES
Silver	VELAP,WVDEP,NHDES
Thallium	VELAP,WVDEP,NHDES
Tin	VELAP,WVDEP
Vanadium	VELAP,WVDEP,NHDES
Zinc	VELAP,WVDEP,NHDES
<i>SW7470A in Non-Potable Water</i>	
Mercury	VELAP,NCDEQ,WVDEP,NHDES
<i>SW8011 in Non-Potable Water</i>	

Certificate of Analysis

Client Name: SCS Engineers-Winchester
 Client Site I.D.: City of Bristol 1st Semi-Annual 2022
 Submitted To: Jennifer Robb

Date Issued: 7/12/2022 2:25:23PM

Certified Analyses included in this Report

Analyte	Certifications
1,2-Dibromoethane (EDB)	VELAP,NCDEQ
1,2,3-Trichloropropane	VELAP,NCDEQ
1,2-Dibromo-3-chloropropane (DBCP)	VELAP,NCDEQ
SW8081B in Non-Potable Water	
4,4'-DDD	NCDEQ,VELAP,WVDEP,PADEP,NHDES
4,4'-DDE	NCDEQ,VELAP,WVDEP,PADEP,NHDES
4,4'-DDT	NCDEQ,VELAP,WVDEP,PADEP,NHDES
Aldrin	NCDEQ,VELAP,WVDEP,PADEP,NHDES
alpha-BHC	NCDEQ,VELAP,WVDEP,PADEP,NHDES
alpha-Chlordane	NCDEQ,VELAP,WVDEP,PADEP,NHDES
beta-BHC	NCDEQ,VELAP,WVDEP,PADEP,NHDES
Chlordane	NCDEQ,VELAP,WVDEP,PADEP,NHDES
delta-BHC	NCDEQ,VELAP,WVDEP,PADEP,NHDES
Dieldrin	NCDEQ,VELAP,WVDEP,PADEP,NHDES
Endosulfan I	NCDEQ,VELAP,WVDEP,PADEP,NHDES
Endosulfan II	NCDEQ,VELAP,WVDEP,PADEP,NHDES
Endosulfan sulfate	NCDEQ,VELAP,WVDEP,PADEP,NHDES
Endrin	NCDEQ,VELAP,WVDEP,PADEP,NHDES
Endrin aldehyde	NCDEQ,VELAP,WVDEP,PADEP,NHDES
gamma-BHC (Lindane)	NCDEQ,VELAP,WVDEP,PADEP,NHDES
gamma-Chlordane	NCDEQ,VELAP,WVDEP,PADEP,NHDES
Heptachlor	NCDEQ,VELAP,WVDEP,PADEP,NHDES
Heptachlor epoxide	NCDEQ,VELAP,WVDEP,PADEP,NHDES
Methoxychlor	NCDEQ,VELAP,WVDEP,PADEP,NHDES
Toxaphene	NCDEQ,VELAP,WVDEP,PADEP,NHDES
SW8082A in Non-Potable Water	
PCB as Aroclor 1016	VELAP,PADEP,NCDEQ,WVDEP,NHDES
PCB as Aroclor 1221	VELAP,PADEP,NCDEQ,WVDEP,NHDES

Certificate of Analysis

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Certified Analyses included in this Report

Analyte	Certifications
PCB as Aroclor 1232	VELAP,PADEP,NCDEQ,WVDEP,NHDES
PCB as Aroclor 1242	VELAP,PADEP,NCDEQ,WVDEP,NHDES
PCB as Aroclor 1248	VELAP,PADEP,NCDEQ,WVDEP,NHDES
PCB as Aroclor 1254	VELAP,PADEP,NCDEQ,WVDEP,NHDES
PCB as Aroclor 1260	VELAP,PADEP,NCDEQ,WVDEP,NHDES
SW8151A in Non-Potable Water	
2,4,5-T	VELAP,PADEP,NCDEQ,WVDEP
2,4,5-TP (Silvex)	VELAP,PADEP,NCDEQ,WVDEP
2,4-D	VELAP,PADEP,NCDEQ,WVDEP
Dinoseb	VELAP,PADEP,NCDEQ,WVDEP
Pentachlorophenol	VELAP,PADEP,NCDEQ,WVDEP
SW8260D in Non-Potable Water	
1,1,1,2-Tetrachloroethane	NCDEQ,WVDEP,VELAP
1,1,1-Trichloroethane	NCDEQ,WVDEP,VELAP
1,1,2,2-Tetrachloroethane	NCDEQ,WVDEP,VELAP
1,1,2-Trichloroethane	NCDEQ,WVDEP,VELAP
1,1-Dichloroethane	NCDEQ,WVDEP,VELAP
1,1-Dichloroethylene	NCDEQ,WVDEP,VELAP
1,1-Dichloropropene	NCDEQ,WVDEP,VELAP
1,2,3-Trichloropropane	NCDEQ,WVDEP,VELAP
1,2,4-Trichlorobenzene	NCDEQ,WVDEP,VELAP
1,2-Dichlorobenzene	NCDEQ,WVDEP,VELAP
1,2-Dichloroethane	NCDEQ,WVDEP,VELAP
1,2-Dichloropropane	NCDEQ,WVDEP,VELAP
1,3-Dichlorobenzene	NCDEQ,WVDEP,VELAP
1,3-Dichloropropane	NCDEQ,WVDEP,VELAP
1,4-Dichlorobenzene	NCDEQ,WVDEP,VELAP
2,2-Dichloropropane	NCDEQ,WVDEP,VELAP

Certificate of Analysis

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Certified Analyses included in this Report

Analyte	Certifications
2-Butanone (MEK)	NCDEQ, WVDEP, VELAP
2-Hexanone (MBK)	NCDEQ, WVDEP, VELAP
4-Methyl-2-pentanone (MIBK)	NCDEQ, WVDEP, VELAP
Acetone	NCDEQ, WVDEP, VELAP
Acetonitrile	NCDEQ, WVDEP, VELAP
Acrolein	NCDEQ, WVDEP, VELAP
Acrylonitrile	NCDEQ, WVDEP, VELAP
Allyl chloride	NCDEQ, WVDEP, VELAP
Benzene	NCDEQ, WVDEP, VELAP
Bromochloromethane	NCDEQ, WVDEP, VELAP
Bromodichloromethane	NCDEQ, WVDEP, VELAP
Bromoform	NCDEQ, WVDEP, VELAP
Bromomethane	NCDEQ, WVDEP, VELAP
Carbon disulfide	NCDEQ, WVDEP, VELAP
Carbon tetrachloride	NCDEQ, WVDEP, VELAP
Chlorobenzene	NCDEQ, WVDEP, VELAP
Chloroethane	NCDEQ, WVDEP, VELAP
Chloroform	NCDEQ, WVDEP, VELAP
Chloromethane	NCDEQ, WVDEP, VELAP
Chloroprene	NCDEQ, WVDEP, VELAP
cis-1,2-Dichloroethylene	NCDEQ, WVDEP, VELAP
cis-1,3-Dichloropropene	NCDEQ, WVDEP, VELAP
Dibromochloromethane	NCDEQ, WVDEP, VELAP
Dibromomethane	NCDEQ, WVDEP, VELAP
Dichlorodifluoromethane	NCDEQ, WVDEP, VELAP
Ethyl methacrylate	NCDEQ, WVDEP, VELAP
Ethylbenzene	NCDEQ, WVDEP, VELAP
Iodomethane	NCDEQ, WVDEP, VELAP

Certificate of Analysis

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Certified Analyses included in this Report

Analyte	Certifications
Isobutyl Alcohol	NCDEQ, WVDEP, VELAP
m+p-Xylenes	NCDEQ, WVDEP, VELAP
Methacrylonitrile	NCDEQ, WVDEP, VELAP
Methyl methacrylate	NCDEQ, WVDEP, VELAP
Methylene chloride	NCDEQ, WVDEP, VELAP
Naphthalene	NCDEQ, WVDEP, VELAP
o-Xylene	NCDEQ, WVDEP, VELAP
Propionitrile	NCDEQ, WVDEP, VELAP
Styrene	NCDEQ, WVDEP, VELAP
Tetrachloroethylene (PCE)	NCDEQ, WVDEP, VELAP
Toluene	NCDEQ, WVDEP, VELAP
trans-1,2-Dichloroethylene	NCDEQ, WVDEP, VELAP
trans-1,3-Dichloropropene	NCDEQ, WVDEP, VELAP
trans-1,4-Dichloro-2-butene	NCDEQ, WVDEP, VELAP
Trichloroethylene	NCDEQ, WVDEP, VELAP
Trichlorofluoromethane	NCDEQ, WVDEP, VELAP
Vinyl acetate	NCDEQ, WVDEP, VELAP
Vinyl chloride	NCDEQ, WVDEP, VELAP
Xylenes, Total	NCDEQ, WVDEP, VELAP

SW8270E in Non-Potable Water

1,2,4,5-Tetrachlorobenzene	VELAP, NCDEQ, WVDEP
1,3,5-Trinitrobenzene	VELAP, NCDEQ, WVDEP
1,3-Dinitrobenzene	VELAP, NCDEQ, WVDEP
1,4-Naphthoquinone	VELAP, NCDEQ, WVDEP
1-Naphthylamine	VELAP, NCDEQ, WVDEP
2,3,4,6-Tetrachlorophenol	VELAP, NCDEQ, WVDEP
2,4,5-Trichlorophenol	VELAP, NCDEQ, WVDEP
2,4,6-Trichlorophenol	VELAP, NCDEQ, WVDEP

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Analyte	Certifications
2,4-Dichlorophenol	VELAP,NCDEQ,WVDEP
2,4-Dimethylphenol	VELAP,NCDEQ,WVDEP
2,4-Dinitrophenol	VELAP,NCDEQ,WVDEP
2,4-Dinitrotoluene	VELAP,NCDEQ,WVDEP
2,6-Dichlorophenol	VELAP,NCDEQ,WVDEP
2,6-Dinitrotoluene	VELAP,NCDEQ,WVDEP
2-Acetylaminofluorene	VELAP,NCDEQ,WVDEP
2-Chloronaphthalene	VELAP,NCDEQ,WVDEP
2-Chlorophenol	VELAP,NCDEQ,WVDEP
2-Methylnaphthalene	VELAP,NCDEQ,WVDEP
2-Naphthylamine	VELAP,NCDEQ,WVDEP
2-Nitroaniline	VELAP,NCDEQ,WVDEP
2-Nitrophenol	VELAP,NCDEQ,WVDEP
3,3'-Dichlorobenzidine	VELAP,NCDEQ,WVDEP
3,3'-Dimethylbenzidine	VELAP,NCDEQ,WVDEP
3-Methylcholanthrene	VELAP,NCDEQ,WVDEP
3-Nitroaniline	VELAP,NCDEQ,WVDEP
4,6-Dinitro-2-methylphenol	VELAP,NCDEQ,WVDEP
4-Aminobiphenyl	VELAP,NCDEQ,WVDEP
4-Bromophenyl phenyl ether	VELAP,NCDEQ,WVDEP
4-Chloroaniline	VELAP,NCDEQ,WVDEP
4-Chlorophenyl phenyl ether	VELAP,NCDEQ,WVDEP
4-Nitroaniline	VELAP,NCDEQ,WVDEP
4-Nitrophenol	VELAP,NCDEQ,WVDEP
5-Nitro-o-toluidine	VELAP,NCDEQ,WVDEP
7,12-Dimethylbenz (a) anthracene	VELAP,NCDEQ,WVDEP
Acenaphthene	VELAP,NCDEQ,WVDEP
Acenaphthylene	VELAP,NCDEQ,WVDEP

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Analyte	Certifications
Acetophenone	VELAP,NCDEQ,WVDEP
Anthracene	VELAP,NCDEQ,WVDEP
Benzo (a) anthracene	VELAP,NCDEQ,WVDEP
Benzo (a) pyrene	VELAP,NCDEQ,WVDEP
Benzo (b) fluoranthene	VELAP,NCDEQ,WVDEP
Benzo (g,h,i) perylene	VELAP,NCDEQ,WVDEP
Benzo (k) fluoranthene	VELAP,NCDEQ,WVDEP
Benzyl alcohol	VELAP,NCDEQ,WVDEP
bis (2-Chloroethoxy) methane	VELAP,NCDEQ,WVDEP
bis (2-Chloroethyl) ether	VELAP,NCDEQ,WVDEP
2,2'-Oxybis (1-chloropropane)	VELAP,NCDEQ,WVDEP
bis (2-Ethylhexyl) phthalate	VELAP,NCDEQ,WVDEP
Butyl benzyl phthalate	VELAP,NCDEQ,WVDEP
Chlorobenzilate	VELAP,NCDEQ,WVDEP
Chrysene	VELAP,NCDEQ,WVDEP
Diallate	VELAP,NCDEQ,WVDEP
Dibenz (a,h) anthracene	VELAP,NCDEQ,WVDEP
Dibenzofuran	VELAP,NCDEQ,WVDEP
Diethyl phthalate	VELAP,NCDEQ,WVDEP
Dimethoate	VELAP,NCDEQ,WVDEP
Dimethyl phthalate	VELAP,NCDEQ,WVDEP
Di-n-butyl phthalate	VELAP,NCDEQ,WVDEP
Di-n-octyl phthalate	VELAP,NCDEQ,WVDEP
Diphenylamine	VELAP,NCDEQ,WVDEP
Disulfoton	VELAP,NCDEQ,WVDEP
Ethyl methanesulfonate	VELAP,NCDEQ,WVDEP
Ethyl parathion	VELAP,NCDEQ,WVDEP
Famphur	VELAP,NCDEQ,WVDEP

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Certified Analyses included in this Report

Analyte	Certifications
Fluoranthene	VELAP,NCDEQ,WVDEP
Fluorene	VELAP,NCDEQ,WVDEP
Hexachlorobenzene	VELAP,NCDEQ,WVDEP
Hexachlorobutadiene	VELAP,NCDEQ,WVDEP
Hexachlorocyclopentadiene	VELAP,NCDEQ,WVDEP
Hexachloroethane	VELAP,NCDEQ,WVDEP
Hexachloropropene	VELAP,NCDEQ,WVDEP
Indeno (1,2,3-cd) pyrene	VELAP,NCDEQ,WVDEP
Isodrin	VELAP,NCDEQ,WVDEP
Isophorone	VELAP,NCDEQ,WVDEP
Isosafrole	VELAP,NCDEQ,WVDEP
Kepone	VELAP,NCDEQ,WVDEP
m+p-Cresols	VELAP,NCDEQ,WVDEP
Methapyrilene	VELAP,NCDEQ,WVDEP
Methyl methanesulfonate	VELAP,NCDEQ,WVDEP
Methyl parathion	VELAP,NCDEQ,WVDEP
Nitrobenzene	VELAP,NCDEQ,WVDEP
n-Nitrosodiethylamine	VELAP,NCDEQ,WVDEP
n-Nitrosodimethylamine	VELAP,NCDEQ,WVDEP
n-Nitrosodi-n-butylamine	VELAP,NCDEQ,WVDEP
n-Nitrosodi-n-propylamine	VELAP,NCDEQ,WVDEP
n-Nitrosodiphenylamine	VELAP,NCDEQ,WVDEP
n-Nitrosomethylethylamine	VELAP,NCDEQ,WVDEP
n-Nitrosopiperidine	VELAP,NCDEQ,WVDEP
n-Nitrosopyrrolidine	VELAP,NCDEQ,WVDEP
o,o,o-Triethyl phosphorothioate	VELAP,NCDEQ,WVDEP
o,o-Diethyl o-2-pyrazinyl phosphorothioate	VELAP,NCDEQ,WVDEP
o+m+p-Cresols	VELAP,WVDEP

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Certified Analyses included in this Report

Analyte	Certifications
o-Cresol	VELAP,NCDEQ,WVDEP
o-Toluidine	VELAP,NCDEQ,WVDEP
p-(Dimethylamino) azobenzene	VELAP,NCDEQ,WVDEP
p-Chloro-m-cresol	VELAP,NCDEQ,WVDEP
Pentachlorobenzene	VELAP,NCDEQ,WVDEP
Pentachloronitrobenzene (quintozene)	VELAP,NCDEQ,WVDEP
Phenacetin	VELAP,NCDEQ,WVDEP
Phenanthrene	VELAP,NCDEQ,WVDEP
Phenol	VELAP,NCDEQ,WVDEP
Phorate	VELAP,NCDEQ,WVDEP
p-Phenylenediamine	VELAP,NCDEQ,WVDEP
Pronamide	VELAP,NCDEQ,WVDEP
Pyrene	VELAP,NCDEQ,WVDEP
Safrole	VELAP,NCDEQ,WVDEP
SW9012B in Non-Potable Water	
Cyanide	VELAP,WVDEP
SW9056A in Non-Potable Water	
Chloride	VELAP
SW9215 in Non-Potable Water	
Sulfide	VELAP

Certificate of Analysis

Client Name: SCS Engineers-Winchester
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Code	Description	Laboratory ID	Expires
MADEP	Massachusetts DEP	M-VA913	06/30/2022
MdDOE	Maryland DE Drinking Water	341	12/31/2022
NC	North Carolina DENR	495	07/31/2022
NCDEQ	North Carolina DEQ	495	12/31/2022
NCDOH	North Carolina Department of Health	51714	07/31/2022
NJDEP	NELAP-New Jersey DEP	VA015	06/30/2022
NYDOH	New York DOH Drinking Water	12096	04/01/2023
PADEP	NELAP-Pennsylvania Certificate #007	68-03503	10/31/2022
VELAP	NELAP-Virginia Certificate #11900	460021	06/14/2023
WVDEP	West Virginia DEP	350	11/30/2022

Certificate of Analysis

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Qualifiers and Definitions

B	Blank contamination. The recorded result is associated with a contaminated blank.
C	Continuing calibration verification response for this analyte is outside specifications.
Cl	Residual Chlorine or other oxidizing agent was detected in the container used to analyze this sample.
J	The reported result is an estimated value.
L	LCS recovery is outside of established acceptance limits
M	Matrix spike recovery is outside established acceptance limits
P	Duplicate analysis does not meet the acceptance criteria for precision
pH	The container used to analyze this sample had a pH measurement of greater than 2 s.u.
S	Surrogate recovery was outside acceptance criteria
RPD	Relative Percent Difference
Qual	Qualifiers
-RE	Denotes sample was re-analyzed
LOD	Limit of Detection
BLOD	Below Limit of Detection
LOQ	Limit of Quantitation
DF	Dilution Factor
TIC	Tentatively Identified Compounds are compounds that are identified by comparing the analyte mass spectral pattern with the NIST spectral library. A TIC spectral match is reported when the pattern is at least 75% consistent with the published pattern. Compound concentrations are estimated and are calculated using an internal standard response factor of 1.
PCBs, Total	Total PCBs are defined as the sum of detected Aroclors 1016, 1221, 1232, 1248, 1254, 1260, 1262, and 1268.

Certificate of Analysis

Client Name: SCS Engineers-Winchester
 Client Site I.D.: City of Bristol 2nd Semi-Annual
 Submitted To: Jennifer Robb

Date Issued: 12/30/2022 11:56:27AM

Metals (Total) by EPA 6000/7000 Series Methods - Quality Control

Enthalpy Analytical

Analyte	Result	LOQ	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Qual
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Batch BFL0428 - EPA200.8 R5.4

Blank (BFL0428-BLK1)

Prepared: 12/12/2022 Analyzed: 12/18/2022

Antimony	ND	1.0	ug/L
Arsenic	ND	1.0	ug/L
Barium	ND	5.00	ug/L
Beryllium	ND	1.00	ug/L
Cadmium	ND	1.00	ug/L
Chromium	ND	1.00	ug/L
Cobalt	ND	1.00	ug/L
Copper	ND	1.00	ug/L
Lead	ND	1.0	ug/L
Nickel	ND	1.000	ug/L
Selenium	ND	1.00	ug/L
Silver	ND	1.00	ug/L
Thallium	ND	1.0	ug/L
Vanadium	ND	5.00	ug/L
Zinc	ND	5.00	ug/L

LCS (BFL0428-BS1)

Prepared: 12/12/2022 Analyzed: 12/18/2022

Antimony	52	1.0	ug/L	50.0	104	80-120
Arsenic	49	1.0	ug/L	50.0	98.3	80-120
Barium	50.5	5.00	ug/L	50.0	101	80-120
Beryllium	55.8	1.00	ug/L	50.0	112	80-120
Cadmium	50.3	1.00	ug/L	50.0	101	80-120
Chromium	51.2	1.00	ug/L	50.0	102	80-120
Cobalt	48.9	1.00	ug/L	50.0	97.8	80-120
Copper	50.1	1.00	ug/L	50.0	100	80-120

Certificate of Analysis

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Date Issued: 12/30/2022 11:56:27AM

Metals (Total) by EPA 6000/7000 Series Methods - Quality Control

Enthalpy Analytical

Analyte	Result	LOQ	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Qual
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Batch BFL0428 - EPA200.8 R5.4

LCS (BFL0428-BS1)

Prepared: 12/12/2022 Analyzed: 12/18/2022

Lead	50	1.0	ug/L	50.0		101	80-120			
Nickel	49.02	1.000	ug/L	50.0		98.0	80-120			
Selenium	51.7	1.00	ug/L	50.0		103	80-120			
Silver	9.38	1.00	ug/L	10.0		93.8	80-120			E
Thallium	52	1.0	ug/L	50.0		104	80-120			
Vanadium	49.9	5.00	ug/L	50.0		99.7	80-120			
Zinc	52.2	5.00	ug/L	50.0		104	80-120			

Matrix Spike (BFL0428-MS1)

Source: 22L0423-13

Prepared: 12/12/2022 Analyzed: 12/18/2022

Antimony	52	1.0	ug/L	50.0	BLOD	103	75-125			
Arsenic	60	1.0	ug/L	50.0	12	95.6	75-125			
Barium	827	5.00	ug/L	50.0	787	80.8	75-125			M, E
Beryllium	46.2	1.00	ug/L	50.0	BLOD	92.4	75-125			
Cadmium	47.8	1.00	ug/L	50.0	0.563	94.4	75-125			
Chromium	49.4	1.00	ug/L	50.0	1.81	95.1	75-125			
Cobalt	74.2	1.00	ug/L	50.0	27.8	92.8	75-125			M
Copper	45.3	1.00	ug/L	50.0	0.904	88.8	75-125			
Lead	50	1.0	ug/L	50.0	1.5	96.6	75-125			
Nickel	67.04	1.000	ug/L	50.0	22.52	89.0	75-125			M
Selenium	45.2	1.00	ug/L	50.0	BLOD	90.4	75-125			
Silver	9.09	1.00	ug/L	10.0	BLOD	90.9	75-125			E
Thallium	51	1.0	ug/L	50.0	BLOD	102	75-125			
Vanadium	49.9	5.00	ug/L	50.0	BLOD	99.7	75-125			
Zinc	139	5.00	ug/L	50.0	96.1	85.5	75-125			M

Matrix Spike (BFL0428-MS2)

Source: 22L0423-16

Prepared: 12/12/2022 Analyzed: 12/18/2022

Certificate of Analysis

 Client Name: SCS Engineers-Winchester
 Client Site I.D.: City of Bristol 2nd Semi-Annual
 Submitted To: Jennifer Robb

Date Issued: 12/30/2022 11:56:27AM

Metals (Total) by EPA 6000/7000 Series Methods - Quality Control

Enthalpy Analytical

Analyte	Result	LOQ	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Qual
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Batch BFL0428 - EPA200.8 R5.4

Matrix Spike (BFL0428-MS2)	Source: 22L0423-16			Prepared: 12/12/2022 Analyzed: 12/18/2022						
Antimony	52	1.0	ug/L	50.0	BLOD	104	75-125			
Arsenic	49	1.0	ug/L	50.0	BLOD	97.9	75-125			
Barium	51.9	5.00	ug/L	50.0	BLOD	104	75-125			
Beryllium	50.6	1.00	ug/L	50.0	BLOD	101	75-125			
Cadmium	49.5	1.00	ug/L	50.0	BLOD	99.0	75-125			
Chromium	48.6	1.00	ug/L	50.0	BLOD	97.3	75-125			
Cobalt	48.6	1.00	ug/L	50.0	BLOD	97.3	75-125			
Copper	48.7	1.00	ug/L	50.0	BLOD	97.4	75-125			
Lead	50	1.0	ug/L	50.0	BLOD	100	75-125			
Nickel	48.02	1.000	ug/L	50.0	BLOD	96.0	75-125			
Selenium	50.1	1.00	ug/L	50.0	BLOD	100	75-125			
Silver	9.52	1.00	ug/L	10.0	BLOD	95.2	75-125			E
Thallium	50	1.0	ug/L	50.0	BLOD	101	75-125			
Vanadium	48.4	5.00	ug/L	50.0	BLOD	96.7	75-125			
Zinc	51.1	5.00	ug/L	50.0	BLOD	102	75-125			

Matrix Spike Dup (BFL0428-MSD1)	Source: 22L0423-13			Prepared: 12/12/2022 Analyzed: 12/18/2022						
Antimony	51	1.0	ug/L	50.0	BLOD	103	75-125	0.620	20	
Arsenic	59	1.0	ug/L	50.0	12	94.5	75-125	0.948	20	
Barium	831	5.00	ug/L	50.0	787	89.1	75-125	0.501	20	E
Beryllium	46.3	1.00	ug/L	50.0	BLOD	92.5	75-125	0.134	20	
Cadmium	48.0	1.00	ug/L	50.0	0.563	94.9	75-125	0.565	20	
Chromium	49.7	1.00	ug/L	50.0	1.81	95.9	75-125	0.758	20	
Cobalt	72.8	1.00	ug/L	50.0	27.8	90.0	75-125	1.92	20	
Copper	45.9	1.00	ug/L	50.0	0.904	89.9	75-125	1.27	20	

Certificate of Analysis

 Client Name: SCS Engineers-Winchester
 Client Site I.D.: City of Bristol 2nd Semi-Annual
 Submitted To: Jennifer Robb

Date Issued: 12/30/2022 11:56:27AM

Metals (Total) by EPA 6000/7000 Series Methods - Quality Control

Enthalpy Analytical

Analyte	Result	LOQ	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Qual
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Batch BFL0428 - EPA200.8 R5.4

Matrix Spike Dup (BFL0428-MSD1)	Source: 22L0423-13			Prepared: 12/12/2022 Analyzed: 12/18/2022						
Lead	52	1.0	ug/L	50.0	1.5	100	75-125	3.47	20	
Nickel	66.64	1.000	ug/L	50.0	22.52	88.2	75-125	0.601	20	
Selenium	45.7	1.00	ug/L	50.0	BLOD	91.3	75-125	1.02	20	
Silver	9.24	1.00	ug/L	10.0	BLOD	92.4	75-125	1.55	20	E
Thallium	51	1.0	ug/L	50.0	BLOD	103	75-125	0.153	20	
Vanadium	49.8	5.00	ug/L	50.0	BLOD	99.5	75-125	0.220	20	
Zinc	137	5.00	ug/L	50.0	96.1	82.8	75-125	0.977	20	

Matrix Spike Dup (BFL0428-MSD2)	Source: 22L0423-16			Prepared: 12/12/2022 Analyzed: 12/18/2022						
Antimony	52	1.0	ug/L	50.0	BLOD	105	75-125	0.342	20	
Arsenic	49	1.0	ug/L	50.0	BLOD	98.7	75-125	0.881	20	
Barium	50.8	5.00	ug/L	50.0	BLOD	102	75-125	2.15	20	
Beryllium	54.7	1.00	ug/L	50.0	BLOD	109	75-125	7.93	20	
Cadmium	50.2	1.00	ug/L	50.0	BLOD	100	75-125	1.47	20	
Chromium	50.8	1.00	ug/L	50.0	BLOD	102	75-125	4.43	20	
Cobalt	48.3	1.00	ug/L	50.0	BLOD	96.6	75-125	0.720	20	
Copper	48.7	1.00	ug/L	50.0	BLOD	97.5	75-125	0.0287	20	
Lead	51	1.0	ug/L	50.0	BLOD	102	75-125	1.80	20	
Nickel	48.16	1.000	ug/L	50.0	BLOD	96.3	75-125	0.290	20	
Selenium	51.5	1.00	ug/L	50.0	BLOD	103	75-125	2.72	20	
Silver	9.40	1.00	ug/L	10.0	BLOD	94.0	75-125	1.37	20	E
Thallium	51	1.0	ug/L	50.0	BLOD	103	75-125	2.07	20	
Vanadium	49.4	5.00	ug/L	50.0	BLOD	98.7	75-125	2.07	20	
Zinc	51.5	5.00	ug/L	50.0	BLOD	103	75-125	0.916	20	

Batch BFL0592 - SW7470A

Certificate of Analysis

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 Client Site I.D.: City of Bristol 2nd Semi-Annual
 Submitted To: Jennifer Robb

Date Issued: 12/30/2022 11:56:27AM

Metals (Total) by EPA 6000/7000 Series Methods - Quality Control

Enthalpy Analytical

Analyte	Result	LOQ	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Qual
Batch BFL0592 - SW7470A										
Blank (BFL0592-BLK1)				Prepared & Analyzed: 12/15/2022						
Mercury	ND	0.00020	mg/L							
LCS (BFL0592-BS1)				Prepared & Analyzed: 12/15/2022						
Mercury	0.00255	0.00020	mg/L	0.00250		102	80-120			
Matrix Spike (BFL0592-MS1)				Source: 22L0423-13		Prepared & Analyzed: 12/15/2022				
Mercury	0.00376	0.00020	mg/L	0.00250	0.00125	100	80-120			
Matrix Spike Dup (BFL0592-MSD1)				Source: 22L0423-13		Prepared & Analyzed: 12/15/2022				
Mercury	0.00387	0.00020	mg/L	0.00250	0.00125	105	80-120	2.88	20	
Batch BFL0762 - EPA200.8 R5.4										
Blank (BFL0762-BLK1)				Prepared & Analyzed: 12/20/2022						
Tin	ND	1.00	ug/L							
LCS (BFL0762-BS1)				Prepared & Analyzed: 12/20/2022						
Tin	56.3	1.00	ug/L	50.0		113	80-120			
Matrix Spike (BFL0762-MS1)				Source: 22L0205-10RE2		Prepared & Analyzed: 12/20/2022				
Tin	56.1	1.00	ug/L	50.0	BLOD	112	75-125			
Matrix Spike Dup (BFL0762-MSD1)				Source: 22L0205-10RE2		Prepared & Analyzed: 12/20/2022				
Tin	56.4	1.00	ug/L	50.0	BLOD	113	75-125	0.473	20	

Certificate of Analysis

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Volatile Organic Compounds by GCMS - Quality Control

Enthalpy Analytical

Analyte	Result	LOQ	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Qual
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Batch BFL0391 - SW5030B-MS

Blank (BFL0391-BLK1)

Prepared & Analyzed: 12/09/2022

1,1,1,2-Tetrachloroethane	ND	0.40	ug/L
1,1,1-Trichloroethane	ND	1.00	ug/L
1,1,2,2-Tetrachloroethane	ND	0.40	ug/L
1,1,2-Trichloroethane	ND	1.00	ug/L
1,1-Dichloroethane	ND	1.00	ug/L
1,1-Dichloroethylene	ND	1.00	ug/L
1,2,3-Trichloropropane	ND	1.00	ug/L
1,2-Dichlorobenzene	ND	1.00	ug/L
1,2-Dichloroethane	ND	1.00	ug/L
1,2-Dichloropropane	ND	1.00	ug/L
1,4-Dichlorobenzene	ND	1.00	ug/L
2-Butanone (MEK)	ND	10.0	ug/L
2-Hexanone (MBK)	ND	5.00	ug/L
4-Methyl-2-pentanone (MIBK)	ND	5.00	ug/L
Acetone	ND	10.0	ug/L
Acrylonitrile	ND	5.00	ug/L
Benzene	ND	1.00	ug/L
Bromochloromethane	ND	1.00	ug/L
Bromodichloromethane	ND	0.50	ug/L
Bromoform	ND	1.00	ug/L
Bromomethane	ND	1.00	ug/L
Carbon disulfide	ND	10.0	ug/L
Carbon tetrachloride	ND	1.00	ug/L
Chlorobenzene	ND	1.00	ug/L
Chloroethane	ND	1.00	ug/L

Certificate of Analysis

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Volatile Organic Compounds by GCMS - Quality Control

Enthalpy Analytical

Analyte	Result	LOQ	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Qual
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Batch BFL0391 - SW5030B-MS

Blank (BFL0391-BLK1)

Prepared & Analyzed: 12/09/2022

Chloroform	ND	0.50	ug/L							
Chloromethane	ND	1.00	ug/L							
cis-1,2-Dichloroethylene	ND	1.00	ug/L							
cis-1,3-Dichloropropene	ND	1.00	ug/L							
Dibromochloromethane	ND	0.50	ug/L							
Dibromomethane	ND	1.00	ug/L							
Dichlorodifluoromethane	ND	1.00	ug/L							
Ethylbenzene	ND	1.00	ug/L							
Iodomethane	ND	10.0	ug/L							
m+p-Xylenes	ND	2.00	ug/L							
Methylene chloride	ND	4.00	ug/L							
o-Xylene	ND	1.00	ug/L							
Styrene	ND	1.00	ug/L							
Tetrachloroethylene (PCE)	ND	1.00	ug/L							
Toluene	ND	1.00	ug/L							
trans-1,2-Dichloroethylene	ND	1.00	ug/L							
trans-1,3-Dichloropropene	ND	1.00	ug/L							
trans-1,4-Dichloro-2-butene	ND	4.00	ug/L							
Trichloroethylene	ND	1.00	ug/L							
Trichlorofluoromethane	ND	1.00	ug/L							
Vinyl acetate	ND	10.0	ug/L							
Vinyl chloride	ND	0.50	ug/L							
Xylenes, Total	ND	3.00	ug/L							
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Surr: 1,2-Dichloroethane-d4 (Surr)	51.3		ug/L	50.0		103	70-120			
Surr: 4-Bromofluorobenzene (Surr)	47.9		ug/L	50.0		95.8	75-120			

Certificate of Analysis

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Volatile Organic Compounds by GCMS - Quality Control

Enthalpy Analytical

Analyte	Result	LOQ	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Qual
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Batch BFL0391 - SW5030B-MS

Blank (BFL0391-BLK1)

Prepared & Analyzed: 12/09/2022

<i>Surr: Dibromofluoromethane (Surr)</i>	50.0		ug/L	50.0		100	70-130
<i>Surr: Toluene-d8 (Surr)</i>	49.9		ug/L	50.0		99.8	70-130

LCS (BFL0391-BS1)

Prepared & Analyzed: 12/09/2022

1,1,1,2-Tetrachloroethane	50.0	0.4	ug/L	50.0		99.9	80-130
1,1,1,2-Tetrachloroethane	50.0	0.4	ug/L	50.0		99.9	80-130
1,1,1-Trichloroethane	44.5	1	ug/L	50.0		89.0	65-130
1,1,1-Trichloroethane	44.5	1	ug/L	50.0		89.0	65-130
1,1,2,2-Tetrachloroethane	44.9	0.4	ug/L	50.0		89.7	65-130
1,1,2,2-Tetrachloroethane	44.9	0.4	ug/L	50.0		89.7	65-130
1,1,2-Trichloroethane	46.9	1	ug/L	50.0		93.7	75-125
1,1,2-Trichloroethane	46.9	1	ug/L	50.0		93.7	75-125
1,1-Dichloroethane	41.8	1	ug/L	50.0		83.5	70-135
1,1-Dichloroethane	41.8	1	ug/L	50.0		83.5	70-135
1,1-Dichloroethylene	37.1	1	ug/L	50.0		74.3	70-130
1,1-Dichloroethylene	37.1	1	ug/L	50.0		74.3	70-130
1,1-Dichloropropene	44.1	1	ug/L	50.0		88.2	75-135
1,2,3-Trichloropropane	45.2	1	ug/L	50.0		90.5	75-125
1,2,3-Trichloropropane	45.2	1	ug/L	50.0		90.5	75-125
1,2,4-Trichlorobenzene	51.8	1	ug/L	50.0		104	65-135
1,2-Dichlorobenzene	52.4	0.5	ug/L	50.0		105	70-120
1,2-Dichlorobenzene	52.4	0.5	ug/L	50.0		105	70-120
1,2-Dichloroethane	38.9	1	ug/L	50.0		77.8	70-130
1,2-Dichloroethane	38.9	1	ug/L	50.0		77.8	70-130
1,2-Dichloropropane	46.0	0.5	ug/L	50.0		92.1	75-125

Certificate of Analysis

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Volatile Organic Compounds by GCMS - Quality Control

Enthalpy Analytical

Analyte	Result	LOQ	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Qual
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Batch BFL0391 - SW5030B-MS

LCS (BFL0391-BS1)

Prepared & Analyzed: 12/09/2022

1,2-Dichloropropane	46.0	0.5	ug/L	50.0		92.1	75-125			
1,3-Dichlorobenzene	51.5	1	ug/L	50.0		103	75-125			
1,3-Dichloropropane	45.1	1	ug/L	50.0		90.1	75-125			
1,4-Dichlorobenzene	51.6	1	ug/L	50.0		103	75-125			
1,4-Dichlorobenzene	51.6	1	ug/L	50.0		103	75-125			
2,2-Dichloropropane	44.6	1	ug/L	50.0		89.1	70-135			
2-Butanone (MEK)	43.9	10	ug/L	50.0		87.9	30-150			
2-Butanone (MEK)	43.9	10	ug/L	50.0		87.9	30-150			
2-Hexanone (MBK)	49.6	5	ug/L	50.0		99.2	55-130			
2-Hexanone (MBK)	49.6	5	ug/L	50.0		99.2	55-130			
4-Methyl-2-pentanone (MIBK)	49.2	5	ug/L	50.0		98.3	60-135			
4-Methyl-2-pentanone (MIBK)	49.2	5	ug/L	50.0		98.3	60-135			
Acetone	39.6	10	ug/L	50.0		79.2	40-140			
Acetone	39.6	10	ug/L	50.0		79.2	40-140			
Acrylonitrile	234	5	ug/L	250		93.6	70-130			
Acrylonitrile	234	5	ug/L	250		93.6	70-130			
Benzene	45.6	1	ug/L	50.0		91.2	80-120			
Benzene	45.6	1	ug/L	50.0		91.2	80-120			
Bromochloromethane	49.6	1	ug/L	50.0		99.3	65-130			
Bromochloromethane	49.6	1	ug/L	50.0		99.3	65-130			
Bromodichloromethane	49.6	0.5	ug/L	50.0		99.1	75-120			
Bromodichloromethane	49.6	0.5	ug/L	50.0		99.1	75-120			
Bromoform	49.4	1	ug/L	50.0		98.8	70-130			
Bromoform	49.4	1	ug/L	50.0		98.8	70-130			
Bromomethane	40.9	1	ug/L	50.0		81.8	30-145			

Certificate of Analysis

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Volatile Organic Compounds by GCMS - Quality Control

Enthalpy Analytical

Analyte	Result	LOQ	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Qual
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Batch BFL0391 - SW5030B-MS

LCS (BFL0391-BS1)

Prepared & Analyzed: 12/09/2022

Bromomethane	40.9	1	ug/L	50.0		81.8	30-145			
Carbon disulfide	41.1	10	ug/L	50.0		82.1	35-160			
Carbon disulfide	41.1	10	ug/L	50.0		82.1	35-160			
Carbon tetrachloride	45.7	1	ug/L	50.0		91.4	65-140			
Carbon tetrachloride	45.7	1	ug/L	50.0		91.4	65-140			
Chlorobenzene	48.5	1	ug/L	50.0		97.0	80-120			
Chlorobenzene	48.5	1	ug/L	50.0		97.0	80-120			
Chloroethane	39.7	1	ug/L	50.0		79.4	60-135			
Chloroethane	39.7	1	ug/L	50.0		79.4	60-135			
Chloroform	39.0	0.5	ug/L	50.0		78.1	65-135			
Chloroform	39.0	0.5	ug/L	50.0		78.1	65-135			
Chloromethane	45.0	1	ug/L	50.0		89.9	40-125			
Chloromethane	45.0	1	ug/L	50.0		89.9	40-125			
cis-1,2-Dichloroethylene	39.0	1	ug/L	50.0		78.0	70-125			
cis-1,2-Dichloroethylene	39.0	1	ug/L	50.0		78.0	70-125			
cis-1,3-Dichloropropene	41.4	1	ug/L	50.0		82.7	70-130			
cis-1,3-Dichloropropene	41.4	1	ug/L	50.0		82.7	70-130			
Dibromochloromethane	47.0	0.5	ug/L	50.0		94.0	60-135			
Dibromochloromethane	47.0	0.5	ug/L	50.0		94.0	60-135			
Dibromomethane	42.9	1	ug/L	50.0		85.9	75-125			
Dibromomethane	42.9	1	ug/L	50.0		85.9	75-125			
Dichlorodifluoromethane	32.1	1	ug/L	50.0		64.1	30-155			
Ethylbenzene	51.8	1	ug/L	50.0		104	75-125			
Ethylbenzene	51.8	1	ug/L	50.0		104	75-125			
m+p-Xylenes	98.5	2	ug/L	100		98.5	75-130			

Certificate of Analysis

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Enthalpy Analytical

Analyte	Result	LOQ	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Qual
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Batch BFL0391 - SW5030B-MS

LCS (BFL0391-BS1)

Prepared & Analyzed: 12/09/2022

m+p-Xylenes	98.5	2	ug/L	100		98.5	75-130			
Methylene chloride	42.0	4	ug/L	50.0		84.0	55-140			
Methylene chloride	42.0	4	ug/L	50.0		84.0	55-140			
o-Xylene	49.9	1	ug/L	50.0		99.7	80-120			
o-Xylene	49.9	1	ug/L	50.0		99.7	80-120			
Styrene	50.6	1	ug/L	50.0		101	65-135			
Styrene	50.6	1	ug/L	50.0		101	65-135			
Tetrachloroethylene (PCE)	79.7	1	ug/L	50.0		159	45-150			L
Tetrachloroethylene (PCE)	79.7	1	ug/L	50.0		159	45-150			L
Toluene	46.8	1	ug/L	50.0		93.6	75-120			
Toluene	46.8	1	ug/L	50.0		93.6	75-120			
trans-1,2-Dichloroethylene	39.5	1	ug/L	50.0		78.9	60-140			
trans-1,2-Dichloroethylene	39.5	1	ug/L	50.0		78.9	60-140			
trans-1,3-Dichloropropene	43.9	1	ug/L	50.0		87.9	55-140			
trans-1,3-Dichloropropene	43.9	1	ug/L	50.0		87.9	55-140			
Trichloroethylene	43.5	1	ug/L	50.0		87.0	70-125			
Trichloroethylene	43.5	1	ug/L	50.0		87.0	70-125			
Trichlorofluoromethane	45.7	1	ug/L	50.0		91.4	60-145			
Trichlorofluoromethane	45.7	1	ug/L	50.0		91.4	60-145			
Vinyl chloride	41.5	0.5	ug/L	50.0		83.0	50-145			
Vinyl chloride	41.5	0.5	ug/L	50.0		83.0	50-145			
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<i>Surr: 1,2-Dichloroethane-d4 (Surr)</i>	<i>50.4</i>		<i>ug/L</i>	<i>50.0</i>		<i>101</i>	<i>70-120</i>			
<i>Surr: 4-Bromofluorobenzene (Surr)</i>	<i>49.2</i>		<i>ug/L</i>	<i>50.0</i>		<i>98.4</i>	<i>75-120</i>			
<i>Surr: Dibromofluoromethane (Surr)</i>	<i>46.9</i>		<i>ug/L</i>	<i>50.0</i>		<i>93.9</i>	<i>70-130</i>			
<i>Surr: Toluene-d8 (Surr)</i>	<i>51.4</i>		<i>ug/L</i>	<i>50.0</i>		<i>103</i>	<i>70-130</i>			

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Volatile Organic Compounds by GCMS - Quality Control

Enthalpy Analytical

Analyte	Result	LOQ	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Qual
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Batch BFL0391 - SW5030B-MS

LCS (BFL0391-BS1)

Prepared & Analyzed: 12/09/2022

Matrix Spike (BFL0391-MS1)

Source: 22L0423-13

Prepared & Analyzed: 12/09/2022

1,1,1,2-Tetrachloroethane	50.3	0.4	ug/L	50.0	BLOD	101	80-130			
1,1,1,2-Tetrachloroethane	50.3	0.4	ug/L	50.0	BLOD	101	80-130			
1,1,1-Trichloroethane	50.6	1	ug/L	50.0	BLOD	101	65-130			
1,1,1-Trichloroethane	50.6	1	ug/L	50.0	BLOD	101	65-130			
1,1,2,2-Tetrachloroethane	46.0	0.4	ug/L	50.0	BLOD	92.1	65-130			
1,1,2,2-Tetrachloroethane	46.0	0.4	ug/L	50.0	BLOD	92.1	65-130			
1,1,2-Trichloroethane	47.1	1	ug/L	50.0	BLOD	94.3	75-125			
1,1,2-Trichloroethane	47.1	1	ug/L	50.0	BLOD	94.3	75-125			
1,1-Dichloroethane	53.9	1	ug/L	50.0	5.19	97.4	70-135			
1,1-Dichloroethane	53.9	1	ug/L	50.0	5.19	97.4	70-135			
1,1-Dichloroethylene	41.0	1	ug/L	50.0	BLOD	82.1	70-130			
1,1-Dichloroethylene	41.0	1	ug/L	50.0	BLOD	82.1	70-130			
1,1-Dichloropropene	49.9	1	ug/L	50.0	BLOD	99.8	75-135			
1,2,3-Trichloropropane	46.0	1	ug/L	50.0	BLOD	92.1	75-125			
1,2,3-Trichloropropane	46.0	1	ug/L	50.0	BLOD	92.1	75-125			
1,2,4-Trichlorobenzene	57.4	1	ug/L	50.0	BLOD	115	65-135			
1,2-Dichlorobenzene	52.8	0.5	ug/L	50.0	BLOD	106	70-120			
1,2-Dichlorobenzene	52.8	0.5	ug/L	50.0	BLOD	106	70-120			
1,2-Dichloroethane	40.2	1	ug/L	50.0	BLOD	80.4	70-130			
1,2-Dichloroethane	40.2	1	ug/L	50.0	BLOD	80.4	70-130			
1,2-Dichloropropane	45.8	0.5	ug/L	50.0	BLOD	91.6	75-125			
1,2-Dichloropropane	45.8	0.5	ug/L	50.0	BLOD	91.6	75-125			
1,3-Dichlorobenzene	52.2	1	ug/L	50.0	BLOD	104	75-125			

Certificate of Analysis

 Client Name: SCS Engineers-Winchester
 Client Site I.D.: City of Bristol 2nd Semi-Annual
 Submitted To: Jennifer Robb

Date Issued: 12/30/2022 11:56:27AM

Volatile Organic Compounds by GCMS - Quality Control

Enthalpy Analytical

Analyte	Result	LOQ	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Qual
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Batch BFL0391 - SW5030B-MS

Matrix Spike (BFL0391-MS1)

Source: 22L0423-13

Prepared & Analyzed: 12/09/2022

1,3-Dichloropropane	45.4	1	ug/L	50.0	BLOD	90.9	75-125			
1,4-Dichlorobenzene	52.5	1	ug/L	50.0	1.65	102	75-125			
1,4-Dichlorobenzene	52.5	1	ug/L	50.0	1.65	102	75-125			
2,2-Dichloropropane	48.2	1	ug/L	50.0	BLOD	96.4	70-135			
2-Butanone (MEK)	42.5	10	ug/L	50.0	BLOD	85.0	30-150			
2-Butanone (MEK)	42.5	10	ug/L	50.0	BLOD	85.0	30-150			
2-Hexanone (MBK)	46.4	5	ug/L	50.0	BLOD	92.8	55-130			
2-Hexanone (MBK)	46.4	5	ug/L	50.0	BLOD	92.8	55-130			
4-Methyl-2-pentanone (MIBK)	47.2	5	ug/L	50.0	BLOD	94.4	60-135			
4-Methyl-2-pentanone (MIBK)	47.2	5	ug/L	50.0	BLOD	94.4	60-135			
Acetone	44.4	10	ug/L	50.0	BLOD	79.8	40-140			
Acetone	44.4	10	ug/L	50.0	BLOD	79.8	40-140			
Acrylonitrile	237	5	ug/L	250	BLOD	94.8	70-130			
Acrylonitrile	237	5	ug/L	250	BLOD	94.8	70-130			
Benzene	84.4	1	ug/L	50.0	39.3	90.4	80-120			
Benzene	84.4	1	ug/L	50.0	39.3	90.4	80-120			
Bromochloromethane	48.8	1	ug/L	50.0	BLOD	97.6	65-130			
Bromochloromethane	48.8	1	ug/L	50.0	BLOD	97.6	65-130			
Bromodichloromethane	48.8	0.5	ug/L	50.0	BLOD	97.5	75-120			
Bromodichloromethane	48.8	0.5	ug/L	50.0	BLOD	97.5	75-120			
Bromoform	49.7	1	ug/L	50.0	BLOD	99.5	70-130			
Bromoform	49.7	1	ug/L	50.0	BLOD	99.5	70-130			
Bromomethane	35.8	1	ug/L	50.0	BLOD	71.5	30-145			
Bromomethane	35.8	1	ug/L	50.0	BLOD	71.5	30-145			
Carbon disulfide	43.6	10	ug/L	50.0	BLOD	87.1	35-160			

Certificate of Analysis

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Volatile Organic Compounds by GCMS - Quality Control

Enthalpy Analytical

Analyte	Result	LOQ	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Qual
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Batch BFL0391 - SW5030B-MS

Matrix Spike (BFL0391-MS1)	Source: 22L0423-13			Prepared & Analyzed: 12/09/2022						
Carbon disulfide	43.6	10	ug/L	50.0	BLOD	87.1	35-160			
Carbon tetrachloride	50.8	1	ug/L	50.0	BLOD	102	65-140			
Carbon tetrachloride	50.8	1	ug/L	50.0	BLOD	102	65-140			
Chlorobenzene	51.8	1	ug/L	50.0	1.25	101	80-120			
Chlorobenzene	51.8	1	ug/L	50.0	1.25	101	80-120			
Chloroethane	44.3	1	ug/L	50.0	BLOD	88.6	60-135			
Chloroethane	44.3	1	ug/L	50.0	BLOD	88.6	60-135			
Chloroform	40.1	0.5	ug/L	50.0	BLOD	80.1	65-135			
Chloroform	40.1	0.5	ug/L	50.0	BLOD	80.1	65-135			
Chloromethane	45.1	1	ug/L	50.0	BLOD	90.2	40-125			
Chloromethane	45.1	1	ug/L	50.0	BLOD	90.2	40-125			
cis-1,2-Dichloroethylene	90.0	1	ug/L	50.0	44.8	90.4	70-125			
cis-1,2-Dichloroethylene	90.0	1	ug/L	50.0	44.8	90.4	70-125			
cis-1,3-Dichloropropene	40.3	1	ug/L	50.0	BLOD	80.6	70-130			
cis-1,3-Dichloropropene	40.3	1	ug/L	50.0	BLOD	80.6	70-130			
Dibromochloromethane	46.1	0.5	ug/L	50.0	BLOD	92.1	60-135			
Dibromochloromethane	46.1	0.5	ug/L	50.0	BLOD	92.1	60-135			
Dibromomethane	48.1	1	ug/L	50.0	BLOD	96.3	75-125			
Dibromomethane	48.1	1	ug/L	50.0	BLOD	96.3	75-125			
Dichlorodifluoromethane	32.3	1	ug/L	50.0	BLOD	64.6	30-155			
Ethylbenzene	52.2	1	ug/L	50.0	BLOD	104	75-125			
Ethylbenzene	52.2	1	ug/L	50.0	BLOD	104	75-125			
m+p-Xylenes	100	2	ug/L	100	BLOD	100	75-130			
m+p-Xylenes	100	2	ug/L	100	BLOD	100	75-130			
Methylene chloride	41.7	4	ug/L	50.0	BLOD	83.4	55-140			

Certificate of Analysis

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Volatile Organic Compounds by GCMS - Quality Control

Enthalpy Analytical

Analyte	Result	LOQ	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Qual
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Batch BFL0391 - SW5030B-MS

Matrix Spike (BFL0391-MS1)

Source: 22L0423-13

Prepared & Analyzed: 12/09/2022

Methylene chloride	41.7	4	ug/L	50.0	BLOD	83.4	55-140			
o-Xylene	51.3	1	ug/L	50.0	BLOD	103	80-120			
o-Xylene	51.3	1	ug/L	50.0	BLOD	103	80-120			
Styrene	51.5	1	ug/L	50.0	BLOD	103	65-135			
Styrene	51.5	1	ug/L	50.0	BLOD	103	65-135			
Tetrachloroethylene (PCE)	81.9	1	ug/L	50.0	BLOD	164	45-150			M
Tetrachloroethylene (PCE)	81.9	1	ug/L	50.0	BLOD	164	45-150			M
Toluene	46.6	1	ug/L	50.0	BLOD	92.4	75-120			
Toluene	46.6	1	ug/L	50.0	BLOD	92.4	75-120			
trans-1,2-Dichloroethylene	46.0	1	ug/L	50.0	BLOD	92.1	60-140			
trans-1,2-Dichloroethylene	46.0	1	ug/L	50.0	BLOD	92.1	60-140			
trans-1,3-Dichloropropene	42.8	1	ug/L	50.0	BLOD	85.6	55-140			
trans-1,3-Dichloropropene	42.8	1	ug/L	50.0	BLOD	85.6	55-140			
Trichloroethylene	45.5	1	ug/L	50.0	BLOD	91.0	70-125			
Trichloroethylene	45.5	1	ug/L	50.0	BLOD	91.0	70-125			
Trichlorofluoromethane	47.1	1	ug/L	50.0	BLOD	94.2	60-145			
Trichlorofluoromethane	47.1	1	ug/L	50.0	BLOD	94.2	60-145			
Vinyl chloride	51.3	0.5	ug/L	50.0	11.9	78.7	50-145			
Vinyl chloride	51.3	0.5	ug/L	50.0	11.9	78.7	50-145			
<hr/>										
<i>Surr: 1,2-Dichloroethane-d4 (Surr)</i>	<i>52.1</i>		ug/L	<i>50.0</i>		<i>104</i>	<i>70-120</i>			
<i>Surr: 4-Bromofluorobenzene (Surr)</i>	<i>49.0</i>		ug/L	<i>50.0</i>		<i>98.0</i>	<i>75-120</i>			
<i>Surr: Dibromofluoromethane (Surr)</i>	<i>51.9</i>		ug/L	<i>50.0</i>		<i>104</i>	<i>70-130</i>			
<i>Surr: Toluene-d8 (Surr)</i>	<i>49.2</i>		ug/L	<i>50.0</i>		<i>98.5</i>	<i>70-130</i>			

Matrix Spike Dup (BFL0391-MSD1)

Source: 22L0423-13

Prepared & Analyzed: 12/09/2022

Certificate of Analysis

Client Name: SCS Engineers-Winchester
 Client Site I.D.: City of Bristol 2nd Semi-Annual
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Volatile Organic Compounds by GCMS - Quality Control

Enthalpy Analytical

Analyte	Result	LOQ	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Qual
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Batch BFL0391 - SW5030B-MS

Matrix Spike Dup (BFL0391-MSD1)	Source: 22L0423-13			Prepared & Analyzed: 12/09/2022						
1,1,1,2-Tetrachloroethane	51.1	0.4	ug/L	50.0	BLOD	102	80-130	1.46	30	
1,1,1,2-Tetrachloroethane	51.1	0.4	ug/L	50.0	BLOD	102	80-130	1.46	30	
1,1,1-Trichloroethane	45.8	1	ug/L	50.0	BLOD	91.7	65-130	9.97	30	
1,1,1-Trichloroethane	45.8	1	ug/L	50.0	BLOD	91.7	65-130	9.97	30	
1,1,2,2-Tetrachloroethane	46.9	0.4	ug/L	50.0	BLOD	93.8	65-130	1.83	30	
1,1,2,2-Tetrachloroethane	46.9	0.4	ug/L	50.0	BLOD	93.8	65-130	1.83	30	
1,1,2-Trichloroethane	46.1	1	ug/L	50.0	BLOD	92.2	75-125	2.27	30	
1,1,2-Trichloroethane	46.1	1	ug/L	50.0	BLOD	92.2	75-125	2.27	30	
1,1-Dichloroethane	51.0	1	ug/L	50.0	5.19	91.6	70-135	5.49	30	
1,1-Dichloroethane	51.0	1	ug/L	50.0	5.19	91.6	70-135	5.49	30	
1,1-Dichloroethylene	40.6	1	ug/L	50.0	BLOD	81.2	70-130	1.13	30	
1,1-Dichloroethylene	40.6	1	ug/L	50.0	BLOD	81.2	70-130	1.13	30	
1,1-Dichloropropene	45.2	1	ug/L	50.0	BLOD	90.5	75-135	9.84	30	
1,2,3-Trichloropropane	48.9	1	ug/L	50.0	BLOD	97.9	75-125	6.06	30	
1,2,3-Trichloropropane	48.9	1	ug/L	50.0	BLOD	97.9	75-125	6.06	30	
1,2,4-Trichlorobenzene	53.8	1	ug/L	50.0	BLOD	108	65-135	6.55	30	
1,2-Dichlorobenzene	51.4	0.5	ug/L	50.0	BLOD	103	70-120	2.76	30	
1,2-Dichlorobenzene	51.4	0.5	ug/L	50.0	BLOD	103	70-120	2.76	30	
1,2-Dichloroethane	38.7	1	ug/L	50.0	BLOD	77.3	70-130	3.93	30	
1,2-Dichloroethane	38.7	1	ug/L	50.0	BLOD	77.3	70-130	3.93	30	
1,2-Dichloropropane	44.5	0.5	ug/L	50.0	BLOD	89.0	75-125	2.86	30	
1,2-Dichloropropane	44.5	0.5	ug/L	50.0	BLOD	89.0	75-125	2.86	30	
1,3-Dichlorobenzene	50.9	1	ug/L	50.0	BLOD	102	75-125	2.54	30	
1,3-Dichloropropane	44.2	1	ug/L	50.0	BLOD	88.5	75-125	2.72	30	
1,4-Dichlorobenzene	51.3	1	ug/L	50.0	1.65	99.2	75-125	2.31	30	

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Volatile Organic Compounds by GCMS - Quality Control

Enthalpy Analytical

Analyte	Result	LOQ	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Qual
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Batch BFL0391 - SW5030B-MS

Matrix Spike Dup (BFL0391-MSD1)	Source: 22L0423-13			Prepared & Analyzed: 12/09/2022						
1,4-Dichlorobenzene	51.3	1	ug/L	50.0	1.65	99.2	75-125	2.31	30	
2,2-Dichloropropane	45.2	1	ug/L	50.0	BLOD	90.4	70-135	6.47	30	
2-Butanone (MEK)	50.5	10	ug/L	50.0	BLOD	101	30-150	17.2	30	
2-Butanone (MEK)	50.5	10	ug/L	50.0	BLOD	101	30-150	17.2	30	
2-Hexanone (MBK)	57.7	5	ug/L	50.0	BLOD	115	55-130	21.6	30	
2-Hexanone (MBK)	57.7	5	ug/L	50.0	BLOD	115	55-130	21.6	30	
4-Methyl-2-pentanone (MIBK)	55.3	5	ug/L	50.0	BLOD	111	60-135	15.8	30	
4-Methyl-2-pentanone (MIBK)	55.3	5	ug/L	50.0	BLOD	111	60-135	15.8	30	
Acetone	49.0	10	ug/L	50.0	BLOD	89.0	40-140	9.86	30	
Acetone	49.0	10	ug/L	50.0	BLOD	89.0	40-140	9.86	30	
Acrylonitrile	249	5	ug/L	250	BLOD	99.8	70-130	5.07	30	
Acrylonitrile	249	5	ug/L	250	BLOD	99.8	70-130	5.07	30	
Benzene	82.8	1	ug/L	50.0	39.3	87.1	80-120	1.92	30	
Benzene	82.8	1	ug/L	50.0	39.3	87.1	80-120	1.92	30	
Bromochloromethane	40.6	1	ug/L	50.0	BLOD	81.3	65-130	18.3	30	
Bromochloromethane	40.6	1	ug/L	50.0	BLOD	81.3	65-130	18.3	30	
Bromodichloromethane	47.5	0.5	ug/L	50.0	BLOD	94.9	75-120	2.68	30	
Bromodichloromethane	47.5	0.5	ug/L	50.0	BLOD	94.9	75-120	2.68	30	
Bromoform	50.1	1	ug/L	50.0	BLOD	100	70-130	0.681	30	
Bromoform	50.1	1	ug/L	50.0	BLOD	100	70-130	0.681	30	
Bromomethane	40.8	1	ug/L	50.0	BLOD	81.6	30-145	13.2	30	
Bromomethane	40.8	1	ug/L	50.0	BLOD	81.6	30-145	13.2	30	
Carbon disulfide	47.4	10	ug/L	50.0	BLOD	94.8	35-160	8.40	30	
Carbon disulfide	47.4	10	ug/L	50.0	BLOD	94.8	35-160	8.40	30	
Carbon tetrachloride	48.8	1	ug/L	50.0	BLOD	97.5	65-140	4.14	30	

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Volatile Organic Compounds by GCMS - Quality Control

Enthalpy Analytical

Analyte	Result	LOQ	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Qual
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Batch BFL0391 - SW5030B-MS

Matrix Spike Dup (BFL0391-MSD1)

Source: 22L0423-13

Prepared & Analyzed: 12/09/2022

Carbon tetrachloride	48.8	1	ug/L	50.0	BLOD	97.5	65-140	4.14	30	
Chlorobenzene	51.0	1	ug/L	50.0	1.25	99.6	80-120	1.52	30	
Chlorobenzene	51.0	1	ug/L	50.0	1.25	99.6	80-120	1.52	30	
Chloroethane	38.9	1	ug/L	50.0	BLOD	77.7	60-135	13.1	30	
Chloroethane	38.9	1	ug/L	50.0	BLOD	77.7	60-135	13.1	30	
Chloroform	38.3	0.5	ug/L	50.0	BLOD	76.7	65-135	4.39	30	
Chloroform	38.3	0.5	ug/L	50.0	BLOD	76.7	65-135	4.39	30	
Chloromethane	43.0	1	ug/L	50.0	BLOD	86.0	40-125	4.81	30	
Chloromethane	43.0	1	ug/L	50.0	BLOD	86.0	40-125	4.81	30	
cis-1,2-Dichloroethylene	89.4	1	ug/L	50.0	44.8	89.2	70-125	0.669	30	
cis-1,2-Dichloroethylene	89.4	1	ug/L	50.0	44.8	89.2	70-125	0.669	30	
cis-1,3-Dichloropropene	39.4	1	ug/L	50.0	BLOD	78.7	70-130	2.38	30	
cis-1,3-Dichloropropene	39.4	1	ug/L	50.0	BLOD	78.7	70-130	2.38	30	
Dibromochloromethane	45.3	0.5	ug/L	50.0	BLOD	90.7	60-135	1.58	30	
Dibromochloromethane	45.3	0.5	ug/L	50.0	BLOD	90.7	60-135	1.58	30	
Dibromomethane	47.6	1	ug/L	50.0	BLOD	95.2	75-125	1.15	30	
Dibromomethane	47.6	1	ug/L	50.0	BLOD	95.2	75-125	1.15	30	
Dichlorodifluoromethane	30.3	1	ug/L	50.0	BLOD	60.5	30-155	6.49	30	
Ethylbenzene	51.7	1	ug/L	50.0	BLOD	103	75-125	1.08	30	
Ethylbenzene	51.7	1	ug/L	50.0	BLOD	103	75-125	1.08	30	
m+p-Xylenes	99.2	2	ug/L	100	BLOD	99.2	75-130	0.983	30	
m+p-Xylenes	99.2	2	ug/L	100	BLOD	99.2	75-130	0.983	30	
Methylene chloride	40.2	4	ug/L	50.0	BLOD	80.4	55-140	3.64	30	
Methylene chloride	40.2	4	ug/L	50.0	BLOD	80.4	55-140	3.64	30	
o-Xylene	50.3	1	ug/L	50.0	BLOD	101	80-120	1.97	30	

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Enthalpy Analytical

Analyte	Result	LOQ	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Qual
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Batch BFL0391 - SW5030B-MS

Matrix Spike Dup (BFL0391-MSD1)	Source: 22L0423-13			Prepared & Analyzed: 12/09/2022						
o-Xylene	50.3	1	ug/L	50.0	BLOD	101	80-120	1.97	30	
Styrene	50.8	1	ug/L	50.0	BLOD	102	65-135	1.47	30	
Styrene	50.8	1	ug/L	50.0	BLOD	102	65-135	1.47	30	
Tetrachloroethylene (PCE)	81.8	1	ug/L	50.0	BLOD	164	45-150	0.134	30	M
Tetrachloroethylene (PCE)	81.8	1	ug/L	50.0	BLOD	164	45-150	0.134	30	M
Toluene	45.6	1	ug/L	50.0	BLOD	90.3	75-120	2.21	30	
Toluene	45.6	1	ug/L	50.0	BLOD	90.3	75-120	2.21	30	
trans-1,2-Dichloroethylene	39.9	1	ug/L	50.0	BLOD	79.9	60-140	14.2	30	
trans-1,2-Dichloroethylene	39.9	1	ug/L	50.0	BLOD	79.9	60-140	14.2	30	
trans-1,3-Dichloropropene	42.4	1	ug/L	50.0	BLOD	84.7	55-140	1.01	30	
trans-1,3-Dichloropropene	42.4	1	ug/L	50.0	BLOD	84.7	55-140	1.01	30	
Trichloroethylene	43.7	1	ug/L	50.0	BLOD	87.4	70-125	4.01	30	
Trichloroethylene	43.7	1	ug/L	50.0	BLOD	87.4	70-125	4.01	30	
Trichlorofluoromethane	44.9	1	ug/L	50.0	BLOD	89.8	60-145	4.78	30	
Trichlorofluoromethane	44.9	1	ug/L	50.0	BLOD	89.8	60-145	4.78	30	
Vinyl chloride	53.4	0.5	ug/L	50.0	11.9	82.8	50-145	3.92	30	
Vinyl chloride	53.4	0.5	ug/L	50.0	11.9	82.8	50-145	3.92	30	
<i>Surr: 1,2-Dichloroethane-d4 (Surr)</i>	<i>51.0</i>		<i>ug/L</i>	<i>50.0</i>		<i>102</i>	<i>70-120</i>			
<i>Surr: 4-Bromofluorobenzene (Surr)</i>	<i>49.9</i>		<i>ug/L</i>	<i>50.0</i>		<i>99.9</i>	<i>75-120</i>			
<i>Surr: Dibromofluoromethane (Surr)</i>	<i>51.8</i>		<i>ug/L</i>	<i>50.0</i>		<i>104</i>	<i>70-130</i>			
<i>Surr: Toluene-d8 (Surr)</i>	<i>49.0</i>		<i>ug/L</i>	<i>50.0</i>		<i>98.0</i>	<i>70-130</i>			

Batch BFL0436 - SW5030B-MS

Blank (BFL0436-BLK1)	Prepared & Analyzed: 12/12/2022									
1,1,1,2-Tetrachloroethane	ND	0.40	ug/L							

Certificate of Analysis

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Volatile Organic Compounds by GCMS - Quality Control

Enthalpy Analytical

Analyte	Result	LOQ	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Qual
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Batch BFL0436 - SW5030B-MS

Blank (BFL0436-BLK1)

Prepared & Analyzed: 12/12/2022

1,1,1-Trichloroethane	ND	1.00	ug/L
1,1,2,2-Tetrachloroethane	ND	0.40	ug/L
1,1,2-Trichloroethane	ND	1.00	ug/L
1,1-Dichloroethane	ND	1.00	ug/L
1,1-Dichloroethylene	ND	1.00	ug/L
1,2,3-Trichloropropane	ND	1.00	ug/L
1,2-Dichlorobenzene	ND	1.00	ug/L
1,2-Dichloroethane	ND	1.00	ug/L
1,2-Dichloropropane	ND	1.00	ug/L
1,4-Dichlorobenzene	ND	1.00	ug/L
2-Butanone (MEK)	ND	10.0	ug/L
2-Hexanone (MBK)	ND	5.00	ug/L
4-Methyl-2-pentanone (MIBK)	ND	5.00	ug/L
Acetone	ND	10.0	ug/L
Acrylonitrile	ND	5.00	ug/L
Benzene	ND	1.00	ug/L
Bromochloromethane	ND	1.00	ug/L
Bromodichloromethane	ND	0.50	ug/L
Bromoform	ND	1.00	ug/L
Bromomethane	ND	1.00	ug/L
Carbon disulfide	ND	10.0	ug/L
Carbon tetrachloride	ND	1.00	ug/L
Chlorobenzene	ND	1.00	ug/L
Chloroethane	ND	1.00	ug/L
Chloroform	ND	0.50	ug/L

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Volatile Organic Compounds by GCMS - Quality Control

Enthalpy Analytical

Analyte	Result	LOQ	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Qual
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Batch BFL0436 - SW5030B-MS

Blank (BFL0436-BLK1)

Prepared & Analyzed: 12/12/2022

Chloromethane	ND	1.00	ug/L							
cis-1,2-Dichloroethylene	ND	1.00	ug/L							
cis-1,3-Dichloropropene	ND	1.00	ug/L							
Dibromochloromethane	ND	0.50	ug/L							
Dibromomethane	ND	1.00	ug/L							
Ethylbenzene	ND	1.00	ug/L							
Iodomethane	ND	10.0	ug/L							
m+p-Xylenes	ND	2.00	ug/L							
Methylene chloride	ND	4.00	ug/L							
o-Xylene	ND	1.00	ug/L							
Styrene	ND	1.00	ug/L							
Tetrachloroethylene (PCE)	ND	1.00	ug/L							
Toluene	ND	1.00	ug/L							
trans-1,2-Dichloroethylene	ND	1.00	ug/L							
trans-1,3-Dichloropropene	ND	1.00	ug/L							
trans-1,4-Dichloro-2-butene	ND	4.00	ug/L							
Trichloroethylene	ND	1.00	ug/L							
Trichlorofluoromethane	ND	1.00	ug/L							
Vinyl acetate	ND	10.0	ug/L							
Vinyl chloride	ND	0.50	ug/L							
Xylenes, Total	ND	3.00	ug/L							
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<i>Surr: 1,2-Dichloroethane-d4 (Surr)</i>	<i>54.2</i>		<i>ug/L</i>	<i>50.0</i>		<i>108</i>	<i>70-120</i>			
<i>Surr: 4-Bromofluorobenzene (Surr)</i>	<i>48.6</i>		<i>ug/L</i>	<i>50.0</i>		<i>97.1</i>	<i>75-120</i>			
<i>Surr: Dibromofluoromethane (Surr)</i>	<i>47.5</i>		<i>ug/L</i>	<i>50.0</i>		<i>95.1</i>	<i>70-130</i>			
<i>Surr: Toluene-d8 (Surr)</i>	<i>49.8</i>		<i>ug/L</i>	<i>50.0</i>		<i>99.6</i>	<i>70-130</i>			

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Enthalpy Analytical

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Batch BFL0436 - SW5030B-MS

Blank (BFL0436-BLK1)

Prepared & Analyzed: 12/12/2022

LCS (BFL0436-BS1)

Prepared & Analyzed: 12/12/2022

1,1,1,2-Tetrachloroethane	54.2	0.4	ug/L	50.0		108	80-130			
1,1,1-Trichloroethane	49.0	1	ug/L	50.0		98.0	65-130			
1,1,2,2-Tetrachloroethane	46.8	0.4	ug/L	50.0		93.6	65-130			
1,1,2-Trichloroethane	48.9	1	ug/L	50.0		97.8	75-125			
1,1-Dichloroethane	45.7	1	ug/L	50.0		91.4	70-135			
1,1-Dichloroethylene	44.0	1	ug/L	50.0		87.9	70-130			
1,2,3-Trichloropropane	47.6	1	ug/L	50.0		95.1	75-125			
1,2-Dichlorobenzene	53.6	0.5	ug/L	50.0		107	70-120			
1,2-Dichloroethane	41.0	1	ug/L	50.0		82.1	70-130			
1,2-Dichloropropane	47.0	0.5	ug/L	50.0		94.1	75-125			
1,4-Dichlorobenzene	54.3	1	ug/L	50.0		109	75-125			
2-Butanone (MEK)	48.5	10	ug/L	50.0		96.9	30-150			
2-Hexanone (MBK)	53.9	5	ug/L	50.0		108	55-130			
4-Methyl-2-pentanone (MIBK)	49.7	5	ug/L	50.0		99.4	60-135			
Acetone	50.9	10	ug/L	50.0		102	40-140			
Acrylonitrile	262	5	ug/L	250		105	70-130			
Benzene	46.4	1	ug/L	50.0		92.9	80-120			
Bromochloromethane	47.1	1	ug/L	50.0		94.1	65-130			
Bromodichloromethane	50.5	0.5	ug/L	50.0		101	75-120			
Bromoform	53.1	1	ug/L	50.0		106	70-130			
Bromomethane	50.3	1	ug/L	50.0		101	30-145			
Carbon disulfide	47.9	10	ug/L	50.0		95.7	35-160			
Carbon tetrachloride	45.8	1	ug/L	50.0		91.5	65-140			

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Volatile Organic Compounds by GCMS - Quality Control

Enthalpy Analytical

Analyte	Result	LOQ	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Qual
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Batch BFL0436 - SW5030B-MS

LCS (BFL0436-BS1)

Prepared & Analyzed: 12/12/2022

Chlorobenzene	51.0	1	ug/L	50.0		102	80-120			
Chloroethane	43.2	1	ug/L	50.0		86.5	60-135			
Chloroform	42.6	0.5	ug/L	50.0		85.2	65-135			
Chloromethane	49.1	1	ug/L	50.0		98.2	40-125			
cis-1,2-Dichloroethylene	44.0	1	ug/L	50.0		88.0	70-125			
cis-1,3-Dichloropropene	43.1	1	ug/L	50.0		86.1	70-130			
Dibromochloromethane	48.8	0.5	ug/L	50.0		97.5	60-135			
Dibromomethane	49.4	1	ug/L	50.0		98.8	75-125			
Ethylbenzene	53.8	1	ug/L	50.0		108	75-125			
m+p-Xylenes	103	2	ug/L	100		103	75-130			
Methylene chloride	45.4	4	ug/L	50.0		90.9	55-140			
o-Xylene	52.6	1	ug/L	50.0		105	80-120			
Styrene	53.5	1	ug/L	50.0		107	65-135			
Tetrachloroethylene (PCE)	84.1	1	ug/L	50.0		168	45-150			L
Toluene	48.1	1	ug/L	50.0		96.2	75-120			
trans-1,2-Dichloroethylene	44.0	1	ug/L	50.0		88.0	60-140			
trans-1,3-Dichloropropene	46.7	1	ug/L	50.0		93.4	55-140			
Trichloroethylene	44.8	1	ug/L	50.0		89.5	70-125			
Trichlorofluoromethane	49.3	1	ug/L	50.0		98.5	60-145			
Vinyl chloride	43.4	0.5	ug/L	50.0		86.9	50-145			
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<i>Surr: 1,2-Dichloroethane-d4 (Surr)</i>	<i>55.1</i>		ug/L	<i>50.0</i>		<i>110</i>	<i>70-120</i>			
<i>Surr: 4-Bromofluorobenzene (Surr)</i>	<i>50.0</i>		ug/L	<i>50.0</i>		<i>100</i>	<i>75-120</i>			
<i>Surr: Dibromofluoromethane (Surr)</i>	<i>48.6</i>		ug/L	<i>50.0</i>		<i>97.2</i>	<i>70-130</i>			
<i>Surr: Toluene-d8 (Surr)</i>	<i>49.1</i>		ug/L	<i>50.0</i>		<i>98.3</i>	<i>70-130</i>			

Certificate of Analysis

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Enthalpy Analytical

Analyte	Result	LOQ	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Qual
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Batch BFL0436 - SW5030B-MS

Duplicate (BFL0436-DUP1)	Source: 22L0557-02			Prepared & Analyzed: 12/12/2022						
1,1,1,2-Tetrachloroethane	ND	0.40	ug/L		BLOD			NA	30	
1,1,1-Trichloroethane	ND	1.00	ug/L		BLOD			NA	30	
1,1,2,2-Tetrachloroethane	ND	0.40	ug/L		BLOD			NA	30	
1,1,2-Trichloroethane	ND	1.00	ug/L		BLOD			NA	30	
1,1-Dichloroethane	ND	1.00	ug/L		BLOD			NA	30	
1,1-Dichloroethylene	ND	1.00	ug/L		BLOD			NA	30	
1,2,3-Trichloropropane	ND	1.00	ug/L		BLOD			NA	30	
1,2-Dichlorobenzene	ND	1.00	ug/L		BLOD			NA	30	
1,2-Dichloroethane	ND	1.00	ug/L		BLOD			NA	30	
1,2-Dichloropropane	ND	1.00	ug/L		BLOD			NA	30	
1,4-Dichlorobenzene	ND	1.00	ug/L		BLOD			NA	30	
2-Butanone (MEK)	ND	10.0	ug/L		BLOD			NA	30	
2-Hexanone (MBK)	ND	5.00	ug/L		BLOD			NA	30	
4-Methyl-2-pentanone (MIBK)	ND	5.00	ug/L		BLOD			NA	30	
Acetone	ND	10.0	ug/L		BLOD			NA	30	
Acrylonitrile	ND	5.00	ug/L		BLOD			NA	30	
Benzene	ND	1.00	ug/L		BLOD			NA	30	
Bromochloromethane	ND	1.00	ug/L		BLOD			NA	30	
Bromodichloromethane	ND	0.50	ug/L		BLOD			NA	30	
Bromoform	ND	1.00	ug/L		BLOD			NA	30	
Bromomethane	ND	1.00	ug/L		BLOD			NA	30	
Carbon disulfide	ND	10.0	ug/L		BLOD			NA	30	
Carbon tetrachloride	ND	1.00	ug/L		BLOD			NA	30	
Chlorobenzene	ND	1.00	ug/L		BLOD			NA	30	
Chloroethane	ND	1.00	ug/L		BLOD			NA	30	

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Enthalpy Analytical

Analyte	Result	LOQ	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Qual
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Batch BFL0436 - SW5030B-MS

Duplicate (BFL0436-DUP1)

Source: 22L0557-02

Prepared & Analyzed: 12/12/2022

Chloroform	ND	0.50	ug/L		BLOD			NA	30	
Chloromethane	ND	1.00	ug/L		BLOD			NA	30	
cis-1,2-Dichloroethylene	ND	1.00	ug/L		BLOD			NA	30	
cis-1,3-Dichloropropene	ND	1.00	ug/L		BLOD			NA	30	
Dibromochloromethane	ND	0.50	ug/L		BLOD			NA	30	
Dibromomethane	ND	1.00	ug/L		BLOD			NA	30	
Ethylbenzene	ND	1.00	ug/L		BLOD			NA	30	
Iodomethane	ND	10.0	ug/L		BLOD			NA	30	
m+p-Xylenes	ND	2.00	ug/L		BLOD			NA	30	
Methylene chloride	ND	4.00	ug/L		BLOD			NA	30	
o-Xylene	ND	1.00	ug/L		BLOD			NA	30	
Styrene	ND	1.00	ug/L		BLOD			NA	30	
Tetrachloroethylene (PCE)	ND	1.00	ug/L		BLOD			NA	30	
Toluene	ND	1.00	ug/L		BLOD			NA	30	
trans-1,2-Dichloroethylene	ND	1.00	ug/L		BLOD			NA	30	
trans-1,3-Dichloropropene	ND	1.00	ug/L		BLOD			NA	30	
trans-1,4-Dichloro-2-butene	ND	4.00	ug/L		BLOD			NA	30	
Trichloroethylene	ND	1.00	ug/L		BLOD			NA	30	
Trichlorofluoromethane	ND	1.00	ug/L		BLOD			NA	30	
Vinyl acetate	ND	10.0	ug/L		BLOD			NA	30	
Vinyl chloride	ND	0.50	ug/L		BLOD			NA	30	
Xylenes, Total	ND	3.00	ug/L		BLOD			NA	30	
Tetrahydrofuran	ND	10.0	ug/L		BLOD			NA	30	
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Surr: 1,2-Dichloroethane-d4 (Surr)	52.3		ug/L	50.0		105	70-120			
Surr: 4-Bromofluorobenzene (Surr)	48.6		ug/L	50.0		97.1	75-120			

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Batch BFL0436 - SW5030B-MS

Duplicate (BFL0436-DUP1)

Source: 22L0557-02

Prepared & Analyzed: 12/12/2022

<i>Surr: Dibromofluoromethane (Surr)</i>	57.0		ug/L	50.0		114	70-130
<i>Surr: Toluene-d8 (Surr)</i>	50.2		ug/L	50.0		100	70-130

Matrix Spike (BFL0436-MS1)

Source: 22L0557-01

Prepared & Analyzed: 12/12/2022

1,1,1,2-Tetrachloroethane	53.2	0.4	ug/L	50.0	BLOD	106	80-130
1,1,1-Trichloroethane	48.6	1	ug/L	50.0	BLOD	97.1	65-130
1,1,2,2-Tetrachloroethane	48.2	0.4	ug/L	50.0	BLOD	96.4	65-130
1,1,2-Trichloroethane	46.2	1	ug/L	50.0	BLOD	92.5	75-125
1,1-Dichloroethane	45.5	1	ug/L	50.0	BLOD	91.1	70-135
1,1-Dichloroethylene	39.1	1	ug/L	50.0	BLOD	78.2	70-130
1,2,3-Trichloropropane	48.9	1	ug/L	50.0	BLOD	97.9	75-125
1,2-Dichlorobenzene	53.7	0.5	ug/L	50.0	BLOD	107	70-120
1,2-Dichloroethane	36.9	1	ug/L	50.0	BLOD	73.8	70-130
1,2-Dichloropropane	45.5	0.5	ug/L	50.0	BLOD	90.9	75-125
1,4-Dichlorobenzene	53.0	1	ug/L	50.0	BLOD	106	75-125
2-Butanone (MEK)	50.3	10	ug/L	50.0	BLOD	101	30-150
2-Hexanone (MBK)	58.5	5	ug/L	50.0	BLOD	117	55-130
4-Methyl-2-pentanone (MIBK)	52.8	5	ug/L	50.0	BLOD	106	60-135
Acetone	49.0	10	ug/L	50.0	BLOD	92.1	40-140
Acrylonitrile	236	5	ug/L	250	BLOD	94.2	70-130
Benzene	45.8	1	ug/L	50.0	BLOD	91.5	80-120
Bromochloromethane	42.1	1	ug/L	50.0	BLOD	84.1	65-130
Bromodichloromethane	48.4	0.5	ug/L	50.0	BLOD	96.7	75-120
Bromoform	52.6	1	ug/L	50.0	BLOD	105	70-130
Bromomethane	40.1	1	ug/L	50.0	BLOD	80.1	30-145

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Batch BFL0436 - SW5030B-MS

Matrix Spike (BFL0436-MS1)	Source: 22L0557-01			Prepared & Analyzed: 12/12/2022						
Carbon disulfide	44.2	10	ug/L	50.0	BLOD	88.4	35-160			
Carbon tetrachloride	49.0	1	ug/L	50.0	BLOD	98.0	65-140			
Chlorobenzene	50.9	1	ug/L	50.0	BLOD	102	80-120			
Chloroethane	40.3	1	ug/L	50.0	BLOD	80.6	60-135			
Chloroform	37.9	0.5	ug/L	50.0	BLOD	75.7	65-135			
Chloromethane	40.6	1	ug/L	50.0	BLOD	81.1	40-125			
cis-1,2-Dichloroethylene	46.3	1	ug/L	50.0	BLOD	92.5	70-125			
cis-1,3-Dichloropropene	41.6	1	ug/L	50.0	BLOD	83.2	70-130			
Dibromochloromethane	45.6	0.5	ug/L	50.0	BLOD	91.3	60-135			
Dibromomethane	47.7	1	ug/L	50.0	BLOD	95.3	75-125			
Ethylbenzene	52.4	1	ug/L	50.0	BLOD	105	75-125			
m+p-Xylenes	103	2	ug/L	100	BLOD	103	75-130			
Methylene chloride	39.7	4	ug/L	50.0	BLOD	79.4	55-140			
o-Xylene	52.0	1	ug/L	50.0	BLOD	104	80-120			
Styrene	51.9	1	ug/L	50.0	BLOD	104	65-135			
Tetrachloroethylene (PCE)	83.4	1	ug/L	50.0	BLOD	167	45-150			M
Toluene	45.6	1	ug/L	50.0	BLOD	91.2	75-120			
trans-1,2-Dichloroethylene	44.7	1	ug/L	50.0	BLOD	89.3	60-140			
trans-1,3-Dichloropropene	43.2	1	ug/L	50.0	BLOD	86.3	55-140			
Trichloroethylene	44.9	1	ug/L	50.0	BLOD	89.8	70-125			
Trichlorofluoromethane	42.3	1	ug/L	50.0	BLOD	84.6	60-145			
Vinyl chloride	39.2	0.5	ug/L	50.0	BLOD	78.4	50-145			
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Surr: 1,2-Dichloroethane-d4 (Surr)	49.6		ug/L	50.0		99.2	70-120			
Surr: 4-Bromofluorobenzene (Surr)	50.0		ug/L	50.0		99.9	75-120			
Surr: Dibromofluoromethane (Surr)	50.3		ug/L	50.0		101	70-130			

Certificate of Analysis

Client Name: SCS Engineers-Winchester

Date Issued: 12/30/2022 11:56:27AM

Client Site I.D.: City of Bristol 2nd Semi-Annual

Submitted To: Jennifer Robb

Volatile Organic Compounds by GCMS - Quality Control

Enthalpy Analytical

Analyte	Result	LOQ	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Qual
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Batch BFL0436 - SW5030B-MS

Matrix Spike (BFL0436-MS1)
Source: 22L0557-01

Prepared & Analyzed: 12/12/2022

<i>Surr: Toluene-d8 (Surr)</i>	49.2	ug/L	50.0	98.5	70-130
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Certificate of Analysis

 Client Name: SCS Engineers-Winchester
 Client Site I.D.: City of Bristol 2nd Semi-Annual
 Submitted To: Jennifer Robb

Date Issued: 12/30/2022 11:56:27AM

Semivolatile Organic Compounds by GCMS - Quality Control

Enthalpy Analytical

Analyte	Result	LOQ	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Qual
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Batch BFL0373 - SW3510C/EPA600-MS

Blank (BFL0373-BLK1)

Prepared: 12/09/2022 Analyzed: 12/12/2022

bis (2-Ethylhexyl) phthalate	ND	5.00	ug/L							
Diethyl phthalate	ND	10.0	ug/L							
Di-n-butyl phthalate	ND	10.0	ug/L							
Phenol	ND	10.0	ug/L							
<i>Surr: 2,4,6-Tribromophenol (Surr)</i>	81.4		ug/L	100		81.4	10-86			
<i>Surr: 2-Fluorobiphenyl (Surr)</i>	42.7		ug/L	50.0		85.5	9-87			
<i>Surr: 2-Fluorophenol (Surr)</i>	43.2		ug/L	100		43.2	10-52			
<i>Surr: Nitrobenzene-d5 (Surr)</i>	44.5		ug/L	50.0		89.0	10-98.5			
<i>Surr: Phenol-d5 (Surr)</i>	31.4		ug/L	100		31.4	5-33			
<i>Surr: p-Terphenyl-d14 (Surr)</i>	48.8		ug/L	50.0		97.7	27-133			

LCS (BFL0373-BS1)

Prepared: 12/09/2022 Analyzed: 12/12/2022

1,2,4-Trichlorobenzene	25.9	10.0	ug/L	50.0		51.8	22-135			
1,2-Dichlorobenzene	25.3	10.0	ug/L	50.0		50.6	22-115			
1,3-Dichlorobenzene	24.0	10.0	ug/L	50.0		48.1	22-112			
1,4-Dichlorobenzene	25.7	10.0	ug/L	50.0		51.4	13-112			
2,4,6-Trichlorophenol	29.9	10.0	ug/L	50.0		59.8	11-145			
2,4-Dichlorophenol	28.2	10.0	ug/L	50.0		56.5	11-75			
2,4-Dimethylphenol	24.1	5.00	ug/L	50.0		48.2	11-121			
2,4-Dinitrophenol	33.4	50.0	ug/L	50.0		66.7	11-165			
2,4-Dinitrotoluene	40.3	10.0	ug/L	50.0		80.6	17-155			
2,6-Dinitrotoluene	35.5	10.0	ug/L	50.0		71.0	15-125			
2-Chloronaphthalene	30.4	10.0	ug/L	50.0		60.8	27-89			
2-Chlorophenol	28.9	10.0	ug/L	50.0		57.8	15-110			
2-Nitrophenol	30.7	10.0	ug/L	50.0		61.4	11-115			

Certificate of Analysis

 Client Name: SCS Engineers-Winchester
 Client Site I.D.: City of Bristol 2nd Semi-Annual
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Date Issued: 12/30/2022 11:56:27AM

Semivolatile Organic Compounds by GCMS - Quality Control

Enthalpy Analytical

Analyte	Result	LOQ	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Qual
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Batch BFL0373 - SW3510C/EPA600-MS

LCS (BFL0373-BS1)

Prepared: 12/09/2022 Analyzed: 12/12/2022

3,3'-Dichlorobenzidine	18.7	10.0	ug/L	50.0		37.4	25-95			
4,6-Dinitro-2-methylphenol	41.6	50.0	ug/L	50.0		83.2	25-130			
4-Bromophenyl phenyl ether	31.4	10.0	ug/L	50.0		62.9	15-110			
4-Chlorophenyl phenyl ether	30.5	10.0	ug/L	50.0		61.0	15-110			
4-Nitrophenol	14.6	50.0	ug/L	50.0		29.1	12-70			
Acenaphthene	31.2	10.0	ug/L	50.0		62.5	18-85			
Acenaphthylene	32.4	10.0	ug/L	50.0		64.8	20-75			
Acetophenone	30.2	20.0	ug/L	50.0		60.5	0-200			
alpha-Terpineol	31.9	2.50	ug/L	50.0		63.7	0-200			
Anthracene	36.6	10.0	ug/L	50.0		73.2	35-95			
Benzo (a) anthracene	38.5	10.0	ug/L	50.0		77.0	25-95			
Benzo (a) pyrene	44.7	0.20	ug/L	50.0		89.4	37-110			
Benzo (b) fluoranthene	50.4	10.0	ug/L	50.0		101	25-75			L
Benzo (g,h,i) perylene	29.8	10.0	ug/L	50.0		59.7	25-90			
Benzo (k) fluoranthene	45.4	10.0	ug/L	50.0		90.8	25-95			
bis (2-Chloroethoxy) methane	26.9	10.0	ug/L	50.0		53.9	25-110			
bis (2-Chloroethyl) ether	28.8	10.0	ug/L	50.0		57.7	25-85			
2,2'-Oxybis (1-chloropropane)	31.8	10.0	ug/L	50.0		63.6	25-95			
bis (2-Ethylhexyl) phthalate	39.5	5.00	ug/L	50.0		78.9	30-125			
Butyl benzyl phthalate	37.1	10.0	ug/L	50.0		74.2	30-115			
Carbazole	37.1	2.50	ug/L	50.0		74.2	0-200			
Chrysene	37.3	10.0	ug/L	50.0		74.6	20-90			
Dibenz (a,h) anthracene	35.6	10.0	ug/L	50.0		71.1	27-125			
Diethyl phthalate	39.6	10.0	ug/L	50.0		79.2	25-120			
Dimethyl phthalate	39.7	10.0	ug/L	50.0		79.4	25-125			

Certificate of Analysis

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Date Issued: 12/30/2022 11:56:27AM

Semivolatile Organic Compounds by GCMS - Quality Control

Enthalpy Analytical

Analyte	Result	LOQ	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Qual
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Batch BFL0373 - SW3510C/EPA600-MS

LCS (BFL0373-BS1)

Prepared: 12/09/2022 Analyzed: 12/12/2022

Di-n-butyl phthalate	39.3	10.0	ug/L	50.0		78.6	35-115			
Di-n-octyl phthalate	64.9	10.0	ug/L	50.0		130	25-105			L
Fluoranthene	38.9	10.0	ug/L	50.0		77.9	33-95			
Fluorene	35.1	10.0	ug/L	50.0		70.3	15-97			
Hexachlorobenzene	40.0	1.00	ug/L	50.0		80.0	25-125			
Hexachlorobutadiene	28.3	10.0	ug/L	50.0		56.7	25-125			
Hexachlorocyclopentadiene	13.3	10.0	ug/L	50.0		26.5	25-125			
Hexachloroethane	27.1	10.0	ug/L	50.0		54.2	25-125			
Indeno (1,2,3-cd) pyrene	34.3	10.0	ug/L	50.0		68.7	25-125			
Isophorone	21.4	10.0	ug/L	50.0		42.8	10-110			
Naphthalene	29.7	0.10	ug/L	50.0		59.4	12-100			
Nitrobenzene	33.9	10.0	ug/L	50.0		67.7	30-97			
n-Nitrosodimethylamine	18.3	10.0	ug/L	50.0		36.7	10-85			
n-Nitrosodi-n-propylamine	30.5	10.0	ug/L	50.0		61.1	12-97			
n-Nitrosodiphenylamine	28.6	10.0	ug/L	50.0		57.3	12-97			
p-Chloro-m-cresol	29.8	10.0	ug/L	50.0		59.6	10-91			
Pentachlorophenol	31.1	20.0	ug/L	50.0		62.2	30-109			
Phenanthrene	42.8	10.0	ug/L	50.0		85.7	30-88			
Phenol	10.4	10.0	ug/L	50.5		20.5	10-70			
Pyrene	41.6	10.0	ug/L	50.0		83.3	27-110			
Pyridine	21.2	10.0	ug/L	50.0		42.3	0-200			
<i>Surr: 2,4,6-Tribromophenol (Surr)</i>	75.2		ug/L	100		75.2	10-86			
<i>Surr: 2-Fluorobiphenyl (Surr)</i>	32.2		ug/L	50.0		64.4	9-87			
<i>Surr: 2-Fluorophenol (Surr)</i>	35.0		ug/L	100		35.0	10-52			
<i>Surr: Nitrobenzene-d5 (Surr)</i>	35.7		ug/L	50.0		71.3	10-98.5			

Certificate of Analysis

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 Client Site I.D.: City of Bristol 2nd Semi-Annual
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Date Issued: 12/30/2022 11:56:27AM

Semivolatile Organic Compounds by GCMS - Quality Control

Enthalpy Analytical

Analyte	Result	LOQ	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Qual
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Batch BFL0373 - SW3510C/EPA600-MS

LCS (BFL0373-BS1)

Prepared: 12/09/2022 Analyzed: 12/12/2022

Surr: Phenol-d5 (Surr)	25.2	ug/L	100	25.2	5-33
Surr: p-Terphenyl-d14 (Surr)	43.0	ug/L	50.0	85.9	27-133

Matrix Spike (BFL0373-MS1)

Source: 22L0423-13

Prepared & Analyzed: 12/09/2022

1,2,4-Trichlorobenzene	32.6	10.0	ug/L	46.7	BLOD	69.7	22-65		M
1,2-Dichlorobenzene	33.0	10.0	ug/L	46.7	BLOD	70.7	22-60		M
1,3-Dichlorobenzene	32.1	10.0	ug/L	46.7	BLOD	68.8	22-60		M
1,4-Dichlorobenzene	36.1	10.0	ug/L	46.7	BLOD	77.3	13-60		M
1,4-Dioxane	11.1	50.0	ug/L		12.2		0-200		
2,4,6-Trichlorophenol	36.5	10.0	ug/L	46.7	BLOD	78.1	11-75		M
2,4-Dichlorophenol	33.8	10.0	ug/L	46.7	BLOD	72.3	11-75		
2,4-Dimethylphenol	32.5	4.67	ug/L	46.7	BLOD	69.5	11-65		M
2,4-Dinitrophenol	10.2	50.0	ug/L	46.7	BLOD	21.8	11-110		
2,4-Dinitrotoluene	42.2	10.0	ug/L	46.7	BLOD	90.2	17-95		
2,6-Dinitrotoluene	39.1	10.0	ug/L	46.7	BLOD	83.7	15-125		
2-Chloronaphthalene	39.2	10.0	ug/L	46.7	BLOD	83.9	27-89		
2-Chlorophenol	35.0	10.0	ug/L	46.7	BLOD	75.0	19-64		M
2-Nitrophenol	36.0	10.0	ug/L	46.7	BLOD	77.1	11-75		M
3,3'-Dichlorobenzidine	19.7	10.0	ug/L	46.7	BLOD	42.1	10-85		
4,6-Dinitro-2-methylphenol	44.0	50.0	ug/L	46.7	BLOD	94.1	40-130		
4-Bromophenyl phenyl ether	32.3	10.0	ug/L	46.7	BLOD	69.2	15-110		
4-Chlorophenyl phenyl ether	34.5	10.0	ug/L	46.7	BLOD	73.8	15-110		
4-Nitrophenol	14.2	50.0	ug/L	46.7	BLOD	30.4	12-70		
Acenaphthene	38.9	10.0	ug/L	46.7	BLOD	83.3	15-90		
Acenaphthylene	41.9	10.0	ug/L	46.7	BLOD	89.6	15-99		

Certificate of Analysis

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Semivolatile Organic Compounds by GCMS - Quality Control

Enthalpy Analytical

Analyte	Result	LOQ	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Qual
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Batch BFL0373 - SW3510C/EPA600-MS

Matrix Spike (BFL0373-MS1)

Source: 22L0423-13

Prepared & Analyzed: 12/09/2022

Acetophenone	31.6	20.0	ug/L	46.7	BLOD	67.6	0-200			
alpha-Terpineol	37.1	2.50	ug/L	46.7	BLOD	79.4	0-200			
Anthracene	42.7	10.0	ug/L	46.7	BLOD	91.4	20-95			
Benzo (a) anthracene	42.5	9.35	ug/L	46.7	BLOD	90.9	25-95			
Benzo (a) pyrene	44.4	0.20	ug/L	46.7	BLOD	95.0	25-82			M
Benzo (b) fluoranthene	49.9	10.0	ug/L	46.7	BLOD	107	25-75			M
Benzo (g,h,i) perylene	35.3	10.0	ug/L	46.7	BLOD	75.5	25-90			
Benzo (k) fluoranthene	44.7	10.0	ug/L	46.7	BLOD	95.7	25-95			M
bis (2-Chloroethoxy) methane	32.6	10.0	ug/L	46.7	BLOD	69.8	25-85			
bis (2-Chloroethyl) ether	36.3	10.0	ug/L	46.7	BLOD	77.7	25-85			
2,2'-Oxybis (1-chloropropane)	39.3	10.0	ug/L	46.7	BLOD	84.2	25-87			
bis (2-Ethylhexyl) phthalate	42.9	5.00	ug/L	46.7	BLOD	91.7	30-125			
Butyl benzyl phthalate	37.7	10.0	ug/L	46.7	BLOD	80.8	30-115			
Carbazole	40.3	2.50	ug/L	46.7	BLOD	86.2	0-200			
Chrysene	40.4	10.0	ug/L	46.7	BLOD	86.5	20-90			
Dibenz (a,h) anthracene	42.4	10.0	ug/L	46.7	BLOD	90.7	27-125			
Diethyl phthalate	45.6	10.0	ug/L	46.7	BLOD	97.6	25-120			
Dimethyl phthalate	45.9	10.0	ug/L	46.7	BLOD	98.2	25-125			
Di-n-butyl phthalate	36.9	10.0	ug/L	46.7	BLOD	79.0	25-115			
Di-n-octyl phthalate	70.9	10.0	ug/L	46.7	BLOD	152	22-105			M
Fluoranthene	46.4	10.0	ug/L	46.7	BLOD	99.4	25-96			M
Fluorene	41.6	10.0	ug/L	46.7	BLOD	88.9	15-97			
Hexachlorobenzene	40.3	0.93	ug/L	46.7	BLOD	86.3	25-125			
Hexachlorobutadiene	34.5	10.0	ug/L	46.7	BLOD	73.8	25-125			
Hexachlorocyclopentadiene	24.8	10.0	ug/L	46.7	BLOD	53.1	10-90			

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Semivolatile Organic Compounds by GCMS - Quality Control

Enthalpy Analytical

Analyte	Result	LOQ	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Qual
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Batch BFL0373 - SW3510C/EPA600-MS

Matrix Spike (BFL0373-MS1)

Source: 22L0423-13

Prepared & Analyzed: 12/09/2022

Hexachloroethane	34.2	10.0	ug/L	46.7	BLOD	73.2	25-125			
Indeno (1,2,3-cd) pyrene	39.7	10.0	ug/L	46.7	BLOD	85.1	25-125			
Isophorone	26.9	10.0	ug/L	46.7	BLOD	57.7	10-110			
Naphthalene	38.6	0.10	ug/L	46.7	BLOD	82.7	12-100			
Nitrobenzene	40.3	10.0	ug/L	46.7	BLOD	86.2	27-77			M
n-Nitrosodimethylamine	21.6	10.0	ug/L	46.7	BLOD	46.1	10-85			
n-Nitrosodi-n-propylamine	37.9	10.0	ug/L	46.7	BLOD	81.0	12-97			
n-Nitrosodiphenylamine	31.6	10.0	ug/L	46.7	BLOD	67.7	12-97			
p-Chloro-m-cresol	36.1	10.0	ug/L	46.7	BLOD	77.2	10-91			
Pentachlorophenol	36.9	20.0	ug/L	46.7	BLOD	78.9	27-109			
Phenanthrene	48.2	10.0	ug/L	46.7	BLOD	103	35-115			
Phenol	12.9	10.0	ug/L	47.2	BLOD	27.4	10-70			
Pyrene	45.6	10.0	ug/L	46.7	BLOD	97.7	23-110			
Pyridine	30.6	10.0	ug/L	46.7	BLOD	65.4	0-200			
<i>Surr: 2,4,6-Tribromophenol (Surr)</i>	80.1		ug/L	93.5		85.7	10-86			
<i>Surr: 2-Fluorobiphenyl (Surr)</i>	43.6		ug/L	46.7		93.3	9-87			S
<i>Surr: 2-Fluorophenol (Surr)</i>	42.2		ug/L	93.5		45.2	10-52			
<i>Surr: Nitrobenzene-d5 (Surr)</i>	42.9		ug/L	46.7		91.7	10-98.5			
<i>Surr: Phenol-d5 (Surr)</i>	30.8		ug/L	93.5		32.9	5-33			
<i>Surr: p-Terphenyl-d14 (Surr)</i>	41.3		ug/L	46.7		88.5	27-133			

Matrix Spike Dup (BFL0373-MSD1)

Source: 22L0423-13

Prepared: 12/09/2022 Analyzed: 12/12/2022

1,2,4-Trichlorobenzene	35.5	10.0	ug/L	46.7	BLOD	75.9	22-65	8.57	20	M
1,2-Dichlorobenzene	32.1	10.0	ug/L	46.7	BLOD	68.8	22-60	2.72	20	M
1,3-Dichlorobenzene	31.2	10.0	ug/L	46.7	BLOD	66.8	22-60	2.92	20	M

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Semivolatile Organic Compounds by GCMS - Quality Control

Enthalpy Analytical

Analyte	Result	LOQ	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Qual
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Batch BFL0373 - SW3510C/EPA600-MS

Matrix Spike Dup (BFL0373-MSD1)	Source: 22L0423-13			Prepared: 12/09/2022 Analyzed: 12/12/2022						
1,4-Dichlorobenzene	34.7	10.0	ug/L	46.7	BLOD	74.2	13-60	4.01	20	M
1,4-Dioxane	11.9	50.0	ug/L		12.2		0-200	6.91	20	
2,4,6-Trichlorophenol	38.9	10.0	ug/L	46.7	BLOD	83.3	11-75	6.49	20	M
2,4-Dichlorophenol	36.9	10.0	ug/L	46.7	BLOD	78.9	11-75	8.76	20	M
2,4-Dimethylphenol	32.5	4.67	ug/L	46.7	BLOD	69.5	11-65	0.0288	20	M
2,4-Dinitrophenol	12.0	50.0	ug/L	46.7	BLOD	25.6	11-110	16.0	20	
2,4-Dinitrotoluene	46.1	10.0	ug/L	46.7	BLOD	98.6	17-95	8.89	20	M
2,6-Dinitrotoluene	41.9	10.0	ug/L	46.7	BLOD	89.6	15-125	6.76	20	
2-Chloronaphthalene	39.0	10.0	ug/L	46.7	BLOD	83.5	27-89	0.550	20	
2-Chlorophenol	32.3	10.0	ug/L	46.7	BLOD	69.2	19-64	8.10	20	M
2-Nitrophenol	40.0	10.0	ug/L	46.7	BLOD	85.5	11-75	10.4	20	M
3,3'-Dichlorobenzidine	16.6	10.0	ug/L	46.7	BLOD	35.5	10-85	17.1	20	
4,6-Dinitro-2-methylphenol	47.1	50.0	ug/L	46.7	BLOD	101	40-130	6.93	20	
4-Bromophenyl phenyl ether	35.7	10.0	ug/L	46.7	BLOD	76.4	15-110	9.95	20	
4-Chlorophenyl phenyl ether	35.9	10.0	ug/L	46.7	BLOD	76.8	15-110	3.99	20	
4-Nitrophenol	16.9	50.0	ug/L	46.7	BLOD	36.1	12-70	17.2	20	
Acenaphthene	39.7	10.0	ug/L	46.7	BLOD	85.0	15-90	2.02	20	
Acenaphthylene	39.7	10.0	ug/L	46.7	BLOD	85.0	15-99	5.27	20	
Acetophenone	35.5	20.0	ug/L	46.7	BLOD	76.0	0-200	11.6	20	
alpha-Terpineol	40.2	2.50	ug/L	46.7	BLOD	86.0	0-200	7.98	20	
Anthracene	39.9	10.0	ug/L	46.7	BLOD	85.4	20-95	6.72	20	
Benzo (a) anthracene	41.0	9.35	ug/L	46.7	BLOD	87.8	25-95	3.42	20	
Benzo (a) pyrene	46.1	0.20	ug/L	46.7	BLOD	98.8	25-82	3.92	20	M
Benzo (b) fluoranthene	52.4	10.0	ug/L	46.7	BLOD	112	25-75	4.77	20	M
Benzo (g,h,i) perylene	36.3	10.0	ug/L	46.7	BLOD	77.7	25-90	2.98	20	

Certificate of Analysis

 Client Name: SCS Engineers-Winchester
 Client Site I.D.: City of Bristol 2nd Semi-Annual
 Submitted To: Jennifer Robb

Date Issued: 12/30/2022 11:56:27AM

Semivolatile Organic Compounds by GCMS - Quality Control

Enthalpy Analytical

Analyte	Result	LOQ	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Qual
Batch BFL0373 - SW3510C/EPA600-MS										
Matrix Spike Dup (BFL0373-MSD1)	Source: 22L0423-13			Prepared: 12/09/2022 Analyzed: 12/12/2022						
Benzo (k) fluoranthene	44.5	10.0	ug/L	46.7	BLOD	95.2	25-95	0.503	20	M
bis (2-Chloroethoxy) methane	35.7	10.0	ug/L	46.7	BLOD	76.4	25-85	9.11	20	
bis (2-Chloroethyl) ether	35.0	10.0	ug/L	46.7	BLOD	74.9	25-85	3.69	20	
2,2'-Oxybis (1-chloropropane)	40.7	10.0	ug/L	46.7	BLOD	87.2	25-87	3.50	20	M
bis (2-Ethylhexyl) phthalate	42.5	5.00	ug/L	46.7	BLOD	91.0	30-125	0.766	20	
Butyl benzyl phthalate	38.9	10.0	ug/L	46.7	BLOD	83.2	30-115	2.98	20	
Carbazole	38.1	2.50	ug/L	46.7	BLOD	81.6	0-200	5.43	20	
Chrysene	38.7	10.0	ug/L	46.7	BLOD	82.9	20-90	4.30	20	
Dibenz (a,h) anthracene	42.9	10.0	ug/L	46.7	BLOD	91.8	27-125	1.21	20	
Diethyl phthalate	44.8	10.0	ug/L	46.7	BLOD	95.8	25-120	1.90	20	
Dimethyl phthalate	45.6	10.0	ug/L	46.7	BLOD	97.5	25-125	0.654	20	
Di-n-butyl phthalate	37.3	10.0	ug/L	46.7	BLOD	79.9	25-115	1.06	20	
Di-n-octyl phthalate	28.1	10.0	ug/L	46.7	BLOD	60.1	22-105	86.5	20	P
Fluoranthene	38.7	10.0	ug/L	46.7	BLOD	82.9	25-96	18.1	20	
Fluorene	41.8	10.0	ug/L	46.7	BLOD	89.4	15-97	0.516	20	
Hexachlorobenzene	43.7	0.93	ug/L	46.7	BLOD	93.6	25-125	8.16	20	
Hexachlorobutadiene	38.1	10.0	ug/L	46.7	BLOD	81.5	25-125	9.89	20	
Hexachlorocyclopentadiene	20.4	10.0	ug/L	46.7	BLOD	43.7	10-90	19.5	20	
Hexachloroethane	34.8	10.0	ug/L	46.7	BLOD	74.5	25-125	1.73	20	
Indeno (1,2,3-cd) pyrene	40.5	10.0	ug/L	46.7	BLOD	86.6	25-125	1.84	20	
Isophorone	29.8	10.0	ug/L	46.7	BLOD	63.8	10-110	10.1	20	
Naphthalene	38.3	0.10	ug/L	46.7	BLOD	82.0	12-100	0.850	20	
Nitrobenzene	39.8	10.0	ug/L	46.7	BLOD	85.1	27-77	1.28	20	M
n-Nitrosodimethylamine	25.3	10.0	ug/L	46.7	BLOD	54.1	10-85	15.9	20	
n-Nitrosodi-n-propylamine	38.7	10.0	ug/L	46.7	BLOD	82.9	12-97	2.24	20	

Certificate of Analysis

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Semivolatile Organic Compounds by GCMS - Quality Control

Enthalpy Analytical

Analyte	Result	LOQ	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Qual
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Batch BFL0373 - SW3510C/EPA600-MS

Matrix Spike Dup (BFL0373-MSD1)	Source: 22L0423-13		Prepared: 12/09/2022 Analyzed: 12/12/2022							
n-Nitrosodiphenylamine	32.5	10.0	ug/L	46.7	BLOD	69.5	12-97	2.65	20	
p-Chloro-m-cresol	38.9	10.0	ug/L	46.7	BLOD	83.3	10-91	7.58	20	
Pentachlorophenol	43.1	20.0	ug/L	46.7	BLOD	92.2	27-109	15.6	20	
Phenanthrene	45.1	10.0	ug/L	46.7	BLOD	96.4	35-115	6.75	20	
Phenol	13.1	10.0	ug/L	47.2	BLOD	27.9	10-70	1.58	20	
Pyrene	43.3	10.0	ug/L	46.7	BLOD	92.6	23-110	5.30	20	
Pyridine	29.6	10.0	ug/L	46.7	BLOD	63.3	0-200	3.36	20	
<i>Surr: 2,4,6-Tribromophenol (Surr)</i>	86.7		ug/L	93.5		92.8	10-86			M
<i>Surr: 2-Fluorobiphenyl (Surr)</i>	41.8		ug/L	46.7		89.5	9-87			M
<i>Surr: 2-Fluorophenol (Surr)</i>	39.9		ug/L	93.5		42.6	10-52			
<i>Surr: Nitrobenzene-d5 (Surr)</i>	42.8		ug/L	46.7		91.6	10-98.5			
<i>Surr: Phenol-d5 (Surr)</i>	30.3		ug/L	93.5		32.4	5-33			
<i>Surr: p-Terphenyl-d14 (Surr)</i>	42.6		ug/L	46.7		91.1	27-133			

Batch BFL0423 - SW3510C/EPA600-MS

Blank (BFL0423-BLK1)	Prepared & Analyzed: 12/12/2022									
bis (2-Ethylhexyl) phthalate	ND	5.00	ug/L							
Diethyl phthalate	ND	10.0	ug/L							
Di-n-butyl phthalate	ND	10.0	ug/L							
Phenol	ND	10.0	ug/L							
<i>Surr: 2,4,6-Tribromophenol (Surr)</i>	175		ug/L	100		175	10-86			S
<i>Surr: 2-Fluorobiphenyl (Surr)</i>	79.2		ug/L	50.0		158	9-87			S
<i>Surr: 2-Fluorophenol (Surr)</i>	95.2		ug/L	100		95.2	10-52			S
<i>Surr: Nitrobenzene-d5 (Surr)</i>	87.4		ug/L	50.0		175	10-98.5			S

Certificate of Analysis

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Semivolatile Organic Compounds by GCMS - Quality Control

Enthalpy Analytical

Analyte	Result	LOQ	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Qual
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Batch BFL0423 - SW3510C/EPA600-MS

Blank (BFL0423-BLK1)

Prepared & Analyzed: 12/12/2022

<i>Surr: Phenol-d5 (Surr)</i>	66.0		ug/L	100		66.0	5-33			S
<i>Surr: p-Terphenyl-d14 (Surr)</i>	90.0		ug/L	50.0		180	27-133			S

LCS (BFL0423-BS1)

Prepared: 12/12/2022 Analyzed: 12/13/2022

1,2,4-Trichlorobenzene	45.2	10.0	ug/L	50.0		90.5	22-135			
1,2-Dichlorobenzene	48.3	10.0	ug/L	50.0		96.6	22-115			
1,3-Dichlorobenzene	44.3	10.0	ug/L	50.0		88.6	22-112			
1,4-Dichlorobenzene	49.9	10.0	ug/L	50.0		99.8	13-112			
1-Chloronaphthalene	51.8	10.0	ug/L				0-200			
2,3,4,6-Tetrachlorophenol	1.20	10.0	ug/L				0-200			
2,4,6-Trichlorophenol	54.0	10.0	ug/L	50.0		108	11-145			
2,4-Dichlorophenol	54.7	10.0	ug/L	50.0		109	11-75			
2,4-Dimethylphenol	55.8	5.00	ug/L	50.0		112	11-121			
2,4-Dinitrophenol	37.6	50.0	ug/L	50.0		75.1	11-165			
2,4-Dinitrotoluene	77.0	10.0	ug/L	50.0		154	17-155			
2,6-Dinitrotoluene	69.9	10.0	ug/L	50.0		140	15-125			L
2-Chloronaphthalene	49.4	10.0	ug/L	50.0		98.7	27-89			L
2-Chlorophenol	58.7	10.0	ug/L	50.0		117	15-110			L
2-Nitrophenol	68.3	10.0	ug/L	50.0		137	11-115			L
3,3'-Dichlorobenzidine	44.4	10.0	ug/L	50.0		88.8	25-95			
4,6-Dinitro-2-methylphenol	74.7	50.0	ug/L	50.0		149	25-130			L
4-Aminobiphenyl	2.97	10.0	ug/L				0-200			
4-Bromophenyl phenyl ether	62.2	10.0	ug/L	50.0		124	15-110			L
4-Chlorophenyl phenyl ether	51.7	10.0	ug/L	50.0		103	15-110			
4-Nitrophenol	26.3	50.0	ug/L	50.0		52.5	12-70			

Certificate of Analysis

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Semivolatile Organic Compounds by GCMS - Quality Control

Enthalpy Analytical

Analyte	Result	LOQ	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Qual
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Batch BFL0423 - SW3510C/EPA600-MS

LCS (BFL0423-BS1)

Prepared: 12/12/2022 Analyzed: 12/13/2022

Acenaphthene	54.6	10.0	ug/L	50.0		109	18-85			L
Acenaphthylene	54.6	10.0	ug/L	50.0		109	20-75			L
Acetophenone	56.2	20.0	ug/L	50.0		112	0-200			
alpha-Terpineol	53.8	2.50	ug/L	50.0		108	0-200			
Anthracene	65.1	10.0	ug/L	50.0		130	35-95			L
Benzo (a) anthracene	76.2	10.0	ug/L	50.0		152	25-95			L
Benzo (a) pyrene	85.4	0.20	ug/L	50.0		171	37-110			L
Benzo (b) fluoranthene	77.8	10.0	ug/L	50.0		156	25-75			L
Benzo (g,h,i) perylene	82.8	10.0	ug/L	50.0		166	25-90			L
Benzo (k) fluoranthene	77.4	10.0	ug/L	50.0		155	25-95			L
bis (2-Chloroethoxy) methane	56.3	10.0	ug/L	50.0		113	25-110			L
bis (2-Chloroethyl) ether	59.4	10.0	ug/L	50.0		119	25-85			L
2,2'-Oxybis (1-chloropropane)	60.2	10.0	ug/L	50.0		120	25-95			L
bis (2-Ethylhexyl) phthalate	93.3	5.00	ug/L	50.0		187	30-125			L
Butyl benzyl phthalate	98.9	10.0	ug/L	50.0		198	30-115			L
Carbazole	69.6	2.50	ug/L	50.0		139	0-200			
Chrysene	76.5	10.0	ug/L	50.0		153	20-90			L
Dibenz (a,h) anthracene	91.4	10.0	ug/L	50.0		183	27-125			L
Dibenzofuran	ND	5.00	ug/L				0-200			
Diethyl phthalate	64.5	10.0	ug/L	50.0		129	25-120			L
Dimethyl phthalate	61.8	10.0	ug/L	50.0		124	25-125			
Di-n-butyl phthalate	50.9	10.0	ug/L	50.0		102	35-115			
Di-n-octyl phthalate	85.6	10.0	ug/L	50.0		171	25-105			L
Fluoranthene	67.3	10.0	ug/L	50.0		135	33-95			L
Fluorene	58.9	10.0	ug/L	50.0		118	15-97			L

Certificate of Analysis

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Semivolatile Organic Compounds by GCMS - Quality Control

Enthalpy Analytical

Analyte	Result	LOQ	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Qual
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Batch BFL0423 - SW3510C/EPA600-MS

LCS (BFL0423-BS1)

Prepared: 12/12/2022 Analyzed: 12/13/2022

Hexachlorobenzene	63.8	1.00	ug/L	50.0		128	25-125			L
Hexachlorobutadiene	43.9	10.0	ug/L	50.0		87.9	25-125			
Hexachlorocyclopentadiene	32.7	10.0	ug/L	50.0		65.5	25-125			
Hexachloroethane	46.4	10.0	ug/L	50.0		92.8	25-125			
Indeno (1,2,3-cd) pyrene	92.5	10.0	ug/L	50.0		185	25-125			L
Isophorone	40.8	10.0	ug/L	50.0		81.5	10-110			
Naphthalene	45.1	0.10	ug/L	50.0		90.1	12-100			
Nitrobenzene	64.1	10.0	ug/L	50.0		128	30-97			
n-Nitrosodimethylamine	46.9	10.0	ug/L	50.0		93.7	10-85			L
n-Nitrosodi-n-propylamine	63.3	10.0	ug/L	50.0		127	12-97			L
n-Nitrosodiphenylamine	52.1	10.0	ug/L	50.0		104	12-97			L
p-Chloro-m-cresol	59.0	10.0	ug/L	50.0		118	10-91			
Pentachlorophenol	65.6	20.0	ug/L	50.0		131	30-109			L
Phenanthrene	75.5	10.0	ug/L	50.0		151	30-88			L
Phenol	29.7	10.0	ug/L	50.5		58.8	10-70			
Pyrene	79.7	10.0	ug/L	50.0		159	27-110			L
Pyridine	50.3	10.0	ug/L	50.0		101	0-200			
<i>Surr: 2,4,6-Tribromophenol (Surr)</i>	<i>132</i>		<i>ug/L</i>	<i>100</i>		<i>132</i>	<i>10-86</i>			<i>S</i>
<i>Surr: 2-Fluorobiphenyl (Surr)</i>	<i>52.6</i>		<i>ug/L</i>	<i>50.0</i>		<i>105</i>	<i>9-87</i>			<i>S</i>
<i>Surr: 2-Fluorophenol (Surr)</i>	<i>84.9</i>		<i>ug/L</i>	<i>100</i>		<i>84.9</i>	<i>10-52</i>			<i>S</i>
<i>Surr: Nitrobenzene-d5 (Surr)</i>	<i>69.7</i>		<i>ug/L</i>	<i>50.0</i>		<i>139</i>	<i>10-98.5</i>			<i>S</i>
<i>Surr: Phenol-d5 (Surr)</i>	<i>58.5</i>		<i>ug/L</i>	<i>100</i>		<i>58.5</i>	<i>5-33</i>			<i>S</i>
<i>Surr: p-Terphenyl-d14 (Surr)</i>	<i>86.4</i>		<i>ug/L</i>	<i>50.0</i>		<i>173</i>	<i>27-133</i>			<i>S</i>

Certificate of Analysis

 Client Name: SCS Engineers-Winchester
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Date Issued: 12/30/2022 11:56:27AM

Organochlorine Herbicides by GC/ECD - Quality Control

Enthalpy Analytical

Analyte	Result	LOQ	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Qual
Batch BFL0446 - SW8151A/EPA600										
Blank (BFL0446-BLK1) Prepared: 12/12/2022 Analyzed: 12/16/2022										
2,4,5-TP (Silvex)	ND	0.500	ug/L							
2,4-D	ND	0.500	ug/L							
<i>Surr: DCAA (Surr)</i>	<i>0.892</i>		ug/L	<i>1.11</i>		<i>80.3</i>	<i>48.5-134</i>			
LCS (BFL0446-BS1) Prepared: 12/12/2022 Analyzed: 12/16/2022										
2,4,5-T	0.526	0.500	ug/L	0.556		94.8	62-145			
2,4,5-TP (Silvex)	0.474	0.500	ug/L	0.556		85.4	62-132			
2,4-D	0.547	0.500	ug/L	0.556		98.4	74-139			
Dinoseb	0.575	0.500	ug/L	0.556		103	59-136			
Pentachlorophenol	0.600	0.500	ug/L	0.556		108	62-118			
<i>Surr: DCAA (Surr)</i>	<i>1.07</i>		ug/L	<i>1.11</i>		<i>96.2</i>	<i>70-130</i>			
Matrix Spike (BFL0446-MS1) Source: 22L0423-13 Prepared: 12/12/2022 Analyzed: 12/16/2022										
2,4,5-T	0.552	0.500	ug/L	0.556	BLOD	99.3	53-144			
2,4,5-TP (Silvex)	0.624	0.500	ug/L	0.556	BLOD	112	52-129			
2,4-D	0.815	0.500	ug/L	0.556	BLOD	147	53-126			M
Dinoseb	0.731	0.500	ug/L	0.556	BLOD	132	60-137			
Pentachlorophenol	0.690	0.500	ug/L	0.556	BLOD	124	52-124			M
<i>Surr: DCAA (Surr)</i>	<i>1.24</i>		ug/L	<i>1.11</i>		<i>112</i>	<i>70-130</i>			
Matrix Spike Dup (BFL0446-MSD1) Source: 22L0423-13 Prepared: 12/12/2022 Analyzed: 12/16/2022										
2,4,5-T	0.548	0.500	ug/L	0.556	BLOD	98.6	53-144	0.808	20	
2,4,5-TP (Silvex)	0.548	0.500	ug/L	0.556	BLOD	98.7	52-129	13.0	20	
2,4-D	0.791	0.500	ug/L	0.556	BLOD	142	53-126	3.02	20	M
Dinoseb	0.611	0.500	ug/L	0.556	BLOD	110	60-137	17.8	20	
Pentachlorophenol	0.578	0.500	ug/L	0.556	BLOD	104	52-124	17.6	20	

Certificate of Analysis

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Organochlorine Herbicides by GC/ECD - Quality Control

Enthalpy Analytical

Analyte	Result	LOQ	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Qual
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Batch BFL0446 - SW8151A/EPA600

Matrix Spike Dup (BFL0446-MSD1) **Source: 22L0423-13** Prepared: 12/12/2022 Analyzed: 12/16/2022

<i>Surr: DCAA (Surr)</i>	1.08	ug/L	1.11	97.1	70-130
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Certificate of Analysis

 Client Name: SCS Engineers-Winchester
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Micro-extractables by GC/ECD - Quality Control

Enthalpy Analytical

Analyte	Result	LOQ	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Qual
Batch BFL0454 - SW8011										
Blank (BFL0454-BLK1)				Prepared & Analyzed: 12/12/2022						
1,2-Dibromoethane (EDB)	ND	0.010	ug/L							
1,2,3-Trichloropropane	ND	0.010	ug/L							
1,2-Dibromo-3-chloropropane (DBCP)	ND	0.010	ug/L							
LCS (BFL0454-BS1)				Prepared & Analyzed: 12/12/2022						
1,2-Dibromoethane (EDB)	0.224	0.010	ug/L	0.250		89.5	65-135			
1,2,3-Trichloropropane	0.206	0.010	ug/L	0.250		82.4	65-135			
1,2-Dibromo-3-chloropropane (DBCP)	0.241	0.010	ug/L	0.250		96.4	65-135			
Matrix Spike (BFL0454-MS1)				Source: 22L0423-13		Prepared: 12/12/2022 Analyzed: 12/13/2022				
1,2-Dibromoethane (EDB)	0.207	0.010	ug/L	0.251	BLOD	82.5	65-135			
1,2,3-Trichloropropane	0.752	0.010	ug/L	0.251	BLOD	300	65-135			M
1,2-Dibromo-3-chloropropane (DBCP)	0.195	0.010	ug/L	0.251	BLOD	77.6	65-135			
Matrix Spike Dup (BFL0454-MSD1)				Source: 22L0423-13		Prepared: 12/12/2022 Analyzed: 12/13/2022				
1,2-Dibromoethane (EDB)	0.213	0.010	ug/L	0.256	BLOD	83.2	65-135	2.64	20	
1,2,3-Trichloropropane	0.759	0.010	ug/L	0.256	BLOD	297	65-135	0.849	20	M
1,2-Dibromo-3-chloropropane (DBCP)	0.201	0.010	ug/L	0.256	BLOD	78.5	65-135	3.07	20	
Batch BFL0456 - SW8011										
Blank (BFL0456-BLK1)				Prepared: 12/12/2022 Analyzed: 12/13/2022						
1,2-Dibromoethane (EDB)	ND	0.010	ug/L							
1,2,3-Trichloropropane	ND	0.010	ug/L							
1,2-Dibromo-3-chloropropane (DBCP)	ND	0.010	ug/L							
LCS (BFL0456-BS1)				Prepared: 12/12/2022 Analyzed: 12/13/2022						
1,2-Dibromoethane (EDB)	0.215	0.010	ug/L	0.250		85.9	65-135			
1,2,3-Trichloropropane	0.193	0.010	ug/L	0.250		77.2	65-135			

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Micro-extractables by GC/ECD - Quality Control

Enthalpy Analytical

Analyte	Result	LOQ	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Qual
Batch BFL0456 - SW8011										
LCS (BFL0456-BS1)										
				Prepared: 12/12/2022 Analyzed: 12/13/2022						
1,2-Dibromo-3-chloropropane (DBCP)	0.219	0.010	ug/L	0.250		87.8	65-135			
Duplicate (BFL0456-DUP1)										
				Source: 22L0480-03 Prepared: 12/12/2022 Analyzed: 12/13/2022						
1,2-Dibromoethane (EDB)	ND	0.010	ug/L		BLOD			NA	20	
1,2,3-Trichloropropane	ND	0.010	ug/L		BLOD			NA	20	
1,2-Dibromo-3-chloropropane (DBCP)	ND	0.010	ug/L		BLOD			NA	20	
Matrix Spike (BFL0456-MS1)										
				Source: 22L0480-01 Prepared: 12/12/2022 Analyzed: 12/13/2022						
1,2-Dibromoethane (EDB)	0.245	0.010	ug/L	0.254	BLOD	96.5	65-135			
1,2,3-Trichloropropane	0.645	0.010	ug/L	0.254	BLOD	254	65-135			M
1,2-Dibromo-3-chloropropane (DBCP)	0.248	0.010	ug/L	0.254	BLOD	97.6	65-135			

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Head Space Analysis by GC - Quality Control

Enthalpy Analytical

Analyte	Result	LOQ	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Qual
Batch BFL0394 - SW5030B-MS										
Blank (BFL0394-BLK1)			Prepared & Analyzed: 12/09/2022							
Ethane	ND	5.0	ug/L							
Ethene	ND	5.0	ug/L							
Methane	ND	5.0	ug/L							
<i>Surr: Acetylene (Surr)</i>	466		ug/L	432		108	70-130			
<i>Surr: Acetylene (Surr)</i>	466		ug/L	432		108	70-130			
LCS (BFL0394-BS1)			Prepared & Analyzed: 12/09/2022							
Methane	262	5.0	ug/L	266		98.6	70-130			
Ethene	467	5.0	ug/L	464		101	70-130			
Ethane	518	5.0	ug/L	500		104	70-130			
<i>Surr: Acetylene (Surr)</i>	462		ug/L	432		107	70-130			
<i>Surr: Acetylene (Surr)</i>	462		ug/L	432		107	70-130			
Matrix Spike (BFL0394-MS1)			Source: 22L0423-13		Prepared & Analyzed: 12/09/2022					
Methane	2450	5.0	ug/L	266	2280	64.3	70-130			M
Ethane	677	5.0	ug/L	500	BLOD	135	70-130			M
Ethene	607	5.0	ug/L	464	BLOD	131	70-130			M
<i>Surr: Acetylene (Surr)</i>	611		ug/L	432		141	70-130			S
<i>Surr: Acetylene (Surr)</i>	611		ug/L	432		141	70-130			S
Matrix Spike Dup (BFL0394-MSD1)			Source: 22L0423-13		Prepared & Analyzed: 12/09/2022					
Methane	2930	5.0	ug/L	266	2280	242	70-130	17.6	20	M
Ethene	622	5.0	ug/L	464	BLOD	134	70-130	2.46	20	M
Ethane	694	5.0	ug/L	500	BLOD	139	70-130	2.47	20	M
<i>Surr: Acetylene (Surr)</i>	612		ug/L	432		142	70-130			S
<i>Surr: Acetylene (Surr)</i>	612		ug/L	432		142	70-130			S

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Wet Chemistry Analysis - Quality Control

Enthalpy Analytical

Analyte	Result	LOQ	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Qual
Batch BFL0382 - No Prep Wet Chem										
Blank (BFL0382-BLK1)				Prepared & Analyzed: 12/09/2022						
Sulfide	ND	1.00	mg/L							
LCS (BFL0382-BS1)				Prepared & Analyzed: 12/09/2022						
Sulfide	5.25	1	mg/L	5.00		105	80-120			
Matrix Spike (BFL0382-MS1)				Source: 22L0423-13		Prepared & Analyzed: 12/09/2022				
Sulfide	5.43	1.00	mg/L	5.00	BLOD	109	75-125			
Matrix Spike Dup (BFL0382-MSD1)				Source: 22L0423-13		Prepared & Analyzed: 12/09/2022				
Sulfide	5.11	1.00	mg/L	5.00	BLOD	102	75-125	6.07	20	
Batch BFL0440 - No Prep IC										
Blank (BFL0440-BLK1)				Prepared & Analyzed: 12/09/2022						
Chloride	ND	1.0	mg/L							
LCS (BFL0440-BS1)				Prepared & Analyzed: 12/09/2022						
Chloride	21.0	1	mg/L	20.0		105	90-110			
LCS Dup (BFL0440-BSD1)				Prepared & Analyzed: 12/09/2022						
Chloride	21.4	1	mg/L	20.0		107	90-110	1.87	15	
Matrix Spike (BFL0440-MS1)				Source: 22L0294-01RE1		Prepared & Analyzed: 12/09/2022				
Chloride	357	11.1	mg/L	111	242	104	90-110			
Matrix Spike (BFL0440-MS2)				Source: 22L0436-02		Prepared & Analyzed: 12/10/2022				
Chloride	100	1.1	mg/L	11.1	90.6	87.3	90-110			M

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Wet Chemistry Analysis - Quality Control

Enthalpy Analytical

Analyte	Result	LOQ	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Qual
Batch BFL0440 - No Prep IC										
Matrix Spike Dup (BFL0440-MSD1)		Source: 22L0294-01RE1			Prepared & Analyzed: 12/09/2022					
Chloride	329	11.1	mg/L	111	242	78.7	90-110	8.15	15	M
Matrix Spike Dup (BFL0440-MSD2)		Source: 22L0436-02			Prepared & Analyzed: 12/10/2022					
Chloride	98.9	1.1	mg/L	11.1	90.6	73.9	90-110	1.50	15	M
Batch BFL0447 - No Prep IC										
Blank (BFL0447-BLK1)		Prepared & Analyzed: 12/12/2022								
Chloride	ND	1.0	mg/L							
LCS (BFL0447-BS1)		Prepared & Analyzed: 12/12/2022								
Chloride	19.9	1	mg/L	20.0	99.3 90-110					
LCS Dup (BFL0447-BSD1)		Prepared & Analyzed: 12/12/2022								
Chloride	21.5	1	mg/L	20.0	108	90-110	8.18	15		
Matrix Spike (BFL0447-MS1)		Source: 22L0423-13			Prepared & Analyzed: 12/12/2022					
Chloride	155	11.1	mg/L	111	37.0	106	90-110			
Matrix Spike (BFL0447-MS2)		Source: 22L0482-03			Prepared & Analyzed: 12/13/2022					
Chloride	13.3	1.1	mg/L	11.1	2.6	96.5	90-110			
Matrix Spike Dup (BFL0447-MSD1)		Source: 22L0423-13			Prepared & Analyzed: 12/12/2022					
Chloride	153	11.1	mg/L	111	37.0	105	90-110	1.18	15	
Matrix Spike Dup (BFL0447-MSD2)		Source: 22L0482-03			Prepared & Analyzed: 12/13/2022					
Chloride	11.8	1.1	mg/L	11.1	2.6	83.3	90-110	11.8	15	M

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Wet Chemistry Analysis - Quality Control

Enthalpy Analytical

Analyte	Result	LOQ	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Qual
Batch BFL0553 - No Prep Wet Chem										
Blank (BFL0553-BLK1)				Prepared & Analyzed: 12/14/2022						
Cyanide	ND	0.01	mg/L							
LCS (BFL0553-BS1)				Prepared & Analyzed: 12/14/2022						
Cyanide	0.26	0.01	mg/L	0.250		105	80-120			
Matrix Spike (BFL0553-MS1)				Source: 22L0495-03 Prepared & Analyzed: 12/14/2022						
Cyanide	0.22	0.01	mg/L	0.250	BLOD	88.1	80-120			
Matrix Spike (BFL0553-MS2)				Source: 22L0423-13 Prepared & Analyzed: 12/14/2022						
Cyanide	0.23	0.01	mg/L	0.250	BLOD	91.4	80-120			
Matrix Spike Dup (BFL0553-MSD1)				Source: 22L0495-03 Prepared & Analyzed: 12/14/2022						
Cyanide	0.24	0.01	mg/L	0.250	BLOD	96.4	80-120	8.97	20	
Matrix Spike Dup (BFL0553-MSD2)				Source: 22L0423-13 Prepared & Analyzed: 12/14/2022						
Cyanide	0.24	0.01	mg/L	0.250	BLOD	96.8	80-120	5.74	20	
Batch BFL0614 - No Prep Wet Chem										
Blank (BFL0614-BLK1)				Prepared & Analyzed: 12/15/2022						
Cyanide	ND	0.01	mg/L							
Blank (BFL0614-BLK2)				Prepared & Analyzed: 12/15/2022						
Cyanide	ND	0.01	mg/L							
Blank (BFL0614-BLK3)				Prepared & Analyzed: 12/15/2022						
Cyanide	ND	0.01	mg/L							

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Wet Chemistry Analysis - Quality Control

Enthalpy Analytical

Analyte	Result	LOQ	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Qual
Batch BFL0614 - No Prep Wet Chem										
Blank (BFL0614-BLK4)				Prepared & Analyzed: 12/15/2022						
Cyanide	ND	0.01	mg/L							
Blank (BFL0614-BLK5)				Prepared & Analyzed: 12/15/2022						
Cyanide	ND	0.01	mg/L							
Blank (BFL0614-BLK6)				Prepared & Analyzed: 12/15/2022						
Cyanide	ND	0.01	mg/L							
LCS (BFL0614-BS1)				Prepared & Analyzed: 12/15/2022						
Cyanide	0.24	0.01	mg/L	0.250		97.3	80-120			
LCS (BFL0614-BS2)				Prepared & Analyzed: 12/15/2022						
Cyanide	0.23	0.01	mg/L	0.250		93.9	80-120			
Matrix Spike (BFL0614-MS1)				Source: 22L0722-03		Prepared & Analyzed: 12/15/2022				
Cyanide	0.23	0.01	mg/L	0.250	BLOD	91.3	80-120			
Matrix Spike (BFL0614-MS2)				Source: 22L0480-07		Prepared & Analyzed: 12/15/2022				
Cyanide	0.22	0.01	mg/L	0.250	BLOD	87.7	80-120			
Matrix Spike Dup (BFL0614-MSD1)				Source: 22L0722-03		Prepared & Analyzed: 12/15/2022				
Cyanide	0.24	0.01	mg/L	0.250	BLOD	95.1	80-120	4.03	20	
Matrix Spike Dup (BFL0614-MSD2)				Source: 22L0480-07		Prepared & Analyzed: 12/15/2022				
Cyanide	0.24	0.01	mg/L	0.250	BLOD	95.6	80-120	8.64	20	

Batch BFL0645 - No Prep Wet Chem

Blank (BFL0645-BLK1)				Prepared & Analyzed: 12/15/2022						
Alkalinity	ND	5.0	mg/L							

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Wet Chemistry Analysis - Quality Control

Enthalpy Analytical

Analyte	Result	LOQ	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Qual
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Batch BFL0645 - No Prep Wet Chem

LCS (BFL0645-BS1)

Prepared & Analyzed: 12/15/2022

Alkalinity	51.0	5.0	mg/L	50.0		102	80-120
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Duplicate (BFL0645-DUP1)

Source: 22L0423-13

Prepared & Analyzed: 12/15/2022

Alkalinity	651	5.0	mg/L		647		0.616	20
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Analytical Summary

Sample ID	Preparation Factors Initial / Final	Method	Batch ID	Sequence ID	Calibration ID
Metals (Total) by EPA 6000/7000 Series Methods			Preparation Method:	EPA200.8 R5.4	
22L0423-01	50.0 mL / 50.0 mL	SW6020B	BFL0428	SFL0657	AL20106
22L0423-02	50.0 mL / 50.0 mL	SW6020B	BFL0428	SFL0657	AL20106
22L0423-03	50.0 mL / 50.0 mL	SW6020B	BFL0428	SFL0657	AL20106
22L0423-03RE1	50.0 mL / 50.0 mL	SW6020B	BFL0428	SFL0673	AL20109
22L0423-04	50.0 mL / 50.0 mL	SW6020B	BFL0428	SFL0657	AL20106
22L0423-05	50.0 mL / 50.0 mL	SW6020B	BFL0428	SFL0657	AL20106
22L0423-06	50.0 mL / 50.0 mL	SW6020B	BFL0428	SFL0657	AL20106
22L0423-07	50.0 mL / 50.0 mL	SW6020B	BFL0428	SFL0657	AL20106
22L0423-08	50.0 mL / 50.0 mL	SW6020B	BFL0428	SFL0657	AL20106
22L0423-09	50.0 mL / 50.0 mL	SW6020B	BFL0428	SFL0657	AL20106
22L0423-10	50.0 mL / 50.0 mL	SW6020B	BFL0428	SFL0657	AL20106
22L0423-11	50.0 mL / 50.0 mL	SW6020B	BFL0428	SFL0657	AL20106
22L0423-12	50.0 mL / 50.0 mL	SW6020B	BFL0428	SFL0657	AL20106
22L0423-13	50.0 mL / 50.0 mL	SW6020B	BFL0428	SFL0657	AL20106
22L0423-13RE1	50.0 mL / 50.0 mL	SW6020B	BFL0428	SFL0673	AL20109
22L0423-14	50.0 mL / 50.0 mL	SW6020B	BFL0428	SFL0657	AL20106
22L0423-14RE1	50.0 mL / 50.0 mL	SW6020B	BFL0428	SFL0673	AL20109
22L0423-15	50.0 mL / 50.0 mL	SW6020B	BFL0428	SFL0657	AL20106
22L0423-15RE1	50.0 mL / 50.0 mL	SW6020B	BFL0428	SFL0673	AL20109
22L0423-16	50.0 mL / 50.0 mL	SW6020B	BFL0428	SFL0657	AL20106
22L0423-01RE1	50.0 mL / 50.0 mL	SW6020B	BFL0762	SFL0744	AL20119
22L0423-02RE2	50.0 mL / 50.0 mL	SW6020B	BFL0762	SFL0744	AL20119
22L0423-03RE2	50.0 mL / 50.0 mL	SW6020B	BFL0762	SFL0744	AL20119
22L0423-04RE1	50.0 mL / 50.0 mL	SW6020B	BFL0762	SFL0744	AL20119
22L0423-05RE1	50.0 mL / 50.0 mL	SW6020B	BFL0762	SFL0744	AL20119
22L0423-13RE2	50.0 mL / 50.0 mL	SW6020B	BFL0762	SFL0744	AL20119
22L0423-14RE2	50.0 mL / 50.0 mL	SW6020B	BFL0762	SFL0744	AL20119

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Sample ID	Preparation Factors Initial / Final	Method	Batch ID	Sequence ID	Calibration ID
Metals (Total) by EPA 6000/7000 Series Methods			Preparation Method: EPA200.8 R5.4		
22L0423-15RE3	50.0 mL / 50.0 mL	SW6020B	BFL0762	SFL0744	AL20119
22L0423-16RE2	50.0 mL / 50.0 mL	SW6020B	BFL0762	SFL0744	AL20119

Sample ID	Preparation Factors Initial / Final	Method	Batch ID	Sequence ID	Calibration ID
Wet Chemistry Analysis			Preparation Method: No Prep IC		
22L0423-14	1.00 mL / 1.00 mL	EPA300.0 R2.1	BFL0440	SFL0392	AB20157
22L0423-15	1.00 mL / 1.00 mL	EPA300.0 R2.1	BFL0440	SFL0392	AB20157
22L0423-16	1.00 mL / 1.00 mL	EPA300.0 R2.1	BFL0440	SFL0392	AB20157
22L0423-13	1.00 mL / 1.00 mL	EPA300.0 R2.1	BFL0447	SFL0436	AB20157

Sample ID	Preparation Factors Initial / Final	Method	Batch ID	Sequence ID	Calibration ID
Wet Chemistry Analysis			Preparation Method: No Prep Wet Chem		
22L0423-01	6.00 mL / 6.00 mL	SW9215	BFL0382	SFL0339	
22L0423-02	6.00 mL / 6.00 mL	SW9215	BFL0382	SFL0339	
22L0423-03	6.00 mL / 6.00 mL	SW9215	BFL0382	SFL0339	
22L0423-04	6.00 mL / 6.00 mL	SW9215	BFL0382	SFL0339	
22L0423-05	6.00 mL / 6.00 mL	SW9215	BFL0382	SFL0339	
22L0423-13	6.00 mL / 6.00 mL	SW9215	BFL0382	SFL0339	
22L0423-14	6.00 mL / 6.00 mL	SW9215	BFL0382	SFL0339	
22L0423-15	6.00 mL / 6.00 mL	SW9215	BFL0382	SFL0339	
22L0423-16	6.00 mL / 6.00 mL	SW9215	BFL0382	SFL0339	
22L0423-01	6.00 mL / 6.00 mL	SW9012B	BFL0553	SFL0524	AL20085
22L0423-02	6.00 mL / 6.00 mL	SW9012B	BFL0553	SFL0524	AL20085
22L0423-03	6.00 mL / 6.00 mL	SW9012B	BFL0553	SFL0524	AL20085
22L0423-13	6.00 mL / 6.00 mL	SW9012B	BFL0553	SFL0524	AL20085
22L0423-04	6.00 mL / 6.00 mL	SW9012B	BFL0614	SFL0571	AL20095
22L0423-05	6.00 mL / 6.00 mL	SW9012B	BFL0614	SFL0571	AL20095

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Sample ID	Preparation Factors Initial / Final	Method	Batch ID	Sequence ID	Calibration ID
Wet Chemistry Analysis			Preparation Method:	No Prep Wet Chem	
22L0423-14	6.00 mL / 6.00 mL	SW9012B	BFL0614	SFL0571	AL20095
22L0423-15	6.00 mL / 6.00 mL	SW9012B	BFL0614	SFL0571	AL20095
22L0423-16	6.00 mL / 6.00 mL	SW9012B	BFL0614	SFL0571	AL20095
22L0423-13	50.0 mL / 50.0 mL	SM22 2320B-2011	BFL0645	SFL0595	
22L0423-14	10.0 mL / 50.0 mL	SM22 2320B-2011	BFL0645	SFL0595	
22L0423-15	10.0 mL / 50.0 mL	SM22 2320B-2011	BFL0645	SFL0595	
22L0423-16	200 mL / 200 mL	SM22 2320B-2011	BFL0645	SFL0595	

Sample ID	Preparation Factors Initial / Final	Method	Batch ID	Sequence ID	Calibration ID
Semivolatile Organic Compounds by GCMS			Preparation Method:	SW3510C/EPA600-MS	
22L0423-01	1070 mL / 1.00 mL	SW8270E	BFL0373	SFL0425	AI20189
22L0423-02	1070 mL / 1.00 mL	SW8270E	BFL0373	SFL0425	AI20189
22L0423-03	1070 mL / 1.00 mL	SW8270E	BFL0373	SFL0425	AI20189
22L0423-04	1070 mL / 1.00 mL	SW8270E	BFL0373	SFL0425	AI20189
22L0423-13	1070 mL / 1.00 mL	SW8270E	BFL0373	SFL0425	AI20189
22L0423-05	1070 mL / 1.00 mL	SW8270E	BFL0423	SFL0372	AL20040
22L0423-14	1070 mL / 1.00 mL	SW8270E	BFL0423	SFL0372	AL20040
22L0423-15	1070 mL / 1.00 mL	SW8270E	BFL0423	SFL0372	AL20040
22L0423-16	1070 mL / 1.00 mL	SW8270E	BFL0423	SFL0372	AL20040

Sample ID	Preparation Factors Initial / Final	Method	Batch ID	Sequence ID	Calibration ID
Volatile Organic Compounds by GCMS			Preparation Method:	SW5030B-MS	
22L0423-01	5.00 mL / 5.00 mL	SW8260D	BFL0391	SFL0352	AL20034
22L0423-02	5.00 mL / 5.00 mL	SW8260D	BFL0391	SFL0352	AL20034
22L0423-03	5.00 mL / 5.00 mL	SW8260D	BFL0391	SFL0352	AL20034
22L0423-04	5.00 mL / 5.00 mL	SW8260D	BFL0391	SFL0352	AL20034
22L0423-05	5.00 mL / 5.00 mL	SW8260D	BFL0391	SFL0352	AL20034

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Sample ID	Preparation Factors Initial / Final	Method	Batch ID	Sequence ID	Calibration ID
Volatile Organic Compounds by GCMS			Preparation Method: SW5030B-MS		
22L0423-06	5.00 mL / 5.00 mL	SW8260D	BFL0391	SFL0352	AL20034
22L0423-07	5.00 mL / 5.00 mL	SW8260D	BFL0391	SFL0352	AL20034
22L0423-08	5.00 mL / 5.00 mL	SW8260D	BFL0391	SFL0352	AL20034
22L0423-09	5.00 mL / 5.00 mL	SW8260D	BFL0391	SFL0352	AL20034
22L0423-10	5.00 mL / 5.00 mL	SW8260D	BFL0391	SFL0352	AL20034
22L0423-11	5.00 mL / 5.00 mL	SW8260D	BFL0391	SFL0352	AL20034
22L0423-12	5.00 mL / 5.00 mL	SW8260D	BFL0391	SFL0352	AL20034
22L0423-13	5.00 mL / 5.00 mL	SW8260D	BFL0391	SFL0352	AL20034
22L0423-14	5.00 mL / 5.00 mL	SW8260D	BFL0391	SFL0352	AL20034
22L0423-15	5.00 mL / 5.00 mL	SW8260D	BFL0391	SFL0352	AL20034
22L0423-16	5.00 mL / 5.00 mL	SW8260D	BFL0391	SFL0352	AL20034
22L0423-17	5.00 mL / 5.00 mL	SW8260D	BFL0391	SFL0352	AL20034
22L0423-13	5.00 mL / 5.00 mL	RSK175M	BFL0394	SFL0366	AI20005
22L0423-14	5.00 mL / 5.00 mL	RSK175M	BFL0394	SFL0366	AI20005
22L0423-15	5.00 mL / 5.00 mL	RSK175M	BFL0394	SFL0366	AI20005
22L0423-16	5.00 mL / 5.00 mL	RSK175M	BFL0394	SFL0366	AI20005
22L0423-17	5.00 mL / 5.00 mL	RSK175M	BFL0394	SFL0366	AI20005
22L0423-14RE1	5.00 mL / 5.00 mL	SW8260D	BFL0436	SFL0414	AL20034
22L0423-15RE1	5.00 mL / 5.00 mL	SW8260D	BFL0436	SFL0414	AL20034

Sample ID	Preparation Factors Initial / Final	Method	Batch ID	Sequence ID	Calibration ID
Metals (Total) by EPA 6000/7000 Series Methods			Preparation Method: SW7470A		
22L0423-01	20.0 mL / 20.0 mL	SW7470A	BFL0592	SFL0594	AL20100
22L0423-02	20.0 mL / 20.0 mL	SW7470A	BFL0592	SFL0594	AL20100
22L0423-03	20.0 mL / 20.0 mL	SW7470A	BFL0592	SFL0594	AL20100
22L0423-04	20.0 mL / 20.0 mL	SW7470A	BFL0592	SFL0594	AL20100
22L0423-05	20.0 mL / 20.0 mL	SW7470A	BFL0592	SFL0594	AL20100
22L0423-13	20.0 mL / 20.0 mL	SW7470A	BFL0592	SFL0594	AL20100

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Sample ID	Preparation Factors Initial / Final	Method	Batch ID	Sequence ID	Calibration ID
Metals (Total) by EPA 6000/7000 Series Methods			Preparation Method: SW7470A		
22L0423-14	20.0 mL / 20.0 mL	SW7470A	BFL0592	SFL0594	AL20100
22L0423-15	20.0 mL / 20.0 mL	SW7470A	BFL0592	SFL0594	AL20100
22L0423-16	20.0 mL / 20.0 mL	SW7470A	BFL0592	SFL0594	AL20100

Sample ID	Preparation Factors Initial / Final	Method	Batch ID	Sequence ID	Calibration ID
Micro-extractables by GC/ECD			Preparation Method: SW8011		
22L0423-01	59.8 mL / 2.00 mL	SW8011	BFL0454	SFL0424	AJ20178
22L0423-02	59.4 mL / 2.00 mL	SW8011	BFL0454	SFL0424	AJ20178
22L0423-03	59.5 mL / 2.00 mL	SW8011	BFL0454	SFL0424	AJ20178
22L0423-04	60.1 mL / 2.00 mL	SW8011	BFL0454	SFL0424	AJ20178
22L0423-05	60.1 mL / 2.00 mL	SW8011	BFL0454	SFL0424	AJ20178
22L0423-06	58.9 mL / 2.00 mL	SW8011	BFL0454	SFL0424	AJ20178
22L0423-07	58.7 mL / 2.00 mL	SW8011	BFL0454	SFL0424	AJ20178
22L0423-08	58.3 mL / 2.00 mL	SW8011	BFL0454	SFL0424	AJ20178
22L0423-09	58.5 mL / 2.00 mL	SW8011	BFL0454	SFL0424	AJ20178
22L0423-10	58.7 mL / 2.00 mL	SW8011	BFL0454	SFL0424	AJ20178
22L0423-11	58.9 mL / 2.00 mL	SW8011	BFL0454	SFL0424	AJ20178
22L0423-12	58.5 mL / 2.00 mL	SW8011	BFL0454	SFL0424	AJ20178
22L0423-13	59.8 mL / 2.00 mL	SW8011	BFL0454	SFL0424	AJ20178
22L0423-14	59.1 mL / 2.00 mL	SW8011	BFL0454	SFL0424	AJ20178
22L0423-15	59.4 mL / 2.00 mL	SW8011	BFL0454	SFL0424	AJ20178
22L0423-16	59.6 mL / 2.00 mL	SW8011	BFL0456	SFL0474	AJ20178
22L0423-17	59.5 mL / 2.00 mL	SW8011	BFL0456	SFL0474	AJ20178

Sample ID	Preparation Factors Initial / Final	Method	Batch ID	Sequence ID	Calibration ID
Organochlorine Herbicides by GC/ECD			Preparation Method: SW8151A/EPA600		
22L0423-01	900 mL / 5.00 mL	SW8151A	BFL0446	SFL0672	AK20122
22L0423-02	900 mL / 5.00 mL	SW8151A	BFL0446	SFL0672	AK20122

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Sample ID	Preparation Factors Initial / Final	Method	Batch ID	Sequence ID	Calibration ID
Organochlorine Herbicides by GC/ECD			Preparation Method: SW8151A/EPA600		
22L0423-03	900 mL / 5.00 mL	SW8151A	BFL0446	SFL0672	AK20122
22L0423-04	900 mL / 5.00 mL	SW8151A	BFL0446	SFL0672	AK20122
22L0423-05	900 mL / 5.00 mL	SW8151A	BFL0446	SFL0672	AK20122
22L0423-13	900 mL / 5.00 mL	SW8151A	BFL0446	SFL0672	AK20122
22L0423-14	900 mL / 5.00 mL	SW8151A	BFL0446	SFL0766	AK20122
22L0423-15	900 mL / 5.00 mL	SW8151A	BFL0446	SFL0766	AK20122
22L0423-16	900 mL / 5.00 mL	SW8151A	BFL0446	SFL0672	AK20122

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QC Analytical Summary

Sample ID	Preparation Factors Initial / Final	Method	Batch ID	Sequence ID	Calibration ID
Metals (Total) by EPA 6000/7000 Series Methods			Preparation Method:	EPA200.8 R5.4	
BFL0428-BLK1	50.0 mL / 50.0 mL	SW6020B	BFL0428	SFL0657	AL20106
BFL0428-BS1	50.0 mL / 50.0 mL	SW6020B	BFL0428	SFL0657	AL20106
BFL0428-MS1	50.0 mL / 50.0 mL	SW6020B	BFL0428	SFL0657	AL20106
BFL0428-MS2	50.0 mL / 50.0 mL	SW6020B	BFL0428	SFL0657	AL20106
BFL0428-MSD1	50.0 mL / 50.0 mL	SW6020B	BFL0428	SFL0657	AL20106
BFL0428-MSD2	50.0 mL / 50.0 mL	SW6020B	BFL0428	SFL0657	AL20106
BFL0762-BLK1	50.0 mL / 50.0 mL	SW6020B	BFL0762	SFL0744	AL20119
BFL0762-BS1	50.0 mL / 50.0 mL	SW6020B	BFL0762	SFL0744	AL20119
BFL0762-MS1	50.0 mL / 50.0 mL	SW6020B	BFL0762	SFL0744	AL20119
BFL0762-MS2		SW6020B	BFL0762		
BFL0762-MSD1	50.0 mL / 50.0 mL	SW6020B	BFL0762	SFL0744	AL20119
BFL0762-MSD2		SW6020B	BFL0762		

Sample ID	Preparation Factors Initial / Final	Method	Batch ID	Sequence ID	Calibration ID
Wet Chemistry Analysis			Preparation Method:	No Prep IC	
BFL0440-BLK1	1.00 mL / 1.00 mL	EPA300.0 R2.1	BFL0440	SFL0392	AB20157
BFL0440-BS1	1.00 mL / 1.00 mL	EPA300.0 R2.1	BFL0440	SFL0392	AB20157
BFL0440-BSD1	1.00 mL / 1.00 mL	EPA300.0 R2.1	BFL0440	SFL0392	AB20157
BFL0440-MS1	0.450 mL / 5.00 mL	EPA300.0 R2.1	BFL0440	SFL0392	AB20157
BFL0440-MS2	4.50 mL / 5.00 mL	EPA300.0 R2.1	BFL0440	SFL0392	AB20157
BFL0440-MSD1	0.450 mL / 5.00 mL	EPA300.0 R2.1	BFL0440	SFL0392	AB20157
BFL0440-MSD2	4.50 mL / 5.00 mL	EPA300.0 R2.1	BFL0440	SFL0392	AB20157
BFL0447-BLK1	1.00 mL / 1.00 mL	EPA300.0 R2.1	BFL0447	SFL0436	AB20157

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Sample ID	Preparation Factors Initial / Final	Method	Batch ID	Sequence ID	Calibration ID
Wet Chemistry Analysis			Preparation Method:	No Prep IC	
BFL0447-BS1	1.00 mL / 1.00 mL	EPA300.0 R2.1	BFL0447	SFL0436	AB20157
BFL0447-BSD1	1.00 mL / 1.00 mL	EPA300.0 R2.1	BFL0447	SFL0436	AB20157
BFL0447-MS1	0.450 mL / 5.00 mL	EPA300.0 R2.1	BFL0447	SFL0436	AB20157
BFL0447-MS2	4.50 mL / 5.00 mL	EPA300.0 R2.1	BFL0447	SFL0436	AB20157
BFL0447-MSD1	0.450 mL / 5.00 mL	EPA300.0 R2.1	BFL0447	SFL0436	AB20157
BFL0447-MSD2	4.50 mL / 5.00 mL	EPA300.0 R2.1	BFL0447	SFL0436	AB20157

Sample ID	Preparation Factors Initial / Final	Method	Batch ID	Sequence ID	Calibration ID
Wet Chemistry Analysis			Preparation Method:	No Prep Wet Chem	
BFL0382-BLK1	6.00 mL / 6.00 mL	SW9215	BFL0382	SFL0339	
BFL0382-BS1	6.00 mL / 6.00 mL	SW9215	BFL0382	SFL0339	
BFL0382-MRL1	6.00 mL / 6.00 mL	SW9215	BFL0382	SFL0339	
BFL0382-MS1	6.00 mL / 6.00 mL	SW9215	BFL0382	SFL0339	
BFL0382-MSD1	6.00 mL / 6.00 mL	SW9215	BFL0382	SFL0339	
BFL0553-BLK1	6.00 mL / 6.00 mL	SW9012B	BFL0553	SFL0524	AL20085
BFL0553-BS1	6.00 mL / 6.00 mL	SW9012B	BFL0553	SFL0524	AL20085
BFL0553-MRL1	6.00 mL / 6.00 mL	SW9012B	BFL0553	SFL0524	AL20085
BFL0553-MS1	6.00 mL / 6.00 mL	SW9012B	BFL0553	SFL0524	AL20085
BFL0553-MS2	6.00 mL / 6.00 mL	SW9012B	BFL0553	SFL0524	AL20085
BFL0553-MSD1	6.00 mL / 6.00 mL	SW9012B	BFL0553	SFL0524	AL20085
BFL0553-MSD2	6.00 mL / 6.00 mL	SW9012B	BFL0553	SFL0524	AL20085
BFL0614-BLK1	6.00 mL / 6.00 mL	SW9012B	BFL0614	SFL0571	AL20095
BFL0614-BLK2	6.00 mL / 6.00 mL	SW9012B	BFL0614	SFL0571	AL20095
BFL0614-BLK3	6.00 mL / 6.00 mL	SW9012B	BFL0614	SFL0571	AL20095
BFL0614-BLK4	6.00 mL / 6.00 mL	SW9012B	BFL0614	SFL0571	AL20095
BFL0614-BLK5	6.00 mL / 6.00 mL	SW9012B	BFL0614	SFL0571	AL20095
BFL0614-BLK6	6.00 mL / 6.00 mL	SW9012B	BFL0614	SFL0571	AL20095
BFL0614-BS1	6.00 mL / 6.00 mL	SW9012B	BFL0614	SFL0571	AL20095

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Sample ID	Preparation Factors Initial / Final	Method	Batch ID	Sequence ID	Calibration ID
Wet Chemistry Analysis			Preparation Method:	No Prep Wet Chem	
BFL0614-BS2	6.00 mL / 6.00 mL	SW9012B	BFL0614	SFL0571	AL20095
BFL0614-MRL1	6.00 mL / 6.00 mL	SW9012B	BFL0614	SFL0571	AL20095
BFL0614-MRL2	6.00 mL / 6.00 mL	SW9012B	BFL0614	SFL0571	AL20095
BFL0614-MRL3	6.00 mL / 6.00 mL	SW9012B	BFL0614	SFL0571	AL20095
BFL0614-MRL4	6.00 mL / 6.00 mL	SW9012B	BFL0614	SFL0571	AL20095
BFL0614-MRL5	6.00 mL / 6.00 mL	SW9012B	BFL0614	SFL0571	AL20095
BFL0614-MS1	6.00 mL / 6.00 mL	SW9012B	BFL0614	SFL0571	AL20095
BFL0614-MS2	6.00 mL / 6.00 mL	SW9012B	BFL0614	SFL0571	AL20095
BFL0614-MSD1	6.00 mL / 6.00 mL	SW9012B	BFL0614	SFL0571	AL20095
BFL0614-MSD2	6.00 mL / 6.00 mL	SW9012B	BFL0614	SFL0571	AL20095
BFL0645-BLK1	200 mL / 200 mL	SM22 2320B-2011	BFL0645	SFL0595	
BFL0645-BS1	50.0 mL / 50.0 mL	SM22 2320B-2011	BFL0645	SFL0595	
BFL0645-DUP1	50.0 mL / 50.0 mL	SM22 2320B-2011	BFL0645	SFL0595	
BFL0645-MRL1	50.0 mL / 50.0 mL	SM22 2320B-2011	BFL0645	SFL0595	

Sample ID	Preparation Factors Initial / Final	Method	Batch ID	Sequence ID	Calibration ID
Semivolatile Organic Compounds by GCMS			Preparation Method:	SW3510C/EPA600-MS	
BFL0373-BLK1	1000 mL / 1.00 mL	SW8270E	BFL0373	SFL0425	AI20189
BFL0373-BS1	1000 mL / 1.00 mL	SW8270E	BFL0373	SFL0425	AI20189
BFL0373-MS1	1070 mL / 1.00 mL	SW8270E	BFL0373	SFL0426	AI20189
BFL0373-MSD1	1070 mL / 1.00 mL	SW8270E	BFL0373	SFL0425	AI20189
BFL0423-BLK1	1000 mL / 1.00 mL	SW8270E	BFL0423	SFL0372	AL20040
BFL0423-BS1	1000 mL / 1.00 mL	SW8270E	BFL0423	SFL0470	AL20040

Sample ID	Preparation Factors Initial / Final	Method	Batch ID	Sequence ID	Calibration ID
Volatile Organic Compounds by GCMS			Preparation Method:	SW5030B-MS	
BFL0391-BLK1	5.00 mL / 5.00 mL	SW8260D	BFL0391	SFL0352	AL20034

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Volatile Organic Compounds by GCMS			Preparation Method: SW5030B-MS		
BFL0391-BS1	5.00 mL / 5.00 mL	SW8260D	BFL0391	SFL0352	AL20034
BFL0391-MS1	5.00 mL / 5.00 mL	SW8260D	BFL0391	SFL0352	AL20034
BFL0391-MSD1	5.00 mL / 5.00 mL	SW8260D	BFL0391	SFL0352	AL20034
BFL0394-BLK1	5.00 mL / 5.00 mL	RSK175M	BFL0394	SFL0366	AI20005
BFL0394-BS1	5.00 mL / 5.00 mL	RSK175M	BFL0394	SFL0366	AI20005
BFL0394-MS1	5.00 mL / 5.00 mL	RSK175M	BFL0394	SFL0366	AI20005
BFL0394-MSD1	5.00 mL / 5.00 mL	RSK175M	BFL0394	SFL0366	AI20005
BFL0436-BLK1	5.00 mL / 5.00 mL	SW8260D	BFL0436	SFL0414	AL20034
BFL0436-BS1	5.00 mL / 5.00 mL	SW8260D	BFL0436	SFL0414	AL20034
BFL0436-DUP1	5.00 mL / 5.00 mL	SW8260D	BFL0436	SFL0414	AL20034
BFL0436-MS1	5.00 mL / 5.00 mL	SW8260D	BFL0436	SFL0414	AL20034

Sample ID	Preparation Factors Initial / Final	Method	Batch ID	Sequence ID	Calibration ID
Metals (Total) by EPA 6000/7000 Series Methods			Preparation Method: SW7470A		
BFL0592-BLK1	20.0 mL / 20.0 mL	SW7470A	BFL0592	SFL0594	AL20100
BFL0592-BS1	20.0 mL / 20.0 mL	SW7470A	BFL0592	SFL0594	AL20100
BFL0592-MS1	20.0 mL / 20.0 mL	SW7470A	BFL0592	SFL0594	AL20100
BFL0592-MSD1	20.0 mL / 20.0 mL	SW7470A	BFL0592	SFL0594	AL20100

Sample ID	Preparation Factors Initial / Final	Method	Batch ID	Sequence ID	Calibration ID
Micro-extractables by GC/ECD			Preparation Method: SW8011		
BFL0454-BLK1	60.0 mL / 2.00 mL	SW8011	BFL0454	SFL0424	AJ20178
BFL0454-BS1	60.0 mL / 2.00 mL	SW8011	BFL0454	SFL0424	AJ20178
BFL0454-MS1	59.8 mL / 2.00 mL	SW8011	BFL0454	SFL0424	AJ20178
BFL0454-MSD1	58.7 mL / 2.00 mL	SW8011	BFL0454	SFL0424	AJ20178
BFL0456-BLK1	60.0 mL / 2.00 mL	SW8011	BFL0456	SFL0474	AJ20178
BFL0456-BS1	60.0 mL / 2.00 mL	SW8011	BFL0456	SFL0474	AJ20178

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Sample ID	Preparation Factors Initial / Final	Method	Batch ID	Sequence ID	Calibration ID
Micro-extractables by GC/ECD			Preparation Method: SW8011		
BFL0456-DUP1	59.4 mL / 2.00 mL	SW8011	BFL0456	SFL0474	AJ20178
BFL0456-MS1	59.1 mL / 2.00 mL	SW8011	BFL0456	SFL0474	AJ20178
Sample ID	Preparation Factors Initial / Final	Method	Batch ID	Sequence ID	Calibration ID
Organochlorine Herbicides by GC/ECD			Preparation Method: SW8151A/EPA600		
BFL0446-BLK1	900 mL / 5.00 mL	SW8151A	BFL0446	SFL0672	AK20122
BFL0446-BS1	900 mL / 5.00 mL	SW8151A	BFL0446	SFL0672	AK20122
BFL0446-MS1	900 mL / 5.00 mL	SW8151A	BFL0446	SFL0672	AK20122
BFL0446-MSD1	900 mL / 5.00 mL	SW8151A	BFL0446	SFL0672	AK20122

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Certified Analyses included in this Report

Analyte	Certifications
<i>EPA300.0 R2.1 in Non-Potable Water</i>	
Chloride	VELAP,NCDEQ,PADEP,WVDEP
<i>RSK175M in Non-Potable Water</i>	
Ethane	VELAP
Ethene	VELAP
Methane	VELAP
<i>SM22 2320B-2011 in Non-Potable Water</i>	
Alkalinity	VELAP,WVDEP,PADEP
<i>SW6020B in Non-Potable Water</i>	
Antimony	VELAP,NCDEQ,WVDEP
Arsenic	VELAP,WVDEP
Barium	VELAP,WVDEP
Beryllium	VELAP,WVDEP
Cadmium	VELAP,WVDEP
Chromium	VELAP,WVDEP
Cobalt	VELAP,WVDEP
Copper	VELAP,WVDEP
Lead	VELAP,WVDEP
Nickel	VELAP,WVDEP
Selenium	VELAP,WVDEP
Silver	VELAP,WVDEP
Thallium	VELAP,WVDEP
Tin	VELAP,WVDEP
Vanadium	VELAP,WVDEP
Zinc	VELAP,WVDEP
<i>SW7470A in Non-Potable Water</i>	

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Certified Analyses included in this Report

Analyte	Certifications
Mercury	VELAP,NCDEQ,WVDEP
SW8011 in Non-Potable Water	
1,2-Dibromoethane (EDB)	VELAP,NCDEQ
1,2,3-Trichloropropane	VELAP,NCDEQ
1,2-Dibromo-3-chloropropane (DBCP)	VELAP,NCDEQ
SW8151A in Non-Potable Water	
2,4,5-TP (Silvex)	VELAP,PADEP,NCDEQ,WVDEP
2,4-D	VELAP,PADEP,NCDEQ,WVDEP
SW8260D in Non-Potable Water	
1,1,1,2-Tetrachloroethane	VELAP,NCDEQ,WVDEP
1,1,1-Trichloroethane	VELAP,NCDEQ,WVDEP
1,1,2,2-Tetrachloroethane	VELAP,NCDEQ,WVDEP
1,1,2-Trichloroethane	VELAP,NCDEQ,WVDEP
1,1-Dichloroethane	VELAP,NCDEQ,WVDEP
1,1-Dichloroethylene	VELAP,NCDEQ,WVDEP
1,2,3-Trichloropropane	VELAP,NCDEQ,WVDEP
1,2-Dichlorobenzene	VELAP,NCDEQ,WVDEP
1,2-Dichloroethane	VELAP,NCDEQ,WVDEP
1,2-Dichloropropane	VELAP,NCDEQ,WVDEP
1,4-Dichlorobenzene	VELAP,NCDEQ,WVDEP
2-Butanone (MEK)	VELAP,NCDEQ,WVDEP
2-Hexanone (MBK)	VELAP,NCDEQ,WVDEP
4-Methyl-2-pentanone (MIBK)	VELAP,NCDEQ,WVDEP
Acetone	VELAP,NCDEQ,WVDEP
Acrylonitrile	VELAP,NCDEQ,WVDEP
Benzene	VELAP,NCDEQ,WVDEP
Bromochloromethane	VELAP,NCDEQ,WVDEP

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Certified Analyses included in this Report

Analyte	Certifications
Bromodichloromethane	VELAP,NCDEQ,WVDEP
Bromoform	VELAP,NCDEQ,WVDEP
Bromomethane	VELAP,NCDEQ,WVDEP
Carbon disulfide	VELAP,NCDEQ,WVDEP
Carbon tetrachloride	VELAP,NCDEQ,WVDEP
Chlorobenzene	VELAP,NCDEQ,WVDEP
Chloroethane	VELAP,NCDEQ,WVDEP
Chloroform	VELAP,NCDEQ,WVDEP
Chloromethane	VELAP,NCDEQ,WVDEP
cis-1,2-Dichloroethylene	VELAP,NCDEQ,WVDEP
cis-1,3-Dichloropropene	VELAP,NCDEQ,WVDEP
Dibromochloromethane	VELAP,NCDEQ,WVDEP
Dibromomethane	VELAP,NCDEQ,WVDEP
Dichlorodifluoromethane	VELAP,NCDEQ,WVDEP
Ethylbenzene	VELAP,NCDEQ,WVDEP
Iodomethane	VELAP,NCDEQ,WVDEP
m+p-Xylenes	VELAP,NCDEQ,WVDEP
Methylene chloride	VELAP,NCDEQ,WVDEP
o-Xylene	VELAP,NCDEQ,WVDEP
Styrene	VELAP,NCDEQ,WVDEP
Tetrachloroethylene (PCE)	VELAP,NCDEQ,WVDEP
Toluene	VELAP,NCDEQ,WVDEP
trans-1,2-Dichloroethylene	VELAP,NCDEQ,WVDEP
trans-1,3-Dichloropropene	VELAP,NCDEQ,WVDEP
trans-1,4-Dichloro-2-butene	VELAP,NCDEQ,WVDEP
Trichloroethylene	VELAP,NCDEQ,WVDEP
Trichlorofluoromethane	VELAP,NCDEQ,WVDEP
Vinyl acetate	VELAP,NCDEQ,WVDEP

Certificate of Analysis

Client Name: SCS Engineers-Winchester
 Client Site I.D.: City of Bristol 2nd Semi-Annual
 Submitted To: Jennifer Robb

Date Issued: 12/30/2022 11:56:27AM

Certified Analyses included in this Report

Analyte	Certifications
Vinyl chloride	VELAP,NCDEQ,WVDEP
Xylenes, Total	VELAP,NCDEQ,WVDEP
SW8270E in Non-Potable Water	
bis (2-Ethylhexyl) phthalate	VELAP,NCDEQ,WVDEP
Diethyl phthalate	VELAP,NCDEQ,WVDEP
Di-n-butyl phthalate	VELAP,NCDEQ,WVDEP
Phenol	VELAP,NCDEQ,WVDEP
SW9012B in Non-Potable Water	
Cyanide	VELAP,WVDEP
SW9215 in Non-Potable Water	
Sulfide	VELAP

Code	Description	Laboratory ID	Expires
MdDOE	Maryland DE Drinking Water	341	12/31/2023
NC	North Carolina DENR	495	07/31/2023
NCDEQ	North Carolina DEQ	495	07/31/2023
NCDOH	North Carolina Department of Health	51714	07/31/2023
NYDOH	New York DOH Drinking Water	12096	04/01/2023
PADEP	NELAP-Pennsylvania Certificate #008	68-03503	10/31/2023
VELAP	NELAP-Virginia Certificate #12157	460021	06/14/2023
WVDEP	West Virginia DEP	350	11/30/2023

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Qualifiers and Definitions

CI	Residual Chlorine or other oxidizing agent was detected in the container used to analyze this sample.
DS	Surrogate concentration reflects a dilution factor.
E	Estimated concentration, outside calibration range
J	The reported result is an estimated value.
L	LCS recovery is outside of established acceptance limits
M	Matrix spike recovery is outside established acceptance limits
P	Duplicate analysis does not meet the acceptance criteria for precision
S	Surrogate recovery was outside acceptance criteria
RPD	Relative Percent Difference
Qual	Qualifiers
-RE	Denotes sample was re-analyzed
LOD	Limit of Detection
BLOD	Below Limit of Detection
LOQ	Limit of Quantitation
DF	Dilution Factor
TIC	Tentatively Identified Compounds are compounds that are identified by comparing the analyte mass spectral pattern with the NIST spectral library. A TIC spectral match is reported when the pattern is at least 75% consistent with the published pattern. Compound concentrations are estimated and are calculated using an internal standard response factor of 1.
PCBs, Total	Total PCBs are defined as the sum of detected Aroclors 1016, 1221, 1232, 1248, 1254, 1260, 1262, and 1268.