EMERSUB 16, LLC

2023 OPERATIONS, MAINTENANCE, AND MONITORING REPORT – HYDRAULIC CONTAINMENT AND TREATMENT SYSTEM

FORMER KOP-FLEX PROPERTY
7555 HARMANS ROAD, HANOVER, MARYLAND
BROWNFIELD MASTER INVENTORY #MD0286

AUGUST 15, 2024



2023 OPERATIONS, MAINTENANCE, AND MONITORING REPORT – HYDRAULIC CONTAINMENT AND TREATMENT SYSTEM

FORMER KOP-FLEX PROPERTY
7555 HARMANS ROAD, HANOVER, MARYLAND
BROWNFIELD MASTER INVENTORY #MD0286

EMERSUB 16, LLC

PROJECT NO.: 31405608.010
DATE: AUGUST 15, 2024

WSP
SUITE 300
13530 DULLES TECHNOLOGY DRIVE
HERNDON, VA 20171

TEL.: +1 703 709-6500
FAX: +1 703 709-8505
WSP.COM

TABLE OF CONTENTS

EXECUTIVE SUMMARY 1

1 INTRODUCTION 3

1.1 Purpose of this Report 3

1.2 Summary of Current Groundwater Conditions 3

1.3 System Description 3

1.4 Response Action Objectives 4

1.5 Cleanup Standards 4

2 SYSTEM OPERATION AND PERFORMANCE MONITORING 6

2.1 System Runtime and Downtime 6

2.2 Operational and Process Monitoring Data 7

2.2.1 Overview of Treatment System Operation 7

2.2.2 Treatment System Monitoring and Performance 8

2.2.3 Recovery Well Groundwater Extraction and Contaminant Removal 9

2.3 Resin Cleaning 11

2.4 Iron Fouling 11

2.5 System Maintenance 12

2.5.1 Routine Maintenance Activities 12

2.5.2 Non-Routine Maintenance Activities 13

2.6 RW-3S Inspection and Testing 14

2.6.1 Dowhole Video Logging 14

2.6.2 Slug Testing 15

2.6.3 Step Drawdown Test 15

2.6.4 Conclusions on Condition of Well RW-3S 16

2.7 Waste Management 16

2.7.1 Routine System Maintenance Activities 16

2.7.2 Resin Cleaning Wastewater 16

2.7.3 RW-3S Testing Purge Water 17

3 GROUNDWATER MONITORING 18

3.1 Groundwater Monitoring Activities 18

3.1.1 Groundwater Levels 18
3.1.2 Groundwater Samples 18
3.2 Groundwater Monitoring Results and Evaluation 19
3.2.1 Groundwater Levels 19
3.2.2 Groundwater Quality 21
4 CONCLUSIONS 25
4.1 Assessment of System Operation and Cleanup Progress .. 25
4.2 Planned Activities for 2024 26
REFERENCES 27
ACRONYMS 28

FIGURES

FIGURE 1	HYDRAULIC CONTAINMENT SYSTEM AND MONITORING WELL LOCATIONS
FIGURE 2	HISTORICAL INFLUENT CONCENTRATIONS
FIGURE 3	CUMULATIVE MASS REMOVAL
FIGURE 4	VOC AND 1,4-DIOXANE CONCENTRATIONS IN RECOVERY WELL DISCHARGE (2017 THROUGH 2023)
FIGURE 5	GROUNDWATER RECOVERY WELL RESULTS (2023)
FIGURE 6	WATER TABLE CONTOUR MAP NON-PUMPING CONDITIONS (MAY 2023)
FIGURE 7	PIEZOMETRIC SURFACE CONTOUR MAP FOR THE LOWER PORTION OF THE SHALLOW ZONE OF THE LOWER PATAPSCO AQUIFER (MAY 2023)
FIGURE 8	POTENTIOMETRIC SURFACE CONTOUR MAP FOR THE DEEP ZONE OF THE LOWER PATAPSCO AQUIFER (MAY 2023)
FIGURE 9	WATER TABLE CONTOUR MAP PUMPING CONDITIONS (DECEMBER 2023)
FIGURE 10	PIEZOMETRIC SURFACE CONTOUR MAP FOR THE LOWER PORTION OF THE SHALLOW ZONE OF THE LOWER PATAPSCO AQUIFER (DECEMBER 2023)
FIGURE 11	POTENTIOMETRIC SURFACE CONTOUR MAP FOR THE DEEP ZONE OF THE LOWER PATAPSCO AQUIFER (DECEMBER 2023)
FIGURE 12	HYDROGRAPHS OF WELLS SCREENED IN THE SHALLOW ZONE OF THE LOWER PATAPSCO AQUIFER (2016-2023)
FIGURE 13	HYDROGRAPHS OF WELLS SCREENED IN THE DEEP ZONE OF THE LOWER PATAPSCO AQUIFER (2016-2023)
FIGURE 14	SAMPLING RESULTS FOR THE MONITORING WELLS SCREENED IN THE SHALLOW ZONE OF THE LOWER PATAPSCO AQUIFER (2023)
FIGURE 15	SAMPLING RESULTS FOR THE MONITORING WELLS SCREENED IN THE DEEP ZONE OF THE LOWER PATAPSCO AQUIFER (2023)
FIGURE 16	1,1-DCA ISO-CONCENTRATIONS DURING GROUNDWATER EXTRACTION FROM THE SHALLOW PORTION OF THE LOWER PATAPSCO AQUIFER (DECEMBER 2023)

FIGURE 17 1,1-DCE ISO-CONCENTRATIONS DURING GROUNDWATER EXTRACTION FROM THE SHALLOW PORTION OF THE LOWER PATAPSCO AQUIFER (DECEMBER 2023)
FIGURE 18 1,4-DIOXANE ISO-CONCENTRATIONS DURING GROUNDWATER EXTRACTION FROM THE SHALLOW PORTION OF THE LOWER PATAPSCO AQUIFER (DECEMBER 2023)
FIGURE 19 1,1-DCE ISO-CONCENTRATIONS DURING GROUNDWATER EXTRACTION FROM THE DEEPER PORTION OF THE LOWER PATAPSCO AQUIFER (DECEMBER 2023)
FIGURE 20 1,4-DIOXANE ISO-CONCENTRATIONS DURING GROUNDWATER EXTRACTION FROM THE DEEPER PORTION OF THE LOWER PATAPSCO AQUIFER (DECEMBER 2023)
FIGURE 21 HISTORICAL 1,1-DCA, 1,1-DCE, AND 1,4-DIOXANE CONCENTRATION PLOTS FOR THE MONITORING WELLS SCREENED IN THE SHALLOW ZONE OF THE LOWER PATAPSCO AQUIFER (2016-2023)
FIGURE 22 HISTORICAL 1,1-DCA, 1,1-DCE, AND 1,4-DIOXANE CONCENTRATION PLOTS FOR THE MONITORING WELLS SCREENED IN THE DEEP ZONE OF THE LOWER PATAPSCO AQUIFER (2016-2023)

TABLES

TABLE 1 HISTORICAL INFLUENT RESULTS
TABLE 2 HISTORICAL EFFLUENT RESULTS – NPDES PERMIT CONSTITUENTS
TABLE 3 HISTORICAL EFFLUENT RESULTS – 1,4-DIOXANE
TABLE 4 TOTAL RESIDUAL CHLORINE DISCHARGE MONITORING
TABLE 5 SUMMARY OF SYSTEM DISCHARGE AND MASS REMOVAL
TABLE 6 SUMMARY OF RECOVERY WELL FLOW RATES
TABLE 7 SUMMARY OF RECOVERY WELL VOLUMES
TABLE 8 2023 RECOVERY WELL SAMPLING RESULTS
TABLE 9 HISTORICAL RECOVERY WELL SAMPLING RESULTS
TABLE 10 MANN-KENDALL TREND ANALYSIS RESULTS
TABLE 11 WELL CONSTRUCTION

TABLE 12 HISTORICAL WATER LEVEL MEASUREMENTS IN MONITORING WELLS AND RECOVERY WELL PIEZOMETERS
TABLE 13 DEPLOYMENT DEPTHS FOR HYDRASLEEVE SAMPLERS
TABLE 14 FIELD WATER QUALITY MEASUREMENTS
TABLE 15 2023 MONITORING WELL SAMPLING RESULTS
TABLE 16 HISTORICAL MONITORING WELL SAMPLING RESULTS
TABLE 17 MANN-KENDALL TREND ANALYSIS RESULTS FOR ONSITE MONITORING WELLS

APPENDICES

APPENDIX A LABORATORY REPORTS FOR SYSTEM SAMPLING
APPENDIX B 2023 RESIN CLEANING REPORTS
APPENDIX C RW-3S BOREHOLE VIDEO LOG REPORT
APPENDIX D RW-3S AQTESOLVE OUTPUTS
APPENDIX E WASTEWATER DISCHARGE MODIFICATION REQUEST AND APPROVAL FOR RESIN CLEANING WASTEWATER
APPENDIX F LABORATORY REPORTS FOR GROUNDWATER MONITORING
APPENDIX G GSI MANN-KENDALL OUTPUTS

EXECUTIVE SUMMARY

WSP USA Inc. (WSP) has prepared this Operations, Maintenance, and Monitoring (OM&M) Report to evaluate the performance of the groundwater corrective measures implemented at the Former Kop-Flex property located at 7555 Harmans Road in Hanover, Maryland (the Site). This report describes the operation (including maintenance activities) and effectiveness of the hydraulic containment and treatment system (the System) in mitigating groundwater quality impacts to the aquifer system for the reporting period of January 1, 2023, through December 31, 2023. WSP is submitting this report on behalf of EMERSUB 16, LLC, a subsidiary of Emerson Electric Co. The Site is currently owned by Catalent Harmans Road, LLC, a subsidiary of Catalent Cell & Gene Therapy (Catalent).

The following Response Action Objectives (RAOs) with respect to groundwater were previously developed for the Site and continue to be used to gauge progress towards cleanup goals (WSP 2015a):

- controlling migration of groundwater with constituents of concern (COCs) exceeding applicable human health criteria beyond the property boundary of the Site
- reducing concentrations of COCs in the aquifer system at the Site
- restricting groundwater use on the Site to prevent potential exposure to COCs present at concentrations above applicable human health criteria

The System runtime was approximately 50% during the 2023 calendar year. Periods of downtime included scheduled and unscheduled shutdown events, routine maintenance, and replacement of System equipment. There was an extended shutdown of the System starting March 30, 2023, due to the inoperability and subsequent replacement of multiple major System components. The System remained nonoperational until it was restarted on August 15, 2023, following replacement of multiple boiler components and the internet router that enables remote System monitoring and control.

Based on the 2023 operational data, the System processed approximately 16.5 million gallons of groundwater extracted from the four active recovery wells. Since System start up in March 2017 through the end of December 2023, the System has treated approximately 182 million gallons of water. An estimated 40.6 pounds (lbs.) of the primary Site-related volatile organic compounds (VOCs) – 1,1,1-trichloroethane (1,1,1-TCA), 1,1-dichloroethane (1,1-DCA), and 1,1-dichloroethene (1,1-DCE) and 13.9 lbs. of 1,4-dioxane were recovered from the aquifer during 2023. The removal efficiency of the resin media was 99.9% for VOCs and approximately 96.8% for 1,4-dioxane. An estimated total of approximately 705 lbs. of Site-related VOCs and 1,4-dioxane have been removed since initiation of corrective measures through the end of the 2023 calendar year.

Analysis of the treated water (*i.e.*, effluent) samples during 2023 indicated non-detect concentrations of VOCs, except for a single sample collected in October 2023 that contained a low concentration of 1,1-DCE at 1.7 micrograms per liter (µg/L). 1,4-dioxane was present in 2023 effluent samples at non-detect to low levels, with detected concentrations ranging from 2.1 µg/L to 14.0 µg/L. There were no exceedances of the National Pollutant Discharge Elimination System discharge permit limits or the Site-specific 1,4-dioxane cleanup level during the reporting period.

The 1,4-dioxane concentrations in the samples collected during 2023 reflected a decrease in the treatment, or adsorptive, capacity of the resin, a condition that was initially identified in December 2018. The reduction in the resin's 1,4-dioxane adsorptive capacity is caused by a buildup of natural organic carbon constituents that are not removed during steam regeneration of the resin. *Ex-situ* chemical cleaning of the resin using a heated caustic solution, which is conducted annually or biennially, was completed during November 2023 to remove the buildup of organic foulants. Effluent System samples collected after the resin cleaning (November and December 2023) contained 1,4-dioxane at non-detectable levels, demonstrating the success of cleaning to maintain resin treatment capacity.

Since the System was shut down during the spring (May) 2023 sampling event, the groundwater elevations provided data under non-pumping conditions for the aquifer system at the Site. The groundwater contour maps indicate that groundwater in the shallow zone of the Lower Patapsco Aquifer (LPA) flows to the west and northwest. The overall hydraulic gradient indicates that groundwater flow is generally from areas of highly impacted groundwater towards the shallow pumping wells west of the southern building onsite. The May groundwater contour map for the deep (leaky confined) zone of the LPA flows generally south towards the location of the deep pumping wells at the property boundary.

When the System was operational in December 2023, two well developed areas of drawdown located in the shallow zone and the deep zone of the LPA were observed in response to pumping. These drawdown cones are evidence of an effective capture zone surrounding the pumping wells over a localized area downgradient of the identified contaminant sources. Along the same lines, groundwater quality data gathered in 2023 exhibits generally decreasing trends in VOCs and 1,4-dioxane concentrations. The decrease in concentrations is most noticeable in monitoring wells near the limits of the plume areas, suggesting that the System is reducing the extent of contaminant impacts within the aquifer system.

Overall, the 2023 groundwater monitoring data indicates that the RAOs listed above are being achieved. The operation of the System is deemed necessary during 2024 due to concentrations of VOCs and 1,4-dioxane remaining above the Cleanup Standards. The long-term groundwater monitoring program will continue to evaluate achievement of the groundwater RAOs.

1 INTRODUCTION

1.1 PURPOSE OF THIS REPORT

On behalf of EMERSUB 16, LLC, a subsidiary of Emerson Electric Co., WSP USA Inc. (WSP) is submitting this Annual Operations, Maintenance, and Monitoring (OM&M) Report describing the activities conducted during the 2023 reporting period (January 1, 2023, through December 31, 2023) as part of the groundwater corrective measures at the Former Kop-Flex property located at 7555 Harmans Road in Hanover, Maryland (the Site). The Site is identical to the area described as the "Facility" in the U.S. Environmental Protection Agency (EPA) Administrative Order on Consent (Consent Order), Docket No. RCRA-03-2016-0170 CA, Section IV.C.3. This report is being submitted in accordance with Section 14.2 of the October 2015 Response Action Plan (RAP), Revision 2 (WSP 2015a), which requires the submission of OM&M reports to the Maryland Department of the Environment (MDE) and EPA on an annual basis[1]. The annual OM&M Report for calendar year 2022 was submitted to the EPA and MDE in July 2023 (WSP 2023).

1.2 SUMMARY OF CURRENT GROUNDWATER CONDITIONS

The aquifer at the Site is comprised of the Lower Patapsco Aquifer (LPA) of the Atlantic Coastal Plain aquifer system. The primary water-bearing zones in the LPA beneath the facility consist of a shallow (unconfined to semi-confined) zone and deep (confined) zone which are separated by a leaky confining unit of variable thickness. The direction of groundwater movement in the shallow zone mimics the general surface topography and is largely influenced by local surface water features, with flow to the north and west toward Stony Run. Groundwater flow in the deep zone is to the south and east, consistent with the regional groundwater flow in the LPA in this portion of the coastal plain aquifer system. Additional details regarding the Site's hydrogeologic setting are provided in the October 2015 RAP, Revision 2 (WSP 2015a) and subsequent amendments to this document.

Groundwater sampling results confirm the existence of Site-related contaminants in both the shallow and deep portions of the LPA beneath the former Kop-Flex property. The Site-related volatile organic compounds (VOCs) in groundwater consist of 1,1,1-TCA and its degradation products 1,1-DCA and (1,1-DCE; and other chlorinated ethenes including *cis*-1,2-dichloroethene (*cis*-1,2-DCE), trichloroethene (TCE), and tetrachloroethene (PCE). Additionally, 1,4-dioxane, an additive historically used in commercial formulations of 1,1,1-TCA solvents, is present in groundwater.

The installation of the hydraulic containment and treatment system (the System) discussed in this report was completed in February 2017 to contain the groundwater plumes in both zones of the LPA. The contaminant plume in the deep confined portion of the LPA extends offsite to the south-southeast from the former Kop-Flex property. Groundwater conditions in the off-property area are described in a separate offsite groundwater monitoring report.

1.3 SYSTEM DESCRIPTION

Pursuant to the requirements under the EPA Consent Order (Section VI.B.1.a.) and RAP, a System has been installed at the Site to control the migration of chlorinated VOCs (CVOCs) and 1,4-dioxane in groundwater. The System involves the continuous extraction and treatment of affected groundwater at the Site. Groundwater is extracted from a network of three shallow recovery wells (RW-1S through RW-3S), screened within the shallow zone of the LPA, and two deep recovery wells (RW-1D and RW-2D), screened in the deep zone (Figure 1). The extracted groundwater is routed via underground piping to the System building. Treatment equipment is comprised of a flow equalization (EQ) tank to regulate flow of water through the treatment components, bag filters for suspended solids removal, synthetic resin (AMBERSORB™ 560) for the removal

[1] Addenda to the approved RAP included the following: Addendum #1 (dated February 24, 2016) involving the deep groundwater extraction wells and treatment system; Addendum #2 (dated April 15, 2016) regarding the management of stormwater with excavation areas created as part of the property re-development; and Addendum #3 (dated June 23, 2016) involving the sub-grade water conveyance piping from the extraction wells to the treatment building.

of CVOCs and 1,4-dioxane, a metering pump for the addition of caustic soda for pH adjustment of the water, and two parallel in-line aerators to increase dissolved oxygen levels in the water. The treated water is discharged to the nearby stream, Stony Run, in accordance with the requirements specified in National Pollutant Discharge Elimination System (NPDES) Permit MD 0069094 (the Permit) issued by the MDE. Samples of the treated effluent are collected monthly for the analysis of VOCs and other parameters (including 1,4-dioxane), in accordance with the Permit and RAP. The continuous, full-scale operation of the System began on March 10, 2017.

There are two synthetic resin vessels, identified as T-1100 and T-1200, which are arranged in series. They operate in a lead-lag configuration until the lead vessel reaches its adsorption capacity for the contaminants, which is based on the volume of water processed by the vessel. When the lead vessel has processed the pre-determined volume of water, the lag vessel is switched into the lead position, and the contaminant-loaded, former lead vessel is temporarily taken out of operation for regeneration. The loaded vessel is regenerated onsite using steam process equipment, including a boiler and steam superheater, to remove the adsorbed constituents from the resin. The steam containing the desorbed constituents is discharged to the atmosphere through the steam reheater. Once the regeneration process is completed, the regenerated vessel is returned to operation as the lag vessel, and the cycle is repeated. Steam condensate produced during the regeneration process and boiler blowdown water are routed to the flow EQ tank and combined with influent groundwater for treatment through the System. Softened water used to quench (cool) and rinse the regenerated resin is also pumped to the flow EQ tank to combine with groundwater for treatment.

1.4 RESPONSE ACTION OBJECTIVES

Since impacted groundwater poses the most significant risk to human health and the environment, the goals for the corrective measures are focused on controlling and mitigating the groundwater contaminants in the LPA. The following Response Action Objectives (RAOs) with respect to groundwater were previously developed for the Site and continue to be used to gauge the performance and effectiveness of the corrective measures (WSP 2015a):

- controlling migration of groundwater with constituents of concern (COCs) – 1,1,1-TCA, 1,1-DCA, 1,1 -DCE, chloroethane TCE, *cis*-1,2-DCE, and 1,4-dioxance - exceeding applicable human health criteria beyond the property boundary of the Site
- reducing concentrations of COCs in the aquifer system at the Site
- restricting groundwater use on the Site to prevent potential exposure to COCs present at concentrations above applicable human health criteria

1.5 CLEANUP STANDARDS

The groundwater cleanup levels for the COCs detected in the groundwater are based on the MDE Cleanup Standards (Cleanup Standards) for Type I/II Aquifers, except as noted for 1,4-dioxane, and are listed in the table on the following page. The cleanup criterion for 1,4-dioxane, which is not included in the MDE Cleanup Standards, was determined from an evaluation of calculated risk-based concentrations in groundwater. Based on this evaluation, a property-specific cleanup criterion of 15 micrograms per liter (µg/L) was established for 1,4-dioxane at the Site, whereas the action level for 1,4-dioxane in the offsite area is 4.6 µg/L.

Groundwater Cleanup Standards	
Compound	**Cleanup Standard (µg/L)**
1,1,1-TCA	200
1,1-DCA	2.8[2]
1,1-DCE	7
1,2-DCA	5
Chloroethane	2,100[3]
TCE	5
cis-1,2-DCE	70
1,4-Dioxane	15

[2] The standard for 1,1-DCA reflects the current numerical criterion promulgated by MDE, which was updated in October 2018.

[3] The standard for chloroethane reflects the current numerical criterion promulgated by MDE, which was updated in October 2018.

2 SYSTEM OPERATION AND PERFORMANCE MONITORING

2.1 SYSTEM RUNTIME AND DOWNTIME

During the reporting period from January 1, 2023, through December 31, 2023, the System operated approximately 50% of the time. Some downtime was related to the completion of routine maintenance activities, such as changing bag filters, cleaning strainers, testing the high-sump alarm, or the replacement of System components, in accordance with WSP's OM&M Manual (WSP 2018). Additional non-routine System shutdowns associated with unplanned events and System maintenance occurred as described below.

- Between January 21 and January 23, 2023, the recorded System effluent flow was significantly reduced. Multiple uncommon System alarms, which were believed to be caused by electrical outages, were activated during the evening of January 20-21, causing disruptions in System operation. The System automatically shut down on January 22, 2023, due to an effluent pH alarm. On Monday, January 23, 2023, the System operator resumed regeneration of the System resin, which had been interrupted by a steam superheater fault on January 20th. The System was restarted later in the day on January 23rd, following completion of the regeneration.
- On March 30, 2023, the System was shut down due to a steam boiler maintenance event. A water leak was detected on the boiler and an inspection by WSP's boiler mechanical maintenance subcontractor, Tate Engineering Systems, Inc. (Tate), identified the source of the leak as a ruptured boiler fire tube. Replacement of the boiler fire tube was completed by Tate in mid-April 2023. Around the time the boiler maintenance activities were being completed, it was discovered the internet router provided by WSP's internet services provider (ISP) – Verizon – was not functioning. Since the internet router allows for remote access to the System programming and operation, WSP, in consultation with EMERSUB 16, decided the System should remain shut down until a new internet router could be installed. WSP retained Emerging Compound Treatment Technologies, Inc. (ECT2), the environmental engineering firm that designed the resin treatment process being used at the Site, to identify, obtain, and program a suitable replacement router. The selected device replaced both the ISP router as well as the virtual private network (VPN) router, which allowed for the remote download of System operational data. (The VPN router stopped working in 2022.) In late July 2023, while troubleshooting the new ISP/VPN device, it became apparent that there were other issues with the operation of the steam boiler. Specifically, the blower motor for the boiler had sustained water damage following the fire tube rupture and needed replacement; and the steam header valve was also damaged and required replacement. Both boiler components were replaced by Tate in early August 2023. After completing the additional boiler repairs, the ISP/VPN device was successfully installed, and set-up and the System was restarted on August 15, 2023.
- During the latter part of August and September 2023, there were multiple System shutdowns due to recurrences of the building sump high level alarm. During most of 2023, the boiler blowdown water was discharged to the building sump and then pumped to an onsite frac tank for subsequent management. The boiler blowdown rate was elevated for a few weeks following System restart on August 15, 2023, due to the prolonged idle period. The higher-than-normal blowdown generation rate exceeded the rate of the sump pump to transfer the water to the frac tank, thereby causing the high-level alarm shutdown. The blowdown generation rate decreased after this initial period to below the sump pump's rate of transfer.
- On October 7, 2023, the System automatically shut down due to the inoperability of the air compressor that supplies compressed air to pneumatically operate (open and close) the automated System process valves. The air compressor was replaced, and the System was restarted on October 13, 2023.
- From November 1 through November 10, 2023, there was a scheduled System shutdown to clean the specialty resin used to treat extracted groundwater, as described in Section 2.4 below.

The prolonged (4.5+ month) shut-down period to replace various major System components between the end of March 2023 and mid-August 2023 was the primary cause for the reduced System run-time efficiency during the 2023 calendar year.

During 2022, temporary modifications were made to the System to allow for the management of the boiler blowdown discharge in accordance with the operational permits for the System. These modifications involved routing the blowdown

water to an onsite frac tank for pH adjustment and discharge of the neutralized water to the sanitary sewer system. During 2023, there were a few brief (<24 hours) System shutdown periods to allow for the discharge of the boiler blowdown water from the frac tank to the sewer. Under the renewed NPDES Permit, effective November 1, 2023, the boiler blowdown water is now routed to the System EQ tank for treatment with extracted groundwater.

On September 1, 2023, the water level pressure transducer deployed in well RW-1D, which controls the operation of the variable frequency drive (VFD) for the RW-1D submersible pump, started to unexpectedly cause the RW-1D pump to cycle off and on. (For each recovery well, the transducer needs to be functioning to enable the submersible pump to operate.) The RW-2D transducer stopped working entirely on September 9, 2023, causing the RW-2D pump to cease operation. The RW-2D transducer was replaced on September 29, 2023, which enabled the resumption of pumping from well RW-2D. The RW-1D transducer was replaced on November 24, 2023, to ensure normal, continuous pumping from well RW-1D. Spare pressure transducers for both the shallow and deep recovery wells are kept onsite to limit potential future downtime of the recovery well pumps.

When fully operational, the groundwater withdrawal rate for the System ranged from approximately 61 gallons per minute (GPM) to 69 GPM, with an average rate of 64 GPM during the reporting period.[4] (Detailed information on the groundwater extraction rates for the shallow and deep recovery wells is provided in Section 2.2.3.) The design flow rate for the System was approximately 80 GPM (WSP 2015a). Based on the System effluent totalizer, approximately 16.5 million gallons of groundwater was treated and discharged to Stony Run from January 1, 2023, through December 31, 2023.

There has been no groundwater extraction from RW-3S since September 2022 due to a noticeable reduction in this well's performance and decrease in the well's specific capacity or yield per foot of drawdown. During 2023, WSP completed onsite investigation activities to evaluate (1) the hydraulic response due to pumping from the remaining shallow recovery wells – RW-1S and RW-2S – and (2) the contaminant mass recovery from RW-3S to assess this well's contribution to the overall performance of the shallow recovery well system (Section 2.3). During 2024, WSP will complete the evaluation of the data from the recently conducted testing activities on RW-3S to assess next steps regarding the well status and possible completion of additional rehabilitation activities to improve well performance.

2.2 OPERATIONAL AND PROCESS MONITORING DATA

2.2.1 OVERVIEW OF TREATMENT SYSTEM OPERATION

During System operation, water samples were regularly collected for chemical analysis to monitor and evaluate VOC and 1,4-dioxane concentrations in the System influent (Table 1) and effluent (Tables 2 and 3). The quarterly total COC concentrations (total VOCs + 1,4-dioxane) for the System influent were generally consistent during the reporting period, with the highest System influent concentration (427 µg/L) detected in the sample collected during October 2023, and the lowest concentration (392 µg/L) detected in the sample collected during January 2023 (Figure 2). Since 2021, the concentrations of total COCs appear to have generally stabilized in the System influent. The stabilized total VOC and 1,4-dioxane concentrations are anticipated into the future with continued operation of the System. Analysis of the treated water (i.e., effluent) indicated non-detect concentrations of VOCs, except for a single sample collected in October 2023 that contained a very low concentration of 1,1-DCE at 1.7 µg/L (Table 2). The data for 1,4-dioxane in the 2023 effluent samples indicated non-detect to low levels for this compound, with detected concentrations ranging from 2.1 µg/L to 14.0 µg/L (Table 3). There were no exceedances of the Site-specific 1,4-dioxane cleanup level of 15 µg/L in any of the treated effluent samples.

For most of 2023, the System operated under the expired NPDES Permit regarding the discharge of the treated water to Stony Run, while MDE completed the preparation and issuance of the new Permit. The renewed NPDES permit was finalized by MDE the week of October 2, 2023, and became effective on November 1, 2023. Effluent samples were collected for the

[4] The average groundwater withdrawal rate listed in the test (64 GPM) is based on data for January through March and September through December. For these months, the System was in operation during all days within that monthly period. The average rate provided in Table 5 (58.8 GPM) includes the flow values for September (53.2 GPM) and September (31.4 GPM). However, the System was not operational during all days for those months.

analysis of VOCs, 1,4-dioxane, and other parameters, in accordance with the effective Permit. The analytical results for all samples indicate compliance with the effluent limitations specified in the Permit (Table 2).

In 2022, MDE requested the performance of periodic analysis of the effluent for total residual chlorine (TRC) prior to the issuance of the renewed Permit, with immediate notification to MDE if a concentration of >0.1 milligrams per liter (mg/L) was detected in the discharge. WSP began regularly monitoring TRC concentrations in the System effluent discharge during February 2022, and the results were voluntarily provided to MDE in the monthly Discharge Monitoring Reports. Table 4 provides a compilation of the TRC results for discharge samples collected and analyzed during 2022 and 2023. During the period preceding the renewed Permit, only the January 2023 effluent sample had a TRC detection that exceeded the 0.1 mg/L notification level (0.16 mg/L). Verbal and written (email) notification of the TRC level in the January 2023 sample was provided to MDE the week of January 30, 2023. The renewed NPDES Permit includes discharge limits for TRC of 0.011 mg/L for the monthly average and 0.019 mg/L for the daily maximum. However, given the minimum practical quantification level for TRC is 0.10 mg/L, MDE only considers measured TRC values ≥0.10 mg/L to be an exceedance of the new Permit limitations. Field analysis of both 2023 samples collected under the new Permit (November and December 2023) indicated non-detect concentrations of TRC.

2.2.2 TREATMENT SYSTEM MONITORING AND PERFORMANCE

The System treatment equipment performance was monitored by collecting and analyzing influent and effluent water samples from in-line sample ports located at the treatment building. The System effluent samples also fulfilled the monitoring requirements specified in the Permit. The samples were analyzed for VOCs using either EPA SW-846 Test Method 8260D (influent samples) or EPA Method 624.1 (effluent samples). Analysis of 1,4-dioxane was performed using modified EPA SW-846 Test Method 8260B with Selected Ion Monitoring (SIM) for samples collected from January through October 2023 and, in accordance with the renewed Permit, using EPA Method 624.1 for samples collected during November and December 2023. Lab analysis was conducted by the Phase Separation Science, Inc. laboratory located in Catonsville, Maryland.

The historical VOC and 1,4-dioxane results for the System influent and effluent samples are summarized in Tables 1, 2, and 3. Certified laboratory analytical reports for the January 2023 through December 2023 influent and effluent samples are included in Appendix A. The total VOC concentrations in the influent ranged from 290 µg/L (August 2023) to 317 µg/L (October 2023). The 1,4-dioxane concentrations in the influent ranged from 94 µg/L (January 2023) to 120 µg/L (August 2023). Influent VOC and 1,4-dioxane results were compared to the Cleanup Standards, as stated in Section 1.4 of this document. Based on the analytical results, 1,1-DCA, 1,1-DCE, and 1,4-dioxane were the only constituents detected above their respective Cleanup Standard in the influent samples. Other CVOCs detected in the System influent, albeit not above the Cleanup Standards, included 1,1,1-TCA, 1,2-DCA, chloroethane, TCE, and *cis*-1,2-DCE. For the non-exceeding COCs, 1,1,1-TCA and chloroethane, which is another degradation product of 1,1,1-TCA, were detected at the highest concentrations in the influent samples, with the chlorinated ethenes TCE and *cis*-1,2-DCE, and 1,2-DCA present at very low concentrations (< 2 µg/L).

Figure 2 plots the historical concentrations of total VOCs and 1,4-dioxane in the System influent from start-up (March 2017) through the end of 2023. This plot shows a noticeable decrease in the influent concentrations during the initial 6 months of operation. After this period, there is a slight increase in VOC concentrations from late 2017 through the first half of 2018, while the 1,4-dioxane levels exhibited a gradual decreasing trend. Total VOC concentrations have gradually decreased since the fourth quarter of 2018, with the rate of change getting smaller each year (*i.e.*, concentrations appear to be reaching relatively stable levels). Based on the System supplier's modeling of measured influent concentrations, the corresponding resin loading rate should require two regenerations per week. However, the regeneration frequency was increased to three times per week in April 2019 based on increasing detections of 1,4-dioxane in the System effluent and has remained at this schedule through 2023.

No VOCs were detected above the method reporting limits in 7 of the 8 effluent samples collected during 2023 when the System was operational. The outlier sample was collected in October 2023 and contained 1.7 µg/L of 1,1-DCE. Based on these sampling results, the System VOC removal efficiency during the reporting period was 99.9%. The 1,4-dioxane concentrations in the effluent water samples ranged from below the method reporting limit of 1.0 µg/L (four samples) to 14.0 µg/L (October 2023). Based on these sampling results, the removal efficiency for 1,4-dioxane was approximately 96.8%

during 2023, which approaches values for the initial years of System operation.[5] Based on sampling results for the previous years, removal efficiencies for 1,4-dioxane have ranged from 93.3% (2019) to 100% (2017), with an average value of 97.4%.

During the 2023 reporting period, the System removed an estimated 40.6 pounds (lbs.) of the primary CVOCs: 1,1-DCE, 1,1-DCA, and 1,1,1-TCA, and 13.8 lbs. of 1,4-dioxane (Table 5). Figure 3 plots the historical mass removal of the primary CVOCs and 1,4-dioxane by the System from start-up (March 2017) through December 2023. Annual COC mass removal has generally decreased each year from a historical high of 152.4 lbs. in 2018 (Table 5). System runtimes were shortened by maintenance issues in 2020, 2021, 2022, and 2023 (77%, 62%, 63%, and 50% respectively) as compared to previous years (greater than 90%) and are a major contributing factor to this reduction in contaminant mass removal. This reduction may also reflect a decrease in the mass present within the aquifer; as stated previously, historical concentrations of total CVOCs and 1,4-dioxane in the System influent have generally decreased since System start-up (Figure 2).

2.2.3 RECOVERY WELL GROUNDWATER EXTRACTION AND CONTAMINANT REMOVAL

GROUNDWATER PUMPING RATES

The monthly average extraction rates and total volume withdrawn for each recovery well are provided in Table 6 and Table 7, respectively. Data for each recovery well is collected weekly by the certified System operator from a flowmeter located at each wellhead. Higher extraction rates, averaging around 25 to 30 GPM, were set at each of the deep recovery wells compared to the shallow recovery wells, which averaged around 2 to 4 GPM, to ensure the development of a sufficient capture zone along the southern Site boundary in the deep zone of the aquifer (Figure 4). The average combined flow rate determined from the summation of the individual recovery well extraction rates (Table 6) include data from nonoperational and partially operational days. Given this method of determination, most of the recovery wells saw a significant decrease in average annual extraction rate during 2023 due to the System shutdowns described in Section 2.1, most notably the extended shutdown from March 30 through August 15. Using data for months when the wells were operational for the majority of the time – January through March and December – the average combined flow rates are greater than 55 GPM with maximum combined flow rate of 74 GPM, approaching the design value of 80 GPM.

CONTAMINANT RECOVERY AT GROUNDWATER EXTRACTION POINTS

WELL DISCHARGE SAMPLING

In accordance with the Groundwater Monitoring Plan (WSP 2015b), water samples were collected from the shallow and deep recovery wells during the fall semi-annual sampling event conducted the week of December 3, 2023. The System recovery wells were not sampled during the Site semi-annual groundwater monitoring event completed in the spring (May) of 2023 due to the System being non-operational (Section 2.1). The sampling data is used to assess contaminant recovery at the individual groundwater extraction points in the shallow and deep portions of the aquifer.

Groundwater discharge from each recovery well was collected via sampling ports located in the well head piping. The valve for the sampling port was opened to deliver a low flow stream of water to fill the sample bottles. Initially, a small amount of water was purged from the sampling port and collected in a 5-gallon bucket. A groundwater sample was then collected for laboratory analysis of VOCs by EPA SW-846 Test Method 8260D and 1,4-dioxane using modified EPA SW-846 Test Method 8270E SIM by the ALS Environmental laboratory in Middletown, Pennsylvania. The contained purge water generated from the recovery well sampling was processed through the System.

SAMPLE RESULTS

The December 2023 recovery well analytical results are summarized in Table 8 and Figure 4. Historical sampling data for the primary Site COCs – 1,1-DCE, 1,1-DCA and 1,4-dioxane - is provided in Table 9. Figure 5 shows the trends in total CVOC and 1,4-dioxane concentrations for each well and its average pumping rate.

[5] Based on the characteristics of the 1,4-dioxane breakthrough curve, the effluent concentration represents a maximum concentration for that sampling period and not the average concentration for the monitoring period. As a result, actual removal efficiency is presumed to be greater than 96.8%.

During 2023, the total VOC concentrations have remained generally consistent in most wells except for increased CVOCs in the groundwater from RW-1D. Recent concentrations of 1,4-dioxane continued to show either stable (RW-1S and RW-1D) or decreasing (RW-2S and RW-2D) trends in the discharge through the 2023 reporting period. The presence of similar total VOC and 1,4-dioxane concentrations in the extracted groundwater from RW-1S and RW-2S supports the setting of similar pumping rates for these wells. Concentrations of VOCs and 1,4-dioxane in the RW-1D and RW-2D discharge are also comparable, with the pumps being set at similar extraction rates for these wells.

An updated Mann-Kendall statistical trend evaluation was conducted on the historical (2016 through 2023) recovery well sampling results for 1,1-DCA, 1,1-DCE, and 1,4-dioxane. The Mann-Kendall trend analysis was based on the *GSI Mann-Kendall Toolkit for Consistent Trend Analysis*, which is a spreadsheet system for analyzing time-series groundwater data to quantitatively determine if the measured concentrations of a chemical are increasing, decreasing, or stable over time. The analysis relies on the following three statistical metrics (GSI Environmental Inc. 2012).

- "S" Statistic, which indicates whether the concentration trend versus time is generally decreasing (i.e., negative "S" value) or increasing (positive "S" value).
- Confidence Factor (CF), which modifies the "S" Statistic calculation to indicate the degree of confidence in the trend result. In addition, if the CF is low (i.e., less than 95%) due to either considerable variability in concentrations versus time or little change in concentrations versus time, the CF is used to apply a preliminary "No Trend" classification, pending the Coefficient of Variation.
- Coefficient of Variation (COV), which is used to distinguish between a "No Trend" result (significant scatter in concentration trend versus time) and a "Stable" result (limited variability in concentration versus time) for datasets with no significant increasing or decreasing trend (e.g., less than 95% CF).

By using these three metrics, the concentration trend at each sample location can be matched to one of four trend categories - increasing, decreasing, stable, or no trend – which are defined below.

S Statistic	**Confidence in Trend**	**Trend**
$S > 0$	CF > 95%	Increasing
$S > 0$	CF <95%	No Trend
$S \leq 0$	CF < 95% and COV $\geq$ 1	No Trend
$S \leq 0$	CF < 95% and COV < 1	Stable
$S < 0$	CF > 95%	Decreasing

If the CF for the S statistic was >90% but <95%, the trend was still designated as either no trend or stable. However, this classification was qualified as "possibly increasing" in cases where the S statistic was greater than zero or "possibly decreasing" if the S statistic was less than zero.

The 1,1-DCA, 1,1-DCE, and 1,4-dioxane concentrations detected in the recovery well discharge were used in the Mann Kendall analysis. These constituents were selected for statistical analysis because there were consistent exceedances of the Site-specific Groundwater Cleanup Standards in groundwater samples collected from the recovery wells. The recovery wells, which are sampled semi-annually, were sampled only once in 2023 due to the system being down during the May 2023 sampling event. For the trend analyses of the recovery wells, the November 2022 results were used as a surrogate to represent the spring 2023 sampling results.

Table 10 provides the results for the updated Mann-Kendall statistical trend analysis on the recovery well data. Based on this evaluation, shallow recovery wells RW-1S and RW-2S are characterized by stable/no trends with regards to 1,1-DCE and 1,1-DCA, and a decreasing trend for 1,4-dioxane. Recovery well RW-3S, which has the lowest COC concentrations of the shallow recovery wells, exhibits no trends for the 3 primary COCs. The presence of generally 'stable' concentration trends in the well discharge is believed to reflect the recovery of residual constituents from the heterogeneous sequence of fine and coarse-grained deposits present in AOC 1, which underlies the western portion of Catalent Building 2 and within the inflow

area for the shallow recovery well system. The decreasing trends for 1,4-dioxane are believed to reflect the high mobility of this constituent in groundwater systems.

For the deep recovery well, the trend analysis indicated increasing trends for the chlorinated VOCs in the groundwater collected by RW-1D but no trend for 1,4-dioxane. In contrast, the results for well RW-2D identified decreasing trends for all of the primary COCs. The differences in the COC concentration trends for the deep recovery wells may reflect spatial variations in the contaminant mass flux from the overlying portion of the LPA. The pumping-induced decline in the potentiometric surface in the deep LPA zone would allow for the development of an enhanced vertical (downward) component of flow across the aquitard from the overlying shallow zone. The thinning of the clayey aquitard from east to west could facilitate greater transport of dissolved COCs in the portion of the Site within the capture area for well RW-1D compared to area for RW-2D.

2.3 RESIN CLEANING

WSP retained Recirculation Technologies, LLC (RTI) during 2023 to perform the onsite *ex-situ* chemical cleaning of the resin media. Periodic resin cleaning is necessary to remove natural organic carbon constituents that accumulate on the resin and are not removed during resin steam regeneration. The buildup of these organic constituents over time reduces the resin's adsorptive capacity, resulting in increased detections VOCs and 1,4-dioxane in the System effluent samples. RTI previously completed the onsite resin cleaning activities during the winter of 2020 and fall of 2021. In preparation for the resin cleaning, the System was shut down on November 1, 2023, to allow for the steam regeneration of both resin vessels to remove any Site-related VOCs and 1,4-dioxane from the media.

The resin cleaning was completed over the weekend of November 3 through November 4, 2023. RTI arrived onsite and staged their equipment trailer on November 3rd. On November 4th, the resin was removed from the vessels and transferred to separate tanks on RTI's mobile cleaning trailer. The resin was cleaned by adding heated caustic solution to the tanks, agitating the mixture for approximately one hour using compressed air, and then transferring the "spent" caustic solution to a double-walled frac tank for subsequent management. This process was repeated a total of four times for the resin from each vessel. Following caustic cleaning, a hydrochloric acid solution was briefly added to each tank to neutralize the residual caustic remaining on the resin; the hydrochloric acid neutralization solution was then transferred to the double-walled frac tank containing the spent caustic solution. Following pH neutralization, the cleaned resin was returned to its original System vessel.

Between November 4th and November 9th, the cleaned resin in each vessel was regenerated twice to desorb additional organic carbon foulants and remove residual caustic soda from the media. The condensate and rinse water generated during these regeneration events was transferred to the double-walled frac tank because of the elevated pH and brownish color of the water, which indicated the continued removal of natural organic carbon from the resin at relatively high concentrations. Following the completion of the back-to-back regenerations for each vessel, normal operation of the System resumed on November 10th, 2023. Unlike the two previous cleaning events, manual addition of hydrochloric acid for pH adjustment of the treated effluent following System restart was not necessary. The hydrochloric acid wash step, which was added during the 2023 event to neutralize residual caustic following cleaning, negated the need to manually add hydrochloric acid to the effluent during resumption of System operation. Reports prepared by RTI of the *ex-situ* resin cleaning activities and results are included in Appendix B.

Comparison of samples of the pre- and post-cleaned resin suggests that the cleaning process was again successful at removing adsorbed organic compounds and sediment from the resin. The results for System effluent samples collected during November and December 2023, which were non-detect for 1,4-dioxane and VOCs, also suggest that the cleaning process was successful at restoring the treatment capacity of the System resin.

2.4 IRON FOULING

Iron fouling continues to affect the extraction of groundwater at shallow recovery wells RW-1S and RW-2S. For both wells, regular maintenance has been conducted to clean iron oxide/hydroxide deposits from the submersible pumps, the groundwater discharge line running from each pump to the well-head vault, and the in-vault discharge piping. Care is taken while cleaning each pump to avoid inadvertently forcing the iron deposits into the pump intake.

The RW-1S submersible pump was replaced in April 2022 due to problems caused by iron fouling. During 2023, the flow rates from well RW-1S gradually decreased from an average of about 4 GPM during January 2023 to just under 2 GPM by the end of December 2023. Recent cleaning of the submersible pump and attached down-well groundwater discharge line resulted in a marginally increased flow rate from this well. However, it is anticipated that replacement of the RW-1S pump will be required during the spring or summer of 2024. Similar reductions in discharge have also been noted for well RW-2S. Between October 2022 and January 2023, the flow rate from RW-2S decreased from an average of around 4 GPM to less than 0.5 GPM. Troubleshooting determined that the low flow rate was caused by significant iron build-up within the internal components of the submersible pump and these deposits could not be removed by cleaning. Groundwater flow from RW-2S was returned to normal (around 3.5 GPM) following the first replacement of the submersible pump and cleaning of the down-well groundwater discharge line and associated fittings in mid-January 2023. Iron fouling at RW-2S continued during 2023 causing the flow rate to gradually decline over the course of the year, and another submersible pump replacement was required at RW-2S in January 2024.

Spare submersible pumps are being kept onsite to limit potential downtime in the event replacement of one of the shallow well pumps becomes necessary. Regular maintenance of the in-well pumping components, to include cleaning of the submersible pumps, down-well groundwater discharge lines, and in-vault discharge piping, will continue to be conducted at least semi-annually.

2.5 SYSTEM MAINTENANCE

2.5.1 ROUTINE MAINTENANCE ACTIVITIES

During the 2023 reporting period, WSP subcontracted the weekly O&M of the System to a local contractor, S&S Technologies, Inc. of Elkton, Maryland. Subcontractor oversight was provided by WSP engineer Ms. Shannon Burke, working under the direction of Mr. Steve Kretschman, P.E., the engineer of record for the System. O&M activities were conducted in accordance with the current version of the OM&M Manual, dated May 2018.

Weekly O&M activities performed during 2023 included the following:

- regeneration of the resin
- replacement of bag filters
- cleaning of the resin vessel wye strainers
- cleaning and recalibration of the inline pH probe
- recording instrumentation readings (flow, pressure, temperature)
- system-wide leak inspections
- steam boiler system inspections and testing

In conjunction with the weekly inspection and testing of the boiler system, a local water treatment contractor (Chem-Aqua, Inc.) completed monthly checks of the boiler water chemistry. Quarterly mechanical inspections and maintenance of the steam boiler components were also performed by another local contractor (Tate).

In addition to the routine tasks, annual O&M activities were performed that included the following:

- visual inspection of all electrical control panels
- cleaning and inspection of all steam traps
- removal and cleaning of all wye strainers
- cleaning and inspection of well vaults and piping tee-boxes

Based on the annual inspection findings, it was determined there are no leaks from any of the System components and cleaning of the inside of the flow EQ tank was not necessary. The inside of the EQ tank will be inspected again during 2024.

Several System components require routine replacement every few years. The following routine replacements were completed during 2023:

- in-line pH probe electrode – January 2023 and November 2023 (previously replaced September 2022)
- steam superheater fuse – September 2023 (previously replaced September 2022)
- air compressor – October 2023 (previously replaced March 2022)

2.5.2 NON-ROUTINE MAINTENANCE ACTIVITIES

REPLACEMENT OF BOILER COMPONENTS

FIRE TUBE

The System was shut down on March 30, 2023, following identification of a potential problem with the boiler used to produce steam for the onsite regeneration of the treatment resin. A subsequent inspection by the boiler O&M subcontractor (Tate) determined that one of the boiler fire tubes had ruptured and needed replacement. Replacement of the ruptured fire tube was completed in mid-April 2023.

BLOWER MOTOR AND STEAM HEADER VALVE

In late July 2023, it became apparent there were lingering issues with operation of the steam boiler following replacement of the damaged fire tube in April 2023. Further inspection of the boiler by Tate determined that the blower motor had sustained water damage following the earlier fire tube rupture and needed replacement. In addition, Tate determined the steam header valve needed replacement. Both damaged boiler components were replaced in early August 2023.

ISP/VPN ROUTER REPLACEMENT

Around the time the boiler fire tube maintenance activities were being completed (mid-April 2023), it was discovered the ISP router provided by Verizon was not functioning. Since the ISP router allows for remote access to the System programming and operation, it was decided the System would remain shut down until procurement and installation of a new router. A replacement device was chosen that would replace both ISP router and the VPN router that stopped working in 2022.[6] The ISP/VPN device was successfully installed and set-up onsite, and the System restarted on August 15, 2023.

RECOVERY WELLS

REPLACEMENT OF DEEP WELL PRESSURE TRANSDUCERS

The pressure transducer installed in well RW-1D started to work only intermittently on September 1, 2023, resulting in intermittent extraction of groundwater from this well. About one week later (September 9th), the pressure transducer installed in RW-2D became inoperable, stopping the extraction of groundwater from this well. The pressure transducer for well RW-2D was replaced and pumping resumed on September 29, 2023. Following replacement of the RW-2D transducer, the functioning of the RW-1D transducer improved, suggesting an electrical link between the two deep well pressure transducers. WSP decided to replace the RW-1D transducer on November 24, 2023, to ensure continuous operation of the submersible pump in this well. Spare pressure transducers for both the shallow and deep recovery wells are being kept onsite to limit future downtime of the recovery well pumps.

RW-1S FLOW METER REPLACEMENT

As a result of iron fouling impacts (Section 2.4), the flow meter inside the vault for shallow recovery well RW-1S ceased functioning properly and had to be replaced on November 24, 2023. This flow meter was previously replaced in November 2022 due to problems caused by iron fouling.

RW-1D VARIABLE FREQUENCY DRIVE PROGRAMMING

Since 2020, there has been a recurring problem associated with the operation of deep recovery well RW-1D that does not affect the operation of the other recovery wells or functioning of the other System components. The VFD that controls the

[6] The VPN router allows for the remote downloading of System operational data. Since the router stopped functioning in 2022, the data was downloaded locally during Site visits.

operation of the submersible pump installed in RW-1D occasionally experiences problems following the completion of a resin regeneration, causing the pump to cease operation and the need to manually reset the VFD onsite to resume pump operation. WSP retained Doddridge Controls Company, Inc. (Doddridge), a system controls specialist, to inspect and service the RW-1D VFD in January 2023. There have been only three brief recurrences of the VFD fault since servicing of this component.

AUTOMATED PROCESS VALVES

STAINLESS STEEL BALL VALVE REPLACEMENT

One of the automated process stainless steel ball valves on the resin vessel skid developed a leak necessitating replacement of this component. The valve was replaced on January 16, 2023. This is the second of these valves to require replacement.

REPLACEMENT OF REGEN DRAIN/RINSE VALVE ACTUATOR AND SWITCH WITH SOLENOID VALVE

One of the automated process valve actuators developed a minor air leak shortly before the extended System shutdown that began at the end of March 2023. This actuator became inoperable shortly after the System was restarted in mid-August. The actuator, as well as the associated switch with solenoid valve, were replaced on August 25, 2023. The actuator seal is expected to wear down with repeated use. Since 2021, three (3) of the nineteen (19) System actuators have been replaced or repaired for this reason.

COMPRESSED AIR FILTER/REGULATOR

The compressed air filter/regulator that regulates the air supply from the compressor to all the automated process valve actuators developed a leak requiring maintenance. The leak stopped after replacing the polycarbonate bowl piece for this part on November 4, 2023.

TRANSFER PUMP VARIABLE FREQUENCY DRIVE

On September 13, 2023, the System briefly shut down due VFD inoperability for one of the two System transfer pumps. The System was restarted by a System operator later that day after switching the System to the redundant transfer pump. It was later determined that the transfer pump VFD required replacement. Replacement of the pump VFD was completed in February 2024 and programming of the VFD will be completed by Doddridge in the spring of 2024.

2.6 RW-3S INSPECTION AND TESTING

RW-3S has remained offline since September 2022 due to diminishing yield. Based on well yield testing conducted in June 2022, it was determined that shallow recovery well RW-3S had a significant reduction in performance since its installation in 2016. After completing physical and chemical rehabilitation activities in July 2022, RW-3S did not show any noticeable improvement in performance as measured by the pumping rate per foot of drawdown or specific capacity (SC). The baseline SC value for the well determined in 2016 was 0.65 GPM per foot (GPM/ft). In 2022, the compromised well had an SC of 0.20 GPM/ft, and post-rehabilitation value of 0.25 GPM/ft. The inspection and testing activities described below were designed to determine the causes of the reduced performance.

2.6.1 DOWHOLE VIDEO LOGGING

Downhole video logging of RW-3S was conducted on October 24, 2023, to determine the condition of the well and its structural integrity. The findings of the borehole video are provided in Appendix C, which includes both the geophysical contractor's report and basic descriptions of the findings added to the boring log diagram for RW-3S. Two thin discrete zones of iron-oxide staining were observed along the screened interval. No apparent clogging of the slotted screened interval was observed. The iron oxide staining was minimal over most of the interval where water is likely to flow into the well (i.e., in the sandy interval between 46 to 62 feet btoc).

2.6.2 SLUG TESTING

Slug testing was performed at RW-3S on November 6, 2023, to estimate the horizontal hydraulic conductivity (Kr) and storativity (S) of the formation immediately surrounding the well and to determine if there was evidence of damage to the filter pack or screened interval of the well.

Response data from each slug test were evaluated using AQTESOLV® Professional, a hydrogeologic software analysis tool developed by Glenn Duffield of HydroSOLVE, Inc. Output from the AQTESOLV® solutions is presented in Appendix D. Using the Cooper *et al*. (1967) solution, the calculated transmissivity (T) values ranged from 17.87 to 30.03 square feet per day (ft^2/day), corresponding to Kr values of 1.12 to 1.88 feet per day (ft/day). The storativity values (S) ranged from 4.42E-05 to 7.14E-03, which correspond to specific storage (Ss) values of 2.76E-06 per foot (ft^{-1}) to 4.46E-04 ft^{-1}. These Kr and Ss values fall within a range of published values consistent with a fine sand aquifer material and are indicative of confined conditions.

2.6.3 STEP DRAWDOWN TEST

A step-drawdown test was conducted on November 8, 2023, to determine aquifer properties surrounding RW-3S, assess conditions related to the movement of water between the aquifer and well, and gather updated information on the sustainable pumping rate for the well. Water levels in the recovery well, the co-located piezometer (PZ-3S), and an observation well (MW-44) were monitored using pressure transducers during pumping. Pumping well RW-3S and observation well MW-44 are screened in the deeper portion of the shallow zone of the LPA, with locally confined conditions present in the sand and sand + clay layers due to an overlying clay unit at each well location. Confined conditions were confirmed by the slug test results.

Six pumping steps were conducted on well RW-3S, starting with a pumping rate of 0.5 GPM and continuing with successively higher rates of 1.0, 1.5, 2.0, 3.0, and 4.9 GPM. Each step was held at a constant rate, and the pumping well was monitored until drawdown became relatively stable (i.e., the decline in the water level was close to asymptotic) before increasing the pumping rate for the next step.

Total drawdown in RW-3S was 38.7 feet at the end of the last pumping step. The drawdown response in the piezometer screened within the filter pack of RW-3S mimicked the response in the pumping well throughout the test. The total drawdown in the piezometer at the end of the test was identical to the drawdown in the well.

The step test results for both the recovery well, RW-3S, and the observation well MW-44 were analyzed simultaneously using the Hantush-Jacob (1955)/Hantush (1961a and b) solution in AQTESOLV®. The data were analyzed by matching a theoretical "type curve" generated by the computer model to the response data collected from the wells. Output from the AQTESOLV® solution is presented in Appendix D. The calculated value for T of 13.4 ft^2/day is within the same order of magnitude as those calculated from the slug test data and corresponds to a Kr of 0.84 ft/day. The calculated Ss of 2.32E-06 ft^{-1} is within the same order of magnitude as that calculated for the rising head tests.

The Hantush-Jacob solution was also used to estimate the well losses independent of the aquifer response. Well losses can be visualized as excess drawdown in a pumping well relative to the drawdown in the aquifer caused by impediments to flow through a well screen, such as the screen slot size and design, any clogging that may be present in the screen or filter pack, and potential damage to the filter pack such as permeability reduction (e.g., borehole skin). Well losses consist of two parts – a linear component related to frictional losses within the filter pack and screen, and a non-linear component related to turbulent flow at high pumping rates. The key parameters calculated in the Hantush-Jacob solution are $S_{W,}$ which comprises the linear well losses, and C, or the non-linear well loss-coefficient.

Curve matching in AQTESOLVE® produced a negative S_W, which indicates that the hydraulic conductivity of the formation is greater than the filter pack surrounding the screen of well RW-3S. The estimated non-linear well loss coefficient, C, of 15.33 min^2/ft^5 was used to calculate non-linear well losses, or excess drawdown in the well relative to the surrounding formation. The excess drawdown ranged from 0.6 to 6.6 feet per step, with higher well losses occurring at higher pumping rates. A well loss coefficient of greater than 10 is indicative of severe clogging within a filter pack or screen (Walton 1962).

2.6.4 CONCLUSIONS ON CONDITION OF WELL RW-3S

The results of the additional inspection and testing activities on shallow recovery well RW-3S indicate the following.

- The well screen does not exhibit visual evidence of fouling or clogging. Staining by iron-related minerals is present along various intervals of the screen that roughly correspond to various fine-grained stratigraphic layers in the aquifer where flow is unlikely to occur.
- The SC for RW-3S was calculated from the slope of a regression line of drawdown plotted vs pumping rate for all of the step tests. The calculated SC of 0.12 GPM/ft is lower than the values observed post-redevelopment in 2022.
- The drawdown measured in the piezometer screened within the filter pack was the same as the drawdown inside the casing of RW-3S, indicating that the calculated well losses occur within the filter pack and not the screen perforations. Thus, the filter pack material of RW-3S has been compromised by the ingress of fine-grained material from the formation, fouling by iron oxide mineralization, or both, and explains why the previous (2022) redevelopment activities were not entirely successful in restoring the SC to the initial pre-remediation/baseline value.
- Further evidence of fouling of the sand filter pack is indicated by the negative skin effect calculated during type-curve matching of the step drawdown test data. This indicates that the hydraulic conductivity of the filter pack is less than the formation also indicating clogging of the filter pack.

2.7 WASTE MANAGEMENT

2.7.1 ROUTINE SYSTEM MAINTENANCE ACTIVITIES

Bag filters for the removal of suspended solids from the System influent were regularly changed out with new bag filters. The frequency of bag filter replacement increased from monthly to weekly in late 2020. Following rehabilitation of the recovery wells during the summer of 2022, the frequency of bag filter replacement has decreased to a minimum of every two weeks. Spent bag filters were managed offsite as non-hazardous waste (general trash). Disposable materials from the System OM&M activities (e.g., nitrile gloves) were also managed offsite as non-hazardous waste.

Remedial activities at the Site are conducted by EMERSUB 16 as a very small quantity generator of hazardous waste under the EPA classification scheme, and small quantity generator of hazardous waste under the MDE designations. No hazardous waste was generated at the Site during 2023.

2.7.2 RESIN CLEANING WASTEWATER

The spent caustic solution containing desorbed organics from the resin cleaning (Section 2.3) was containerized in a double-walled frac tank and neutralized using hydrochloric acid. In addition, the high pH, organic-rich water produced during the post-cleaning regenerations of each resin vessel was handled in the same manner. After verifying the neutralized wastewater had a pH of <10 standard units and approval from the County, the wastewater was discharged to the sanitary sewer system under EMERSUB 16's wastewater discharge permit #210020. A copy of the chemical characterization results for the resin cleaning water, which are included in a permit modification request to allow for the annual discharge of this wastewater, and the County discharge approval for the wastewater generated during the November resin cleaning event are provided in Appendix E.

The solids and wastewater generated from power washing of the emptied frac tank were containerized and removed by a vacuum truck, respectively, for offsite disposal as non-hazardous waste.

2.7.3 RW-3S TESTING PURGE WATER

Well discharge from the RW-3S step drawdown test was temporarily stored in a secondary-containment tank at the well head. The purge water was periodically transferred to a temporary polyethylene tank near the treatment building where it was eventually processed through the treatment system.

3 GROUNDWATER MONITORING

3.1 GROUNDWATER MONITORING ACTIVITIES

A total of 21 monitoring wells have been installed to collect groundwater levels and groundwater quality samples at the Site (Figure 1). Details regarding well construction are provided in Table 11. All monitoring wells, along with the co-located piezometers for the recovery wells, were utilized in the groundwater level monitoring program. Groundwater samples were collected from select monitoring wells as part of the monitoring program for the corrective measures.

3.1.1 GROUNDWATER LEVELS

Groundwater level measurements were collected from all onsite monitoring wells on May 21, 2023, during the semi-annual groundwater monitoring event, and again on December 3, 2023, during the annual groundwater sampling event. Additionally, data from two monitoring wells located on the Williams-Scotsman, Inc. property, MW-24D and MW-45, and one on the Verizon property, MW-46D, were used to aid in producing groundwater elevation contours for the site.

The depth to groundwater (to the nearest 0.01 foot) was measured from the reference point on the monitoring well or piezometer casing using an electronic water level meter. The water level data gathered during the 2023 gauging events are provided in Table 12.

3.1.2 GROUNDWATER SAMPLES

SAMPLING PLAN

In accordance with the Groundwater Monitoring Plan (WSP 2015b), groundwater quality samples were collected from the onsite monitoring wells during the semi-annual sampling event on May 21, 2023, and annual sampling event on December 3, 2023. The annual event involved the sampling of all 13 shallow zone monitoring wells (MW-01, MW-03, MW-04R, MW-05R, MW-09, MW-16, MW-18, MW-20, MW-38R, MW-39, MW-42, MW-43, and MW-44) and all 8 deep zone wells (MW-1D, MW-16D, MW-21D, MW-22D, MW-23D, MW-27D, MW-40D, and MW-41D). The semi-annual event excluded the collection of samples from two shallow wells, MW-01 and MW-03, and two deep wells, MW-27D and MW-41D. During the annual event, the sampler deployed in well MW-39 detached from its tether during retrieval and was ultimately removed from the well without collecting a sample. A new sampler was immediately deployed, and the sample from MW-39 was later collected on December 21, 2023, following the stabilization period.

MONITORING WELL SAMPLING PROCEDURE

The HydraSleeve™ sampler was used to collect groundwater samples from the onsite monitoring wells in 2023. The HydraSleeve™ is a passive/no-purge sampling device capable of collecting representative groundwater samples for analysis of a range of dissolved groundwater constituents, including VOCs and 1,4-dioxane.

Since initiation of onsite groundwater monitoring in 2016, the groundwater samples were collected using standard-size HydraSleeve™ samplers that were 30-inches (2.5 feet) in length. The samplers were installed in the wells by attaching the HydraSleeve™ to a weighted, nylon suspension tether and setting the sampler at the pre-determined depth within the screened interval. The suspension line was secured at the wellhead to ensure the sampler remained at the designated depth during the stabilization period, which corresponded to the time between sampling events. The groundwater sample was collected by continuously pulling upward on the suspension line until the HydraSleeve™ was full. The HydraSleeve™ was removed from the well, and the water immediately transferred to the appropriate sample containers to minimize any diffusive loss of VOCs through the polyethylene wall of the sampler.

In 2022, WSP changed the analytical method used to analyze the groundwater samples for 1,4-dioxane from modified EPA SW-846 Method 8260D with selected ion monitoring (SIM) to the more accurate EPA SW-846 Method 8270E with SIM. Given the larger sample volume necessary for the 8270E test method, the standard HydraSleeve™ was not able to retrieve

enough water for the 1,4-dioxane laboratory analysis and measurement of field hydrogeochemical parameters. Consequently, in December 2023, WSP switched to using longer (38-inch or 3.2-foot) HydraSleeve™ samplers, which provide sufficient volume for all required laboratory and field analyses. In addition, monitoring well MW-16D was fitted with a SuperSleeve sampling device, which has an even longer length of 5 feet, to provide the necessary volume to collect the matrix spike/matrix spike duplicate (MS/MSD) samples. The top of the new HydraSleeves™ were suspended at the midpoint of the screen in each well such that retrieval would collect water from the overlying interval equal to the sampler length. The new deployment depths differ from those for the previous (standard-size) HydraSleeve™ samplers, which were positioned at a depth slightly below the screen midpoint. Given the modified deployment depth and slightly greater sampler length, the newly deployed HydraSleeves™ samplers target a longer sampling interval within the upper portion of the well screen. The depth intervals for deployment of the HydraSleeve™ samplers in the offsite wells are provided in Table 13.

After obtaining the requisite sample volume for chemical analysis, a representative amount of the remaining water was analyzed in the field for hydrogeochemical parameters using a multi-parameter water quality meter. Field hydrogeochemical parameter measurements were not made in May 2023 because the size of the standard Hydrasleeve™ samplers deployed for that sampling event did not yield sufficient water. Field parameters were collected in December 2023 from the larger Hydrasleeves™, except at MW-16 and MW-16D, where duplicate and MS/MSD samples were collected, and sufficient water was not available to make the field measurements. The water was placed into the sample cup of a Horiba U-52 multi-parameter field meter for measurement of the following hydrogeochemical parameters:

- Temperature
- pH
- Specific conductivity
- Turbidity

The field parameter measurements for each sample were documented in a field notebook. Specific conductance measurements were not collected from several of the wells due to a field transposition error involving the collection of information from the incorrect probe. Table 14 includes the field parameter measurements for the December 2023 sampling event. Following sample collection, a new HydraSleeve™ sampler was deployed in the well for the next sampling event. Any excess water generated from the monitoring well sampling activities was contained in 5-gallon buckets and processed through the System.

The monitoring well samples were analyzed for VOCs using EPA SW-846 Test Method 8260D and 1,4-dioxane using EPA SW-846 Test Method 8270E SIM by the ALS Environmental laboratory in Middletown, Pennsylvania.

3.2 GROUNDWATER MONITORING RESULTS AND EVALUATION

3.2.1 GROUNDWATER LEVELS

Groundwater level monitoring is conducted to gather data to evaluate the groundwater flow direction and hydraulic response to remedial pumping in both the shallow and deeper zones of the LPA. Current and historical monitoring well and piezometer depth to water measurements and calculated groundwater elevations are provided in Table 12. Water level contour maps depicting the water table, hydraulic head conditions in the lower portion of the shallow zone of the LPA and the deep zone of the LPA are provided in Figures 6, 7, and 8 for the May 2023 monitoring event, and Figures 9, 10, and 11 for December 2023. As discussed in Section 2.1, the System was shut down between March 30, 2023, and August 15, 2023, due to issues with the steam boiler and remote connectivity to the System controls. This shut-down period coincided with the May 2023 measurement event where the data are indicative of non-pumping conditions.

GROUNDWATER SURFACE

The water table contour maps (Figures 6 and 9) indicate a generally west-northwest groundwater flow direction in the upper-most portion of the shallow zone of the LPA during both monitoring events. The December 2023 contour map depicts a localized depression in the groundwater surface around well MW-38R related to groundwater pumping from recovery wells RW-1S and RW-2S immediately to the east. This hydraulic sink is not present in the contours for the May 2023 data when

the System was not operational. A slight mounding effect is observed in both measurement events around MW-04R and MW-09, most likely reflecting enhanced recharge to the groundwater system associated with the stormwater management area in the east-central portion of the Site.

LOWER PORTION OF LOWER PATAPSCO AQUIFER SHALLOW ZONE

The cessation of remedial pumping from March 30 through August 15, 2023, resulted in the disappearance of the pronounced head changes, or cone of depression, typically observed within the permeable sand deposits comprising the lower portion of the shallow zone in the eastern portion of the Site (Figure 7). In the absence of remedial pumping, groundwater flowed in a generally northwestward direction toward Stony Run.

In contrast to the May 2023 contours, pronounced drawdown was observed in the vicinity of the shallow recovery wells during the December 2023 monitoring event (Figure 10). In this area, a well-developed cone of depression exists near RW-2S and extends to the north toward wells MW-39 and MW-43, south towards MW-44, and west towards Stony Run. Based on the spatial head variations, groundwater in the upper portion of the shallow zone will tend to migrate downward through the clayey deposits in the western portion of the Site and serve as inflow to the shallow recovery well system.

LOWER PATAPSCO AQUIFER DEEP ZONE

Figure 8 depicts the potentiometric surface based on the May 2023 water level measurements at the onsite deep wells and offsite wells MW-24D on the William-Scotsman property to the south and MW-46D on the Verizon property to the north. As with the shallow zone, the May 2023 data reflect the recovery of the hydraulic heads to a non-pumping condition following shutdown of the System at the end of March 2023. The hydraulic head contours generated from the data demonstrate south to south-southeast flow pathways for groundwater in this deep zone. The southward groundwater flow direction is consistent with other potentiometric surface contour maps developed from water level data collected under non-remedial pumping conditions.

The head distribution in December 2023 indicates the southward movement of groundwater across the Site, with the development of an elongated depression in the potentiometric surface along the southern property boundary in response to groundwater withdrawals from the deep recovery wells (Figure 11). The eastern-most portion of this hydraulic sink, as depicted by the head contours, indicates greater drawdown in the area around recovery well RW-2D, which is consistent with potentiometric surface maps from previous monitoring rounds. Evaluation of the head distribution indicates drawdown of the potentiometric surface extending south onto the adjoining Williams Scotsman property towards monitoring well MW-24D. Additionally, comparison of the groundwater elevations in monitoring wells MW-01D, MW-21D, and MW-41D indicate an upward component of flow from the lower-most portion of the sand deposits comprising the deep zone toward the depth interval screened by the recovery wells. Monitoring well MW-41D, which is screened in the lower-most portion of this zone, has a higher groundwater elevation compared to wells MW-01D and MW-21D (Table 12). This indicates an upward component of groundwater flow from the lower portion of this hydrostratigraphic unit to MW-01D and MW-21D, which are in close proximity to recovery wells RW-2D and RW-1D, respectively.

In general, groundwater levels were higher in May 2023 than in December 2023, which reflects both the absence of head changes during pumping and a decrease in the site-wide water table in December. This decrease is likely due to a region-wide lowering of the potentiometric surface in the deep zone of the LPA caused by decreased recharge within the outcrop area to the north and west of the site during a drier than normal year, which saw approximately 10 inches of rainfall deficit in the Baltimore area.[7]

TEMPORAL CHANGES IN GROUNDWATER LEVELS

Figures 12 and 13 include hydrographs of select wells screened in the shallow zone and the deep zone of the LPA, respectively, that are located outside the area of pumping influence imparted by the shallow and deep recovery wells. The results indicate fluctuations in water levels during the reporting period that are consistent with historical changes. As discussed above, the hydrograph for the deep zone (Figure 13) depicts the declines in water levels observed throughout the site between May and December in the deep zone of the LPA.

[7] Ruiz-Barradas, A., Maryland Climate Bulletin Annual 2023, University of Maryland Department of Atmospheric & Oceanic Science

3.2.2 GROUNDWATER QUALITY

OVERVIEW

Groundwater sample collection from the monitoring wells is conducted to monitor the VOC and 1,4-dioxane concentrations in the LPA underlying the Site. The analytical results for the 2023 monitoring events are presented in Table 15. The certified laboratory analytical reports for the 2023 samples are included in Appendix F. Historical analytical results for selected Site-specific constituents are presented in Table 16.

Concentrations for COCs detected in samples from the shallow and deep monitoring wells are provided in Figures 14 and 15, respectively. Iso-concentration maps for the primary VOCs – 1,1-DCE and 1,1-DCA – and 1,4-dioxane were prepared using the analytical data from the annual (December 2023) monitoring event and are presented in Figures 16, 17, and 18 (shallow zone of the LPA) and Figures 19 and 20 (deep zone of the LPA). Contours were generated using the Kriging algorithm to interpolate concentrations using the randomly spaced sampling points. When appropriate, the iso-concentration contours were adjusted by hand to correct for boundary effects. The shallow zone iso-concentrations maps were developed using data from monitoring wells screened at depths of less than 45 feet because this is the primary interval for contaminant transport in the shallow zone at the Site. Therefore, data from monitoring wells MW-18, MW-20, and MW-39 were not included in the shallow zone iso-concentration maps based on their well screen depths. Monitoring wells MW-5R and MW-38R were also not included in the shallow zone iso-concentration maps because these wells are screened in a clay unit that is not representative of the primary interval of contaminant transport. In addition to the onsite wells, results from offsite monitoring wells MW-24D, MW-45, and MW-46D were included in the data sets for the iso-concentration maps to help provide context with regards to the extent of the affected groundwater[8]. The lowest iso-concentration contour values were based on the applicable Cleanup Standards. For 1,4-dioxane the lowest contour is 4.6 µg/L, which corresponds to the MDE risk-based action level. The onsite Cleanup Standard of 15 µg/L, as set forth in the RAP, is shown as a dashed contour line. Although the recovery well data was not directly used to create the iso-concentration contours, these results were used to check and, if deemed appropriate, adjust the contour lines based on the zone of inflow for each recovery well.

SHALLOW ZONE OF LOWER PATAPSCO AQUIFER

As described in Section 3.2.1, groundwater flows in a generally northwestward direction in the shallow zone of the LPA beneath the former Kop-Flex property. For this portion of the aquifer, the highest concentrations of VOCs and 1,4-dioxane were detected in monitoring well MW-16 situated hydraulically upgradient of the shallow recovery wells (Figures 16, 17, and 18). Additional exceedances of the Cleanup Standards were found in eastern (upgradient) monitoring wells MW-04R (1,1-DCE, 1,1-DCA, and 1,4-dioxane) and MW-09 (1,1-DCE). The 2023 results from MW-04R indicate lower concentrations than those that were historically observed in MW-04. Data for the western monitoring wells indicate 1,1-DCE at a level above the Cleanup Standard in samples from well MW-43.

The concentrations of 1,1-DCA, 1,1-DCE, and 1,4-dioxane exhibit generally similar distributions within the shallow water-bearing zone, with the respective plumes extending from east to west underneath the loading dock area and buildings toward the recovery wells (Figure 16, 17, and 18). Based on the interpolation method used to develop the iso-concentration contours, the inferred plume areas underlie most of the footprint of the southern building on the property (Catalent Building 2). In comparison, the contours indicate the plumes only occur below the southern portion of Catalent Building 1, with the inferred boundary for the 1,1-DCA plume extending along the south wall of this building. The computer-generated contours show the upgradient portion of the plume extending a short distance onto the adjoining Williams-Scotsman property. Historically, these COCs have been found at concentrations below the Cleanup Standards to the east of the Site (MW-45), and along the southern (MW-01), and western (MW-03 and MW-42) Site boundaries, thereby largely defining the extent of the affected groundwater. Overall, the shallow zone plume maps generated from the December 2023 data are similar in shape and aerial extent to those generated from the November 2022 data.

[8] The results from these offsite wells are described in more detail in Quarterly Status Report No. 29 to MDE and EPA, dated March 3, 2024.

DEEP ZONE OF LOWER PATAPSCO AQUIFER

Groundwater in the deep zone of the LPA flows in a southward direction across the former Kop-Flex property (see Section 3.1.2). Given the general flow paths in this portion of the aquifer, monitoring wells located upgradient of the deep recovery wells (i.e., MW-16D and MW-23D) had the highest VOC and 1,4-dioxane concentrations (Table 15, Figure 15). However, it should be noted that the concentrations of these constituents in samples from well MW-24D located downgradient on the adjoining Williams-Scotsman property were noticeably higher than levels detected in any of the onsite wells.

Additional exceedances of the Cleanup Standards were detected in samples from monitoring wells MW-01D, MW-21D and MW-22D for 1,1-DCE during both 2023 sampling events (Table 15, Figure 15). The concentration of 1,1-DCA (3.8 µg/l) also exceeded the Cleanup Standard in the December 2023 sample from MW-01D but not in the May sample (1.8 µg/l), although both concentrations are low. Monitoring well MW-41D is the deepest onsite well in this zone of the LPA onsite and helps define the lower boundary of the onsite plumes. In December 2023, the sample from MW-41D had no detections of the Site-related COCs.

Figures 19 and 20 provide the December 2023 iso-concentration maps for 1,1-DCE and 1,4-dioxane in the deep zone of the LPA. The iso-concentration maps show groundwater concentrations above the Cleanup Standards across the portion of the Site occupied by the Catalent buildings and extending offsite. Evaluation of the sampling data indicates the highest concentrations of these COCs occur within an elongated area underneath the central part of both buildings that continues southward onto the Williams-Scotsman property. The lateral boundaries of the COC-affected groundwater are defined by the sample results below their respective standards at well MW-22D to the east and wells MW-27D and MW-40D to the west. Overall, the deep zone plume maps generated from the December 2023 data are similar in width to those generated from the November 2022 data and indicate that the plume extents have not expanded.

MANN-KENDALL TREND ANALYSIS OF PRIMARY CONSTITUENTS OF CONCERN

OVERVIEW OF ANALYSIS APPROACH

An updated Mann-Kendall analysis was conducted to analyze the trend of 1,1-dichloroethane (DCA), 1,1-dichloroethene (DCE), and 1,4-dioxane concentrations detected in groundwater samples collected between December 2016 and December 2023 from applicable onsite monitoring and recovery wells[9] at the former Kop-Flex facility in Hanover, Maryland. General information on this trend analysis method is provided in the discussion of the recovery well discharge data (Section 2.2.3). As with the evaluation of the recovery well data, the designation of a stable or no trend was qualified in cases where the CF was between 90% and 95%.

The 1,1-DCA, 1,1-DCE and 1,4-dioxane concentrations detected in applicable monitoring wells that were used in the Mann-Kendall analysis are provided in Table 16. The following assumptions were made for the trend analysis:

- The results of groundwater samples collected between December 2016 through December 2023 were assumed for each well's dataset.
- Depending on the well, the results of groundwater samples that were collected annually or semi-annually were used in the analysis to have a consistent sampling frequency per year. If applicable, the results of additional samples collected outside designated annual or semi-annual sampling periods were excluded from a well's dataset. Well MW-5R, which is sampled semi-annually, was sampled only once in 2021. MW-5R was inaccessible during the spring 2021 sampling event due to some minor damage to the protective well cover. For the trend analysis of MW-5R, the November 2020 results were used as a surrogate to represent the spring 2021 sampling results.
- For samples with non-detect results, a common value was assumed for a given compound that was less than or equal to the detections in the dataset (EPA 2009). The value assumed for non-detect results was the method detection limit for the sample with the lowest detected concentration of a given compound.
- If a duplicate sample was collected for a sampling event, the higher of the two sample concentrations was used in the dataset.

[9] The applicable wells are those 20 wells where 1,1-DCA, 1,1-DCE, and/or 1,4-dioxane were detected in at least 50% of the samples collected from the well.

- Beginning in June 2022, groundwater samples were analyzed for 1,4-dioxane using EPA Method 8270 SIM; the previous analytical method for this COC was modified EPA Method 8260 SIM. All 1,4-dioxane results were considered in each dataset despite the change in analytical method.
- According to GSI Environmental Inc. (2012), "For wells in which all or a large majority of the results are non-detect for a chemical, the true concentration trend for this chemical is considered stable at a concentration below the detection limit. In this case, the Mann-Kendall analysis will not be very informative of the true concentration trend, as the method will simply indicate the trend of the non-detect values vs. time." Therefore, for this analysis, a Mann-Kendall statistic was not calculated if more than 50% of the samples had non-detect concentrations of a specific compound in a well (The Interstate Technology & Regulatory Council 2013).
- A trend analysis was performed if a well had at least four sampling events (GSI Environmental Inc. 2012). Therefore, no trend analysis was conducted on the data for shallow well MW-04R because it was sampled only three times.

Table 17 provides the results for the updated Mann-Kendall statistical trend analysis on the recovery well data. Discussion of the trend analysis at sampling points in the shallow and deep zones are provided in the following section.

DISCUSSION OF PRIMARY COC CONCENTRATION TRENDS

Figures 21 and 22 include plots of 1,1-DCA, 1,1-DCE, and 1,4-dioxane concentrations from late 2016 (pre-System start-up) through 2023 for wells screened in the shallow zone and the deep zone of the LPA, respectively. Presented are plots for wells where concentrations of one or more of these compounds regularly exceed the Cleanup Standards. Since the 2022 change in the 1,4-dioxane analytical method could influence the detected concentrations for this constituent, evaluation of temporal changes in COCs focuses on the chlorinated VOCs.

SHALLOW ZONE

At upgradient well MW-04, the results of the Mann-Kendall analysis, which was conducted using the data between December 2016 and June 2022, indicate a no/possibly increasing trend for 1,1-DCA and stable trend for 1,1-DCE (Table 17). Despite this evidence of stability, VOC concentrations increased by more than 100 percent between November 2020 and May 2021, and remained elevated throughout the first half of 2022, before the well was abandoned and replaced with MW-04R (Figure 21; Table 16). These increases possibly relate to mobilization of VOCs in the vadose zone caused by localized recharge within the adjacent stormwater management area (SWMA). Reduced 1,1-DCA and 1,1-DCE concentrations in groundwater sampling have been measured in the three semiannual monitoring events at MW-04R (November 2022, May 2023, and December 2023). Mann-Kendall trend analysis will be performed for MW-04R once sufficient results are collected.

At MW-09, also upgradient, concentrations of 1,1-DCE and 1,1-DCA show decreasing trends that were statistically significant in the Mann-Kendall analysis (Table 17). These decreases in VOC concentrations could also be related to the long-term influence of groundwater recharge within the SWMA, which potentially displaces VOC mass downwards (Figure 21).

Contrary to the statistical analysis of MW-04 and MW-09, the historical sampling data for adjacent upgradient well MW-20 indicate statistically increasing trends in concentrations of 1,1-DCA and 1,1-DCE (Table 17). These changes at MW-20, which is screened deeper than MW-04/MW-04R, could also be due to the influence of the SWMA as recharge displaces VOCs downwards into the aquifer.

In the MW-16 location in the central portion of the COC plumes, the Mann-Kendall analysis indicates a "decreasing" trend for 1,1-DCE and stable trend for 1,1-DCA throughout the sampling history of the well (Table 17). More recent increases in the concentrations of 1,1-DCA and 1,1-DCE have been observed since May 2021, perhaps as source material from upgradient travels towards the recovery wells (Figure 21).

In the western portion of the Site where the recovery wells are located, sampling data for MW-43 exhibit statistically "decreasing" concentrations for 1,1-DCA, 1,1-DCE and 1,4-dioxane. Declining concentrations are visible in the data through to the present reporting period. Recovery Well RW-1S is screened in the same zone as MW-43, and these changes are possibly due to the long-term groundwater withdrawals.

Also, in the western portion of the Site at MW-38R, the Mann-Kendall analysis indicated "no trend" is evident in the concentrations of 1,1-DCA. Likewise, the concentrations of 1,4-dioxane in this well are statistically "stable". The boring log

from MW-38R indicates a thick sequence of clay above the screened interval that may act as a continuing diffusive source of VOCs at this location.

Farther south at MW-44, the Mann-Kendall analysis indicates "no trend" in the concentrations for 1,1-DCE and "stable" concentrations of 1,1-DCA and 1,4-dioxane (Table 17). However, semi-annual sampling at this well only began in June 2021, and the preceding annual data were omitted from the analysis. A broader view of the data indicates declines in concentrations of all three compounds since June 2019 that may be related to reduced contaminant migration from VOC-affected clay zones (Figure 21).

DEEP ZONE

Two wells - MW-01D and MW-22D - positioned in the vicinity of extraction well RW-2D show statistically "decreasing" trends for 1,4-dioxane and 1,1-DCE (Table 17). A closer examination of the plots in Figure 22 shows noticeable decreases in the COC concentrations in these wells during the first 2 years of System operation. Thereafter, concentrations of these compounds have remained relatively constant through much of the sampling history. These concentration trends may be the result of the System removing an initial slug of groundwater in equilibrium with the aquifer matrix, followed by a period where VOC concentrations in groundwater are limited by the rate of diffusion from low permeability and low flow portions of the aquifer.

Conversely, analysis of the MW-21D sampling data indicates no statistically significant trend in the 1,1-DCE concentrations in response to pumping from well RW-1D (Table 17). Initially, this compound exhibited a decreasing trend for a 3 to 4-year period following System startup. However, 1,1-DCE levels at this monitoring point have been gradually increasing since 2021 (Figure 22). This may be the result of downward migration of VOCs imparted by pumping at RW-1D, which has a thick sequence of clays and silts overlying the screened interval.

The data for well MW-16D, which is located upgradient of recovery well RW-2D, shows statistically significant "decreasing" trends for 1,1-DCE, 1,1-DCA, and 1,4-dioxane throughout its sampling history. The concentration *vs.* time plot of the sampling data shows a consistent decline in the concentrations of these COCs. Further upgradient at well MW-23D, the chlorinated VOC levels exhibit either "stable" or "no trend" based on the Mann-Kendall trend analysis. The concentrations for all of these compounds have shown minimal fluctuation following the start of remedial pumping. Even though this well is the farthest onsite monitoring point from the deep extraction wells, it is believed the zone of groundwater in-flow for RW-1D and RW-2D has extended to and beyond this well location. The absence of any discernable reduction in COCs concentrations may reflect the presence of pockets of residual contaminant mass in this portion of the deep zone.

SUMMARY

In summary, the concentration *vs.* time plots indicate that System operation has resulted in declines in the CVOCs and 1,4-dioxane levels at some areas of the site, while little trend is evident in other locations. In general, in the shallow zone, stable or decreasing concentrations are noted at monitoring wells located in the vicinity of the shallow recovery wells. Conversely, concentration declines in upgradient monitoring well locations (i.e., MW-04/04R and MW-09) are probably the result of surface water infiltration in the SWMA. In the deep zone, concentrations have generally decreased in the eastern portion of the site, whereas they have shown no discernable trends in the western portion of the site, perhaps due to stratigraphic variations across the site.

4 CONCLUSIONS

4.1 ASSESSMENT OF SYSTEM OPERATION AND CLEANUP PROGRESS

Overall, the System is operating as designed and is effective in the containment and recovery of contaminants present in the LPA underlying the former Kop-Flex facility. System runtime during 2023 (50%) was relatively low compared to previous years as a result of both scheduled and unanticipated System shutdowns. In particular, there was an extended, unplanned shutdown during the spring and summer caused by the need to replace multiple pieces of System equipment. Spares for regularly replaced System components are being kept onsite to prevent unanticipated extended downtime of the System in the future. Also, one of the shallow recovery wells, RW-3S, did not operate in 2023. Even with the reduced runtime and reduced extraction network, the System recovered a total of approximately 54 lbs. of CVOCs and 1,4-dioxane from the aquifer during the calendar year. Since start-up in early 2017, the cumulative contaminant mass removal by the System through 2023 has been approximately 705 lbs.

Analysis of treated effluent samples during 2023 indicate the System is removing VOCs and approximately 96.8% of the 1,4-dioxane from the extracted groundwater. All System effluent samples collected in accordance with the NPDES Permit since System start-up in 2017 have been non-detect for VOCs, except for two samples; one collected during June 2019 and the other during October 2023 (1,1,1-TCA at 3.4 µg/L and 1,1-DCE at 1.7 µg/L, respectively). There were no exceedances of the effluent limits specified in the NPDES Permit or the Site-specific 1,4-dioxane cleanup level during the 2023 operational period.

The groundwater inflow area for the shallow recovery wells appears to encompass the inferred width and breadth of the VOC plume in the shallow zone of the LPA at the Site (see Figures 16 through 18). Similarly, the groundwater inflow area for the deep recovery wells appears to encompass the inferred width of the VOC plume in the deep zone of the LPA at the Site (See Figures 19 and 20). This determination is based on the flow paths in response to the hydraulic gradients created during pumping.RW-3S has been offline since September 2022 as the groundwater extraction rate became negligible. In 2023, inspection and testing activities were completed to evaluate the source of the diminished yield from the well. The activities determined that lack of yield was the result of a clogged sand filter pack. Improving the sand filter pack and resuming operations at RW-3S in 2024 will enhance the hydraulic gradients noted above for the shallow recovery wells. However, even with RW-3S offline in 2023, hydraulic capture was maintained by the remaining shallow recovery wells RW-1S and RW-2S.

Since the start-up of the hydraulic containment system in March 2017, the observed declines in COC concentrations in shallow monitoring wells such as MW-09, MW-16, and MW-43, indicate the shallow recovery wells are effective in removing contaminant mass from the shallow zone of the LPA (Figure 21 and Table 17). Effective containment of the plume is indicated by the groundwater quality results at or below the Cleanup Standards at wells located near the Site boundary (see Figures 17 and 18). The shallow zone groundwater beneath Catalent Building 2 still contains 1,1-DCE, 1,1-DCA, and 1,4-dioxane concentrations above their respective Cleanup Standards, although the concentrations have decreased for these constituents since the initiation of remedial pumping. The following changes in COC concentrations at monitoring well MW-16 indicate the improvement in the groundwater quality:

- 1,1-DCE – decrease from 26,200 µg/L (December 2016) to 3,990 µg/L (December 2023);
- 1,1-DCA – decrease from 6,420 µg/L (December 2016) to 3,040 µg/L (December 2023); and
- 1,4-dioxane – decrease from 1,450 µg/L (December 2016) to 96 µg/L (December 2023)

The exceptions to the temporal changes noted above include well MW-20 in the eastern portion of the Site, and wells MW-38R, and MW-44, which lie within the area of influence for the shallow recovery wells. At these well locations, concentrations have increased (MW-20) or show no/stable trends (MW-38R and MW-44) for the primary VOCs after the initiation of remedial pumping. The temporal variations in COC concentrations are believed to be related to the spatial and vertical heterogeneity inherent in the geologic materials comprising the LPA at the Site or processes related to the current facility owner's management of the property. The COCs present at these well locations are eventually captured by the System as groundwater flows toward the recovery wells.

The groundwater in the deep zone of the LPA at the Site contains 1,1-DCE and 1,4-dioxane concentrations above their respective Cleanup Standards, although levels have generally decreased for these constituents since the initiation of remedial pumping. The COC concentrations at monitoring well MW-16D indicate this trend, where between December 2016 (baseline sampling event) and December 2023, 1,1-DCE decreased from 254 µg/L to 103 µg/L and 1,4-dioxane decreased from 202 µg/L to 35 µg/L. Concentrations have also decreased in the deep zone in the eastern portion of the site at MW-22D. However, the concentration of COCs have shown little to no reduction in the deep zone in the western (MW-21D) or northern/upgradient (MW-23D) portions of the Site.

Overall, concentrations of Site contaminants still exceed the Cleanup Standards in some wells in both the shallow and deep zones of the LPA. However, the data also indicates that remedial pumping has been successful in removing contaminant mass from the aquifer, thereby making progress toward improving the groundwater quality of the aquifer.

4.2 PLANNED ACTIVITIES FOR 2024

The groundwater monitoring data indicate that the Site is progressing towards attainment of the RAOs and conditions for issuance of a Certificate of Completion for the groundwater response action/corrective measures. Groundwater pumping at the recovery wells is achieving effective onsite capture of the plumes in the impacted portions of the aquifer system, thereby preventing further offsite migration of Site-related contaminants. Based on evaluation of the groundwater monitoring data, the hydraulic containment system is functioning as designed and in accordance with the engineering design requirements. Given that CVOCs and 1,4-dioxane concentrations remain above the Cleanup Standards in the onsite area, the continued operation of the System is deemed necessary during 2024.

During the spring of 2024, WSP plans to complete line jetting of the groundwater conveyance piping between the System treatment building and shallow recovery wells RW-1S and RW-2S to remove the accumulated iron deposits from these lines. The System O&M subcontractor will be retained to complete this work under WSP oversight. Line jetting of the water conveyance piping will likely become a routine maintenance task to maintain the pumping rate from these wells and performance of the submersible pumps.

WSP will perform redevelopment at RW-3S to attempt to remove the buildup of materials clogging the sand filter pack and improve the yield so that groundwater recovery operations may be resumed. As hydraulic capture is being maintained with two shallow recovery wells remaining in operation (RW-1S and RW-2S), WSP will also evaluate whether operation of RW-3S is necessary.

Groundwater monitoring will continue to be performed semi-annually to further assess the hydraulic response to remedial pumping and changes in COC concentrations in the impacted aquifer. As part of the CMI Five-Year Assessment Report (WSP 2023), WSP recommended reducing the monitoring frequency from semi-annually to annually for three monitoring wells (MW-05R, MW-18, and MW-40D). The EPA and MDE approved the proposed modifications to the Site groundwater monitoring program in a May 23, 2023, email communication to EMERSUB 16 and WSP. The changes to the sampling frequency for these wells will be incorporated into the monitoring program specified in the 2015 Groundwater Monitoring Plan (WSP 2015b).

REFERENCES

- Butler, J.J., Jr., 1998. The Design, Performance, and Analysis of Slug Tests, Lewis Publishers, Boca Raton, 252p Cooper, H.H., J.D. Bredehoeft and S.S. Papadopulos, 1967. Response of a finite-diameter well to an instantaneous charge of water, Water Resources Research, vol. 3, no. 1, pp. 263-269.
- GSI Environmental Inc. 2012. GSI Mann-Kendall Toolkit for Constituent Trend Analysis. User's Manual. Version 1.0. November.
- The Interstate Technology & Regulatory Council. 2013. Groundwater Statistics for Monitoring and Compliance, Statistical Tools for the Project Life Cycle. December.
- U.S. Environmental Protection Agency. 2009. Statistical Analysis of Groundwater Monitoring Data at RCRA Facilities Unified Guidance. EPA/530/R/09-007. Washington D.C. March.
- WSP. 2015a. Response Action Plan Revision 2.0. October 2.
- WSP. 2015b. Groundwater Monitoring Plan Revision 1.0. September 17.
- WSP. 2018. Operation, Maintenance & Monitoring Manual Revision 3.0. May 24.
- WSP. 2023. 2022 Operations, Maintenance, and Monitoring Report. July 19.
- WSP. 2024. Quarterly Status Report No. 29- Offsite Area, March 3.
- Hantush, M.S. and C.E. Jacob, 1955. Non-steady radial flow in an infinite leaky aquifer, Am. Geophys. Union Trans., vol. 36, pp. 95-100.
- Hantush, M.S., 1961a. Drawdown around a partially penetrating well, Jour. of the Hyd. Div., Proc. of the Am. Soc. of Civil Eng., vol. 87, no. HY4, pp. 83-98. Hantush, M.S., 1961b. Aquifer tests on partially penetrating wells, Jour. of the Hyd. Div., Proc. of the Am. Soc. of Civil Eng., vol. 87, no. HY5, pp. 171-194.
- Walton, W.C., 1970. *Groundwater Resource Evaluation*, McGraw-Hill, New York, 664p

ACRONYMS

µg/L	micrograms per liter
amsl	above mean sea level
CMI	Corrective Measures Implementation
COC	constituent of concern
CVOC	chlorinated volatile organic compound
DCA	dichloroethane
DCE	dichloroethene
EPA	United States Environmental Protection Agency
EQ	equalization
GPM	gallons per minute
lbs.	pounds
LPA	Lower Patapsco Aquifer
MDE	Maryland Department of the Environment
mg/L	milligrams per liter
NPDES	National Pollutant Discharge Elimination System
OM&M	operations, maintenance, and monitoring
PCE	tetrachloroethene
PVC	polyvinyl chloride
RAO	Response Action Objective
RAP	Response Action Plan
RCRA	Resource Conservation and Recovery Act
SIM	Selected Ion Monitoring
SU	standard units
TCA	trichloroethane
TCE	trichloroethene
TRC	total residual chlorine
VFD	variable frequency drive
VOC	volatile organic compound

FIGURES

MW-46D

MW-27D

VERIZON

POND

RIPRAP

OUTFALL 001

STONY RUN

MW-23D

CATALENT BUILDING 1

TREATMENT EQUIPMENT BUILDING

MW-03

MW-43

MW-09

MW-39

MW-04R

MW-20

MW-45

RW-1S

MW-38R

MW-16

MW-16D

MW-42

MW-18

RW-2S

MW-05R

MW-40D

CATALENT BUILDING 2

RW-3S

MW-22D

MW-41D

MW-44

MW-01

MW-21D

RW-1D

RW-2D

MW-01D

MW-24D

POND

LEGEND

- MW-05 WATER TABLE MONITORING WELL
- MW-18 LOWER UNCONFINED AQUIFER MONITORING WELL
- MW-21D CONFINED AQUIFER MONITORING WELL
- RW-2S SHALLOW EXTRACTION WELL
- RW-2D DEEP EXTRACTION WELL
- JUNCTION BOX/VALVE BOX
- WATER DISCHARGE/POWER SUPPLY TRENCH
- TREATED WATER EFFLUENT DISCHARGE
- PROPERTY LINE
- STREAM/EDGE OF WATER
- FENCE LINE
- STORMWATER MANAGEMENT AREA

THE ORIGINAL VERSION OF THIS DRAWING IS IN COLOR. BLACK AND WHITE COPIES MAY NOT ACCURATELY DEPICT CERTAIN INFORMATION.

0 60 120 180
SCALE IN FEET

N

D

R:\ACAD\CADD_CLIENT\Emerson\MD_Hanover\314V5608.010\CAD\314V5608.010-GT3.dwg 4/2/2024 11:51 AM USEC01012

REVISIONS

REV	DESCRIPTION	Drwn:	Appr.:
1	Revised:	Drwn:	Appr.:
2	Revised:	Drwn:	Appr.:
3	Revised:	Drwn:	Appr.:

SEAL

DATE

DRAWN BY ECC

CHECKED SLD 9/16/2022

APPROVED

PROPERTY OF WSP USA INC.
IMPORTANT: THIS DRAWING PRINT IS LOANED ON MUTUAL AGREEMENT THAT IT WILL NOT BE COPIED OR USED FOR ANY PURPOSE OTHER THAN THAT FOR WHICH IT IS LOANED. THIS INFORMATION CONTAINED HEREON IS NOT TO BE DISCLOSED TO ANY OTHER PARTY WITHOUT THE EXPRESS WRITTEN CONSENT OF WSP USA INC. AND ITS AFFILIATES. ALL RIGHTS RESERVED. COPYRIGHT © WSP USA INC.

NOTICE: THIS DRAWING HAS BEEN PREPARED UNDER THE DIRECTION OF A LICENSED PROFESSIONAL ENGINEER. IT IS A VIOLATION OF LAW FOR ANY PERSON, UNLESS ACTING UNDER THE DIRECTION OF A LICENSED PROFESSIONAL ENGINEER, TO ALTER THIS DRAWING IN ANY WAY.

HYDRAULIC CONTAINMENT SYSTEM AND MONITORING WELL LOCATIONS

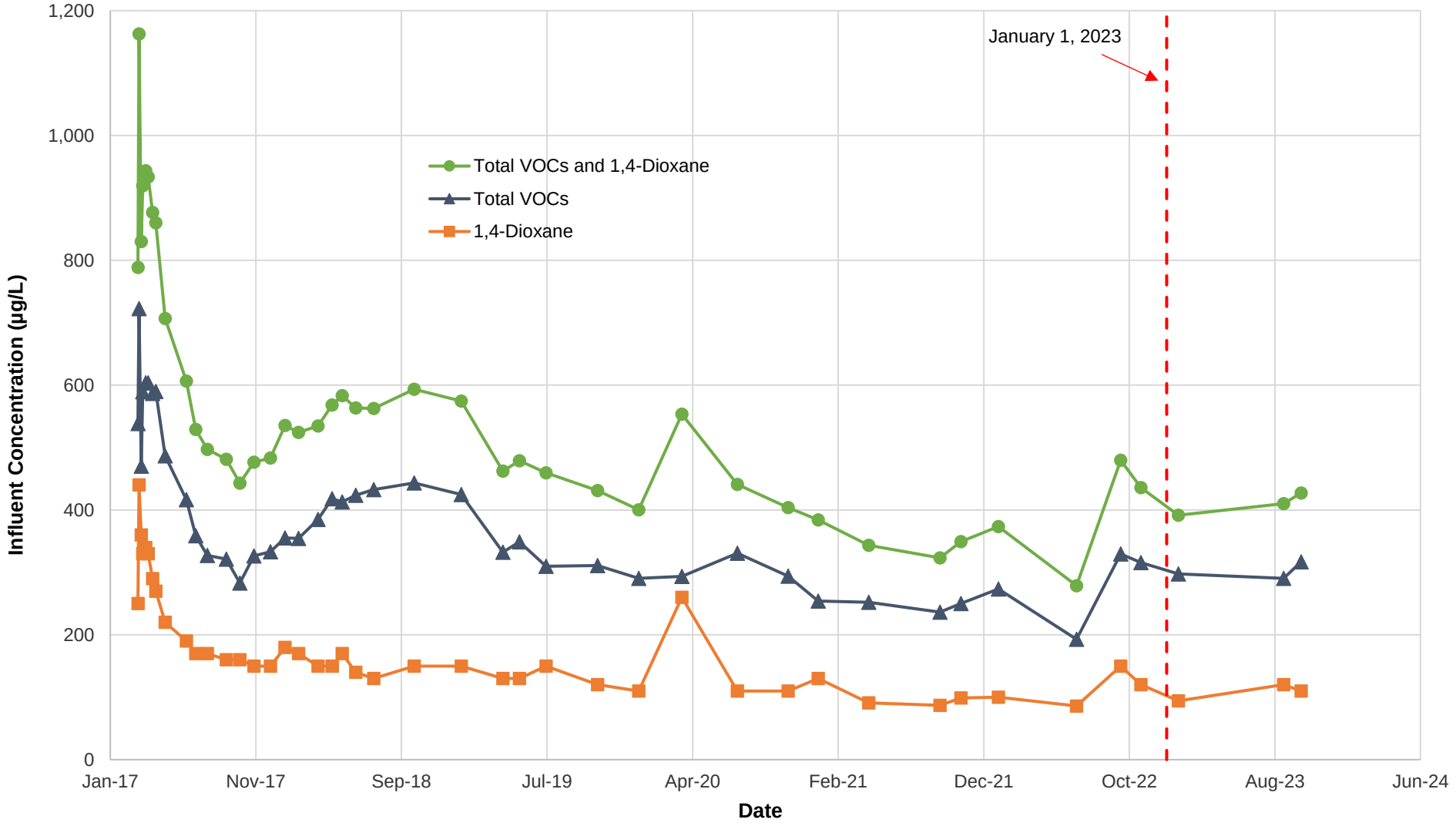
FORMER KOP-FLEX FACILITY SITE
HANOVER, MARYLAND

PREPARED FOR
EMERSON
ST. LOUIS, MISSOURI

WSP USA Inc.
13530 DULLES TECHNOLOGY DR. SUITE 300
HERNDON, VA 20171
TEL.: +1 703.709.6500

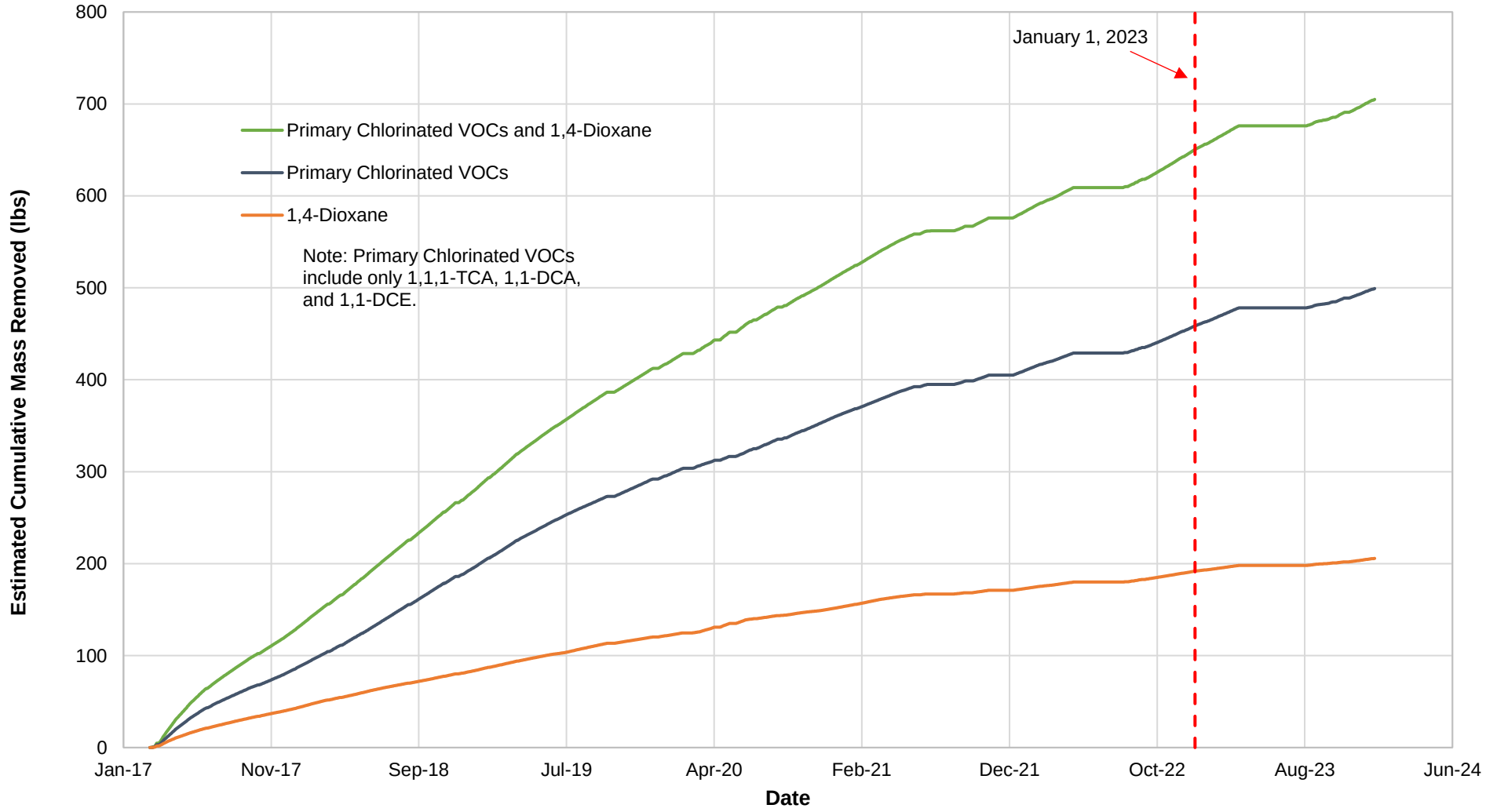
FIGURE 1

Drawing Number
314V5608.010-073



WSP USA Inc.
13530 Dulles Technology Drive Suite 300
Herndon, Virginia 20171
703-709-6500

Figure 2
Historical Influent Concentrations
Former Kop-Flex Facility Site
Hanover, Maryland



WSP USA Inc.
13530 Dulles Technology Drive Suite 300
Herndon, Virginia 20171
703-709-6500

Figure 3
Cumulative Mass Removal
Former Kop-Flex Facility Site
Hanover, Maryland

MW-46D

MW-27D

VERIZON

POND

RIPRAP

OUTFALL 001

STONY RUN

MW-23D

CATALENT BUILDING 1

WILLIAMS SCOTSMAN

TREATMENT EQUIPMENT BUILDING

MW-03

MW-43

MW-09

MW-39

MW-45

RW-1S
1.2 gpm

MW-38R

MW-20

MW-04

MW-16

MW-16D

MW-42

MW-18

RW-2S
1.5 gpm

MW-05R

MW-40D

RW-3S
0 gpm

CATALENT BUILDING 2

MW-22D

MW-41D

MW-44

MW-21D

RW-1D
15.9 gpm

RW-2D
13.9 gpm

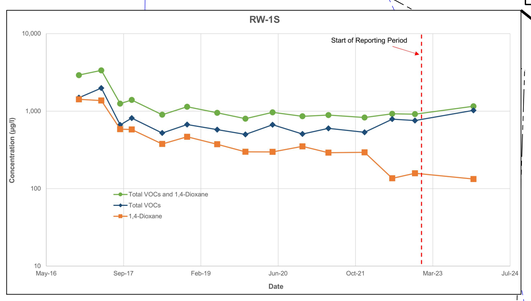
MW-01

MW-01D

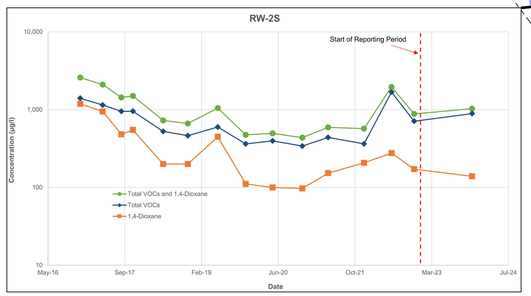
MW-24D

POND

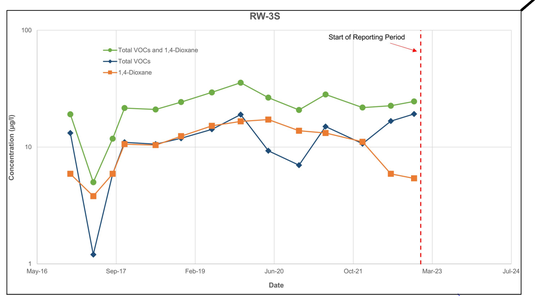
RW-1S



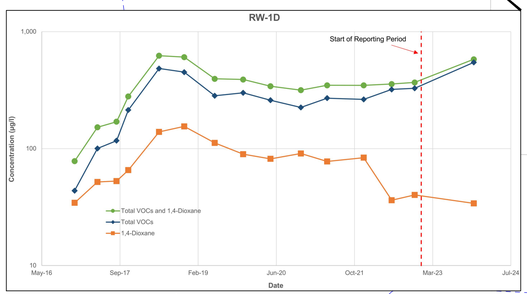
RW-2S



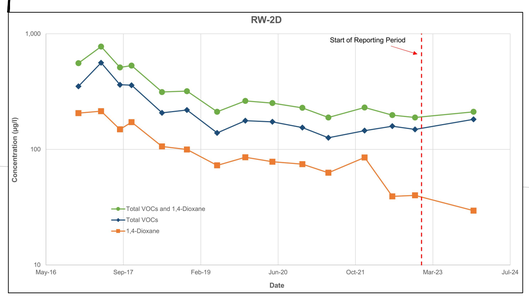
RW-3S



RW-1D



RW-2D



LEGEND

- MW-05 WATER TABLE MONITORING WELL
- MW-18 LOWER UNCONFINED AQUIFER MONITORING WELL
- MW-21D CONFINED AQUIFER MONITORING WELL
- RW-2S SHALLOW EXTRACTION WELL
- RW-2D DEEP EXTRACTION WELL
- JUNCTION BOX/VALVE BOX
- WATER DISCHARGE/POWER SUPPLY TRENCH
- TREATED WATER EFFLUENT DISCHARGE
- PROPERTY LINE
- STREAM/EDGE OF WATER
- FENCE LINE
- STORMWATER MANAGEMENT AREA
- 4.9 gpm AVERAGE FLOW RATE IN GALLONS PER MINUTE (INCLUDES NONOPERATIONAL AND PARTIALLY OPERATIONAL DAYS)

N

0 60 120 180
SCALE IN FEET

D

THE ORIGINAL VERSION OF THIS DRAWING IS IN COLOR. BLACK AND WHITE COPIES MAY NOT ACCURATELY DEPICT CERTAIN INFORMATION.

R:\ACAD\CADD_CLIENT\Emerson\MD_Hanover\314V5608.010\CAD\314V5608.010-071.dwg 3/21/2024 2:15 PM USEC0012

REVISIONS

REV	DESCRIPTION	Appr.:	Chkd:	Appr.:	Chkd:	Appr.:	Chkd:
1	Revised:						
2	Revised:						
3	Revised:						

SEAL

DATE

DRAWN BY EGC 3/21/2024
CHECKED SLD
APPROVED KM

PROPERTY OF WSP USA INC.
IMPORTANT: THIS DRAWING PRINT IS LOANED FOR MUTUAL ASSISTANCE AND MUST BE RETURNED UPON REQUEST. THE INFORMATION CONTAINED HEREON IS NOT TO BE DISCLOSED OR REPRODUCED IN WHOLE OR IN PART FOR THE BENEFIT OF PARTIES OTHER THAN NECESSARY SUBCONTRACTORS WITHOUT WRITTEN PERMISSION OF WSP USA INC.

NOTICE: THIS DRAWING HAS BEEN PREPARED UNDER THE DIRECTION OF A LICENSED PROFESSIONAL ENGINEER. IT IS A VIOLATION OF LAW FOR ANY PERSON, UNLESS ACTING UNDER THE DIRECTION OF A LICENSED PROFESSIONAL ENGINEER, TO ALTER THIS DRAWING IN ANY WAY.

VOC AND 1,4-DIOXANE CONCENTRATIONS IN RECOVERY WELL DISCHARGE (2017 THROUGH 2023)

FORMER KOP-FLEX FACILITY SITE
HANOVER, MARYLAND
PREPARED FOR
EMERSON
ST. LOUIS, MISSOURI

WSP USA Inc.
13530 DULLES TECHNOLOGY DR., SUITE 300
HERNDON, VA 20171
TEL: +1 703.709.6500

FIGURE 4

Drawing Number
314V5608.010-071

NOTICE: THIS DRAWING HAS BEEN PREPARED UNDER THE DIRECTION OF A PROFESSIONAL. DO NOT ALTER THIS DOCUMENT IN ANY WAY WITHOUT THE WRITTEN CONSENT OF WSP USA INC.

THE ORIGINAL VERSION OF THIS DRAWING IS IN COLOR. BLACK AND WHITE COPIES MAY NOT ACCURATELY DEPICT CERTAIN INFORMATION.

VERIZON

STONY RUN

POND

WILLIAMS SCOTSMAN, INC.

CATALENT BUILDING 1

CATALENT BUILDING 2

TREATMENT EQUIPMENT BUILDING

MW-46D
MW-27D
MW-23D
MW-03
MW-43
MW-09
MW-39
MW-38R
MW-42
MW-18
MW-40D
MW-5R
MW-16
MW-16D
MW-04R
MW-20
MW-04
MW-45
MW-22D
MW-41D
MW-44
MW-01D
MW-01
MW-21D
MW-24D

RW-1S
RW-2S
RW-3S
RW-1D
RW-2D

RW-1S	12/3/23
1,1-DCA	***180***
1,2-DCA	ND
1,1-DCE	***775***
1,4-Dioxane	***133***
1,1,1-TCA	***39.4***
TCE	ND

RW-2S	12/3/23
1,1-DCA	***72.4***
1,2-DCA	ND
1,1-DCE	***517***
1,4-Dioxane	***139***
1,1,1-TCA	***301***
TCE	ND

RW-1D	12/3/23
1,1-DCA	***87.3***
1,2-DCA	ND
1,1-DCE	***431***
1,4-Dioxane	***34.0***
1,1,1-TCA	12.9
TCE	ND

RW-2D	12/3/23
1,1-DCA	***22.8***
1,2-DCA	1.3
1,1-DCE	***154***
1,4-Dioxane	***29.5***
1,1,1-TCA	3.9
TCE	ND

LEGEND

- PROPERTY LINE
- STREAM/EDGE OF WATER
- FENCE LINE
- STORMWATER MANAGEMENT AREA
- SHALLOW MONITORING WELL
- DEEP MONITORING WELL
- ABANDONED WELL
- SHALLOW EXTRACTION WELL
- DEEP EXTRACTION WELL

RW-1D — WELL ID
12/3/23 — DATE
87.3 — CONCENTRATION (ug/l) (BOLD ITALIC EXCEEDS CLEANUP LEVELS)
TCE — CONSTITUENT

ND NON DETECT
1,1-DCA 1,1-DICHLOROETHANE
1,2-DCA 1,2-DICHLOROETHANE
1,1-DCE 1,1-DICHLOROETHENE
1,1,1-TCA 1,1,1-TRICHLOROETHANE
TCE TRICHLOROETHENE

Cleanup Levels	µg/l
1,1-DCA	2.8
1,2-DCA	5
1,1-DCE	7
1,4-Dioxane	15
1,1,1-TCA	200
TCE	5

0 140 280
SCALE IN FEET

B

R:\ACAD\CADD_CLIENT\EmersonMD_Hanover\314056608.010\CAD\314V6608.010-059.dwg 2/16/2024 7:26 PM USEC01012

Drawn By: EGC
Checked: 2/16/2024
Approved:
DWG Name: 314V5608.010-059

FORMER KOP-FLEX FACILITY SITE
HANOVER, MARYLAND
PREPARED FOR
EMERSUB 16 LLC
ST. LOUIS, MISSOURI

FIGURE 5
GROUNDWATER RECOVERY WELL RESULTS (2023)

WSP USA Inc.
13530 DULLES TECHNOLOGY DR
SUITE 300
HERNDON, VA 20171
TEL: +1 703.709.6500

STONY RUN

POND

WILLIAMS SCOTSMAN, INC.

TREATMENT EQUIPMENT BUILDING

CATALENT BUILDING 1

CATALENT BUILDING 2

MW-03

MW-43

MW-09
114.20

MW-39
109

MW-38R
108.64

RW-1S

MW-42
110.01

RW-2S

MW-18

MW-5R
109.97

RW-3S

MW-16

MW-04R
113.87

MW-20

MW-44

MW-01
114.58

109

110

111

112

113

114

N

LEGEND

- PROPERTY LINE
- STREAM/EDGE OF WATER
- FENCE LINE
- STORMWATER MANAGEMENT AREA
- SHALLOW MONITORING WELL
- SHALLOW EXTRACTION WELL
- 114.58 GROUNDWATER SURFACE ELEVATION (FEET MSL)
- GROUNDWATER SURFACE CONTOUR (DASHED WHERE INFERRED)
- GROUNDWATER FLOW PATH

NOTE:
THE MAY 2023 GROUNDWATER ELEVATIONS ARE REPRESENTATIVE OF NON-PUMPING CONDITIONS.

0 140 280
SCALE IN FEET

THE ORIGINAL VERSION OF THIS DRAWING IS IN COLOR. BLACK & WHITE COPIES MAY NOT ACCURATELY DEPICT CERTAIN INFORMATION.

B

NOTICE: THIS DRAWING HAS BEEN PREPARED UNDER THE DIRECTION OF A PROFESSIONAL. DO NOT ALTER THIS DOCUMENT IN ANY WAY WITHOUT THE WRITTEN CONSENT OF WSP USA INC.

Drawn By: EGC
Checked: 7/24/2023
Approved: 8/2/2023
DWG Name: 314V5608.010-046

FORMER KOP-FLEX FACILITY SITE
HANOVER, MARYLAND

PREPARED FOR
EMERSUB 16 LLC
ST. LOUIS, MISSOURI

FIGURE 6

WATER TABLE CONTOUR MAP NON-PUMPING CONDITIONS (MAY 2023)

WSP USA Inc.
13530 DULLES TECHNOLOGY DR
SUITE 300
HERNDON, VA 20171
TEL: +1 703.709.6500

R:\ACAD\CADD_CLIENT\Emerson\MD_Hanover\31405608.010\CAD\314V5608.010-046.dwg 2/16/2024 7:26 PM USEC01012

STONY RUN

POND

WILLIAMS SCOTSMAN, INC.

TREATMENT EQUIPMENT BUILDING

CATALENT BUILDING 1

CATALENT BUILDING 2

MW-03 106.97

MW-43 102.70

MW-39 102.88

MW-38R

RW-1S 109.68

RW-2S 108.80

RW-3S 109.58

MW-5R

MW-42

MW-18 103.64

MW-44 111.80

MW-09

MW-16 112.21

MW-04R

MW-20 113.60

MW-01

104

106

108

110

112

N

LEGEND

- PROPERTY LINE
- STREAM/EDGE OF WATER
- FENCE LINE
- STORMWATER MANAGEMENT AREA
- SHALLOW MONITORING WELL
- SHALLOW EXTRACTION WELL
- 112.21 PIEZOMETRIC SURFACE ELEVATION (FEET MSL)
- PIEZOMETRIC SURFACE CONTOUR (DASHED WHERE INFERRED)
- GROUNDWATER FLOW PATH

NOTE:
THE MAY 2023 GROUNDWATER ELEVATIONS ARE REPRESENTATIVE OF NON-PUMPING CONDITIONS.

0 140 280
SCALE IN FEET

THE ORIGINAL VERSION OF THIS DRAWING IS IN COLOR. BLACK & WHITE COPIES MAY NOT ACCURATELY DEPICT CERTAIN INFORMATION.

B NOTICE: THIS DRAWING HAS BEEN PREPARED UNDER THE DIRECTION OF A PROFESSIONAL. DO NOT ALTER THIS DOCUMENT IN ANY WAY WITHOUT THE WRITTEN CONSENT OF WSP USA INC.

Drawn By: EGC
Checked: 7/24/2023
Approved: 8/2/2023
DWG Name: 314V5608.010-047

FORMER KOP-FLEX FACILITY SITE
HANOVER, MARYLAND
PREPARED FOR
EMERSUB 16 LLC
ST. LOUIS, MISSOURI

FIGURE 7

PIEZOMETRIC SURFACE CONTOUR MAP FOR THE LOWER PORTION OF THE SHALLOW ZONE OF THE LOWER PATASPCO AQUIFER (MAY 2023)

WSP USA Inc.
13530 DULLES TECHNOLOGY DR
SUITE 300
HERNDON, VA 20171
TEL: +1 703.709.6500

R:\ACAD\CADD_CLIENT\Emerson\MD_Hanover\314O5608.010\CAD\314V5608.010-047.dwg 2/16/2024 7:27 PM USEC01012

MW-46D
88.51

MW-27D
87.96

MW-23D
87.89

STONY RUN

POND

WILLIAMS
SCOTSMAN, INC.

CATALENT BUILDING 1

TREATMENT
EQUIPMENT
BUILDING

CATALENT BUILDING 2

MW-16D
86.54

MW-40D
86.30

MW-22D
85.33

MW-41D

MW-21D
85.44

RW-1D

RW-2D

MW-01D
83.79

MW-24D
79.68

POND

88

86

84

82

80

N

LEGEND

- PROPERTY LINE
- STREAM/EDGE OF WATER
- FENCE LINE
- STORMWATER MANAGEMENT AREA
- DEEP MONITORING WELL
- DEEP EXTRACTION WELL
- 84.20 POTENTIOMETRIC SURFACE ELEVATION (FEET MSL)
- POTENTIOMETRIC SURFACE CONTOUR (DASHED WHERE INFERRED)
- GROUNDWATER FLOW PATH

NOTE:
THE MAY 2023 GROUNDWATER ELEVATIONS ARE REPRESENTATIVE OF NON-PUMPING CONDITIONS.

0 140 280
SCALE IN FEET

THE ORIGINAL VERSION OF THIS DRAWING IS IN COLOR. BLACK & WHITE COPIES MAY NOT ACCURATELY DEPICT CERTAIN INFORMATION.

B
NOTICE: THIS DRAWING HAS BEEN PREPARED UNDER THE DIRECTION OF A PROFESSIONAL. DO NOT ALTER THIS DOCUMENT IN ANY WAY WITHOUT THE WRITTEN CONSENT OF WSP USA INC.

Drawn By: EGC
Checked: 8/9/2023
Approved:
DWG Name: 314V5608.010-048

FORMER KOP-FLEX FACILITY SITE
HANOVER, MARYLAND
PREPARED FOR
EMERSUB 16 LLC
ST. LOUIS, MISSOURI

FIGURE 8

POTENTIOMETRIC SURFACE CONTOUR MAP FOR THE DEEP ZONE OF THE LOWER PATAPSCO AQUIFER (MAY 2023)

WSP USA Inc.
13530 DULLES TECHNOLOGY DR
SUITE 300
HERNDON, VA 20171
TEL: +1 703.709.6500

R:\ACADICADD_CLIENT\Emerson\MD_Hanover\314056608.010\CAD\314V5608.010-048.dwg 2/16/2024 7:27 PM USEC01012

STONY RUN

POND

WILLIAMS SCOTSMAN, INC.

TREATMENT EQUIPMENT BUILDING

CATALENT BUILDING 1

CATALENT BUILDING 2

MW-03

MW-43

MW-09
113.81

MW-39

MW-38R
107.22

RW-1S

RW-2S

RW-3S

MW-42
108.07

MW-18

MW-5R
108.18

MW-16

MW-04R
113.36

MW-20

MW-45
113.18

MW-44

MW-01
114.07

107.5

108.5

109.5

110.5

111.5

112.5

113.5

113.5

POND

LEGEND

- PROPERTY LINE
- STREAM/EDGE OF WATER
- FENCE LINE
- STORMWATER MANAGEMENT AREA
- SHALLOW MONITORING WELL
- SHALLOW EXTRACTION WELL
- 113.36 GROUNDWATER SURFACE ELEVATION (FEET MSL)
- GROUNDWATER SURFACE CONTOUR (DASHED WHERE INFERRED)
- GROUNDWATER FLOW PATH

NOTE:
THE DECEMBER 2023 GROUNDWATER ELEVATIONS ARE REPRESENTATIVE OF PUMPING CONDITIONS.

0 140 280
SCALE IN FEET

THE ORIGINAL VERSION OF THIS DRAWING IS IN COLOR. BLACK & WHITE COPIES MAY NOT ACCURATELY DEPICT CERTAIN INFORMATION.

NOTICE: THIS DRAWING HAS BEEN PREPARED UNDER THE DIRECTION OF A PROFESSIONAL. DO NOT ALTER THIS DOCUMENT IN ANY WAY WITHOUT THE WRITTEN CONSENT OF WSP USA INC.

B

Drawn By: EGC
Checked: [signature] 1/29/2024
Approved: [signature]
DWG Name: 314V5608.010-056

FORMER KOP-FLEX FACILITY SITE
HANOVER, MARYLAND
PREPARED FOR
EMERSUB 16 LLC
ST. LOUIS, MISSOURI

FIGURE 9

WATER TABLE CONTOUR MAP,
PUMPING CONDITIONS
(DECEMBER 2023)

WSP USA Inc.
13530 DULLES TECHNOLOGY DR
SUITE 300
HERNDON, VA 20171
TEL: +1 703.709.6500

R:\ACAD\CADD_CLIENT\Emerson\MD_Hanover\314056608.010\CAD\314V5608.010-056.dwg 2/16/2024 7:28 PM USEC01012

STONY RUN

POND

WILLIAMS SCOTSMAN, INC.

TREATMENT EQUIPMENT BUILDING

CATALENT BUILDING 1

CATALENT BUILDING 2

MW-03 106.70

MW-43 100.65

MW-39 100.97

MW-38R

RW-1S 104.80

MW-42

RW-2S 94.59

MW-18 101.41

MW-5R

RW-3S NM

MW-44 111.19

MW-09

MW-04R

MW-20 113.59

MW-16 112.32

MW-01

POND

LEGEND

- PROPERTY LINE
- STREAM/EDGE OF WATER
- FENCE LINE
- STORMWATER MANAGEMENT AREA
- SHALLOW MONITORING WELL
- SHALLOW EXTRACTION WELL
- 113.59 PIEZOMETRIC SURFACE ELEVATION (FEET MSL
- PIEZOMETRIC SURFACE CONTOUR (DASHED WHERE INFERRED)
- GROUNDWATER FLOW PATH
- APPROXIMATE RADIUS OF HYDRAULIC CAPTURE

NOTE:
THE DECEMBER 2023 GROUNDWATER ELEVATIONS ARE REPRESENTATIVE OF PUMPING CONDITIONS.

0 140 280
SCALE IN FEET

THE ORIGINAL VERSION OF THIS DRAWING IS IN COLOR. BLACK & WHITE COPIES MAY NOT ACCURATELY DEPICT CERTAIN INFORMATION.

B

NOTICE: THIS DRAWING HAS BEEN PREPARED UNDER THE DIRECTION OF A PROFESSIONAL. DO NOT ALTER THIS DOCUMENT IN ANY WAY WITHOUT THE WRITTEN CONSENT OF WSP USA INC.

Drawn By: EGC
Checked: [signature] 4/15/2024
Approved: [signature]
DWG Name: 314V5608.010-057

FORMER KOP-FLEX FACILITY SITE
HANOVER, MARYLAND
PREPARED FOR
EMERSUB 16 LLC
ST. LOUIS, MISSOURI

FIGURE 10

PIEZOMETRIC SURFACE CONTOUR MAP FOR THE LOWER PORTION OF THE SHALLOW ZONE OF THE LOWER PATASPCO AQUIFER (DECEMBER 2023)

WSP USA Inc.
13530 DULLES TECHNOLOGY DR
SUITE 300
HERNDON, VA 20171
TEL: +1 703.709.6500

R:\ACAD\CADD_CLIENT\Emerson\MD_Hanover\31405608.010\CAD\314V5608.010-057.dwg 4/15/2024 2:10 PM USEC01012

MW-46D
85.89

MW-27D
85.49

STONY RUN

POND

MW-23D
84.92

CATALENT BUILDING 1

WILLIAMS
SCOTSMAN, INC.

TREATMENT
EQUIPMENT
BUILDING

84

82

80

78

MW-16D
NM

MW-40D
82.04

CATALENT BUILDING 2

MW-22D
80.75

MW-41D

MW-01D
70.74

MW-21D
74.54

RW-1D

RW-2D

72

74

MW-24D
75.27

76

POND

LEGEND

- PROPERTY LINE
- STREAM/EDGE OF WATER
- FENCE LINE
- STORMWATER MANAGEMENT AREA
- DEEP MONITORING WELL
- DEEP EXTRACTION WELL
- 84.20 POTENTIOMETRIC SURFACE ELEVATION (FEET MSL)
- POTENTIOMETRIC SURFACE CONTOUR (DASHED WHERE INFERRED)
- GROUNDWATER FLOW PATH
- APPROXIMATE RADIUS OF HYDRAULIC CAPTURE

0 140 280
SCALE IN FEET

THE ORIGINAL VERSION OF THIS DRAWING IS IN COLOR. BLACK & WHITE COPIES MAY NOT ACCURATELY DEPICT CERTAIN INFORMATION.

NOTICE: THIS DRAWING HAS BEEN PREPARED UNDER THE DIRECTION OF A PROFESSIONAL. DO NOT ALTER THIS DOCUMENT IN ANY WAY WITHOUT THE WRITTEN CONSENT OF WSP USA INC.

B

Drawn By: EGC
Checked: [signature] 4/15/2024
Approved: [signature]
DWG Name: 314V5608.010-058

FORMER KOP-FLEX FACILITY SITE
HANOVER, MARYLAND

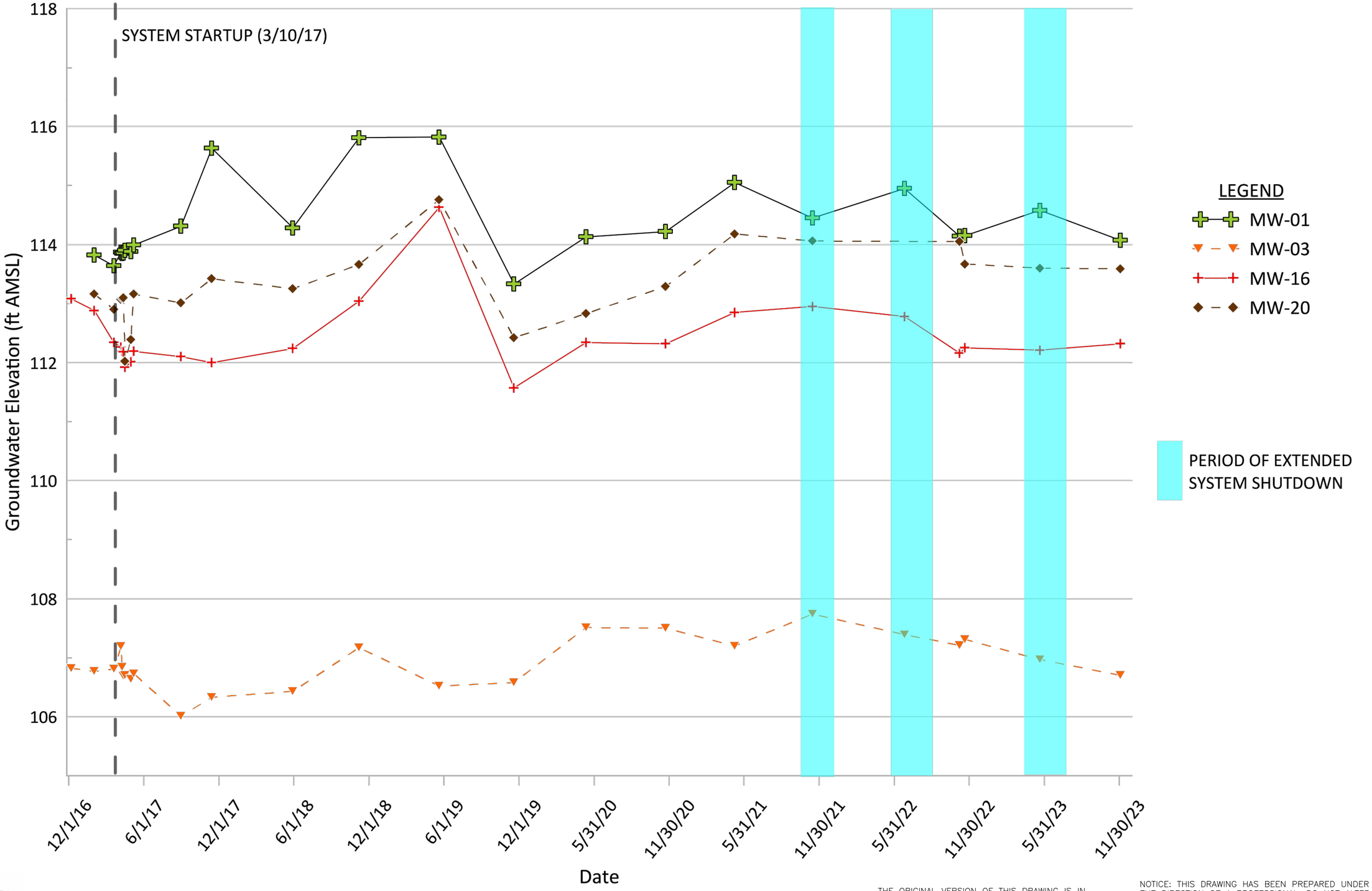
PREPARED FOR
EMERSUB 16 LLC
ST. LOUIS, MISSOURI

FIGURE 11

POTENTIOMETRIC SURFACE CONTOUR MAP FOR THE DEEP ZONE OF THE LOWER PATAPSCO AQUIFER, NON-PUMPING CONDITIONS (DECEMBER 2023)

WSP USA Inc.
13530 DULLES TECHNOLOGY DR
SUITE 300
HERNDON, VA 20171
TEL: +1 703.709.6500

R:\ACAD\CADD_CLIENT\Emerson\MD_Hanover\31405608.010\CAD\314V5608.010-058.dwg 4/15/2024 2:10 PM USEC01012



B

THE ORIGINAL VERSION OF THIS DRAWING IS IN COLOR. BLACK AND WHITE COPIES MAY NOT ACCURATELY DEPICT CERTAIN INFORMATION.

NOTICE: THIS DRAWING HAS BEEN PREPARED UNDER THE DIRECTION OF A PROFESSIONAL. DO NOT ALTER THIS DOCUMENT IN ANY WAY WITHOUT THE WRITTEN CONSENT OF WSP USA INC.

Drawn By: EGC
Checked: 5/30/2024
Approved:
DWG Name: 314V5608.010-074

FORMER KOP-FLEX FACILITY SITE
HANOVER, MARYLAND

PREPARED FOR
EMERSUB 16 LLC
ST. LOUIS, MISSOURI

FIGURE 12

HYDROGRAPHS OF WELLS SCREEDED IN THE SHALLOW ZONE OF THE LOWER PATAPSCO AQUIFER (2016-2023)

WSP USA Inc.
13530 DULLES TECHNOLOGY DR
SUITE 300
HERNDON, VA 20171
TEL: +1 703.709.6500

R:\ACAD\CADD_CLIENT\Emerson\MD_Hanover\314056608.010\CAD\314V5608.010-074.dwg 5/30/2024 8:12 AM USEC01012

SYSTEM STARTUP (3/10/17)

Groundwater Elevation (ft AMSL)

94
92
90
88
86
84
82
80

12/1/16
6/1/17
12/1/17
6/1/18
12/1/18
6/1/19
12/1/19
5/31/20
11/30/20
5/31/21
11/30/21
5/31/22
11/30/22
5/31/23
11/30/23

Date (Deep Wells)

LEGEND

MW-27D

MW-23D

PERIOD OF EXTENDED SYSTEM SHUTDOWN

B

THE ORIGINAL VERSION OF THIS DRAWING IS IN COLOR. BLACK AND WHITE COPIES MAY NOT ACCURATELY DEPICT CERTAIN INFORMATION.

NOTICE: THIS DRAWING HAS BEEN PREPARED UNDER THE DIRECTION OF A PROFESSIONAL. DO NOT ALTER THIS DOCUMENT IN ANY WAY WITHOUT THE WRITTEN CONSENT OF WSP USA INC.

Drawn By: EGC
Checked: 5/30/2024
Approved:
DWG Name: 314V5608.010-074

FORMER KOP-FLEX FACILITY SITE
HANOVER, MARYLAND
PREPARED FOR
EMERSUB 16 LLC
ST. LOUIS, MISSOURI

FIGURE 13

HYDROGRAPHS OF WELLS SCREEDED IN THE DEEP ZONE OF THE LOWER PATAPSCO AQUIFER (2016-2023)

WSP USA Inc.
13530 DULLES TECHNOLOGY DR
SUITE 300
HERNDON, VA 20171
TEL: +1 703.709.6500

R:\ACADCADD_CLIENT\EmersonMD_Hanover\314056608.010\CAD\314V5608.010-074.dwg 5/30/2024 8:13 AM USEC01012

THE ORIGINAL VERSION OF THIS DRAWING IS IN COLOR. BLACK AND WHITE COPIES MAY NOT ACCURATELY DEPICT CERTAIN INFORMATION.

VERIZON

POND

STONY RUN

WILLIAMS SCOTSMAN, INC.

TREATMENT EQUIPMENT BUILDING

CATALENT BUILDING 1

CATALENT BUILDING 2

MW-27D
MW-46D
MW-23D
MW-03
MW-43
MW-09
MW-39
MW-38R
MW-16
MW-16D
MW-04R
MW-45
MW-20
MW-04
RW-1S
MW-42
RW-2S
MW-18
MW-5R
MW-40D
RW-3S
MW-44
MW-22D
MW-41D
MW-01D
MW-21D
RW-1D
RW-2D
MW-01
MW-24D

MW-43		
	5/21/23	12/3/23
1,1-DCA	1.6	1.6
1,2-DCA	ND	ND
1,1-DCE	***21.2***	***19.9***
1,4-Dioxane	9.0	8.5
1,1,1-TCA	ND	ND
TCE	ND	ND

MW-03		
	5/21/23	12/3/23
1,1-DCA	NS	ND
1,2-DCA	NS	ND
1,1-DCE	NS	ND
1,4-Dioxane	NS	ND
1,1,1-TCA	NS	ND
TCE	NS	ND

MW-39		
	5/21/23	12/3/23
1,1-DCA	ND	ND
1,2-DCA	ND	ND
1,1-DCE	ND	ND
1,4-Dioxane	ND	ND
1,1,1-TCA	ND	ND
TCE	ND	ND

MW-38R		
	5/21/23	12/3/23
1,1-DCA	***6.8***	***4.2***
1,2-DCA	ND	ND
1,1-DCE	ND	ND
1,4-Dioxane	11.4	***18.2***
1,1,1-TCA	ND	ND
TCE	ND	ND

MW-42		
	7/15/22	12/3/23
1,1-DCA	ND	ND
1,2-DCA	ND	ND
1,1-DCE	ND	ND
1,4-Dioxane	5.8	4.1
1,1,1-TCA	ND	ND
TCE	ND	ND

MW-18		
	5/21/23	12/3/23
1,1-DCA	ND	ND
1,2-DCA	ND	ND
1,1-DCE	ND	ND
1,4-Dioxane	ND	ND
1,1,1-TCA	ND	ND
TCE	ND	ND

MW-5R		
	5/21/23	12/3/23
1,1-DCA	1.2	ND
1,2-DCA	ND	ND
1,1-DCE	ND	ND
1,4-Dioxane	3.3	2.5
1,1,1-TCA	1.6	1.5
TCE	ND	ND

MW-44		
	5/21/23	12/3/23
1,1-DCA	1.2	***3.9***
1,2-DCA	ND	ND
1,1-DCE	1.9	6.8
1,4-Dioxane	1.9	2.6
1,1,1-TCA	2.6	9.4
TCE	ND	ND

MW-09		
	5/21/23	12/3/23
1,1-DCA	1.9	2.6
1,2-DCA	ND	ND
1,1-DCE	***36.0***	***53.4***
1,4-Dioxane	4.5	6.4
1,1,1-TCA	ND	ND
TCE	ND	ND

MW-16		
	5/21/23	12/3/23
1,1-DCA	***2,230***	***3,040***
1,2-DCA	ND	ND
1,1-DCE	***2,510***	***3,990***
1,4-Dioxane	***89.5***	***96.3***
1,1,1-TCA	***2,230***	***2,200***
TCE	***19.1***	***20.5***

MW-04R		
	5/21/23	12/3/23
1,1-DCA	***33.2***	***31.3***
1,2-DCA	ND	ND
1,1-DCE	***65.5***	***65.8***
1,4-Dioxane	***30.8***	***35.9***
1,1,1-TCA	ND	ND
TCE	ND	ND

MW-20		
	5/21/23	12/3/23
1,1-DCA	***252***	***432***
1,2-DCA	***8.9***	***13.1***
1,1-DCE	***307***	***631***
1,4-Dioxane	***407***	***404***
1,1,1-TCA	ND	ND
TCE	ND	***5.9***

MW-01		
	5/21/23	12/3/23
1,1-DCA	NS	ND
1,2-DCA	NS	ND
1,1-DCE	NS	ND
1,4-Dioxane	NS	ND
1,1,1-TCA	NS	ND
TCE	NS	ND

LEGEND

- PROPERTY LINE
- STREAM/EDGE OF WATER
- FENCE LINE
- STORMWATER MANAGEMENT AREA
- SHALLOW MONITORING WELL
- DEEP MONITORING WELL
- ABANDONED WELL
- SHALLOW EXTRACTION WELL
- DEEP EXTRACTION WELL

MW-20		
	5/21/23	12/3/23
1,1-DCA	***252***	***432***
1,2-DCA	***8.9***	***13.1***
1,1-DCE	***307***	***631***
1,4-Dioxane	***407***	***404***
1,1,1-TCA	ND	ND
TCE	ND	***5.9***

WELL ID
DATE
CONCENTRATION (ug/l) (BOLD ITALIC EXCEEDS CLEANUP LEVELS)
CONSTITUENT

ND NON DETECT
NS NOT SAMPLED

1,1-DCA 1,1-DICHLOROETHANE
1,2-DCA 1,2-DICHLOROETHANE
1,1-DCE 1,1-DICHLOROETHENE
1,1,1-TCA 1,1,1-TRICHLOROETHANE
TCE TRICHLOROETHENE

Cleanup Levels	
	µg/l
1,1-DCA	2.8
1,2-DCA	5
1,1-DCE	7
1,4-Dioxane	15
1,1,1-TCA	200
TCE	5

NOTICE: THIS DRAWING HAS BEEN PREPARED UNDER THE DIRECTION OF A PROFESSIONAL. DO NOT ALTER THIS DOCUMENT IN ANY WAY WITHOUT THE WRITTEN CONSENT OF WSP USA INC.

0 140 280
SCALE IN FEET

B

Drawn By: EGC
Checked: 5/30/2024
Approved:
DWG Name: 314V5608.010-059

FORMER KOP-FLEX FACILITY SITE
HANOVER, MARYLAND
PREPARED FOR
EMERSUB 16 LLC
ST. LOUIS, MISSOURI

FIGURE 14

SAMPLING RESULTS FOR THE MONITORING WELLS SCREENED IN THE SHALLOW ZONE OF THE LOWER PATAPSCO AQUIFER (2023)

WSP USA Inc.
13530 DULLES TECHNOLOGY DR
SUITE 300
HERNDON, VA 20171
TEL: +1 703.709.6500

R:\ACAD\CADD_CLIENT\Emerson\MD_Hanover\314056608.010\CAD\314V5608.010-059.dwg 5/30/2024 8:16 AM USEC01012

NOTICE: THIS DRAWING HAS BEEN PREPARED UNDER THE DIRECTION OF A PROFESSIONAL. DO NOT ALTER THIS DOCUMENT IN ANY WAY WITHOUT THE WRITTEN CONSENT OF WSP USA INC.

THE ORIGINAL VERSION OF THIS DRAWING IS IN COLOR. BLACK AND WHITE COPIES MAY NOT ACCURATELY DEPICT CERTAIN INFORMATION.

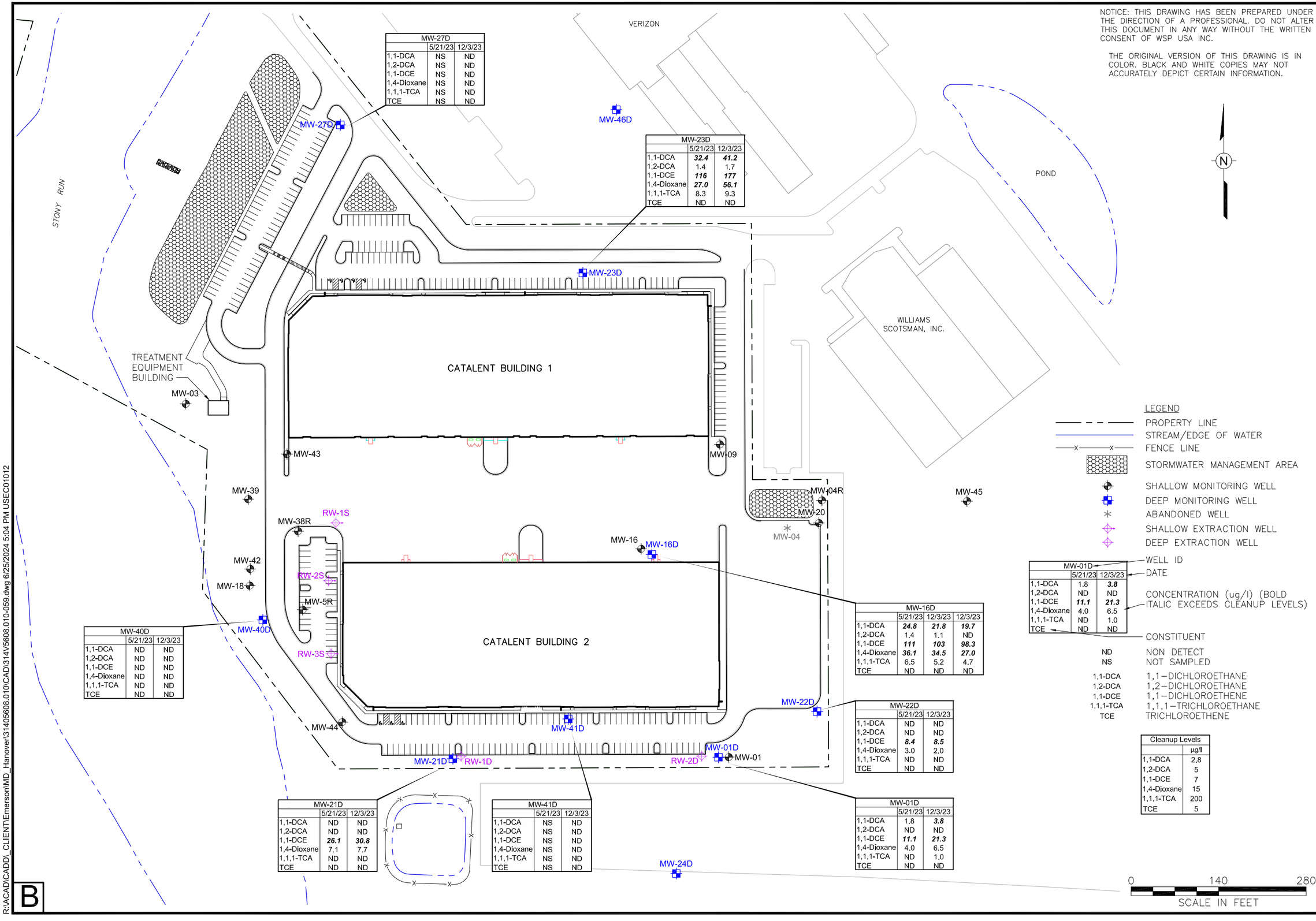
Drawn By: EGC | Checked: 1/29/2024 | Approved: | DWG Name: 314V5608.010-059

FORMER KOP-FLEX FACILITY SITE
HANOVER, MARYLAND

PREPARED FOR
EMERSUB 16 LLC
ST. LOUIS, MISSOURI

FIGURE 15

SAMPLING RESULTS FOR THE MONITORING WELLS SCREENED IN THE DEEP ZONE OF THE LOWER PATAPSCO AQUIFER (2023)



MW-27D	5/21/23	12/3/23
1,1-DCA	NS	ND
1,2-DCA	NS	ND
1,1-DCE	NS	ND
1,4-Dioxane	NS	ND
1,1,1-TCA	NS	ND
TCE	NS	ND

MW-23D	5/21/23	12/3/23
1,1-DCA	***32.4***	***41.2***
1,2-DCA	1.4	1.7
1,1-DCE	***116***	***177***
1,4-Dioxane	***27.0***	***56.1***
1,1,1-TCA	8.3	9.3
TCE	ND	ND

MW-40D	5/21/23	12/3/23
1,1-DCA	ND	ND
1,2-DCA	ND	ND
1,1-DCE	ND	ND
1,4-Dioxane	ND	ND
1,1,1-TCA	ND	ND
TCE	ND	ND

MW-16D	5/21/23	12/3/23	12/3/23
1,1-DCA	***24.8***	***21.8***	***19.7***
1,2-DCA	1.4	1.1	ND
1,1-DCE	***111***	***103***	***98.3***
1,4-Dioxane	***36.1***	***34.5***	***27.0***
1,1,1-TCA	6.5	5.2	4.7
TCE	ND	ND	ND

MW-22D	5/21/23	12/3/23
1,1-DCA	ND	ND
1,2-DCA	ND	ND
1,1-DCE	***8.4***	***8.5***
1,4-Dioxane	3.0	2.0
1,1,1-TCA	ND	ND
TCE	ND	ND

MW-01D	5/21/23	12/3/23
1,1-DCA	1.8	***3.8***
1,2-DCA	ND	ND
1,1-DCE	***11.1***	***21.3***
1,4-Dioxane	4.0	6.5
1,1,1-TCA	ND	1.0
TCE	ND	ND

MW-21D	5/21/23	12/3/23
1,1-DCA	ND	ND
1,2-DCA	ND	ND
1,1-DCE	***26.1***	***30.8***
1,4-Dioxane	7.1	7.7
1,1,1-TCA	ND	ND
TCE	ND	ND

MW-41D	5/21/23	12/3/23
1,1-DCA	NS	ND
1,2-DCA	NS	ND
1,1-DCE	NS	ND
1,4-Dioxane	NS	ND
1,1,1-TCA	NS	ND
TCE	NS	ND

LEGEND

- PROPERTY LINE
- STREAM/EDGE OF WATER
- FENCE LINE
- STORMWATER MANAGEMENT AREA
- SHALLOW MONITORING WELL
- DEEP MONITORING WELL
- ABANDONED WELL
- SHALLOW EXTRACTION WELL
- DEEP EXTRACTION WELL

MW-01D — WELL ID
5/21/23 | 12/3/23 — DATE
1.8 | ***3.8*** — CONCENTRATION (ug/l) (BOLD ITALIC EXCEEDS CLEANUP LEVELS)
TCE — CONSTITUENT

ND — NON DETECT
NS — NOT SAMPLED

1,1-DCA	1,1-DICHLOROETHANE
1,2-DCA	1,2-DICHLOROETHANE
1,1-DCE	1,1-DICHLOROETHENE
1,1,1-TCA	1,1,1-TRICHLOROETHANE
TCE	TRICHLOROETHENE

Cleanup Levels	µg/l
1,1-DCA	2.8
1,2-DCA	5
1,1-DCE	7
1,4-Dioxane	15
1,1,1-TCA	200
TCE	5

WSP USA Inc.
13530 DULLES TECHNOLOGY DR
SUITE 300
HERNDON, VA 20171
TEL: +1 703.709.6500

B

R:\ACAD\CADD_CLIENT\EmersonIMD_Hanover\31405608.010\CAD\314V5608.010-059.dwg 6/25/2024 5:04 PM USEC01012

STONY RUN

POND

WILLIAMS SCOTSMAN, INC.

TREATMENT EQUIPMENT BUILDING

CATALENT BUILDING 1

CATALENT BUILDING 2

MW-03 ND

MW-43 1.6

MW-09 2.6

MW-39

MW-38R

RW-1S

RW-2S

RW-3S

MW-5R

MW-42 ND

MW-18

MW-16 3,040

MW-04R 31

MW-20

MW-04 *

MW-45 ND

MW-44 3.9

MW-01 ND

POND

N

LEGEND

- PROPERTY LINE
- STREAM/EDGE OF WATER
- FENCE LINE
- STORMWATER MANAGEMENT AREA
- SHALLOW MONITORING WELL
- SHALLOW EXTRACTION WELL
- * ABANDONED MONITORING WELL
- ND NON-DETECT
- 37.4 1,1-DCA CONCENTRATION (µg/L)
- PIEZOMETRIC SURFACE CONTOUR (DASHED WHERE INFERRED)
- APPROXIMATE RADIUS OF HYDRAULIC CAPTURE

1,1-DCA CONCENTRATIONS IN µg/l:

- 2.8 TO <50
- 50 TO <100
- 100 TO <500
- 500 TO 1,000
- >1,000

0 140 280

SCALE IN FEET

THE ORIGINAL VERSION OF THIS DRAWING IS IN COLOR. BLACK & WHITE COPIES MAY NOT ACCURATELY DEPICT CERTAIN INFORMATION.

B

NOTICE: THIS DRAWING HAS BEEN PREPARED UNDER THE DIRECTION OF A PROFESSIONAL. DO NOT ALTER THIS DOCUMENT IN ANY WAY WITHOUT THE WRITTEN CONSENT OF WSP USA INC.

Drawn By: EGC
Checked: [signature] 5/30/2024
Approved: [signature]
DWG Name: 314V5608.010-065

FORMER KOP-FLEX FACILITY SITE
HANOVER, MARYLAND

PREPARED FOR
EMERSUB 16 LLC
ST. LOUIS, MISSOURI

FIGURE 16

1,1-DCA ISO-CONCENTRATIONS DURING GROUNDWATER EXTRACTION FROM THE SHALLOW PORTION OF THE LOWER PATAPSCO AQUIFER (DECEMBER 2023)

WSP USA Inc.
13530 DULLES TECHNOLOGY DR
SUITE 300
HERNDON, VA 20171
TEL: +1 703.709.6500

R:\CAD\CADD_CLIENT\Emerson\MD_Hanover\31405608.010\CAD\314V5608.010-065.dwg 5/30/2024 8:17 AM USEC01012

STONY RUN

POND

WILLIAMS SCOTSMAN, INC.

CATALENT BUILDING 1

CATALENT BUILDING 2

TREATMENT EQUIPMENT BUILDING

MW-03 ND

MW-43 19.9

MW-09 53.4

MW-39

MW-38R

RW-1S

MW-42 ND

MW-18

RW-2S

MW-5R

RW-3S

MW-44 6.8

MW-16 3,990

MW-04R 65.8

MW-20

MW-04 ✱

MW-45 ND

MW-01 ND

98 100 102 104 106 108 110 112

LEGEND

- PROPERTY LINE
- STREAM/EDGE OF WATER
- FENCE LINE
- STORMWATER MANAGEMENT AREA
- SHALLOW MONITORING WELL
- SHALLOW EXTRACTION WELL
- ✱ ABANDONED MONITORING WELL
- ND NON-DETECT
- 53.3 1,1-DCE CONCENTRATION (µg/L)
- PIEZOMETRIC SURFACE CONTOUR (DASHED WHERE INFERRED)
- APPROXIMATE RADIUS OF HYDRAULIC CAPTURE

1,1-DCE CONCENTRATIONS IN µg/l:

- 7 TO <50
- 50 TO <100
- 100 TO <500
- 500 TO 1,000
- >1,000

0 140 280
SCALE IN FEET

THE ORIGINAL VERSION OF THIS DRAWING IS IN COLOR. BLACK & WHITE COPIES MAY NOT ACCURATELY DEPICT CERTAIN INFORMATION.

B NOTICE: THIS DRAWING HAS BEEN PREPARED UNDER THE DIRECTION OF A PROFESSIONAL. DO NOT ALTER THIS DOCUMENT IN ANY WAY WITHOUT THE WRITTEN CONSENT OF WSP USA INC.

Drawn By: EGC
Checked: [signature] 5/30/2024
Approved: [signature]
DWG Name: 314V5608.010-066

FORMER KOP-FLEX FACILITY SITE
HANOVER, MARYLAND

PREPARED FOR
EMERSUB 16 LLC
ST. LOUIS, MISSOURI

FIGURE 17

1,1-DCE ISO-CONCENTRATIONS DURING GROUNDWATER EXTRACTION FROM THE SHALLOW PORTION OF THE LOWER PATAPSCO AQUIFER (DECEMBER 2023)

WSP USA Inc.
13530 DULLES TECHNOLOGY DR
SUITE 300
HERNDON, VA 20171
TEL: +1 703.709.6500

R:\ACAD\CADD_CLIENT\EmersonIMD_Hanover\31405608.010\CAD\314V5608.010-066.dwg 5/30/2024 8:18 AM USEC01012

STONY RUN

POND

WILLIAMS SCOTSMAN, INC.

TREATMENT EQUIPMENT BUILDING

CATALENT BUILDING 1

CATALENT BUILDING 2

MW-03 ND

MW-43 8.5

MW-09 6.4

MW-39

MW-38R

RW-1S

MW-42 4.1

MW-18

RW-2S

MW-5R

RW-3S

MW-44 2.6

MW-16 96.3

MW-04R 35.9

MW-20

MW-04

MW-45 ND

MW-01 ND

POND

N

LEGEND

- PROPERTY LINE
- STREAM/EDGE OF WATER
- FENCE LINE
- STORMWATER MANAGEMENT AREA
- SHALLOW MONITORING WELL
- SHALLOW EXTRACTION WELL
- ABANDONED MONITORING WELL
- ND NON-DETECT
- 35.9 1,4-DIOXANE CONCENTRATION (µg/L)
- PIEZOMETRIC SURFACE CONTOUR (DASHED WHERE INFERRED)
- APPROXIMATE RADIUS OF HYDRAULIC CAPTURE

15 µg/l SITE-SPECIFIC 1,4-DIOXANE GROUNDWATER QUALITY STANDARD

1,4-DIOXANE CONCENTRATIONS IN µg/l:

- 4.6 TO <50
- 50 TO <100
- >100

0 140 280

SCALE IN FEET

THE ORIGINAL VERSION OF THIS DRAWING IS IN COLOR. BLACK & WHITE COPIES MAY NOT ACCURATELY DEPICT CERTAIN INFORMATION.

B

NOTICE: THIS DRAWING HAS BEEN PREPARED UNDER THE DIRECTION OF A PROFESSIONAL. DO NOT ALTER THIS DOCUMENT IN ANY WAY WITHOUT THE WRITTEN CONSENT OF WSP USA INC.

R:\ACADICADD_CLIENT\Emerson\MD_Hanover\31405608.010\CAD\314V5608.010-067.dwg 7/23/2024 5:15 PM USEC01012

Drawn By: EGC
Checked: [signature] 5/30/2024
Approved: [signature]
DWG Name: 314V5608.010-067

FORMER KOP-FLEX FACILITY SITE
HANOVER, MARYLAND

PREPARED FOR
EMERSUB 16 LLC
ST. LOUIS, MISSOURI

FIGURE 18

1,4-DIOXANE ISO-CONCENTRATIONS DURING GROUNDWATER EXTRACTION FROM THE SHALLOW PORTION OF THE LOWER PATAPSCO AQUIFER (DECEMBER 2023)

WSP USA Inc.
13530 DULLES TECHNOLOGY DR
SUITE 300
HERNDON, VA 20171
TEL: +1 703.709.6500

MW-46D
51.5

MW-27D
ND

MW-23D
177

MW-16D
103

MW-40D
ND

MW-41D

MW-21D
30.8

RW-1D

RW-2D

MW-01D
21.3

MW-22D
8.5

MW-24D
1,130

CATALENT BUILDING 1

CATALENT BUILDING 2

WILLIAMS
SCOTSMAN, INC.

POND

STONY RUN

TREATMENT
EQUIPMENT
BUILDING

84
82
80
78
76
74
72

N

LEGEND

- PROPERTY LINE
- STREAM/EDGE OF WATER
- FENCE LINE
- STORMWATER MANAGEMENT AREA
- DEEP MONITORING WELL
- DEEP EXTRACTION WELL
- ND NON-DETECT
- 51.5 1,1-DCE CONCENTRATION (µg/l)
- POTENTIOMETRIC SURFACE CONTOUR (DASHED WHERE INFERRED)
- APPROXIMATE RADIUS OF HYDRAULIC CAPTURE

1,1-DCE CONCENTRATIONS IN µg/l:

- 7 TO <50
- 50 TO <100
- 100 TO <500
- 500 TO <1,000
- ≥1,000

0 140 280
SCALE IN FEET

THE ORIGINAL VERSION OF THIS DRAWING IS IN COLOR. BLACK & WHITE COPIES MAY NOT ACCURATELY DEPICT CERTAIN INFORMATION.

B

NOTICE: THIS DRAWING HAS BEEN PREPARED UNDER THE DIRECTION OF A PROFESSIONAL. DO NOT ALTER THIS DOCUMENT IN ANY WAY WITHOUT THE WRITTEN CONSENT OF WSP USA INC.

Drawn By: EGC
Checked: [signature] 6/25/2024
Approved: [signature]
DWG Name: 314V5608.010-068

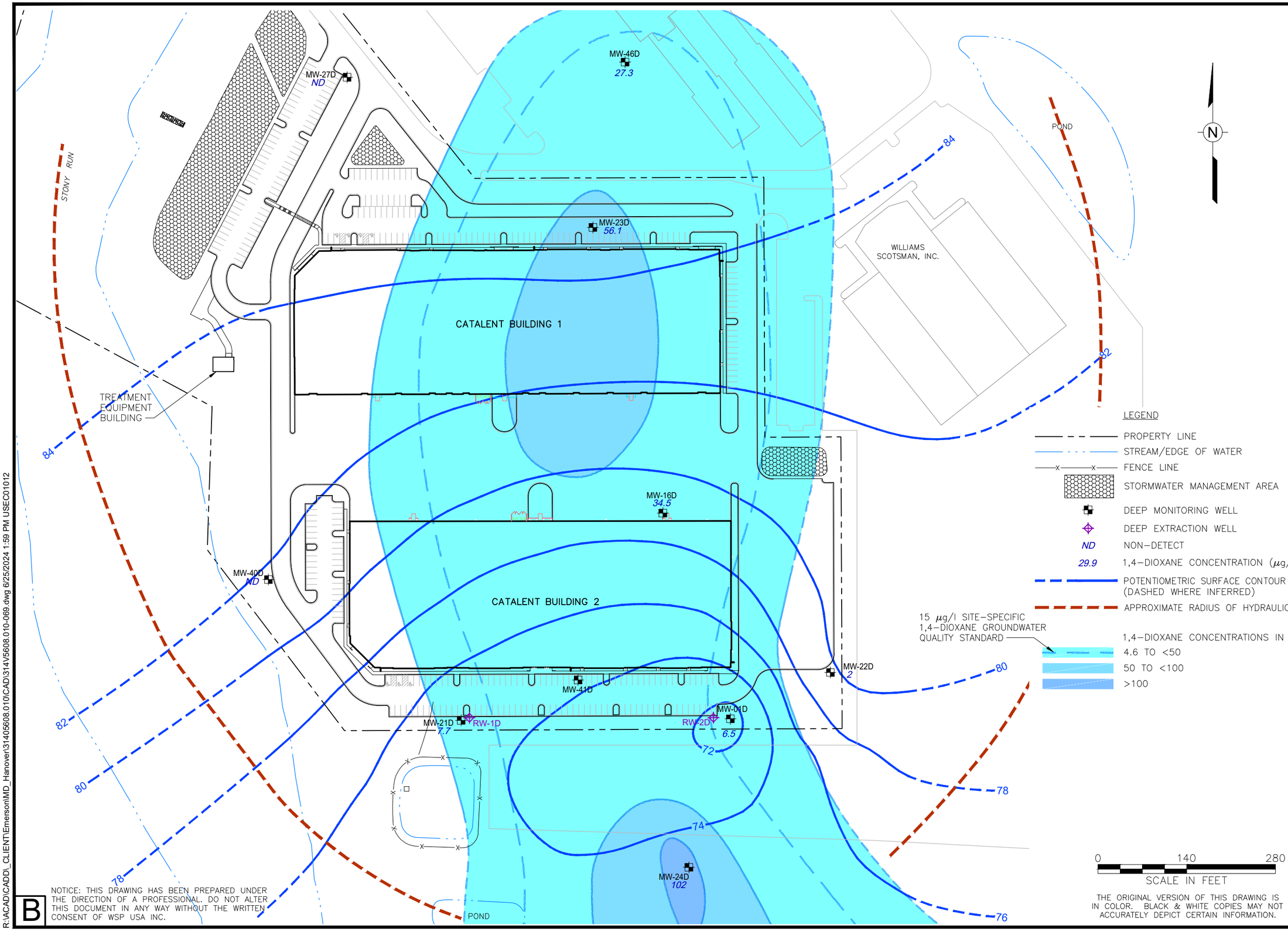
FORMER KOP-FLEX FACILITY SITE
HANOVER, MARYLAND
PREPARED FOR
EMERSUB 16 LLC
ST. LOUIS, MISSOURI

FIGURE 19

1,1-DCE ISO-CONCENTRATIONS DURING GROUNDWATER EXTRACTION FROM THE DEEPER PORTION OF THE LOWER PATAPSCO AQUIFER (DECEMBER 2023)

WSP USA Inc.
13530 DULLES TECHNOLOGY DR
SUITE 300
HERNDON, VA 20171
TEL: +1 703.709.6500

R:\ACAD\CADD_CLIENT\Emerson\MD_Hanover\314056608.010\CAD\314V5608.010-068.dwg 6/25/2024 1:59 PM USEC01012



B

NOTICE: THIS DRAWING HAS BEEN PREPARED UNDER THE DIRECTION OF A PROFESSIONAL. DO NOT ALTER THIS DOCUMENT IN any WAY WITHOUT THE WRITTEN CONSENT OF WSP USA INC.

THE ORIGINAL VERSION OF THIS DRAWING IS IN COLOR. BLACK & WHITE COPIES MAY NOT ACCURATELY DEPICT CERTAIN INFORMATION.

Drawn By: EGC
Checked: 6/25/2024
Approved: RM
DWG Name: 314V5608.010-069

FORMER KOP-FLEX FACILITY SITE
HANOVER, MARYLAND
PREPARED FOR
EMERSUB 16 LLC
ST. LOUIS, MISSOURI

FIGURE 20

1,4-DIOXANE ISO-CONCENTRATIONS DURING GROUNDWATER EXTRACTION FROM THE DEEPER PORTION OF THE LOWER PATAPSCO AQUIFER (DECEMBER 2023)

WSP USA Inc.
13530 DULLES TECHNOLOGY DR
SUITE 300
HERNDON, VA 20171
TEL: +1 703.709.6500

R:\ACAD\CADD_CLIENT\EmersonIMD_Hanover\314O5608.010\CAD\314V5608.010-069.dwg 6/25/2024 1:59 PM USEC01012

MW-46D

MW-27D

VERIZON

POND

RIPRAP

OUTFALL 001

STONY RUN

MW-23D

CATALENT BUILDING 1

TREATMENT EQUIPMENT BUILDING

MW-03

MW-43

MW-09

MW-39

MW-04R

MW-20

MW-04

RW-1S

MW-38R

MW-16

MW-16D

MW-42

MW-18

RW-2S

MW-5R

MW-40D

RW-3S

CATALENT BUILDING 2

MW-44

MW-41D

MW-22D

MW-21D

RW-1D

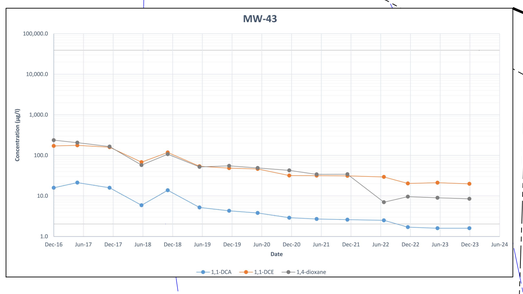
RW-2D

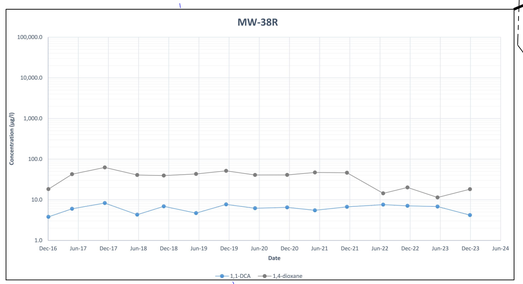
MW-01D

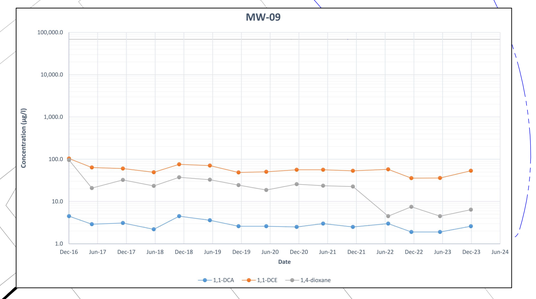
MW-01

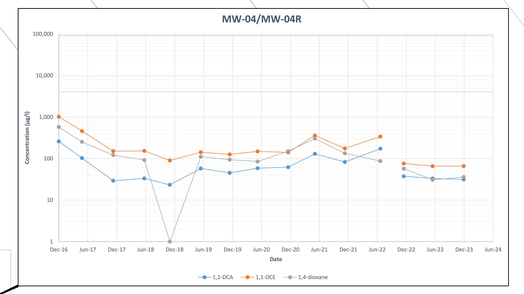
MW-24D

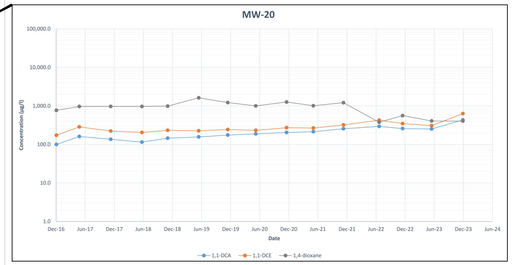
POND

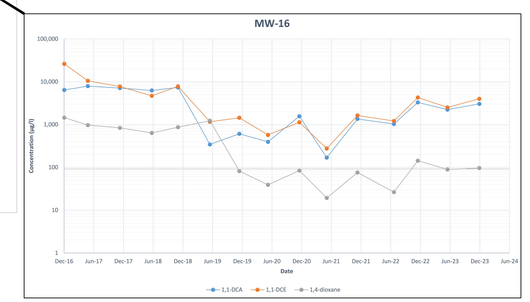


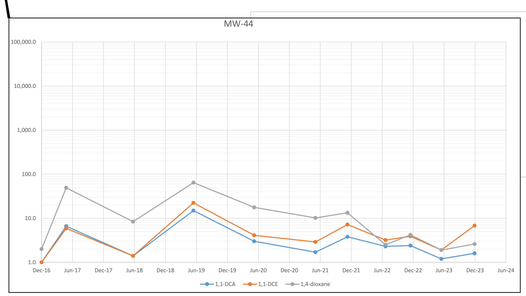












LEGEND

- PROPERTY LINE
- STREAM/EDGE OF WATER
- FENCE LINE
- STORMWATER MANAGEMENT AREA
- SHALLOW MONITORING WELL
- DEEP MONITORING WELL
- ABANDONED MONITORING WELL
- SHALLOW EXTRACTION WELL
- DEEP EXTRACTION WELL
- 1,1-DCA 1,1-DICHLOROETHANE
- 1,1-DCE 1,1-DICHLOROETHENE

Cleanup Levels	
	µg/l
1,1-DCA	2.8
1,1-DCE	7
1,4-Dioxane	15

THE ORIGINAL VERSION OF THIS DRAWING IS IN COLOR. BLACK AND WHITE COPIES MAY NOT ACCURATELY DEPICT CERTAIN INFORMATION.

0 60 120 180
SCALE IN FEET

D

R:\ACAD\CADD_CLIENTE\merson\MD_Hanover\314560608.010\CADD\314V5608.010-070.dwg 4/9/2024 9:03 AM USER:01012

REVISIONS

REV	DESCRIPTION	
1	Revised:	Chkd: Appr.:
2	Revised:	Chkd: Appr.:
3	Revised:	Chkd: Appr.:

SEAL

DATE

DRAWN BY FCV 4/9/2024

CHECKED

APPROVED

PROPERTY OF WSP USA INC.
IMPORTANT: THIS DRAWING PRINT IS LOANED FOR MUTUAL ASSISTANCE AND MUST BE RETURNED UPON REQUEST. THE INFORMATION CONTAINED HEREON IS NOT TO BE DISCLOSED TO OTHERS OR USED FOR ANY PURPOSE TO THE BENEFIT OF PARTIES OTHER THAN NECESSARY SUBCONTRACTORS WITHOUT SPECIFIC WRITTEN PERMISSION FROM WSP USA INC.

NOTICE: THIS DRAWING HAS BEEN PREPARED UNDER THE DIRECTION OF A LICENSED PROFESSIONAL ENGINEER. IT IS A VIOLATION OF LAW FOR ANY PERSON, UNLESS ACTING UNDER THE DIRECTION OF A LICENSED PROFESSIONAL ENGINEER, TO ALTER THIS DRAWING IN ANY WAY.

HISTORICAL 1,1-DCA, 1,1-DCE, AND 1,4-DIOXANE CONCENTRATION PLOTS FOR THE IN-PLUME MONITORING WELLS SCREENED IN THE SHALLOW ZONE OF THE LOWER PATAPSCO AQUIFER (2016-2023)

FORMER KOP-FLEX FACILITY SITE
HANOVER, MARYLAND

PREPARED FOR
EMERSON
ST. LOUIS, MISSOURI

WSP USA Inc.
13530 DULLES TECHNOLOGY DR, SUITE 300
HERNDON, VA 20171
TEL: +1 703.709.6500

FIGURE 21

Drawing Number
314V5608.010-070

MW-46D

MW-27D

VERIZON

POND

RIPRAP

OUTFALL 001

STONY RUN

MW-23D

CATALENT BUILDING 1

TREATMENT EQUIPMENT BUILDING

MW-03

MW-43

MW-09

MW-39

MW-04R

MW-20

MW-04

RW-1S

MW-38R

MW-16

MW-16D

MW-42

MW-18

RW-2S

MW-5R

MW-40D

CATALENT BUILDING 2

RW-3S

MW-44

MW-41D

MW-22D

MW-21D

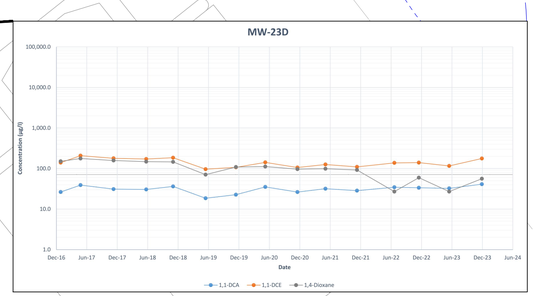
RW-1D

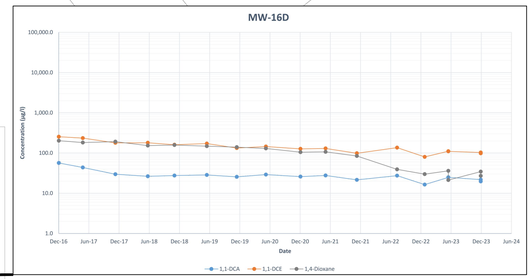
RW-2D

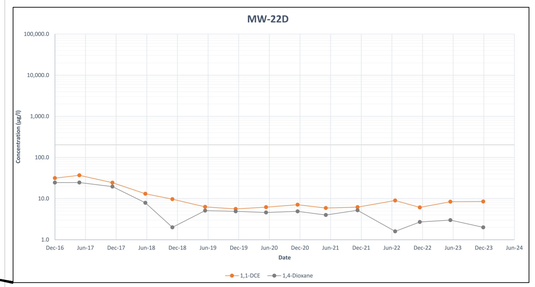
MW-01

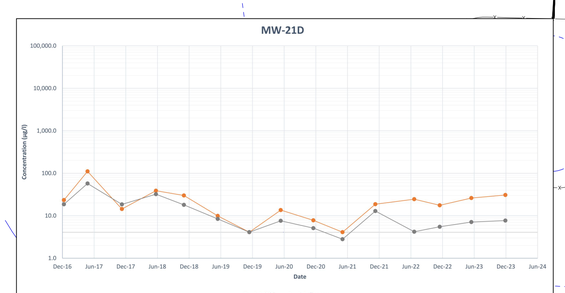
MW-01D

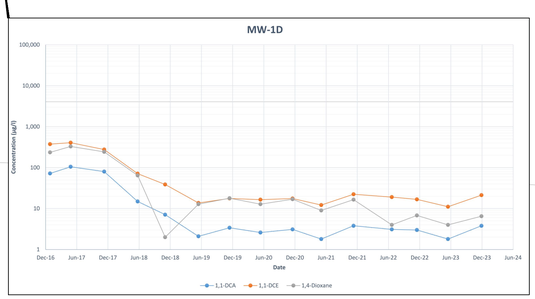
MW-24D











LEGEND

- PROPERTY LINE
- STREAM/EDGE OF WATER
- FENCE LINE
- STORMWATER MANAGEMENT AREA
- SHALLOW MONITORING WELL
- DEEP MONITORING WELL
- ABANDONED MONITORING WELL
- SHALLOW EXTRACTION WELL
- DEEP EXTRACTION WELL
- 1,1-DCA 1,1-DICHLOROETHANE
- 1,1-DCE 1,1-DICHLOROETHENE

Cleanup Levels	
	µg/l
1,1-DCA	2.8
1,1-DCE	7
1,4-Dioxane	15

THE ORIGINAL VERSION OF THIS DRAWING IS IN COLOR. BLACK AND WHITE COPIES MAY NOT ACCURATELY DEPICT CERTAIN INFORMATION.

N

0 60 120 180

SCALE IN FEET

D

R:\CAD\CADD_CLIENT\Emerson\MD_Hanover\314V5608.010\CAD\314V5608.010-070.dwg 4/9/2024 9:06 AM USER:01012

REVISIONS

REV	DESCRIPTION	DRAWN BY	CHECKED	APPROVED
1	Revised: Chkd: Appr.:	FCV	EAF	EAF
2	Revised: Chkd: Appr.:			
3	Revised: Chkd: Appr.:			

SEAL

DATE 4/9/2024

IMPORTANT: THIS DRAWING PRINT IS LOADED FOR ACTUAL AND/OR POTENTIAL CLIENT REVIEW. ANY INFORMATION THAT WSP USA INC. DESIGNATES AS PROPRIETARY AND/OR CONFIDENTIAL MEDIUM IS NOT TO BE DISCLOSED TO ANY PARTIES OTHER THAN NECESSARY SUBCONTRACTORS AND SUPPLIERS WITHOUT THE PRIOR WRITTEN CONSENT OF WSP USA INC.

NOTICE: THIS DRAWING HAS BEEN PREPARED UNDER THE DIRECTION OF A LICENSED PROFESSIONAL ENGINEER. IT IS A VIOLATION OF LAW FOR ANY PERSON, UNLESS ACTING UNDER THE DIRECTION OF A LICENSED PROFESSIONAL ENGINEER, TO ALTER THIS DRAWING IN ANY WAY.

HISTORICAL 1,1-DCA, 1,1-DCE, AND 1,4-DIOXANE CONCENTRATION PLOTS FOR THE MONITORING WELLS SCREENED IN THE DEEP ZONE OF THE LOWER PATAPSCO AQUIFER (2016-2023)

FORMER KOP-FLEX FACILITY SITE
HANOVER, MARYLAND

PREPARED FOR
EMERSON
ST. LOUIS, MISSOURI

WSP USA Inc.
13530 DULLES TECHNOLOGY DR, SUITE 300
HERNDON, VA 20171
TEL: +1 703.709.6500

FIGURE 22

Drawing Number
314V5608.010-070

TABLES

Table 1

Historical Influent Results
Former Kop-Flex Facility
Hanover, Maryland (a)

Analyte Name	Cas#	MDE Cleanup Standards for Groundwater Type I/II		Influent VSP-1 3/13/2017		Influent VSP-1 3/15/2017		Influent VSP-1 3/20/2017		Influent VSP-1 3/23/2017		Influent VSP-1 3/29/2017		Influent VSP-1 4/3/2017		Influent VSP-1 4/12/2017		Influent VSP-1 4/19/2017		Influent VSP-1 5/8/2017		Influent VSP-1 6/21/2017		Influent VSP-1 7/10/2017	
Volatile Organic Compounds (EPA Method 8260)																									
1,1,1-Trichloroethane	71-55-6	200	(c)	55		150		92		81		82		62		55		49		41		39		44	
1,1,2,2-Tetrachloroethane	79-34-5	0.076		1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U
1,1,2-Trichloro-1,2,2-Trifluoroethane	76-13-1	--		1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U
1,1,2-Trichloroethane	79-00-5	5		1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U
1,1-Dichloroethane	75-34-3	2.8	(d)	**180**		**200**		**110**		**140**		**150**		**140**		**140**		**120**		**86**		**59**		**57**	
1,1-Dichloroethene	75-35-4	7	(c)	**260**		**360**		**260**		**360**		**360**		**390**		**380**		**410**		**350**		**310**		**250**	
1,2,3-Trichlorobenzene	87-61-6	--		1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U
1,2,4-Trichlorobenzene	120-82-1	70		1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U
1,2-Dibromo-3-Chloropropane	96-12-8	0.20		5	U	5	U	5	U	5	U	5	U	5	U	5	U	5	U	5	U	5	U	5	U
1,2-Dibromoethane (EDB)	106-93-4	0.050		1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U
1,2-Dichlorobenzene	95-50-1	600		1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U
1,2-Dichloroethane	107-06-2	5	(c)	1.6		2.0		2.5		3.1		3.5		3.6		3.5		3.0		2.6		2.1		2.1	
1,2-Dichloropropane	78-87-5	5		1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U
1,3-Dichlorobenzene	541-73-1	--		1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U
1,4-Dichlorobenzene	106-46-7	75		1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U
2-Butanone (MEK)	78-93-3	560		25		10	U	10	U	10	U	10	U	10	U	10	U	10	U	10	U	1	U	10	U
2-Hexanone	591-78-6	--		5	U	10	U	5	U	5	U	5	U	5	U	5	U	5	U	5	U	5	U	5	U
4-Methyl-2-Pentanone	108-10-1	630		5	U	10	U	5	U	5	U	5	U	5	U	5	U	5	U	5	U	5	U	5	U
Acetone	67-64-1	1,400		10		10	U	10	U	10	U	10	U	10	U	10	U	10	U	10	U	1	U	10	U
Benzene	71-43-2	5		1	U	10	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U
Bromochloromethane	74-97-5	--		1	U	10	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U
Bromodichloromethane	75-27-4	80		1	U	10	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U
Bromoform	75-25-2	80		5	U	10	U	5	U	5	U	5	U	5	U	5	U	5	U	5	U	5	U	5	U
Bromomethane	74-83-9	0.75		1	U	10	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U
Carbon Disulfide	75-15-0	81		10	U	10	U	10	U	10	U	10	U	10	U	10	U	10	U	10	U	10	U	10	U
Carbon Tetrachloride	56-23-5	5		1	U	10	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U
Chlorobenzene	108-90-7	100		1	U	10	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U
Chloroethane	75-00-3	2,100	(d)	3.0		10		2.3		2.4		2.3		2.7		2.5		2.5		2.7		2.7		2.3	
Chloroform	67-66-3	80		1	U	10	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U
Chloromethane	74-87-3	19		1	U	10	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U
Cyclohexane	110-82-7	--		10	U	10	U	10	U	10	U	10	U	10	U	10	U	10	U	10	U	10	U	10	U
Dibromochloromethane	124-48-1	80		1	U	10	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U
Dichlorodifluoromethane	75-71-8	--		1	U	10	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U
Ethylbenzene	100-41-4	700		1	U	10	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U
Isopropylbenzene	98-82-8	45		1	U	10	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U

Table 1

Historical Influent Results
Former Kop-Flex Facility
Hanover, Maryland (a)

Analyte Name	Cas#	MDE Cleanup Standards for Groundwater Type I/II		Influent VSP-1 3/13/2017		Influent VSP-1 3/15/2017		Influent VSP-1 3/20/2017		Influent VSP-1 3/23/2017		Influent VSP-1 3/29/2017		Influent VSP-1 4/3/2017		Influent VSP-1 4/12/2017		Influent VSP-1 4/19/2017		Influent VSP-1 5/8/2017		Influent VSP-1 6/21/2017		Influent VSP-1 7/10/2017	
Methyl Acetate	79-20-9	--		10	U	10	U	10	U	10	U	10	U	10	U	10	U	10	U	10	U	10	U	10	U
Methyl-t-butyl ether	1634-04-4	20		1	U	10	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U
Methylcyclohexane	108-87-2	--		10	U	10	U	10	U	10	U	10	U	10	U	10	U	10	U	10	U	10	U	10	U
Methylene Chloride	75-09-2	5		1	U	**10**		1	U	1	U	1.1		1	U	1	U	1	U	1	U	1	U	1	U
Naphthalene	91-20-3	0.17		1	U	10	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U
Styrene	100-42-5	100		1	U	10	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U
Tetrachloroethene	127-18-4	5	(c)	1	U	10	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U
Toluene	108-88-3	1,000		1	U	10	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U
Trichloroethene	79-01-6	5	(c)	1.9		**10**		2.2		2.8		2.8		3.0		3.0		2.9		2.6		2.2		2.2	
Trichlorofluoromethane	75-69-4	--		5	U	10	U	5	U	5	U	5	U	5	U	5	U	5	U	5	U	5	U	5	U
Vinyl Chloride	75-01-4	2	(c)	1	U	10	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U
cis-1,2-Dichloroethene	156-59-2	70	(c)	2.2		10		1.2		1.8		1.9		2.5		2.6		2.2		1.9		1.4		1.3	
cis-1,3-Dichloropropene	10061-01-5	--		1	U	10	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U
m,p-Xylenes	108-38-3	10,000		2	U	10	U	2	U	2	U	2	U	2	U	2	U	2	U	2	U	2	U	2	U
o-Xylene	95-47-6	10,000		1	U	10	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U
trans-1,2-Dichloroethene	156-60-5	100		1	U	10	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U
trans-1,3-Dichloropropene	10061-02-6	--		1	U	10	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U
TOTAL VOCs:		--		538.7		752		470.2		591.1		603.6		603.8		586.6		589.6		486.8		416.4		358.9	
Volatile Organic Compounds (EPA Method 8260 - SIM)																									
1,4-Dioxane	71-55-6	15	(c)	**250**		**440**		**360**		**330**		**340**		**330**		**290**		**270**		**220**		**190**		**170**	

Table 1

Historical Influent Results
Former Kop-Flex Facility
Hanover, Maryland (a)

Analyte Name	Cas#	MDE Cleanup Standards for Groundwater Type I/II		Influent VSP-1 8/3/2017		Influent VSP-1 9/11/2017		Influent VSP-1 10/9/2017		Influent VSP-1 11/7/2017		Influent VSP-1 12/11/2017		Influent VSP-1 1/10/2018		Influent VSP-1 2/7/2018		Influent VSP-1 3/19/2018		Influent VSP-1 4/17/2018		Influent VSP-1 5/8/2018		Influent VSP-1 6/5/2018	
Volatile Organic Compounds (EPA Method 8260)																									
1,1,1-Trichloroethane	71-55-6	200	(c)	41		35		32		32		26		25		26		23		22		19		23	
1,1,2,2-Tetrachloroethane	79-34-5	0.076		1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U
1,1,2-Trichloro-1,2,2-Trifluoroethane	76-13-1	--		1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U
1,1,2-Trichloroethane	79-00-5	5		1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U
1,1-Dichloroethane	75-34-3	2.8	(d)	**49**		**40**		**44**		**47**		**48**		**51**		**58**		**61**		**64**		**70**		**76**	
1,1-Dichloroethene	75-35-4	7	(c)	**230**		**240**		**200**		**240**		**250**		**270**		**260**		**290**		**320**		**310**		**310**	
1,2,3-Trichlorobenzene	87-61-6	--		1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U
1,2,4-Trichlorobenzene	120-82-1	70		1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U
1,2-Dibromo-3-Chloropropane	96-12-8	0.20		5	U	5	U	5	U	5	U	5	U	5	U	5	U	5	U	5	U	5	U	5	U
1,2-Dibromoethane (EDB)	106-93-4	0.050		1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U
1,2-Dichlorobenzene	95-50-1	600		1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U
1,2-Dichloroethane	107-06-2	5	(c)	2.0		1.7		1.6		1.8		1.8		2.0		2.4		2.3		2.3		2.5		2.6	
1,2-Dichloropropane	78-87-5	5		1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U
1,3-Dichlorobenzene	541-73-1	--		1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U
1,4-Dichlorobenzene	106-46-7	75		1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U
2-Butanone (MEK)	78-93-3	560		10	U	10	U	10	U	10	U	10	U	10	U	10	U	10	U	10	U	10	U	10	U
2-Hexanone	591-78-6	--		5	U	5	U	5	U	5	U	5	U	5	U	5	U	5	U	5	U	5	U	5	U
4-Methyl-2-Pentanone	108-10-1	630		5	U	5	U	5	U	5	U	5	U	5	U	5	U	5	U	5	U	5	U	5	U
Acetone	67-64-1	1,400		10	U	10	U	10	U	10	U	10	U	10	U	10	U	10	U	10	U	10	U	10	U
Benzene	71-43-2	5		1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U
Bromochloromethane	74-97-5	--		1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U
Bromodichloromethane	75-27-4	80		1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U
Bromoform	75-25-2	80		5	U	5	U	5	U	5	U	5	U	5	U	5	U	5	U	5	U	5	U	5	U
Bromomethane	74-83-9	0.75		1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U
Carbon Disulfide	75-15-0	81		10	U	10	U	10	U	10	U	10	U	10	U	10	U	10	U	10	U	10	U	10	U
Carbon Tetrachloride	56-23-5	5		1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U
Chlorobenzene	108-90-7	100		1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U
Chloroethane	75-00-3	2,100	(d)	1.8		1.7		2.6		2.6		4.2		4.0		4.1		4.6		5.8		7.3		7.2	
Chloroform	67-66-3	80		1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U
Chloromethane	74-87-3	19		1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U
Cyclohexane	110-82-7	--		10	U	10	U	10	U	10	U	10	U	10	U	10	U	10	U	10	U	10	U	10	U
Dibromochloromethane	124-48-1	80		1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U
Dichlorodifluoromethane	75-71-8	--		1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U
Ethylbenzene	100-41-4	700		1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U
Isopropylbenzene	98-82-8	45		1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U

Table 1

Historical Influent Results
Former Kop-Flex Facility
Hanover, Maryland (a)

Analyte Name	Cas#	MDE Cleanup Standards for Groundwater Type I/II		Influent VSP-1 8/3/2017		Influent VSP-1 9/11/2017		Influent VSP-1 10/9/2017		Influent VSP-1 11/7/2017		Influent VSP-1 12/11/2017		Influent VSP-1 1/10/2018		Influent VSP-1 2/7/2018		Influent VSP-1 3/19/2018		Influent VSP-1 4/17/2018		Influent VSP-1 5/8/2018		Influent VSP-1 6/5/2018	
Methyl Acetate	79-20-9	--		10	U	10	U	10	U	10	U	10	U	10	U	10	U	10	U	10	U	10	U	10	U
Methyl-t-butyl ether	1634-04-4	20		1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U
Methylcyclohexane	108-87-2	--		10	U	10	U	10	U	10	U	10	U	10	U	10	U	10	U	10	U	10	U	10	U
Methylene Chloride	75-09-2	5		1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U
Naphthalene	91-20-3	0.17		1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U
Styrene	100-42-5	100		1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U
Tetrachloroethene	127-18-4	5	(c)	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U
Toluene	108-88-3	1,000		1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U
Trichloroethene	79-01-6	5	(c)	2.0		1.7		1.6		1.7		1.6		1.7		1.8		1.7		1.7		1.7		1.9	
Trichlorofluoromethane	75-69-4	--		5	U	5	U	5	U	5	U	5	U	5	U	5	U	5	U	5	U	5	U	5	U
Vinyl Chloride	75-01-4	2	(c)	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U
cis-1,2-Dichloroethene	156-59-2	70	(c)	1.3		1	U	1.2		1.3		1.6		1.7		2.0		2.2		2.3		2.5		2.7	
cis-1,3-Dichloropropene	10061-01-5	--		1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U
m,p-Xylenes	108-38-3	10,000		2	U	2	U	2	U	2	U	2	U	2	U	2	U	2	U	2	U	2	U	2	U
o-Xylene	95-47-6	10,000		1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U
trans-1,2-Dichloroethene	156-60-5	100		1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U
trans-1,3-Dichloropropene	10061-02-6	--		1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U
TOTAL VOCs:		--		327.1		320.1		283		326.4		333.2		355.4		354.3		384.8		418.1		413		423.4	
Volatile Organic Compounds (EPA Method 8260 - SIM)																									
1,4-Dioxane	71-55-6	15	(c)	**170**		**160**		**160**		**150**		**150**		**180**		**170**		**150**		**150**		**170**		**140**	

Table 1

Historical Influent Results
Former Kop-Flex Facility
Hanover, Maryland (a)

Analyte Name	Cas#	MDE Cleanup Standards for Groundwater Type I/II		Influent VSP-1 7/12/2018 (e)		Influent VSP-1 10/3/2018		Influent VSP-1 1/8/2019		Influent VSP-1 4/4/2019		Influent VSP-1 5/8/2019		Influent VSP-1 7/2/2019		Influent VSP-1 10/16/2019		Influent VSP-1 1/9/2020		Influent VSP-1 4/7/2020		Influent VSP-1 7/30/2020		Influent VSP-1 11/12/2020	
Volatile Organic Compounds (EPA Method 8260)																									
1,1,1-Trichloroethane	71-55-6	200	(c)	24		28		20		27		29		27		20		19		21		24		19	
1,1,2,2-Tetrachloroethane	79-34-5	0.076		1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U
1,1,2-Trichloro-1,2,2-Trifluoroethane	76-13-1	--		1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U
1,1,2-Trichloroethane	79-00-5	5		1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U
1,1-Dichloroethane	75-34-3	2.8	(d)	**74**		**72**		**63**		**54**		**51**		**44**		**43**		**44**		**45**		**49**		**47**	
1,1-Dichloroethene	75-35-4	7	(c)	**320**		**330**		**330**		**240**		**260**		**230**		**240**		**220**		**220**		**250**		**220**	
1,2,3-Trichlorobenzene	87-61-6	--		1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U
1,2,4-Trichlorobenzene	120-82-1	70		1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U
1,2-Dibromo-3-Chloropropane	96-12-8	0.20		5	U	5	U	5	U	5	U	5	U	5	U	5	U	5	U	5	U	5	U	1	U
1,2-Dibromoethane (EDB)	106-93-4	0.050		1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U
1,2-Dichlorobenzene	95-50-1	600		1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U
1,2-Dichloroethane	107-06-2	5	(c)	2.4		2.7		2.2		2.0		1.8		1.7		1.5		1.5		1.5		1.6		1.4	
1,2-Dichloropropane	78-87-5	5		1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U
1,3-Dichlorobenzene	541-73-1	--		1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U
1,4-Dichlorobenzene	106-46-7	75		1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U
2-Butanone (MEK)	78-93-3	560		10	U	10	U	10	U	10	U	10	U	10	U	10	U	10	U	5	U	5	U	5	U
2-Hexanone	591-78-6	--		5	U	5	U	5	U	5	U	5	U	5	U	5	U	5	U	5	U	5	U	5	U
4-Methyl-2-Pentanone	108-10-1	630		5	U	5	U	5	U	5	U	5	U	5	U	5	U	5	U	5	U	5	U	5	U
Acetone	67-64-1	1,400		10	U	10	U	10	U	10	U	10	U	10	U	10	U	10	U	5	U	5	U	5	U
Benzene	71-43-2	5		1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U
Bromochloromethane	74-97-5	--		1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U
Bromodichloromethane	75-27-4	80		1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U
Bromoform	75-25-2	80		5	U	5	U	5	U	5	U	5	U	5	U	5	U	5	U	1	U	1	U	1	U
Bromomethane	74-83-9	0.75		1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U
Carbon Disulfide	75-15-0	81		10	U	10	U	10	U	10	U	10	U	10	U	10	U	10	U	1	U	1	U	1	U
Carbon Tetrachloride	56-23-5	5		1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U
Chlorobenzene	108-90-7	100		1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U
Chloroethane	75-00-3	2,100	(d)	7.8		6.1		5.7		4.5		4.0		3.9		4.0		3.5		3.7		3.7		4.2	
Chloroform	67-66-3	80		1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U
Chloromethane	74-87-3	19		1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U
Cyclohexane	110-82-7	--		10	U	10	U	10	U	10	U	10	U	10	U	10	U	10	U	10	U	10	U	1	U
Dibromochloromethane	124-48-1	80		1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U
Dichlorodifluoromethane	75-71-8	--		1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U
Ethylbenzene	100-41-4	700		1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U
Isopropylbenzene	98-82-8	45		1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U

Table 1

Historical Influent Results
Former Kop-Flex Facility
Hanover, Maryland (a)

Analyte Name	Cas#	MDE Cleanup Standards for Groundwater Type I/II		Influent VSP-1 7/12/2018 (e)		Influent VSP-1 10/3/2018		Influent VSP-1 1/8/2019		Influent VSP-1 4/4/2019		Influent VSP-1 5/8/2019		Influent VSP-1 7/2/2019		Influent VSP-1 10/16/2019		Influent VSP-1 1/9/2020		Influent VSP-1 4/7/2020		Influent VSP-1 7/30/2020		Influent VSP-1 11/12/2020	
Methyl Acetate	79-20-9	--		10	U	10	U	10	U	10	U	10	U	10	U	10	U	10	U	10	U	10	U	1	U
Methyl-t-butyl ether	1634-04-4	20		1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U
Methylcyclohexane	108-87-2	--		10	U	10	U	10	U	10	U	10	U	10	U	10	U	10	U	10	U	10	U	1	U
Methylene Chloride	75-09-2	5		1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U
Naphthalene	91-20-3	0.17		1	U	1	U	1	U	**1.6**		1	U	1	U	1	U	1	U	1	U	1	U	1	U
Styrene	100-42-5	100		1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U
Tetrachloroethene	127-18-4	5	(c)	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U
Toluene	108-88-3	1,000		1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U
Trichloroethene	79-01-6	5	(c)	1.8		1.9		1.6		1.6		1.6		1.5		1.2		1.2		1.2		1.2		1.1	
Trichlorofluoromethane	75-69-4	--		5	U	5	U	5	U	5	U	5	U	5	U	5	U	5	U	1	U	1	U	1	U
Vinyl Chloride	75-01-4	2	(c)	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U
cis-1,2-Dichloroethene	156-59-2	70	(c)	2.7		2.6		2.1		1.8		1.7		1.6		1.3		1.2		1.2		1.4		1.2	
cis-1,3-Dichloropropene	10061-01-5	--		1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U
m,p-Xylenes	108-38-3	10,000		2	U	2	U	2	U	2	U	2	U	2	U	2	U	2	U	2	U	2	U	2	U
o-Xylene	95-47-6	10,000		1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U
trans-1,2-Dichloroethene	156-60-5	100		1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U
trans-1,3-Dichloropropene	10061-02-6	--		1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U
TOTAL VOCs:		--		432.7		443.3		424.6		332.5		349.1		309.7		311		290.4		293.6		330.9		293.9	
Volatile Organic Compounds (EPA Method 8260 - SIM)																									
1,4-Dioxane	71-55-6	15	(c)	**130**		**150**		**150**		**130**		**130**		**150**		**120**		**110**		**260**		**110**		**110**	

Table 1

Historical Influent Results
Former Kop-Flex Facility
Hanover, Maryland (a)

Analyte Name	Cas#	MDE Cleanup Standards for Groundwater Type I/II		Influent VSP-1 1/13/2021		Influent VSP-1 4/27/2021		Influent VSP-1 9/21/2021		Influent VSP-1 11/3/2021		Influent VSP-1 1/19/2022		Influent VSP-1 6/26/2022		Influent VSP-1 9/28/2022		Influent VSP-1 11/9/2022		Influent VSP-1 1/25/2023		Influent VSP-1 8/30/2023		Influent VSP-1 10/5/2023	
Volatile Organic Compounds (EPA Method 8260)																									
1,1,1-Trichloroethane	71-55-6	200	(c)	16		16		15		15		15		15		25		22		17		16		18	
1,1,2,2-Tetrachloroethane	79-34-5	0.076		1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U
1,1,2-Trichloro-1,2,2-Trifluoroethane	76-13-1	--		1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U
1,1,2-Trichloroethane	79-00-5	5		1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U
1,1-Dichloroethane	75-34-3	2.8	(d)	**41**		**40**		**35**		**39**		**42**		**34**		**47**		**54**		**52**		**46**		**50**	
1,1-Dichloroethene	75-35-4	7	(c)	**190**		**190**		**180**		**190**		**210**		**140**		**250**		**230**		**220**		**220**		**240**	
1,2,3-Trichlorobenzene	87-61-6	--		1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U
1,2,4-Trichlorobenzene	120-82-1	70		1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U
1,2-Dibromo-3-Chloropropane	96-12-8	0.20		1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U
1,2-Dibromoethane (EDB)	106-93-4	0.050		1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U
1,2-Dichlorobenzene	95-50-1	600		1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U
1,2-Dichloroethane	107-06-2	5	(c)	1.3		1.2		1.2		1.2		1.4		1.0		1.3		1.7		1.3		1.4		1.6	
1,2-Dichloropropane	78-87-5	5		1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U
1,3-Dichlorobenzene	541-73-1	--		1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U
1,4-Dichlorobenzene	106-46-7	75		1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U
2-Butanone (MEK)	78-93-3	560		5	U	5	U	5	U	5	U	5	U	5	U	5	U	5	U	5	U	5	U	5	U
2-Hexanone	591-78-6	--		5	U	5	U	5	U	5	U	5	U	5	U	5	U	5	U	5	U	5	U	5	U
4-Methyl-2-Pentanone	108-10-1	630		5	U	5	U	5	U	5	U	5	U	5	U	5	U	5	U	5	U	5	U	5	U
Acetone	67-64-1	1,400		5	U	5	U	5	U	5	U	5	U	5	U	5	U	5	U	5	U	5	U	5	U
Benzene	71-43-2	5		1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U
Bromochloromethane	74-97-5	--		1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U
Bromodichloromethane	75-27-4	80		1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U
Bromoform	75-25-2	80		1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U
Bromomethane	74-83-9	0.75		1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U
Carbon Disulfide	75-15-0	81		1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U
Carbon Tetrachloride	56-23-5	5		1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U
Chlorobenzene	108-90-7	100		1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U
Chloroethane	75-00-3	2,100	(d)	3.7		3.9		2.9		3.8		3.7		2.8		3.6		5.2		4.5		4.3		4.5	
Chloroform	67-66-3	80		1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U
Chloromethane	74-87-3	19		1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U
Cyclohexane	110-82-7	--		1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U
Dibromochloromethane	124-48-1	80		1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U
Dichlorodifluoromethane	75-71-8	--		1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U
Ethylbenzene	100-41-4	700		1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U
Isopropylbenzene	98-82-8	45		1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U

Table 1

Historical Influent Results
Former Kop-Flex Facility
Hanover, Maryland (a)

Analyte Name	Cas#	MDE Cleanup Standards for Groundwater Type I/II		Influent VSP-1 1/13/2021		Influent VSP-1 4/27/2021		Influent VSP-1 9/21/2021		Influent VSP-1 11/3/2021		Influent VSP-1 1/19/2022		Influent VSP-1 6/26/2022		Influent VSP-1 9/28/2022		Influent VSP-1 11/9/2022		Influent VSP-1 1/25/2023		Influent VSP-1 8/30/2023		Influent VSP-1 10/5/2023	
Methyl Acetate	79-20-9	--		1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U
Methyl-t-butyl ether	1634-04-4	20		1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U
Methylcyclohexane	108-87-2	--		1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U
Methylene Chloride	75-09-2	5		1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U
Naphthalene	91-20-3	0.17		1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U
Styrene	100-42-5	100		1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U
Tetrachloroethene	127-18-4	5	(c)	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U
Toluene	108-88-3	1,000		1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U
Trichloroethene	79-01-6	5	(c)	1.0		1	U	1.0		1	U	1	U	1	U	1.4		1.3		1.0		1.1		1.3	
Trichlorofluoromethane	75-69-4	--		1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U
Vinyl Chloride	75-01-4	2	(c)	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U
cis-1,2-Dichloroethene	156-59-2	70	(c)	1.2		1.2		1.1		1.2		1.3		1	U	1.4		1.7		1.7		1.5		1.7	
cis-1,3-Dichloropropene	10061-01-5	--		1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U
m,p-Xylenes	108-38-3	10,000		2	U	2	U	2	U	2	U	2	U	2	U	2	U	2	U	2	U	2	U	2	U
o-Xylene	95-47-6	10,000		1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U
trans-1,2-Dichloroethene	156-60-5	100		1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U
trans-1,3-Dichloropropene	10061-02-6	--		1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U	1	U
TOTAL VOCs:		--		254.2		252.3		236.2		250.2		273.4		192.8		329.7		315.9		297.5		290.3		317.1	
Volatile Organic Compounds (EPA Method 8260 - SIM)																									
1,4-Dioxane	71-55-6	15	(c)	**130**		**91**		**87**		**99**		**100**		**86**		**150**		**120**		**94**		**120**		**110**	

Notes:

a/ MDE = Maryland Department of the Environment; EPA = US Environmental Protection Agency; VOC = volatile organic compound; SIM = Selected Ion Monitoring;
U = not detected above the method detection limit; -- = no existing cleanup standard.
All concentrations are in micrograms per liter (µg/L).
Results shown in highlight and **bold** exceed the cleanup standard.

b/ All cleanup standards, except for 1,4-dioxane, are equal to the Maryland Generic Numeric Cleanup Standards for Groundwater, Type I and II Aquifers, from the State of Maryland Interim Final Guidance (October 2018). Accessed May 27, 2020: https://mde.maryland.gov/programs/land/MarylandBrownfieldVCP/Documents/www.mde.state.md.us/assets/document/MDE%20Soil%20and%20Groundwater%20Cleanup%20Standards%2010-2018%20Interim%20Final%20Update%203-2.pdf

c/ Numeric cleanup standards are equal to those in Section 6 of WSP's October 2, 2015, Response Action Plan, Revision 2.

d/ Numeric cleanup standards for 1,1-dichloroethane and chloroethane reflect the current standards promulgated by the State of Maryland in October 2018 and differ from those in Section 6 of WSP's October 2, 2015, Response Action Plan, Revision 2.

e/ Reduced influent monitoring frequency to quarterly effective July 2018.

Table 2

Historical Effluent Results - NPDES Permit Constituents
Former Kop-Flex Facility
Hanover, Maryland (a)

					Sample ID	Effluent VSP-4		Effluent VSP-4		Effluent VSP-4		Effluent VSP-4		Effluent VSP-4		Effluent VSP-4		Effluent VSP-4		Effluent VSP-4		Effluent VSP-4		Effluent VSP-4		Effluent VSP-4	
					Date	03/13/2017		3/20/2017		3/29/2017		3/30/2017		4/3/2017		5/8/2017		6/21/2017		7/10/2017		8/3/2017		9/11/2017		10/9/2017	
Analyte Name	**Units**	**Cas#**	**Permit Limits (e)** Minimum	Monthly Average	Daily Maximum																					
Volatile Organic Compounds (EPA Method 624.1)																										
1,1,1-Trichloroethane	µg/L	71-55-6				5.0	U	5.0	U	5.0	U	NA		5.0	U	5.0	U	5.0	U	5.0	U	5.0	U	5.0	U	5.0	U
1,1,2,2-Tetrachloroethane	µg/L	79-34-5				5.0	U	5.0	U	5.0	U	NA		5.0	U	5.0	U	5.0	U	5.0	U	5.0	U	5.0	U	5.0	U
1,1,2-Trichloroethane	µg/L	79-00-5				5.0	U	5.0	U	5.0	U	NA		5.0	U	5.0	U	5.0	U	5.0	U	5.0	U	5.0	U	5.0	U
1,1-Dichloroethane	µg/L	75-34-3				5.0	U	5.0	U	5.0	U	NA		5.0	U	5.0	U	5.0	U	5.0	U	5.0	U	5.0	U	5.0	U
1,1-Dichloroethene	µg/L	75-35-4				5.0	U	5.0	U	5.0	U	NA		5.0	U	5.0	U	5.0	U	5.0	U	5.0	U	5.0	U	5.0	U
1,2-Dichlorobenzene	µg/L	95-50-1				5.0	U	5.0	U	5.0	U	NA		5.0	U	5.0	U	5.0	U	5.0	U	5.0	U	5.0	U	5.0	U
1,2-Dichloroethane	µg/L	107-06-2				5.0	U	5.0	U	5.0	U	NA		5.0	U	5.0	U	5.0	U	5.0	U	5.0	U	5.0	U	5.0	U
1,2-Dichloropropane	µg/L	78-87-5				5.0	U	5.0	U	5.0	U	NA		5.0	U	5.0	U	5.0	U	5.0	U	5.0	U	5.0	U	5.0	U
1,3-Dichlorobenzene	µg/L	541-73-1				5.0	U	5.0	U	5.0	U	NA		5.0	U	5.0	U	5.0	U	5.0	U	5.0	U	5.0	U	5.0	U
1,4-Dichlorobenzene	µg/L	106-46-7				5.0	U	5.0	U	5.0	U	NA		5.0	U	5.0	U	5.0	U	5.0	U	5.0	U	5.0	U	5.0	U
2-Chloroethyl Vinyl Ether	µg/L	110-75-8				5.0	U	5.0	U	5.0	U	NA		5.0	U	5.0	U	5.0	U	5.0	U	5.0	U	5.0	U	5.0	U
Acrolein	µg/L	107-02-8				NA		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA	
Acrylonitrile	µg/L	107-13-1				NA		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA	
Benzene	µg/L	71-43-2				5.0	U	5.0	U	5.0	U	NA		5.0	U	5.0	U	5.0	U	5.0	U	5.0	U	5.0	U	5.0	U
Bromodichloromethane	µg/L	75-27-4				5.0	U	5.0	U	5.0	U	NA		5.0	U	5.0	U	5.0	U	5.0	U	5.0	U	5.0	U	5.0	U
Bromoform	µg/L	75-25-2				5.0	U	5.0	U	5.0	U	NA		5.0	U	5.0	U	5.0	U	5.0	U	5.0	U	5.0	U	5.0	U
Bromomethane	µg/L	74-83-9				5.0	U	5.0	U	5.0	U	NA		5.0	U	5.0	U	5.0	U	5.0	U	5.0	U	5.0	U	5.0	U
Carbon Tetrachloride	µg/L	56-23-5				5.0	U	5.0	U	5.0	U	NA		5.0	U	5.0	U	5.0	U	5.0	U	5.0	U	5.0	U	5.0	U
Chlorobenzene	µg/L	108-90-7				5.0	U	5.0	U	5.0	U	NA		5.0	U	5.0	U	5.0	U	5.0	U	5.0	U	5.0	U	5.0	U
Chloroethane	µg/L	75-00-3				5.0	U	5.0	U	5.0	U	NA		5.0	U	5.0	U	5.0	U	5.0	U	5.0	U	5.0	U	5.0	U
Chloroform	µg/L	67-66-3				5.0	U	5.0	U	5.0	U	NA		5.0	U	5.0	U	5.0	U	5.0	U	5.0	U	5.0	U	5.0	U
Chloromethane	µg/L	74-87-3				5.0	U	5.0	U	5.0	U	NA		5.0	U	5.0	U	5.0	U	5.0	U	5.0	U	5.0	U	5.0	U
Dibromochloromethane	µg/L	124-48-1				5.0	U	5.0	U	5.0	U	NA		5.0	U	5.0	U	5.0	U	5.0	U	5.0	U	5.0	U	5.0	U
Dichlorodifluoromethane	µg/L	75-71-8				5.0	U	5.0	U	5.0	U	NA		5.0	U	5.0	U	5.0	U	5.0	U	5.0	U	5.0	U	5.0	U
Ethylbenzene	µg/L	100-41-4				5.0	U	5.0	U	5.0	U	NA		5.0	U	5.0	U	5.0	U	5.0	U	5.0	U	5.0	U	5.0	U
Methylene Chloride	µg/L	75-09-2				5.0	U	5.0	U	5.0	U	NA		5.0	U	5.0	U	5.0	U	5.0	U	5.0	U	5.0	U	5.0	U
Tetrachloroethylene	µg/L	127-18-4				5.0	U	5.0	U	5.0	U	NA		5.0	U	5.0	U	5.0	U	5.0	U	5.0	U	5.0	U	5.0	U
Toluene	µg/L	108-88-3				5.0	U	5.0	U	5.0	U	NA		5.0	U	5.0	U	5.0	U	5.0	U	5.0	U	5.0	U	5.0	U
Trichloroethene	µg/L	79-01-6				5.0	U	5.0	U	5.0	U	NA		5.0	U	5.0	U	5.0	U	5.0	U	5.0	U	5.0	U	5.0	U
Trichlorofluoromethane	µg/L	75-69-4				5.0	U	5.0	U	5.0	U	NA		5.0	U	5.0	U	5.0	U	5.0	U	5.0	U	5.0	U	5.0	U
Vinyl Chloride	µg/L	75-01-4				5.0	U	5.0	U	5.0	U	NA		5.0	U	5.0	U	5.0	U	5.0	U	5.0	U	5.0	U	5.0	U
cis-1,3-Dichloropropene	µg/L	10061-01-5				5.0	U	5.0	U	5.0	U	NA		5.0	U	5.0	U	5.0	U	5.0	U	5.0	U	5.0	U	5.0	U
trans-1,2-dichloroethene	µg/L	156-60-5				5.0	U	5.0	U	5.0	U	NA		5.0	U	5.0	U	5.0	U	5.0	U	5.0	U	5.0	U	5.0	U
trans-1,3-dichloropropene	µg/L	10061-02-6				5.0	U	5.0	U	5.0	U	NA		5.0	U	5.0	U	5.0	U	5.0	U	5.0	U	5.0	U	5.0	U
1,4-Dioxane (e)	µg/L	71-55-6			15	NA		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA	
TOTAL VOCs:					100	ND		ND		ND		ND		ND		ND		ND		ND		ND		ND		ND	

Table 2

Historical Effluent Results - NPDES Permit Constituents
Former Kop-Flex Facility
Hanover, Maryland (a)

Analyte Name	Units	Cas#	Permit Limits (e) Minimum	Permit Limits (e) Monthly Average	Permit Limits (e) Daily Maximum	Sample ID: Effluent VSP-4 Date: 03/13/2017		Effluent VSP-4 3/20/2017		Effluent VSP-4 3/29/2017		Effluent VSP-4 3/30/2017	Effluent VSP-4 4/3/2017		Effluent VSP-4 5/8/2017		Effluent VSP-4 6/21/2017		Effluent VSP-4 7/10/2017		Effluent VSP-4 8/3/2017		Effluent VSP-4 9/11/2017		Effluent VSP-4 10/9/2017	
Total Metals and Hardness (EPA Method 200.8)																										
Calcium	µg/L	7440-70-2				28,600		3,650		3,400		NA	2,840		NA		3,440		NA		NA		NA		NA	
Copper	µg/L	7440-50-8		9	13	1.0	U	1.0	U	1.0	U	NA	3.2		4.7		4.3		4.6		5.0		4.6		4.6	
Hardness (Ca & Mg) (d)	mg/L	HARDCAMG				91		15		14		NA	12		15		14		14		15		16		15	
Lead	µg/L	7439-92-1		2.5	65	1.0	U	1.0	U	1.0	U	NA	1	U	1	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U
Magnesium	µg/L	7439-95-4				4,690		1,470		1,260		NA	1,220		NA		1,400		NA		NA		NA		NA	
Nickel	µg/L	7440-02-0		52	470	1.5		29.9		2.6		NA	7.7		9.4		9.2		9.7		10.1		10.7		10.6	
Zinc	µg/L	7440-66-6		120	120	20	U	**179**		27.2		NA	24.7		20.2		20	U	23.7		22.8		48.9		24.6	
Dissolved Metals (d)																										
Copper	µg/L	7440-50-8				1.0	U	1.0	U	1.0	U	NA	1.4		3.5		1.9		2.3		1.1		2.7		3.2	
Lead	µg/L	7439-92-1				1.0	U	1.0	U	1.0	U	NA	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U
Nickel	µg/L	7440-02-0				1.0	U	27.3		2.5		NA	8		9.3		9.3		9.3		1	U	9.7		10.3	
Zinc	µg/L	7440-66-6				20	U	163		20	U	NA	20	U	20	U	20	U	20	U	20	U	20	U	20	U
Total Suspended Solids (SM 2540D)																										
Total Suspended Solids	mg/L	TSS		30	45	1.0	U	1.0	U	1.0	U	NA	1.0	U	1.0	U	2.0	U	2.0	U	1.0	U	1.0	U	1.0	U
Biological Oxygen Demand (SM 5210B)																										
Biological Oxygen Demand, 5 Day	mg/L	BOD5		30	45	2.0	U	2.0	U	3.0	U	NA	2.0	U	2.0	U	5.0	U	5.0	U	5.0	U	5.0	U	5.0	U
Field Parameters																										
pH	SU	-	6.5		8.5	7.29		6.88		6.84		NA	6.56		6.72		7.05		7.02		7.50		8.05		7.41	
Dissolved Oxygen	mg/L	-	5.0			7.08		8.14		10.65		NA	7.35		11.05		13.50		15.00		17.30		16.45		17.60	
Total Residual Chlorine (e)	mg/L			0.011	0.019	NA		NA		NA		NA	NA		NA		NA		NA		NA		NA		NA	
Daily Flow Rate (b)	gpd	-				43,200		93,600		108,000		NA	103,680		102,240		102,816		99,216		92,880		92,736		82,878	
Nitrogen (c)																										
Nitrogen, Total	lbs/qtr					NA		NA		NA		5.71		NA		110.68		NA		98.67		NA		NA		93.24	
Ammonia (as N)	mg/L	7664-41-7				NA		NA		NA		0.02	U	NA		0.02	U	NA		0.2	U	NA		NA		0.2	U
Nitrate (as N)	mg/L	7727-37-9				NA		NA		NA		0.68		NA		0.91		NA		0.95		NA		NA		0.92	
Nitrite (as N)	mg/L	7727-37-9				NA		NA		NA		0.1	U	NA		0.1	U	NA		0.1	U	NA		NA		0.1	U
Organic Nitrogen (as N)	mg/L	7727-37-9				NA		NA		NA		0.4	U	NA		0.4	U	NA		0.4	U	NA		NA		0.4	U
Nitrogen, Total Kjeldahl	mg/L	7727-37-9				NA		NA		NA		0.4	U	NA		0.4	U	NA		0.4	U	NA		NA		0.4	U

Table 2

Historical Effluent Results - NPDES Permit Constituents
Former Kop-Flex Facility
Hanover, Maryland (a)

Analyte Name	Units	Cas#	Permit Limits (e) Minimum	Monthly Average	Daily Maximum	Sample ID	Effluent VSP-4	Effluent VSP-4	Effluent VSP-4	Effluent VSP-4	Effluent VSP-4	Effluent VSP-4	Effluent VSP-4	Effluent VSP-4	Effluent VSP-4	Effluent VSP-4	Effluent VSP-4
						Date	11/7/2017	12/11/2017	1/10/2018	2/7/2018	3/19/2018	4/17/2018	5/8/2018	6/5/2018	7/12/2018	8/8/2018	9/6/2018
Volatile Organic Compounds (EPA Method 624.1)																	
1,1,1-Trichloroethane	µg/L	71-55-6					5.0 U	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
1,1,2,2-Tetrachloroethane	µg/L	79-34-5					5.0 U	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
1,1,2-Trichloroethane	µg/L	79-00-5					5.0 U	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
1,1-Dichloroethane	µg/L	75-34-3					5.0 U	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
1,1-Dichloroethene	µg/L	75-35-4					5.0 U	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
1,2-Dichlorobenzene	µg/L	95-50-1					5.0 U	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
1,2-Dichloroethane	µg/L	107-06-2					5.0 U	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
1,2-Dichloropropane	µg/L	78-87-5					5.0 U	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
1,3-Dichlorobenzene	µg/L	541-73-1					5.0 U	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
1,4-Dichlorobenzene	µg/L	106-46-7					5.0 U	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
2-Chloroethyl Vinyl Ether	µg/L	110-75-8					5.0 U	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
Acrolein	µg/L	107-02-8					NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Acrylonitrile	µg/L	107-13-1					NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Benzene	µg/L	71-43-2					5.0 U	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
Bromodichloromethane	µg/L	75-27-4					5.0 U	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
Bromoform	µg/L	75-25-2					5.0 U	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
Bromomethane	µg/L	74-83-9					5.0 U	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
Carbon Tetrachloride	µg/L	56-23-5					5.0 U	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
Chlorobenzene	µg/L	108-90-7					5.0 U	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
Chloroethane	µg/L	75-00-3					5.0 U	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
Chloroform	µg/L	67-66-3					5.0 U	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
Chloromethane	µg/L	74-87-3					5.0 U	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
Dibromochloromethane	µg/L	124-48-1					5.0 U	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
Dichlorodifluoromethane	µg/L	75-71-8					5.0 U	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
Ethylbenzene	µg/L	100-41-4					5.0 U	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
Methylene Chloride	µg/L	75-09-2					5.0 U	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
Tetrachloroethylene	µg/L	127-18-4					5.0 U	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
Toluene	µg/L	108-88-3					5.0 U	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
Trichloroethene	µg/L	79-01-6					5.0 U	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
Trichlorofluoromethane	µg/L	75-69-4					5.0 U	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
Vinyl Chloride	µg/L	75-01-4					5.0 U	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
cis-1,3-Dichloropropene	µg/L	10061-01-5					5.0 U	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
trans-1,2-dichloroethene	µg/L	156-60-5					5.0 U	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
trans-1,3-dichloropropene	µg/L	10061-02-6					5.0 U	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
1,4-Dioxane (e)	µg/L	71-55-6			15		NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
TOTAL VOCs:					100		ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND

Table 2

Historical Effluent Results - NPDES Permit Constituents
Former Kop-Flex Facility
Hanover, Maryland (a)

Analyte Name	Units	Cas#	Permit Limits (e) Minimum	Monthly Average	Daily Maximum	Sample ID: Effluent VSP-4 Date: 11/7/2017		Effluent VSP-4 12/11/2017		Effluent VSP-4 1/10/2018		Effluent VSP-4 2/7/2018		Effluent VSP-4 3/19/2018		Effluent VSP-4 4/17/2018		Effluent VSP-4 5/8/2018		Effluent VSP-4 6/5/2018		Effluent VSP-4 7/12/2018		Effluent VSP-4 8/8/2018		Effluent VSP-4 9/6/2018	
Total Metals and Hardness (EPA Method 200.8)																											
Calcium	µg/L	7440-70-2				NA		NA		NA		3,980		4,030		4,280		NA		NA		4,200		4,170		NA	
Copper	µg/L	7440-50-8		9	13	1.0	U	4.0		4.2		4.0		4.9		2.1		1.3		2.4		5.0		4.0		3.8	
Hardness (Ca & Mg) (d)	mg/L	HARDCAMG				16		16		18		16		17		18		18		16		17		17		18	
Lead	µg/L	7439-92-1		2.5	65	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U
Magnesium	µg/L	7439-95-4				NA		NA		NA		1,560		1,620		1,810		NA		NA		1,650		1,690		NA	
Nickel	µg/L	7440-02-0		52	470	10.8		10.7		11.1		11.2		11.4		8.4		13.2		11.6		12.6		12.1		12.0	
Zinc	µg/L	7440-66-6		120	120	21.2		20.6		28.6		22		26.9		28.4		24.5		32.4		27.9		25.8		26.0	
Dissolved Metals (d)																											
Copper	µg/L	7440-50-8				1.0	U	2.8		3.1		2.7		4.1		1.9		1.2		1.4		3.4		2.6		2.2	
Lead	µg/L	7439-92-1				1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U
Nickel	µg/L	7440-02-0				10.6		10.1	U	11.7		10.8		12.3		8.1		12.3		10.0		11.6		11.6		10.9	
Zinc	µg/L	7440-66-6				20	U	20	U	20.7		20	U	23.8		20	U	20.6		20.0	U	21.2		51.6		20	U
Total Suspended Solids (SM 2540D)																											
Total Suspended Solids	mg/L	TSS		30	45	1.0	U	2.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	2.0	U	2.0	U	1.0	U	1.0	U
Biological Oxygen Demand (SM 5210B)																											
Biological Oxygen Demand, 5 Day	mg/L	BOD5		30	45	5.0	U	5.0	U	5.0	U	5.0	U	5.0	U	5.0	U	5.0	U	5.0	U	5.0	U	2.0	U	5.0	U
Field Parameters																											
pH	SU	-	6.5		8.5	6.60		7.80		7.48		7.60		7.48		7.99		7.61		7.53		7.74		6.94		8.05	
Dissolved Oxygen	mg/L	-	5.0			18.65		17.79		15.60		15.93		15.22		12.13		13.30		12.63		11.76		12.45		13.12	
Total Residual Chlorine (e)	mg/L			0.011	0.019	NA		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA	
Daily Flow Rate (b)	gpd	-				86,809		95,592		97,690		97,015		88,665		90,352		94,346		97,707		96,390		85,875		96,894	
Nitrogen (c)																											
Nitrogen, Total	lbs/qtr					NA		NA		130.22		NA		NA		NA		NA		NA		NA		NA		NA	
Ammonia (as N)	mg/L	7664-41-7				NA		NA		0.2	U	NA		NA		NA		NA		NA		NA		NA		NA	
Nitrate (as N)	mg/L	7727-37-9				NA		NA		1.4		NA		NA		NA		NA		NA		NA		NA		NA	
Nitrite (as N)	mg/L	7727-37-9				NA		NA		0.1	U	NA		NA		NA		NA		NA		NA		NA		NA	
Organic Nitrogen (as N)	mg/L	7727-37-9				NA		NA		0.4	U	NA		NA		NA		NA		NA		NA		NA		NA	
Nitrogen, Total Kjeldahl	mg/L	7727-37-9				NA		NA		0.4	U	NA		NA		NA		NA		NA		NA		NA		NA	

Table 2

Historical Effluent Results - NPDES Permit Constituents
Former Kop-Flex Facility
Hanover, Maryland (a)

Analyte Name	Units	Cas#	Permit Limits (e) Minimum	Monthly Average	Daily Maximum	Sample ID	Effluent VSP-4		Effluent VSP-4		Effluent VSP-4		Effluent VSP-4		Effluent VSP-4		Effluent VSP-4		Effluent VSP-4		Effluent VSP-4		Effluent VSP-4		Effluent VSP-4		Effluent VSP-4	
						Date	10/3/2018		11/6/2018		12/6/2018		1/8/2019		2/5/2019		3/7/2019		4/4/2019		5/8/2019		6/12/2019		7/2/2019		8/1/2019	
Volatile Organic Compounds (EPA Method 624.1)																												
1,1,1-Trichloroethane	µg/L	71-55-6					1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	3.4		1.0	U	1.0	U
1,1,2,2-Tetrachloroethane	µg/L	79-34-5					1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U
1,1,2-Trichloroethane	µg/L	79-00-5					1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U
1,1-Dichloroethane	µg/L	75-34-3					1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U
1,1-Dichloroethene	µg/L	75-35-4					1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U
1,2-Dichlorobenzene	µg/L	95-50-1					1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U
1,2-Dichloroethane	µg/L	107-06-2					1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U
1,2-Dichloropropane	µg/L	78-87-5					1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U
1,3-Dichlorobenzene	µg/L	541-73-1					1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U
1,4-Dichlorobenzene	µg/L	106-46-7					1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U
2-Chloroethyl Vinyl Ether	µg/L	110-75-8					1.0	U	1.0	U	NA		NA		NA		NA		NA		NA		NA		NA		NA	
Acrolein	µg/L	107-02-8					NA		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA	
Acrylonitrile	µg/L	107-13-1					NA		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA	
Benzene	µg/L	71-43-2					1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U
Bromodichloromethane	µg/L	75-27-4					1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U
Bromoform	µg/L	75-25-2					1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U
Bromomethane	µg/L	74-83-9					1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U
Carbon Tetrachloride	µg/L	56-23-5					1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U
Chlorobenzene	µg/L	108-90-7					1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U
Chloroethane	µg/L	75-00-3					1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U
Chloroform	µg/L	67-66-3					1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U
Chloromethane	µg/L	74-87-3					1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U
Dibromochloromethane	µg/L	124-48-1					1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U
Dichlorodifluoromethane	µg/L	75-71-8					1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U
Ethylbenzene	µg/L	100-41-4					1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U
Methylene Chloride	µg/L	75-09-2					1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U
Tetrachloroethylene	µg/L	127-18-4					1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U
Toluene	µg/L	108-88-3					1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U
Trichloroethene	µg/L	79-01-6					1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U
Trichlorofluoromethane	µg/L	75-69-4					1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U
Vinyl Chloride	µg/L	75-01-4					1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U
cis-1,3-Dichloropropene	µg/L	10061-01-5					1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U
trans-1,2-dichloroethene	µg/L	156-60-5					1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U
trans-1,3-dichloropropene	µg/L	10061-02-6					1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U
1,4-Dioxane (e)	µg/L	71-55-6			15		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA	
TOTAL VOCs:					100		ND		ND		ND		ND		ND		ND		ND		ND		3.4		ND		ND	

Table 2

Historical Effluent Results - NPDES Permit Constituents
Former Kop-Flex Facility
Hanover, Maryland (a)

Analyte Name	Units	Cas#	Permit Limits (e) Minimum	Monthly Average	Daily Maximum	Sample ID: Effluent VSP-4 Date: 10/3/2018		Effluent VSP-4 11/6/2018		Effluent VSP-4 12/6/2018		Effluent VSP-4 1/8/2019		Effluent VSP-4 2/5/2019		Effluent VSP-4 3/7/2019		Effluent VSP-4 4/4/2019		Effluent VSP-4 5/8/2019		Effluent VSP-4 6/12/2019		Effluent VSP-4 7/2/2019		Effluent VSP-4 8/1/2019	
Total Metals and Hardness (EPA Method 200.8)																											
Calcium	µg/L	7440-70-2				NA		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA	
Copper	µg/L	7440-50-8		9	13	4.2		2.1		2.9		1.0	U	1.7		3.7		3.9		4.3		5		2.6		1.4	
Hardness (Ca & Mg) (d)	mg/L	HARDCAMG				17		18		18		19		18		17		16		18		21		19		17	
Lead	µg/L	7439-92-1		2.5	65	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U
Magnesium	µg/L	7439-95-4				NA		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA	
Nickel	µg/L	7440-02-0		52	470	12.0		13.3		13		16.6		13.6		12.6		11.6		13.2		13.9		8.9		8.9	
Zinc	µg/L	7440-66-6		120	120	31.8		20	U	23.4		26.5		27.5		25.8		22.4		25.1		29.5		39.4		22.2	
Dissolved Metals (d)																											
Copper	µg/L	7440-50-8				2.8		1.2		2.3		1.0	U	1.0	U	3.2		3.2		3.5		3.4		2.0		1.0	U
Lead	µg/L	7439-92-1				1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U
Nickel	µg/L	7440-02-0				11.6		11.6		12.1		14		13.2		11.3		13.3		12.4		12.6		9.0		8.8	
Zinc	µg/L	7440-66-6				28.4		20	U	20	U	20.5		20.7		20	U	20	U	20	U	20.3		20	U	20	U
Total Suspended Solids (SM 2540D)																											
Total Suspended Solids	mg/L	TSS		30	45	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	2.0	U	1.0	U	1.0	U
Biological Oxygen Demand (SM 5210B)																											
Biological Oxygen Demand, 5 Day	mg/L	BOD5		30	45	5.0	U	5.0	U	5.0	U	5.0	U	5.0	U	5.0	U	5.0	U	5.0	U	5.0	U	5.0	U	5.0	U
Field Parameters																											
pH	SU	-	6.5		8.5	6.80		6.81		6.97		6.85		6.75		7.20		7.15		6.72		6.55		6.52		7.01	
Dissolved Oxygen	mg/L	-	5.0			8.50		10.33		12.15		8.82		8.85		7.51		7.17		7.28		9.86		7.78		7.76	
Total Residual Chlorine (e)	mg/L			0.011	0.019	NA		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA	
Daily Flow Rate (b)	gpd	-				93,553		77,496		87,236		92,672		97,420		98,934		104,205		101,014		95,834		98,658		93,473	
Nitrogen (c)																											
Nitrogen, Total	lbs/qtr					NA		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA	
Ammonia (as N)	mg/L	7664-41-7				NA		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA	
Nitrate (as N)	mg/L	7727-37-9				NA		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA	
Nitrite (as N)	mg/L	7727-37-9				NA		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA	
Organic Nitrogen (as N)	mg/L	7727-37-9				NA		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA	
Nitrogen, Total Kjeldahl	mg/L	7727-37-9				NA		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA	

Table 2

Historical Effluent Results - NPDES Permit Constituents
Former Kop-Flex Facility
Hanover, Maryland (a)

Analyte Name	Units	Cas#	Permit Limits (e) Minimum	Monthly Average	Daily Maximum	Sample ID / Date	Effluent VSP-4 9/4/2019		Effluent VSP-4 10/16/2019		Effluent VSP-4 11/4/2019		Effluent VSP-4 12/2/2019		Effluent VSP-4 1/9/2020		Effluent VSP-4 2/4/2020		Effluent VSP-4 3/24/2020		Effluent VSP-4 4/7/2020		Effluent VSP-4 5/28/2020		Effluent VSP-4 6/29/2020		Effluent VSP-4 7/30/2020	
Volatile Organic Compounds (EPA Method 624.1)																												
1,1,1-Trichloroethane	µg/L	71-55-6					1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U
1,1,2,2-Tetrachloroethane	µg/L	79-34-5					1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U
1,1,2-Trichloroethane	µg/L	79-00-5					1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U
1,1-Dichloroethane	µg/L	75-34-3					1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U
1,1-Dichloroethene	µg/L	75-35-4					1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U
1,2-Dichlorobenzene	µg/L	95-50-1					1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U
1,2-Dichloroethane	µg/L	107-06-2					1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U
1,2-Dichloropropane	µg/L	78-87-5					1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U
1,3-Dichlorobenzene	µg/L	541-73-1					1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U
1,4-Dichlorobenzene	µg/L	106-46-7					1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U
2-Chloroethyl Vinyl Ether	µg/L	110-75-8					NA		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA	
Acrolein	µg/L	107-02-8					NA		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA	
Acrylonitrile	µg/L	107-13-1					NA		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA	
Benzene	µg/L	71-43-2					1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U
Bromodichloromethane	µg/L	75-27-4					1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U
Bromoform	µg/L	75-25-2					1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U
Bromomethane	µg/L	74-83-9					1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U
Carbon Tetrachloride	µg/L	56-23-5					1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U
Chlorobenzene	µg/L	108-90-7					1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U
Chloroethane	µg/L	75-00-3					1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U
Chloroform	µg/L	67-66-3					1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U
Chloromethane	µg/L	74-87-3					1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U
Dibromochloromethane	µg/L	124-48-1					1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U
Dichlorodifluoromethane	µg/L	75-71-8					1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U
Ethylbenzene	µg/L	100-41-4					1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U
Methylene Chloride	µg/L	75-09-2					1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U
Tetrachloroethylene	µg/L	127-18-4					1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U
Toluene	µg/L	108-88-3					1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U
Trichloroethene	µg/L	79-01-6					1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U
Trichlorofluoromethane	µg/L	75-69-4					1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U
Vinyl Chloride	µg/L	75-01-4					1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U
cis-1,3-Dichloropropene	µg/L	10061-01-5					1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U
trans-1,2-dichloroethene	µg/L	156-60-5					1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U
trans-1,3-dichloropropene	µg/L	10061-02-6					1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U
1,4-Dioxane (e)	µg/L	71-55-6			15		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA	
TOTAL VOCs:					100		ND		ND		ND		ND		ND		ND		ND		ND		ND		ND		ND	

Table 2

Historical Effluent Results - NPDES Permit Constituents
Former Kop-Flex Facility
Hanover, Maryland (a)

Analyte Name	Units	Cas#	Permit Limits (e) Minimum	Permit Limits (e) Monthly Average	Permit Limits (e) Daily Maximum	Sample ID / Date	Effluent VSP-4 9/4/2019		Effluent VSP-4 10/16/2019		Effluent VSP-4 11/4/2019		Effluent VSP-4 12/2/2019		Effluent VSP-4 1/9/2020		Effluent VSP-4 2/4/2020		Effluent VSP-4 3/24/2020		Effluent VSP-4 4/7/2020		Effluent VSP-4 5/28/2020		Effluent VSP-4 6/29/2020		Effluent VSP-4 7/30/2020	
Total Metals and Hardness (EPA Method 200.8)																												
Calcium	µg/L	7440-70-2					NA		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA	
Copper	µg/L	7440-50-8		9	13		3.8		3.7		3.9		3.6		2.7		1.0	U	3.3		1.8		2.6		5.5		2.7	
Hardness (Ca & Mg) (d)	mg/L	HARDCAMG					20		18		17		14		20		13.0		17		20		18		19		25	
Lead	µg/L	7439-92-1		2.5	65		1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U
Magnesium	µg/L	7439-95-4					NA		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA	
Nickel	µg/L	7440-02-0		52	470		13.8		13.0		13.0		12.3		13.1		4.5		9.2		14.3		15.8		14.5		17.0	
Zinc	µg/L	7440-66-6		120	120		25.2		28.9		28.0		26.8		25.3		20.0	U	23.2		32.1		32.4		29.1		33.6	
Dissolved Metals (d)																												
Copper	µg/L	7440-50-8					1.6		1.6		1.5		1.1		3.6		1.0	U	3.2		1.3		1.2		1.0	U	1.6	
Lead	µg/L	7439-92-1					1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U
Nickel	µg/L	7440-02-0					13.0		12.5		12.6		11.8		13.3		1.5		11.6		13.8		14.9		14.8		15.0	
Zinc	µg/L	7440-66-6					20.1		20.9		28.8		20	U	22.4		20.0	U	22.4		25.1		23.4		24.3		28.6	
Total Suspended Solids (SM 2540D)																												
Total Suspended Solids	mg/L	TSS		30	45		1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	2.0	U
Biological Oxygen Demand (SM 5210B)																												
Biological Oxygen Demand, 5 Day	mg/L	BOD5		30	45		5.0	U	5.0	U	5.0	U	5.0	U	5.0	U	5.0	U	5.0	U	5.0	U	5.0	U	5.0	U	5.0	U
Field Parameters																												
pH	SU	-	6.5		8.5		6.79		6.99		6.99		7.06		6.55		8.14		6.63		6.76		7.01		6.82		7.23	
Dissolved Oxygen	mg/L	-	5.0				5.75		8.30		6.94		8.46		8.16		8.13		6.95		8.44		8.34		8.72		7.85	
Total Residual Chlorine (e)	mg/L			0.011	0.019		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA	
Daily Flow Rate (b)	gpd	-					74,748		69,097		96,262		79,991		77,418		85,908		43,238		77,089		58,459		59,217		73,109	
Nitrogen (c)																												
Nitrogen, Total	lbs/qtr						NA		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA	
Ammonia (as N)	mg/L	7664-41-7					NA		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA	
Nitrate (as N)	mg/L	7727-37-9					NA		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA	
Nitrite (as N)	mg/L	7727-37-9					NA		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA	
Organic Nitrogen (as N)	mg/L	7727-37-9					NA		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA	
Nitrogen, Total Kjeldahl	mg/L	7727-37-9					NA		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA	

Table 2

Historical Effluent Results - NPDES Permit Constituents
Former Kop-Flex Facility
Hanover, Maryland (a)

Analyte Name	Units	Cas#	Permit Limits (e) Minimum	Monthly Average	Daily Maximum	Sample ID / Date	Effluent VSP-4 8/26/2020		Effluent VSP-4 9/28/2020		Effluent VSP-4 10/26/2020		Effluent VSP-4 11/12/2020		Effluent VSP-4 12/3/2020		Effluent VSP-4 1/13/2021		Effluent VSP-4 2/9/2021		Effluent VSP-4 3/18/2021		Effluent VSP-4 4/27/2021		Effluent VSP-4 5/27/2021		Effluent VSP-4 6/24/2021	
Volatile Organic Compounds (EPA Method 624.1)																												
1,1,1-Trichloroethane	µg/L	71-55-6					1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U
1,1,2,2-Tetrachloroethane	µg/L	79-34-5					1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U
1,1,2-Trichloroethane	µg/L	79-00-5					1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U
1,1-Dichloroethane	µg/L	75-34-3					1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U
1,1-Dichloroethene	µg/L	75-35-4					1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U
1,2-Dichlorobenzene	µg/L	95-50-1					1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U
1,2-Dichloroethane	µg/L	107-06-2					1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U
1,2-Dichloropropane	µg/L	78-87-5					1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U
1,3-Dichlorobenzene	µg/L	541-73-1					1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U
1,4-Dichlorobenzene	µg/L	106-46-7					1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U
2-Chloroethyl Vinyl Ether	µg/L	110-75-8					NA		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA	
Acrolein	µg/L	107-02-8					NA		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA	
Acrylonitrile	µg/L	107-13-1					NA		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA	
Benzene	µg/L	71-43-2					1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U
Bromodichloromethane	µg/L	75-27-4					1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U
Bromoform	µg/L	75-25-2					1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U
Bromomethane	µg/L	74-83-9					1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U
Carbon Tetrachloride	µg/L	56-23-5					1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U
Chlorobenzene	µg/L	108-90-7					1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U
Chloroethane	µg/L	75-00-3					1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U
Chloroform	µg/L	67-66-3					1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U
Chloromethane	µg/L	74-87-3					1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U
Dibromochloromethane	µg/L	124-48-1					1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U
Dichlorodifluoromethane	µg/L	75-71-8					1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U
Ethylbenzene	µg/L	100-41-4					1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U
Methylene Chloride	µg/L	75-09-2					1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U
Tetrachloroethylene	µg/L	127-18-4					1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U
Toluene	µg/L	108-88-3					1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U
Trichloroethene	µg/L	79-01-6					1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U
Trichlorofluoromethane	µg/L	75-69-4					1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U
Vinyl Chloride	µg/L	75-01-4					1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U
cis-1,3-Dichloropropene	µg/L	10061-01-5					1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U
trans-1,2-dichloroethene	µg/L	156-60-5					1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U
trans-1,3-dichloropropene	µg/L	10061-02-6					1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U
1,4-Dioxane (e)	µg/L	71-55-6			15		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA		NA	
TOTAL VOCs:					100		ND		ND		ND		ND		ND		ND		ND		ND		ND		ND		ND	

Table 2

Historical Effluent Results - NPDES Permit Constituents
Former Kop-Flex Facility
Hanover, Maryland (a)

Analyte Name	Units	Cas#	Permit Limits (e) Minimum	Monthly Average	Daily Maximum	Sample ID / Date	Effluent VSP-4 8/26/2020	Effluent VSP-4 9/28/2020	Effluent VSP-4 10/26/2020	Effluent VSP-4 11/12/2020	Effluent VSP-4 12/3/2020	Effluent VSP-4 1/13/2021	Effluent VSP-4 2/9/2021	Effluent VSP-4 3/18/2021	Effluent VSP-4 4/27/2021	Effluent VSP-4 5/27/2021	Effluent VSP-4 6/24/2021
Total Metals and Hardness (EPA Method 200.8)																	
Calcium	µg/L	7440-70-2					NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Copper	µg/L	7440-50-8		9	13		5.0	6.2	6.7	2.2	2.7	6.2	4.7	3.5	3.0	2.3	1.0 U
Hardness (Ca & Mg) (d)	mg/L	HARDCAMG					15	20	18	14	24	44	21	23	21	20	20
Lead	µg/L	7439-92-1		2.5	65		1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
Magnesium	µg/L	7439-95-4					NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Nickel	µg/L	7440-02-0		52	470		13.8	16.3	20.0	16.6	17.7	14.5	8.2	21.0	19.7	10.7	8.6
Zinc	µg/L	7440-66-6		120	120		27.6	28.1	32.6	31.3	27.5	27.1	20.8	26.9	30.1	26.3	22.2
Dissolved Metals (d)																	
Copper	µg/L	7440-50-8					3.0	3.8	3.3	1.3	1.3	3.4	1.4	1.9	1.8	1.6	1.0 U
Lead	µg/L	7439-92-1					1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
Nickel	µg/L	7440-02-0					14.3	15.6	15.0	15.7	17.2	13.6	7.9	18.9	18.4	9.2	8.4
Zinc	µg/L	7440-66-6					25.9	23.2	21.5	21.4	22.7	20.2	20 U	23.1	30.9	23.2	20 U
Total Suspended Solids (SM 2540D)																	
Total Suspended Solids	mg/L	TSS		30	45		1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.1	1.0 U	1.7	1.0 U	2.0
Biological Oxygen Demand (SM 5210B)																	
Biological Oxygen Demand, 5 Day	mg/L	BOD5		30	45		5.0 U	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U
Field Parameters																	
pH	SU	-	6.5		8.5		7.20	6.98	7.63	6.96	7.67	7.58	7.76	8.03	7.70	7.32	7.81
Dissolved Oxygen	mg/L	-	5.0				8.32	7.92	8.30	9.15	9.01	8.41	7.80	8.11	7.52	7.88	7.89
Total Residual Chlorine (e)	mg/L			0.011	0.019		NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Daily Flow Rate (b)	gpd	-					88,076	57,272	90,297	98,368	100,433	101,699	92,706	103,848	104,287	92,458	53,993
Nitrogen (c)																	
Nitrogen, Total	lbs/qtr						NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Ammonia (as N)	mg/L	7664-41-7					NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Nitrate (as N)	mg/L	7727-37-9					NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Nitrite (as N)	mg/L	7727-37-9					NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Organic Nitrogen (as N)	mg/L	7727-37-9					NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Nitrogen, Total Kjeldahl	mg/L	7727-37-9					NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA

Table 2

Historical Effluent Results - NPDES Permit Constituents
Former Kop-Flex Facility
Hanover, Maryland (a)

Analyte Name	Units	Cas#	Permit Limits (e) Minimum	Monthly Average	Daily Maximum	Sample ID / Date	Effluent VSP-4 7/29/2021		Effluent VSP-4 8/31/2021		Effluent VSP-4 9/21/2021		Effluent VSP-4 10/7/2021		Effluent VSP-4 11/3/2021		Effluent VSP-4 11/19/2021	Effluent VSP-4 12/29/2021		Effluent VSP-4 1/19/2022		Effluent VSP-4 2/9/2022		Effluent VSP-4 3/17/2022		Effluent VSP-4 4/12/2022	
Volatile Organic Compounds (EPA Method 624.1)																										
1,1,1-Trichloroethane	µg/L	71-55-6					1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	NA	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U
1,1,2,2-Tetrachloroethane	µg/L	79-34-5					1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	NA	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U
1,1,2-Trichloroethane	µg/L	79-00-5					1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	NA	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U
1,1-Dichloroethane	µg/L	75-34-3					1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	NA	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U
1,1-Dichloroethene	µg/L	75-35-4					1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	NA	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U
1,2-Dichlorobenzene	µg/L	95-50-1					1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	NA	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U
1,2-Dichloroethane	µg/L	107-06-2					1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	NA	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U
1,2-Dichloropropane	µg/L	78-87-5					1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	NA	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U
1,3-Dichlorobenzene	µg/L	541-73-1					1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	NA	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U
1,4-Dichlorobenzene	µg/L	106-46-7					1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	NA	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U
2-Chloroethyl Vinyl Ether	µg/L	110-75-8					NA		NA		NA		1.0	U	1.0	U	NA	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U
Acrolein	µg/L	107-02-8					NA		NA		NA		5.0	U	5.0	U	NA	5.0	U	5.0	U	5.0	U	5.0	U	5.0	U
Acrylonitrile	µg/L	107-13-1					NA		NA		NA		5.0	U	5.0	U	NA	5.0	U	5.0	U	5.0	U	5.0	U	5.0	U
Benzene	µg/L	71-43-2					1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	NA	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U
Bromodichloromethane	µg/L	75-27-4					1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	NA	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U
Bromoform	µg/L	75-25-2					1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	NA	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U
Bromomethane	µg/L	74-83-9					1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	NA	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U
Carbon Tetrachloride	µg/L	56-23-5					1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	NA	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U
Chlorobenzene	µg/L	108-90-7					1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	NA	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U
Chloroethane	µg/L	75-00-3					1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	NA	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U
Chloroform	µg/L	67-66-3					1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	NA	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U
Chloromethane	µg/L	74-87-3					1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	NA	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U
Dibromochloromethane	µg/L	124-48-1					1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	NA	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U
Dichlorodifluoromethane	µg/L	75-71-8					1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	NA	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U
Ethylbenzene	µg/L	100-41-4					1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	NA	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U
Methylene Chloride	µg/L	75-09-2					1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	NA	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U
Tetrachloroethylene	µg/L	127-18-4					1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	NA	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U
Toluene	µg/L	108-88-3					1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	NA	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U
Trichloroethene	µg/L	79-01-6					1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	NA	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U
Trichlorofluoromethane	µg/L	75-69-4					1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	NA	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U
Vinyl Chloride	µg/L	75-01-4					1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	NA	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U
cis-1,3-Dichloropropene	µg/L	10061-01-5					1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	NA	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U
trans-1,2-dichloroethene	µg/L	156-60-5					1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	NA	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U
trans-1,3-dichloropropene	µg/L	10061-02-6					1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	NA	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U
1,4-Dioxane (e)	µg/L	71-55-6			15		NA		NA		NA		NA		NA		NA	NA		NA		NA		NA		NA	
TOTAL VOCs:					100		ND		ND		ND		ND		ND		ND	ND		ND		ND		ND		ND	

Table 2

Historical Effluent Results - NPDES Permit Constituents
Former Kop-Flex Facility
Hanover, Maryland (a)

Analyte Name	Units	Cas#	Permit Limits (e) Minimum	Monthly Average	Daily Maximum	Sample ID: Effluent VSP-4 Date: 7/29/2021		8/31/2021		9/21/2021		10/7/2021		11/3/2021		11/19/2021	12/29/2021		1/19/2022		2/9/2022		3/17/2022		4/12/2022	
Total Metals and Hardness (EPA Method 200.8)																										
Calcium	µg/L	7440-70-2				NA		NA		NA		NA		NA		NA	NA		NA		NA		NA		NA	
Copper	µg/L	7440-50-8		9	13	2.7		5.9		3.2		1.0	U	7.3		NA	4.2		4.8		4.1		1.1		1.8	
Hardness (Ca & Mg) (d)	mg/L	HARDCAMG				7.4		19		25		24		23		NA	21		28		18		21		22	
Lead	µg/L	7439-92-1		2.5	65	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	NA	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U
Magnesium	µg/L	7439-95-4				NA		NA		NA		NA		NA		NA	NA		NA		NA		NA		NA	
Nickel	µg/L	7440-02-0		52	470	13.9		21.3		14.2		3.4		**995**		24.4	16.6		16.2		16.1		20.0		21.8	
Zinc	µg/L	7440-66-6		120	120	88.2		34.9		31.4		54.2		33.4		NA	28.0		30.1		35.5		34.6		33.9	
Dissolved Metals (d)																										
Copper	µg/L	7440-50-8				1.9		3.0		2.7		1.0	U	3.7		NA	2.0		2.6		2.3		1.0	U	1.0	
Lead	µg/L	7439-92-1				1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	NA	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U
Nickel	µg/L	7440-02-0				14.0		17.5		13.4		3.0		16.1		16.2	13.4		16.3		14.9		19.4		21.6	
Zinc	µg/L	7440-66-6				84.7		23.0		30.5		41.6		28.2		NA	20	U	24.7		29.4		32.9		32.0	
Total Suspended Solids (SM 2540D)																										
Total Suspended Solids	mg/L	TSS		30	45	1.0	U	1.0	U	1.8		1.0	U	1.0	U	NA	1.0	U	2.0	U	1.0	U	1.7		1.0	U
Biological Oxygen Demand (SM 5210B)																										
Biological Oxygen Demand, 5 Day	mg/L	BOD5		30	45	5.0	U	5.0	U	5.0	U	5.0	U	5.0	U	NA	5.0	U	5.0	U	22.4		5.0	U	5.0	U
Field Parameters																										
pH	SU	-	6.5		8.5	7.45		7.56		7.41		7.70		6.90		NA	7.46		7.90		7.60		7.73		7.25	
Dissolved Oxygen	mg/L	-	5.0			7.20		10.88		8.76		11.25		14.33		NA	11.37		8.14		7.70		6.55		8.12	
Total Residual Chlorine (e)	mg/L			0.011	0.019	NA		NA		NA		NA		NA		NA	NA		NA		NA		NA		NA	
Daily Flow Rate (b)	gpd	-				11,266		4,680		59,040		78,445		23,608		NA	15,039		95,197		87,402		77,231		86,248	
Nitrogen (c)																										
Nitrogen, Total	lbs/qtr					NA		NA		NA		NA		NA		NA	NA		NA		NA		NA		NA	
Ammonia (as N)	mg/L	7664-41-7				NA		NA		NA		NA		NA		NA	NA		NA		NA		NA		NA	
Nitrate (as N)	mg/L	7727-37-9				NA		NA		NA		NA		NA		NA	NA		NA		NA		NA		NA	
Nitrite (as N)	mg/L	7727-37-9				NA		NA		NA		NA		NA		NA	NA		NA		NA		NA		NA	
Organic Nitrogen (as N)	mg/L	7727-37-9				NA		NA		NA		NA		NA		NA	NA		NA		NA		NA		NA	
Nitrogen, Total Kjeldahl	mg/L	7727-37-9				NA		NA		NA		NA		NA		NA	NA		NA		NA		NA		NA	

Table 2

Historical Effluent Results - NPDES Permit Constituents
Former Kop-Flex Facility
Hanover, Maryland (a)

Analyte Name	Units	Cas#	Permit Limits (e) Minimum	Monthly Average	Daily Maximum	Sample ID / Date	Effluent VSP-4 6/29/2022		Effluent VSP-4 8/24/2022		Effluent VSP-4 9/28/2022		Effluent VSP-4 10/20/2022		Effluent VSP-4 11/9/2022		Effluent VSP-4 11/30/2022	Effluent VSP-4 12/7/2022		Effluent VSP-4 1/25/2023		Effluent VSP-4 2/8/2023		Effluent VSP-4 3/8/2023		Effluent VSP-4 8/30/2023	
Volatile Organic Compounds (EPA Method 624.1)																											
1,1,1-Trichloroethane	µg/L	71-55-6					1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	NA	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U
1,1,2,2-Tetrachloroethane	µg/L	79-34-5					1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	NA	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U
1,1,2-Trichloroethane	µg/L	79-00-5					1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	NA	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U
1,1-Dichloroethane	µg/L	75-34-3					1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	NA	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U
1,1-Dichloroethene	µg/L	75-35-4					1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	NA	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U
1,2-Dichlorobenzene	µg/L	95-50-1					1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	NA	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U
1,2-Dichloroethane	µg/L	107-06-2					1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	NA	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U
1,2-Dichloropropane	µg/L	78-87-5					1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	NA	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U
1,3-Dichlorobenzene	µg/L	541-73-1					1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	NA	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U
1,4-Dichlorobenzene	µg/L	106-46-7					1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	NA	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U
2-Chloroethyl Vinyl Ether	µg/L	110-75-8					1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	NA	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U
Acrolein	µg/L	107-02-8					5.0	U	5.0	U	5.0	U	5.0	U	5.0	U	NA	5.0	U	5.0	U	5.0	U	5.0	U	5.0	U
Acrylonitrile	µg/L	107-13-1					5.0	U	5.0	U	5.0	U	5.0	U	5.0	U	NA	5.0	U	5.0	U	5.0	U	5.0	U	5.0	U
Benzene	µg/L	71-43-2					1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	NA	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U
Bromodichloromethane	µg/L	75-27-4					1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	NA	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U
Bromoform	µg/L	75-25-2					1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	NA	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U
Bromomethane	µg/L	74-83-9					1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	NA	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U
Carbon Tetrachloride	µg/L	56-23-5					1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	NA	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U
Chlorobenzene	µg/L	108-90-7					1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	NA	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U
Chloroethane	µg/L	75-00-3					1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	NA	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U
Chloroform	µg/L	67-66-3					1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	NA	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U
Chloromethane	µg/L	74-87-3					1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	NA	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U
Dibromochloromethane	µg/L	124-48-1					1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	NA	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U
Dichlorodifluoromethane	µg/L	75-71-8					1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	NA	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U
Ethylbenzene	µg/L	100-41-4					1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	NA	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U
Methylene Chloride	µg/L	75-09-2					1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	NA	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U
Tetrachloroethylene	µg/L	127-18-4					1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	NA	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U
Toluene	µg/L	108-88-3					1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	NA	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U
Trichloroethene	µg/L	79-01-6					1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	NA	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U
Trichlorofluoromethane	µg/L	75-69-4					1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	NA	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U
Vinyl Chloride	µg/L	75-01-4					1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	NA	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U
cis-1,3-Dichloropropene	µg/L	10061-01-5					1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	NA	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U
trans-1,2-dichloroethene	µg/L	156-60-5					1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	NA	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U
trans-1,3-dichloropropene	µg/L	10061-02-6					1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	NA	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U
1,4-Dioxane (e)	µg/L	71-55-6			15		NA		NA		NA		NA		NA		NA	NA		NA		NA		NA		NA	
TOTAL VOCs:					100		ND		ND		ND		ND		ND		ND	ND		ND		ND		ND		ND	

Table 2

Historical Effluent Results - NPDES Permit Constituents
Former Kop-Flex Facility
Hanover, Maryland (a)

Analyte Name	Units	Cas#	Permit Limits (e) Minimum	Monthly Average	Daily Maximum	Sample ID: Effluent VSP-4 Date: 6/29/2022		8/24/2022		9/28/2022		10/20/2022		11/9/2022		11/30/2022	12/7/2022		1/25/2023		2/8/2023		3/8/2023		8/30/2023	
Total Metals and Hardness (EPA Method 200.8)																										
Calcium	µg/L	7440-70-2				NA		NA		NA		NA		NA		NA	NA		NA		NA		NA		NA	
Copper	µg/L	7440-50-8		9	13	5.0		6.9		1.5		6.7		9.5		3.4	5.5		8.0		6.6		6.6		4.5	
Hardness (Ca & Mg) (d)	mg/L	HARDCAMG				22		22		18		23		21		NA	23		25		23		23		26	
Lead	µg/L	7439-92-1		2.5	65	1.0	U	1.0		1.0	U	1.0	U	1.0	U	NA	1.0	U	1.0	U	3.0		1.0	U	1.0	U
Magnesium	µg/L	7439-95-4				NA		NA		NA		NA		NA		NA	NA		NA		NA		NA		NA	
Nickel	µg/L	7440-02-0		52	470	15.2		16.5		7.6		21.1		20.4		NA	14.9		15.2		17.8		18.2		16.5	
Zinc	µg/L	7440-66-6		120	120	47.0		34.5		23.0		41.8		41.8		NA	30.9		38.4		32.3		34.5		30.4	
Dissolved Metals (d)																										
Copper	µg/L	7440-50-8				3.0		3.8		1.0	U	2.1		6.0		NA	4.1		4.1		4.2		4.3		2.1	
Lead	µg/L	7439-92-1				1.0	U	1.0	U	1.0	U	1.0	U	1.0	U	NA	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U
Nickel	µg/L	7440-02-0				13.1		15.0		7.0		18.5		17.3		NA	16.6		13.5		17.3		17.7		14.5	
Zinc	µg/L	7440-66-6				36.7		21.4		21.4		28.1		40.1		NA	31.3		23.7		25.2		22.1		25.9	
Total Suspended Solids (SM 2540D)																										
Total Suspended Solids	mg/L	TSS		30	45	1.0	U	1.0	U	1.0	U	2.1	U	1.0	U	NA	2.2	U	1.0	U	1.0	U	1.0	U	1.9	
Biological Oxygen Demand (SM 5210B)																										
Biological Oxygen Demand, 5 Day	mg/L	BOD5		30	45	5.0	U	5.0	U	5.0	U	5.0	U	2.0	U	NA	2	U	2	U	2	U	2	U	2	U
Field Parameters																										
pH	SU	-	6.5		8.5	7.36		8.20		7.10		7.80		6.79		NA	6.60		7.15		7.15		7.39		6.90	
Dissolved Oxygen	mg/L	-	5.0			5.88		8.13		9.37		10.18		8.70		NA	8.40		5.80		7.94		7.72		7.24	
Total Residual Chlorine (e)	mg/L			0.011	0.019	NA		NA		NA		NA		NA		NA	NA		NA		NA		NA		NA	
Daily Flow Rate (b)	gpd	-				566		39,459		59,608		87,997		94,584		NA	90,807		82,606		96,173		91,030		36,630	
Nitrogen (c)																										
Nitrogen, Total	lbs/qtr					NA		NA		NA		NA		NA		NA	NA		NA		NA		NA		NA	
Ammonia (as N)	mg/L	7664-41-7				NA		NA		NA		NA		NA		NA	NA		NA		NA		NA		NA	
Nitrate (as N)	mg/L	7727-37-9				NA		NA		NA		NA		NA		NA	NA		NA		NA		NA		NA	
Nitrite (as N)	mg/L	7727-37-9				NA		NA		NA		NA		NA		NA	NA		NA		NA		NA		NA	
Organic Nitrogen (as N)	mg/L	7727-37-9				NA		NA		NA		NA		NA		NA	NA		NA		NA		NA		NA	
Nitrogen, Total Kjeldahl	mg/L	7727-37-9				NA		NA		NA		NA		NA		NA	NA		NA		NA		NA		NA	

Table 2

Historical Effluent Results - NPDES Permit Constituents
Former Kop-Flex Facility
Hanover, Maryland (a)

	Sample ID	Effluent VSP-4		Effluent VSP-4		Effluent VSP-4		Effluent VSP-4	
	Date	9/28/2023		10/5/2023		11/30/2023		12/15/2023	
Analyte Name	**Units**	**Cas#**	**Permit Limits (e)** Minimum	Monthly Average	Daily Maximum								
Volatile Organic Compounds (EPA Method 624.1)													
1,1,1-Trichloroethane	µg/L	71-55-6				1.0	U	1.0	U	1.0	U	1.0	U
1,1,2,2-Tetrachloroethane	µg/L	79-34-5				1.0	U	1.0	U	1.0	U	1.0	U
1,1,2-Trichloroethane	µg/L	79-00-5				1.0	U	1.0	U	1.0	U	1.0	U
1,1-Dichloroethane	µg/L	75-34-3				1.0	U	1.0	U	1.0	U	1.0	U
1,1-Dichloroethene	µg/L	75-35-4				1.0	U	1.7		1.0	U	1.0	U
1,2-Dichlorobenzene	µg/L	95-50-1				1.0	U	1.0	U	1.0	U	1.0	U
1,2-Dichloroethane	µg/L	107-06-2				1.0	U	1.0	U	1.0	U	1.0	U
1,2-Dichloropropane	µg/L	78-87-5				1.0	U	1.0	U	1.0	U	1.0	U
1,3-Dichlorobenzene	µg/L	541-73-1				1.0	U	1.0	U	1.0	U	1.0	U
1,4-Dichlorobenzene	µg/L	106-46-7				1.0	U	1.0	U	1.0	U	1.0	U
2-Chloroethyl Vinyl Ether	µg/L	110-75-8				1.0	U	1.0	U	1.0	U	1.0	U
Acrolein	µg/L	107-02-8				5.0	U	5.0	U	5.0	U	5.0	U
Acrylonitrile	µg/L	107-13-1				5.0	U	5.0	U	5.0	U	5.0	U
Benzene	µg/L	71-43-2				1.0	U	1.0	U	1.0	U	1.0	U
Bromodichloromethane	µg/L	75-27-4				1.0	U	1.0	U	1.0	U	1.0	U
Bromoform	µg/L	75-25-2				1.0	U	1.0	U	1.0	U	1.0	U
Bromomethane	µg/L	74-83-9				1.0	U	1.0	U	1.0	U	1.0	U
Carbon Tetrachloride	µg/L	56-23-5				1.0	U	1.0	U	1.0	U	1.0	U
Chlorobenzene	µg/L	108-90-7				1.0	U	1.0	U	1.0	U	1.0	U
Chloroethane	µg/L	75-00-3				1.0	U	1.0	U	1.0	U	1.0	U
Chloroform	µg/L	67-66-3				1.0	U	1.0	U	1.0	U	1.0	U
Chloromethane	µg/L	74-87-3				1.0	U	1.0	U	1.0	U	1.0	U
Dibromochloromethane	µg/L	124-48-1				1.0	U	1.0	U	1.0	U	1.0	U
Dichlorodifluoromethane	µg/L	75-71-8				1.0	U	1.0	U	1.0	U	1.0	U
Ethylbenzene	µg/L	100-41-4				1.0	U	1.0	U	1.0	U	1.0	U
Methylene Chloride	µg/L	75-09-2				1.0	U	1.0	U	1.0	U	1.0	U
Tetrachloroethylene	µg/L	127-18-4				1.0	U	1.0	U	1.0	U	1.0	U
Toluene	µg/L	108-88-3				1.0	U	1.0	U	1.0	U	1.0	U
Trichloroethene	µg/L	79-01-6				1.0	U	1.0	U	1.0	U	1.0	U
Trichlorofluoromethane	µg/L	75-69-4				1.0	U	1.0	U	1.0	U	1.0	U
Vinyl Chloride	µg/L	75-01-4				1.0	U	1.0	U	1.0	U	1.0	U
cis-1,3-Dichloropropene	µg/L	10061-01-5				1.0	U	1.0	U	1.0	U	1.0	U
trans-1,2-dichloroethene	µg/L	156-60-5				1.0	U	1.0	U	1.0	U	1.0	U
trans-1,3-dichloropropene	µg/L	10061-02-6				1.0	U	1.0	U	1.0	U	1.0	U
1,4-Dioxane (e)	µg/L	71-55-6		15		NA		NA		1.0	U	1.0	U
TOTAL VOCs:				100		ND		1.7		ND		ND	

Table 2

Historical Effluent Results - NPDES Permit Constituents
Former Kop-Flex Facility
Hanover, Maryland (a)

Analyte Name	Units	Cas#	Permit Limits (e) Minimum	Monthly Average	Daily Maximum	Sample ID: Effluent VSP-4 Date: 9/28/2023		Effluent VSP-4 10/5/2023		Effluent VSP-4 11/30/2023		Effluent VSP-4 12/15/2023	
Total Metals and Hardness (EPA Method 200.8)													
Calcium	µg/L	7440-70-2				NA		NA		NA		NA	
Copper	µg/L	7440-50-8		9	13	6.8		3.0		3.8		4.0	
Hardness (Ca & Mg) (d)	mg/L	HARDCAMG				26		22		NA		NA	
Lead	µg/L	7439-92-1		2.5	65	5.0		1.0	U	1.0	U	1.0	U
Magnesium	µg/L	7439-95-4				NA		NA		NA		NA	
Nickel	µg/L	7440-02-0		52	470	4.3		16.7		18.6		19.2	
Zinc	µg/L	7440-66-6		120	120	32.1		26.5		28.8		29.9	
Dissolved Metals (d)													
Copper	µg/L	7440-50-8				2.2		2.1		NA		NA	
Lead	µg/L	7439-92-1				1.0	U	1.0	U	NA		NA	
Nickel	µg/L	7440-02-0				1.5		15.8		NA		NA	
Zinc	µg/L	7440-66-6				20	U	28.2		NA		NA	
Total Suspended Solids (SM 2540D)													
Total Suspended Solids	mg/L	TSS		30	45	2.1	U	2.1	U	1.1		2.0	
Biological Oxygen Demand (SM 5210B)													
Biological Oxygen Demand, 5 Day	mg/L	BOD5		30	45	2	U	2	U	2	U	NA	
Field Parameters													
pH	SU	-	6.5		8.5	6.64		6.88		7.05		6.87	
Dissolved Oxygen	mg/L	-	5.0			8.65		9.35		8.00		8.22	
Total Residual Chlorine (e)	mg/L			0.011	0.019	NA		NA		0.10	U	0.10	U
Daily Flow Rate (b)	gpd	-				38,054		68,101		52,710		79,094	
Nitrogen (c)													
Nitrogen, Total	lbs/qtr					NA		NA		NA		NA	
Ammonia (as N)	mg/L	7664-41-7				NA		NA		NA		NA	
Nitrate (as N)	mg/L	7727-37-9				NA		NA		NA		NA	
Nitrite (as N)	mg/L	7727-37-9				NA		NA		NA		NA	
Organic Nitrogen (as N)	mg/L	7727-37-9				NA		NA		NA		NA	
Nitrogen, Total Kjeldahl	mg/L	7727-37-9				NA		NA		NA		NA	

Notes:

a/ EPA = US Environmental Protection Agency; SM = Standard Method; VOC = volatile organic compound; µg/L = micrograms per liter; mg/L = milligrams per liter; SU = Standard Units; gpd = gallons per day; lbs/qtr = pounds per quarter; N = Nitrogen; U = not detected above the method detection limit; ND = non-detected sum; NA = compound not analyzed. Results shown in highlight and **bold** exceed the NPDES Permit limit (except for 1,4-dioxane, see note e).

b/ Daily Flow Rate determined by average of gallons processed per day per monitoring window.

c/ Nitrogen parameters no longer analyzed after the first quarter 2018 per Maryland Department of the Environment correspondence dated March 30, 2018.

d/ Under the renewed NPDES Permit (effective November 1, 2023), hardness and dissolved metals were removed from the Permit monitoring requirements.

e/ The renewed NPDES Permit (effective November 1, 2023) added monthly total residual chlorine monitoring, with monthly average and daily maximum Permit limits. Given the minimum practical quantification level for total residual chlorine is 0.10 mg/L, all detections below 0.10 mg/L are considered non-detect. Also added to the Permit were monthly average Permit limits for total lead and total nickel, and required monthly 1,4-dioxane monitoring. The renewed Permit does not include a discharge limit for 1,4-dioxane; the limit provided is the numeric cleanup standard from Section 6 of WSP's October 2, 2015, Response Action Plan, Revision 2.

Table 3

Historical Effluent Results - 1,4-Dioxane
Former Kop-Flex Facility
Hanover, Maryland (a)

Analyte Name	Cas#	Cleanup Goal (b)	Effluent VSP-4 03/13/2017 (c)	Effluent VSP-4 03/14/2017	Effluent VSP-4 3/15/2017	Effluent VSP-4 3/20/2017 (c)	Effluent VSP-4 3/23/2017	Effluent VSP-4 4/3/2017 (c)	Effluent VSP-4 4/12/2017	Effluent VSP-4 4/19/2017
Volatile Organic Compounds (EPA Method 8260 - SIM)										
1,4-Dioxane	71-55-6	15	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U

Analyte Name	Cas#	Cleanup Goal (b)	Effluent VSP-4 5/8/2017 (c)	Effluent VSP-4 6/21/2017 (c)	Effluent VSP-4 7/10/2017 (c)	Effluent VSP-4 8/3/2017 (c)	Effluent VSP-4 9/11/2017 (c)	Effluent VSP-4 10/09/2017 (c)	Effluent VSP-4 10/12/2017	Effluent VSP-4 10/23/2017
Volatile Organic Compounds (EPA Method 8260 - SIM)										
1,4-Dioxane	71-55-6	15	1.0 U	1.0 U	1.0 U	1.0 U	1.2	1.0 U	1.0 U	1.0 U

Analyte Name	Cas#	Cleanup Goal (b)	Effluent VSP-4 10/26/2017	Effluent VSP-4 11/7/2017 (c)	Effluent VSP-4 12/11/2017 (c)	Effluent VSP-4 1/10/2018 (c)	Effluent VSP-4 2/07/2018 (c)	Effluent VSP-4 3/19/2018 (c)	Effluent VSP-4 4/17/2018 (c)	Effluent VSP-4 5/8/2018 (c)
Volatile Organic Compounds (EPA Method 8260 - SIM)										
1,4-Dioxane	71-55-6	15	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	2.4	1.0 U	1.0 U

Analyte Name	Cas#	Cleanup Goal (b)	Effluent VSP-4 6/5/2018 (c)	Effluent VSP-4 7/12/2018 (c)	Effluent VSP-4 8/8/2018 (c)	Effluent VSP-4 9/6/2018 (c)	Effluent VSP-4 9/10/2018	Effluent VSP-4 9/17/2018	Effluent VSP-4 9/17/2018	Effluent VSP-4 10/3/2018 (c)
Volatile Organic Compounds (EPA Method 8260 - SIM)										
1,4-Dioxane	71-55-6	15	1.0 U	1.9	1.6	1.7	4.6	4.8	3.8	1.7

Analyte Name	Cas#	Cleanup Goal (b)	Effluent VSP-4 11/6/2018 (c)	Effluent VSP-4 11/30/2018	Effluent VSP-4 12/6/2018 (c)	Effluent VSP-4 12/12/2018	Effluent VSP-4 1/8/2019 (c)	Effluent VSP-4 2/5/2019 (c)	Effluent VSP-4 3/7/2019 (c)	Effluent VSP-4 4/2/2019
Volatile Organic Compounds (EPA Method 8260 - SIM)										
1,4-Dioxane	71-55-6	15	1.0 U	1.0 U	1.1	2.9	1.3	1.6	11.0	1.7

Analyte Name	Cas#	Cleanup Goal (b)	Effluent VSP-4 4/4/2019 (c)	Effluent VSP-4 5/8/2019 (c)	Effluent VSP-4 6/12/2019 (c)	Effluent VSP-4 7/2/2019 (c)	Effluent VSP-4 8/1/2019 (c)	Effluent VSP-4 9/4/2019 (c)	Effluent VSP-4 10/16/2019 (c)	Effluent VSP-4 11/4/2019 (c)
Volatile Organic Compounds (EPA Method 8260 - SIM)										
1,4-Dioxane	71-55-6	15	10.0	5.6	**37**	1.0 U	1.0 U	7.0	7.6	12.0

Analyte Name	Cas#	Cleanup Goal (b)	Effluent VSP-4 12/2/2019 (c)	Effluent VSP-4 1/9/2020 (c)	Effluent VSP-4 2/4/2020 (c)	Effluent VSP-4 3/24/2020 (c)	Effluent VSP-4 4/7/2020 (c)	Effluent VSP-4 5/28/2020 (c)	Effluent VSP-4 6/29/2020 (c)	Effluent VSP-4 7/30/2020 (c)
Volatile Organic Compounds (EPA Method 8260 - SIM)										
1,4-Dioxane	71-55-6	15	12.0	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	4.7	1.0 U

Analyte Name	Cas#	Cleanup Goal (b)	Effluent VSP-4 8/26/2020 (c)	Effluent VSP-4 9/28/2020 (c)	Effluent VSP-4 10/26/2020 (c)	Effluent VSP-4 11/12/2020 (c)	Effluent VSP-4 12/3/2020 (c)	Effluent VSP-4 12/15/2020	Effluent VSP-4 1/13/2021 (c)	Effluent VSP-4 2/9/2021 (c)
Volatile Organic Compounds (EPA Method 8260 - SIM)										
1,4-Dioxane	71-55-6	15	1.0 U	6.3	2.0	**43**	2.0	2.2	13.0	1.1

Analyte Name	Cas#	Cleanup Goal (b)	Effluent VSP-4 3/18/2021 (c)	Effluent VSP-4 4/27/2021 (c)	Effluent VSP-4 5/27/2021 (c)	Effluent VSP-4 6/24/2021 (c)	Effluent VSP-4 7/29/2021 (c)	Effluent VSP-4 8/31/2021 (c)	Effluent VSP-4 9/21/2021 (c)	Effluent VSP-4 10/7/2021 (c)
Volatile Organic Compounds (EPA Method 8260 - SIM)										
1,4-Dioxane	71-55-6	15	1.5	1.2	1.0 U	1.0 U	8.3	1.0 U	1.0 U	1.0 U

Table 3

Historical Effluent Results - 1,4-Dioxane
Former Kop-Flex Facility
Hanover, Maryland (a)

Analyte Name	Cas#	Cleanup Goal (b)	Effluent VSP-4 11/3/2021 (c)	Effluent VSP-4 12/29/2021 (c)	Effluent VSP-4 1/19/2022 (c)	Effluent VSP-4 2/9/2022 (c)	Effluent VSP-4 3/17/2022 (c)	Effluent VSP-4 4/12/2022 (c)	Effluent VSP-4 6/29/2022 (c)	Effluent VSP-4 8/24/2022 (c)
Volatile Organic Compounds (EPA Method 8260 - SIM)										
1,4-Dioxane	71-55-6	15	1.0 U	1.0 U	1.8	3.0	1.0 U	1.0 U	1.0	1.0 U

Analyte Name	Cas#	Cleanup Goal (b)	Effluent VSP-4 9/28/2022 (c)	Effluent VSP-4 10/20/2022 (c)	Effluent VSP-4 11/9/2022 (c)	Effluent VSP-4 12/7/2022 (c)	Effluent VSP-4 1/25/2023 (c)	Effluent VSP-4 2/8/2023 (c)	Effluent VSP-4 3/8/2023 (c)	Effluent VSP-4 8/30/2023 (c)
Volatile Organic Compounds (EPA Method 8260 - SIM)										
1,4-Dioxane	71-55-6	15	1.0 U	2.9	3.4	6.6	5.3	2.1	1.0 U	6.0

Analyte Name	Cas#	Cleanup Goal (b)	Effluent VSP-4 9/28/2023 (c)	Effluent VSP-4 10/5/2023 (c)	Effluent VSP-4 11/30/2023 (d)	Effluent VSP-4 12/15/2023 (d)
Volatile Organic Compounds (EPA Method 8260 - SIM)						
1,4-Dioxane	71-55-6	15	1.0 U	14.0	NA	NA

Notes:
a/ EPA = US Environmental Protection Agency; SIM = Selected Ion Monitoring; U = not detected above the method detection limit; NA = not analyzed using the 8260 - SIM test method.
All concentrations are in micrograms per liter (µg/L).
Results shown in highlight and **bold** exceed the cleanup goal.
Effluent samples collected following renewal of the NPDES Permit on November 1, 2023 were analyzed for 1,4-dioxane using EPA Method 624.1 in accordance with the Permit. See Table 2 for results.
b/ Numeric cleanup standard from Section 6 of WSP's October 2, 2015, Response Action Plan, Revision 2.
c/ VOCs were analyzed by Method 624 to fulfill the NPDES Permit requirement. See Table 2 for results.
d/ VOCs and 1,4-dioxane were analyzed by Method 624 to fulfill the NPDES Permit requirement. See Table 2 for results.

Table 4

Total Residual Chlorine Discharge Monitoring
Former Kop-Flex Facility
Hanover, Maryland (a)

Date	TRC (mg/L) (b)
2/15/2022	0.04
4/12/2022	0.00
8/24/2022	0.02
9/28/2022	0.01
10/20/2022	0.00
11/9/2022	0.03
12/7/2022	0.10
1/25/2023	0.16
2/8/2023	0.00
3/8/2023	0.05
8/30/2023	0.00
9/28/2023	0.00
10/5/2023	0.00
11/30/2023	0.00
12/15/2023	0.00

Notes:
a/ TRC = total residual chlorine; mg/L = milligrams per liter.
b/ The values represent readings from a Hach field colorimeter. The accuracy of the colorimeter readings is +/- 0.02 mg/L.

Table 5

Summary of System Discharge and Mass Removal
Former Kop-Flex Facility
Hanover, Maryland (a)

Year	Month	Total Discharged Volume Gals	Runtime Efficiency Annual Percentage	Water Flow Rate (b) GPM AVG	Estimated VOCs Removed Mass lbs	Estimated VOCs Removed Volume Gals	Estimated 1,4-Dioxane Removed Mass lbs	Estimated 1,4-Dioxane Removed Volume Gals
2017	*Total*	*26,606,357*	*--*	*61.5*	*86.0*	*8.5*	*42.7*	*5.0*
2018	*Total*	*33,390,900*	*95*	*67.5*	*111.1*	*11.0*	*41.3*	*4.8*
2019	*Total*	*33,566,025*	*91*	*69.9*	*95.0*	*9.4*	*36.3*	*4.2*
2020	*Total*	*27,711,625*	*77*	*70.5*	*68.1*	*6.8*	*31.5*	*3.7*
2021	*Total*	*22,454,076*	*62*	*69.7*	*45.8*	*4.5*	*19.7*	*2.3*
2022	*Total*	*21,788,865*	*63*	*68.4*	*52.6*	*5.2*	*20.4*	*2.4*
2023	January	2,560,795		67.0	6.18	0.61	1.90	0.22
	February	2,692,854		68.5	6.49	0.65	2.07	0.24
	March	2,821,935		66.5	6.81	0.68	2.21	0.26
	April	0		0	0	0	0	0
	May	0		0	0	0	0	0
	June	0		0	0	0	0	0
	July	0		0	0	0	0	0
	August	1,135,532		53.2	2.67	0.27	1.14	0.13
	September	1,141,625		31.4	2.69	0.27	1.14	0.13
	October	2,111,130		60.8	5.40	0.54	1.69	0.20
	November	1,581,315		61.4	4.06	0.40	1.45	0.17
	December	2,451,929		61.2	6.30	0.63	2.25	0.26
2023	*Total*	*16,497,114*	*50*	*58.8*	*40.6*	*4.0*	*13.8*	*1.6*
Historical Average (c)		***27,586,308***	***73***	***67.9***	***76.4***	***7.6***	***32.0***	***3.7***
Cumulative		**182,014,962**	**--**	**--**	**499.2**	**49.5**	**205.7**	**23.9**

Notes:
a/ GPM = gallons per minute; AVG = average; lbs = pounds; gals = gallons.
b/ Average water flow rate in GPM is based on fully operational days only.
Flow rates from April, May, June, and July 2023 were not used in the calculation of the total average flow rate for 2023 as the System was nonoperational for the entirety of these four months.
c/ Historical averages calculated using values from 2017 through 2022.

Table 6

Summary of Recovery Well Flow Rates
Former Kop-Flex Facility
Hanover, Maryland (a)

Year	Month	Average Recovery Well Flow Rates					
		RW-1S	RW-2S	RW-3S	RW-1D	RW-2D	Total
2018	*Total*	*4.5*	*1.8*	*2.4*	*28.4*	*28.7*	*65.8*
2019	*Total*	*4.9*	*1.7*	*1.4*	*28.5*	*29.3*	*65.8*
2020	*Total*	*4.2*	*2.0*	*1.8*	*21.7*	*24.4*	*54.1*
2021	*Total*	*3.0*	*1.6*	*1.6*	*18.1*	*19.1*	*43.5*
2022	*Total*	*2.2*	*1.7*	*0.8*	*16.9*	*18.2*	*39.7*
2023	January	3.0	1.4	0	25.9	27.4	*57.7*
	February	1.7	3.6	0	29.1	30.5	*64.9*
	March	1.9	3.6	0	30.8	30.9	*67.2*
	April	0	0	0	0	0	*0*
	May	0	0	0	0	0	*0*
	June	0	0	0	0	0	*0*
	July	0	0	0	0	0	*0*
	August	1.3	1.6	0	19.0	16.6	*38.5*
	September	2.0	2.0	0	15.5	4.8	*24.2*
	October	1.8	1.6	0	24.0	17.0	*44.4*
	November	1.4	2.0	0	18.7	16.9	*38.9*
	December	1.8	1.7	0	28.0	23.2	*54.7*
2023	*Total*	*1.2*	*1.5*	*0*	*15.9*	*13.9*	*32.5*
Historical Average (b)		***3.8***	***1.8***	***1.6***	***22.7***	***24.0***	***53.8***

Notes:
a/ Flow rates are listed in gallons per minute (GPM).
b/ Historical averages calculated using values from 2018 through 2022.

Table 7

Summary of Recovery Well Volumes
Former Kop-Flex Facility
Hanover, Maryland (a)

Year	Month	Summary of Recovery Well Total Volumes by Month					
		RW-1S	**RW-2S**	**RW-3S**	**RW-1D**	**RW-2D**	**Total**
2017	*Total*	*1.66*	*1.32*	*1.01*	*10.63*	*12.22*	*26.82*
2018	*Total*	*2.35*	*0.94*	*1.26*	*14.94*	*15.10*	*34.59*
2019	*Total*	*2.49*	*0.89*	*0.72*	*14.61*	*15.05*	*33.76*
2020	*Total*	*2.21*	*1.04*	*0.93*	*11.33*	*12.85*	*28.37*
2021	*Total*	*1.60*	*0.86*	*0.85*	*9.33*	*10.10*	*22.74*
2022	*Total*	*1.19*	*0.92*	*0.42*	*9.06*	*9.86*	*21.45*
2023	January	0.14	0.07	0	1.23	1.30	2.74
	February	0.06	0.13	0	1.05	1.10	2.34
	March	0.08	0.15	0	1.24	1.24	2.71
	April	0	0	0	0	0	0
	May	0	0	0	0	0	0
	June	0	0	0	0	0	0
	July	0	0	0	0	0	0
	August	0.06	0.07	0	0.85	0.74	1.72
	September	0.07	0.07	0	0.58	0.18	0.91
	October	0.08	0.07	0	1.04	0.74	1.92
	November	0.07	0.10	0	0.94	0.85	1.96
	December	0.08	0.08	0	1.25	1.03	2.44
2023	*Total*	*0.64*	*0.73*	*0*	*8.17*	*7.19*	*16.73*
Percentage of Total 2023 Flow		4%	4%	0%	49%	43%	--
Historical Average (b)		***1.92***	***1.00***	***0.86***	***11.65***	***12.53***	***27.96***
Cumulative		**12.13**	**6.70**	**5.19**	**78.07**	**82.37**	**184.47**

Notes:
a/ Volumes of water are listed in millions of gallons.
b/ Historical averages calculated using values from 2017 through 2022.

Table 8

2023 Recovery Well Sampling Results
Former Kop-Flex Facility
Hanover, Maryland (a)

Parameters	Groundwater Cleanup Standards (µg/L)		Shallow Zone Wells			Deep Zone Wells	
Well ID:			**RW-1S**	**RW-2S**	**RW-3S**	**RW-1D**	**RW-2D**
Sampling Date:			12/3/2023	12/3/2023	12/3/2023	12/3/2023	12/3/2023
Chloroethane	2,100		22.4	5.0 U	NS	15.2	1.0 U
1,1-Dichloroethane	2.8		**180**	**72.4**	NS	**87.3**	**22.8**
1,2-Dichloroethane	5		5.0 U	5.0 U	NS	5.0 U	1.3
1,1-Dichloroethene	7		**775**	**517**	NS	**431**	**154**
1,4-Dioxane	15.0	(c)	**133**	**139**	NS	**34.0**	**29.5**
1,1,1-Trichloroethane	200		39.4	**301**	NS	12.9	3.9
Vinyl Chloride	3		**6.4**	5.0 U	NS	5.0 U	1.0 U
Total Detected CVOCs + 1,4-Dioxane			*1,156*	*1,029*	*NS*	*580*	*212*

a/ U = not detected above the method detection limit
NS = not sampled
Bolded values indicate an exceedence of the Groundwater Quality Standards
All sample concentrations in micrograms per liter (µg/l)

b/ All cleanup standards, except for 1,4-dioxane, are equal to the Maryland Generic Numeric Cleanup Standards for Groundwater, Type I and II Aquifers, from the State of Maryland Interim Final Guidance (October 2018). Accessed May 27, 2020: https://mde.maryland.gov/programs/LAND/MarylandBrownfieldVCP/Documents/www.mde.state.md.us/assets/document/MDE%

c/ Numeric cleanup standards from WSP's October 2, 2015, Response Action Plan, Revision 2.

Table 9

Historical Recovery Well Sampling Results
Former Kop-Flex Facility
Hanover, Maryland (a, b)

			VOCs (µg/L)		
Well ID	**Zone**	**Sample Date**	**1,1-DCA**	**1,1-DCE**	**1,4-Dioxane**
Groundwater Quality Standard (c)			**2.8**	**7**	**15 (d)**
RW-1S	**Shallow**	*12/7/2016*	**468**	**957**	**1,420**
		5/1/2017	**711**	**1,210**	**1,370**
		8/31/2017	**192**	**434**	**586**
		11/14/2017	**196**	**544**	**580**
		5/30/2018	**93**	**381**	**377**
		11/7/2018	**105**	**458**	**467**
		5/21/2019	**89.1**	**384**	**374**
		11/19/2019	**77.4**	**348**	**299**
		5/13/2020	**98.2**	**447**	**298**
		11/22/2020	**81.2**	**344**	**351**
		5/9/2021	**113**	**389**	**291**
		12/29/2021	**99.4**	**368**	**294**
		6/26/2022	**144**	**537**	**136**
		11/20/2022	**150**	**523**	**158**
		12/3/2023	**180**	**775**	**133**
RW-2S	**Shallow**	*12/6/2016*	**198**	**971**	**1,190**
		5/1/2017	**95.7**	**622**	**949**
		8/31/2017	**71.7**	**390**	**482**
		11/14/2017	**83.5**	**401**	**549**
		5/30/2018	**33.0**	**203**	**200**
		11/7/2018	**29.1**	**177**	**200**
		5/21/2019	**36.5**	**244**	**448**
		11/19/2019	**22.4**	**132**	**111**
		5/13/2020	**24.9**	**140**	**99.8**
		11/22/2020	**18.6**	**129**	**97.0**
		5/9/2021	**32.4**	**184**	**153**
		12/29/2021	**32.7**	**184**	**207**
		6/26/2022	**133**	**726**	**276**
		11/20/2022	**71.2**	**393**	**172**
		12/3/2023	**72.4**	**517**	**139**
RW-3S	**Shallow**	*12/6/2016*	**4.6**	**7.2**	5.9
		5/1/2017	1.0 U	1.2	3.8
		8/31/2017	1.0 U	1.7	5.9
		11/14/2017	1.8	1.8	10.6
		5/30/2018	1.9	2.6	10.4
		11/7/2018	2.1	2.6	12.4
		5/21/2019	2.1	2.7	**15.2**
		11/19/2019	**2.9**	4.7	**16.6**
		5/12/2020	**3.4**	5.9	**17.2**
		11/22/2020	**2.8**	4.2	13.8
		5/9/2021	2.7	4.2	13.2
		12/29/2021	2.3	3.2	11.1
		6/26/2022	**3.1**	5.8	5.9
		11/20/2022	2.1	2.2	5.4

Table 9

Historical Recovery Well Sampling Results
Former Kop-Flex Facility
Hanover, Maryland (a, b)

			VOCs (µg/L)		
Well ID	**Zone**	**Sample Date**	**1,1-DCA**	**1,1-DCE**	**1,4-Dioxane**
Groundwater Quality Standard (c)			**2.8**	**7**	**15 (d)**
RW-1D	**Deep**	*12/6/2016*	**4.4**	**39.3**	**34.4**
		5/1/2017	**10.4**	**88.9**	**51.9**
		8/31/2017	**15.7**	**99.7**	**52.8**
		11/14/2017	**30.4**	**174**	**65.5**
		5/30/2018	**77.1**	**392**	**139**
		11/7/2018	**78.1**	**363**	**155**
		5/21/2019	**50.8**	**224**	**112**
		11/19/2019	**49.9**	**240**	**89.7**
		5/12/2020	**48.4**	**202**	**81.8**
		11/22/2020	**42.0**	**179**	**90.9**
		5/9/2021	**52.4**	**204**	**77.7**
		12/29/2021	**51.4**	**202**	**83.7**
		6/26/2022	**59.9**	**242**	**36.2**
		11/20/2022	**68.6**	**237**	**40.2**
		12/3/2023	**87.3**	**431**	**34**
RW-2D	**Deep**	*12/6/2016*	**64.0**	**257**	**206**
		5/1/2017	**56.6**	**486**	**214**
		8/31/2017	**42.4**	**306**	**149**
		11/14/2017	**44.0**	**295**	**172**
		5/30/2018	**24.9**	**175**	**106**
		11/7/2018	**25.4**	**185**	**99.8**
		5/21/2019	**16.9**	**115**	**72.7**
		11/19/2019	**21.6**	**149**	**85.5**
		5/12/2020	**21.4**	**145**	**78.2**
		11/22/2020	**17.9**	**131**	**74.5**
		5/9/2021	**16.8**	**104**	**62.8**
		12/29/2021	**20.2**	**120**	**85.1**
		6/26/2022	**27.1**	**125**	**39.2**
		11/20/2022	**20.4**	**123**	**40.0**
		12/3/2023	**22.8**	**154**	**29.5**

a/ Select constituents are presented; see Appendix B for complete analytical data.

b/ VOCs = volatile organic compounds; µg/L = micrograms per liter; 1,1-DCA = 1,1-dichloroethane; 1,1-DCE = 1,1-dichloroethene
U = compound not detected above reported limit.
Results shown in **bold** exceed the cleanup standard.

c/ All cleanup standards, except for 1,4-dioxane, are equal to the Maryland Generic Numeric Cleanup Standards for Groundwater, Type I and II Aquifers, from the State of Maryland Interim Final Guidance (October 2018). Accessed May 27, 2020: https://mde.maryland.gov/programs/land/MarylandBrownfieldVCP/Documents/www.mde.state.md.us/assets/document/MDE%20Soil20and20Groundwater20Cleanup%20Standards%2010-2018%20Interim%20Final%20Update%203-2.pdf

d/ Numeric cleanup standards from WSP's October 2, 2015, Response Action Plan, Revision 2.

Table 10

Mann-Kendall Trend Analysis Results For Recovery Wells
Former Kop-Flex Facility
Hanover, Maryland (a)

Well ID	1,1-DCA	1,1-DCE	1,4-Dioxane
	Trend	Trend	Trend
Onsite Shallow Recovery Wells			
RW-1S	No Trend	Stable	Decreasing
RW-2S	Stable	Stable	Decreasing
RW-3S	No Trend	No Trend	No Trend
Onsite Deep Recovery Wells			
RW-1D	Increasing	Increasing	No Trend/Stable (Possibly Decreasing)
RW-2D	Decreasing	Decreasing	Decreasing

a/ 1,1-DCA = 1,1-dichloroethane; 1,1-DCE = 1,1-dichloroethene;

b/ Trend analysis not performed because more than 50% of the samples had non-detect concentrations of this compound.

Table 11

Well Construction
Former Kop-Flex Facility
Hanover, Maryland (a)

Well ID	Installation Date	Well Diameter (inches)	TOC Elevation (ft amsl)	Total Depth (ft btoc)	Screen Length / Open Borehole (feet)	Screen Interval Depth (ft btoc)	Screen Interval Elevation (ft amsl)
Shallow Zone - Water Table							
MW-01	03/30/96	2	113.6	36	10.0	26.0 - 36.0	87.60 - 77.60
MW-04	04/02/96	2	124.4	34.3	10.0	24.3 - 34.3	100.10 - 90.10
MW-04R	09/13/22	2	125.4	40	10.0	30.0 - 40.0	95.40 85.40
MW-05R	09/13/16	2	123.5	33	10.0	23.0 - 33.0	100.50 - 90.50
MW-09	12/10/96	2	125.1	25	10.0	15.0 - 25.0	110.10 - 100.10
MW-38R	09/13/16	2	125.4	33.3	10.0	23.3 - 33.3	102.10 - 92.10
MW-42	09/13/16	2	125.9	33.2	10.0	23.2 - 33.2	102.70 - 92.70
Shallow Zone - Semi-Confined							
MW-03	04/01/96	2	113.6	21.7	10.0	11.7 - 21.7	101.90 - 91.90
MW-16	08/2010	2	124.0	50.2	10.0	40.2 - 50.2	83.80 - 73.80
MW-18	11/30/11	2	125.1	58.3	10.0	48.3 - 58.3	76.80 - 66.80
MW-20	11/29/11	2	125.4	50	5.0	45.0 - 50.0	80.40 - 75.40
MW-39	04/04/14	2	124.6	54	10.0	44.0 - 54.0	80.60 - 70.60
MW-43	09/14/16	2	122.8	47.5	10.0	37.5 - 47.5	85.30 - 75.30
MW-44	09/15/16	2	127.1	42.8	10.0	32.8 - 42.8	94.30 - 84.30
Deep Zone							
MW-01D	12/03/11	2	129.4	112.2	10.0	102.2 - 112.2	27.20 - 17.20
MW-16D	12/19/10	2	124.1	100.2	10.0	90.2 - 100.2	33.90 - 23.90
MW-21D	03/22/12	2	126.3	106	10.0	96.0 - 106.0	30.30 - 20.30
MW-22D	03/23/12	2	128.9	114.9	10.0	104.9 - 114.9	24.00 - 14.00
MW-23D	03/21/12	2	125.2	95	10.0	85.0 - 95.0	40.20 - 30.20
MW-27D	08/27/13	2	117.2	117.3	10.0	107.3 - 117.3	9.90 - -0.10
MW-40D	09/21/16	2	124.1	95.8	10.0	85.8 - 95.8	38.30 - 28.30
MW-41D	09/23/16	2	127.1	164	10.0	154.0 - 164.0	-26.90 - -36.90
RECOVERY WELL PIEZOMETERS							
Shallow Zone - Semi-Confined							
RW-1S	09/12/16	1	122.9	62	35.0	27.0 - 62.0	95.90 - 60.90
RW-2S	09/11/16	1	123.5	60.5	35.0	25.5 - 60.5	98.00 - 63.00
RW-3S	09/11/16	1	125.4	62	35.0	27.0 - 62.0	98.40 - 63.40
Deep Zone							
RW-1D	09/09/16	1	126.9	126	40.0	86.0 - 126.0	40.90 - 0.90
RW-2D	08/31/16	1	127.4	145.6	40.0	105.6 - 145.6	21.80 - -18.20

Notes:
a/ TOC = top of casing; ft amsl = feet above mean sea level; ft btoc = feet below top of casing.

Table 12

Historical Water Level Measurements in
Monitoring Wells and Recovery Well Piezometers
Former Kop-Flex Facility
Hanover, Maryland (a)

Well ID	Zone	TOC elevation	12/7/2016 (c)		2/1/2017 (c)		3/21/2017		4/7/2017		4/10/2017		4/13/2017		4/17/2017	
			Depth to Water	*Groundwater Elevation*	*Depth to Water*	*Groundwater Elevation*	*Depth to Water*	*Groundwater Elevation*	*Depth to Water*	*Groundwater Elevation*	*Depth to Water*	*Groundwater Elevation*	*Depth to Water*	*Groundwater Elevation*	*Depth to Water*	*Groundwater Elevation*
MW-01	Shallow - Water Table	129.8	NM	-	15.98	113.82	16.16	113.64	15.93	113.87	15.95	113.85	15.94	113.86	15.90	113.90
MW-04	Shallow - Water Table	124.4	12.28	112.12	11.14	113.26	11.17	113.23	11.05	113.35	11.09	113.31	11.06	113.34	11.13	113.27
MW-04R (b	Shallow - Water Table	127.5	NA	-	NA	-	NA	-	NA	-	NA	-	NA	-	NA	-
MW-5R	Shallow - Water Table	123.5	15.87	107.63	13.49	110.01	15.98	107.52	16.15	107.35	16.38	107.12	16.45	107.05	16.47	107.03
MW-09	Shallow - Water Table	125.1	10.84	114.26	11.30	113.80	11.51	113.59	11.41	113.69	11.41	113.69	11.51	113.59	11.48	113.62
MW-38R	Shallow - Water Table	125.4	15.58	109.82	15.76	109.64	19.64	105.76	19.6	105.80	20.81	104.59	19.81	105.59	19.84	105.56
MW-42	Shallow - Water Table	125.9	16.18	109.72	16.26	109.64	19.28	106.62	19.33	106.57	19.52	106.38	19.49	106.41	19.55	106.35
MW-16	Shallow - Semi-Confined	124.0	10.92	113.08	11.12	112.88	11.66	112.34	11.74	112.26	11.81	112.19	11.82	112.18	12.08	111.92
MW-18	Shallow - Semi-Confined	125.1	20.77	104.33	20.84	104.26	22.85	102.25	22.85	102.25	23.11	101.99	23.18	101.92	23.19	101.91
MW-20	Shallow - Semi-Confined	125.4	NM	-	12.24	113.16	12.5	112.90	12.33	113.07	12.31	113.09	12.3	113.10	13.38	112.02
MW-03	Shallow - Semi-Confined	113.6	6.78	106.82	6.83	106.77	6.79	106.81	6.41	107.19	6.76	106.84	6.91	106.69	6.90	106.70
MW-39	Shallow - Semi-Confined	124.6	NM	-	20.96	103.64	22.64	101.96	22.55	102.05	21.86	102.74	23	101.60	23.01	101.59
MW-43	Shallow - Semi-Confined	122.8	19.25	103.55	19.31	103.49	20.68	102.12	20.31	102.49	20.61	102.19	21.81	100.99	20.92	101.88
MW-44	Shallow - Semi-Confined	127.1	14.93	112.17	15.25	111.85	17.7	109.40	17.08	110.02	17.18	109.92	17.35	109.75	17.23	109.87
MW-45	Shallow - Semi-Confined	126.7	NM	-	NM	-	14.1	112.62	13.85	112.87	13.85	112.87	13.85	112.87	13.75	112.97
RW-1S	Shallow - Semi-Confined	122.9	12.96	109.94	13.17	109.73	12.96	109.94	20.36	102.54	20.6	102.30	20.56	102.34	20.60	102.30
RW-2S	Shallow - Semi-Confined	123.5	14.12	109.38	14.02	109.48	28.55	94.95	28.88	94.62	29.81	93.69	29	94.50	29.14	94.36
RW-3S	Shallow - Semi-Confined	125.4	14.29	111.11	14.24	111.16	20.34	105.06	23.49	101.91	23.59	101.81	23.69	101.71	23.73	101.67
MW-1D	Deep	129.4	42.81	86.59	42.22	87.18	56.15	73.25	56.06	73.34	56.22	73.18	56.44	72.96	56.37	73.03
MW-16D	Deep	124.1	34.91	89.19	34.72	89.38	37.55	86.55	37.6	86.50	38.02	86.08	38.1	86.00	37.94	86.16
MW-21D	Deep	126.3	37.8	88.50	37.59	88.71	47.12	79.18	47.26	79.04	47.57	78.73	47.61	78.69	47.58	78.72
MW-22D	Deep	128.9	40.78	88.07	40.49	88.36	43.28	85.57	43.3	85.55	43.59	85.26	43.76	85.09	43.73	85.12
MW-23D	Deep	125.2	35.14	90.06	34.74	90.46	36.33	88.87	36.29	88.91	36.72	88.48	36.81	88.39	36.61	88.59
MW-24D	Deep	129.1	46.3	82.80	45.73	83.37	47.44	81.66	47.71	81.39	48	81.10	48.16	80.94	48.29	80.81
MW-27D	Deep	117.2	29.66	87.54	26.78	90.42	27.73	89.47	27.68	89.52	28.18	89.02	28.3	88.90	28.03	89.17
MW-40D	Deep	124.1	35.14	88.96	34.94	89.16	37.19	86.91	37.51	86.59	37.98	86.12	37.98	86.12	37.85	86.25
MW-41D	Deep	127.1	41.98	85.12	41.44	85.66	44.00	83.10	44.06	83.04	44.48	82.62	44.56	82.54	44.43	82.67
MW-46D	Deep	124.8	NM	-	NM	-	NM	-	NM	-	NM	-	NM	-	NM	-
RW-1D	Deep	126.9	38.53	88.37	38.19	88.71	58.69	68.21	59.02	67.88	59.06	67.84	59.02	67.88	59.26	67.64
RW-2D	Deep	127.4	42.31	85.09	41.62	85.78	68.82	58.58	68.51	58.89	68.39	59.01	68.78	58.62	68.63	58.77

a/ Vertical datum is NAVD-88
NM = not measured
TOC = top of casing
NA = not available because the well had not been installed
Light gray shading denotes wells screened in the shallow (unconfined) zone; blue shading denotes wells screened in the deep (confined) zone.
Continuous pumping of the groundwater recovery well system started on March 29, 2017.
Water levels from both shallow and deep recovery wells were measured in piezometers co-located with the wells.
b/ MW-04 was replaced in September 2022 with MW-04R.
c/ Water level measurements representative of non-pumping conditions in the aquifer system.

Table 12

Historical Water Level Measurements in
Monitoring Wells and Recovery Well Piezometers
Former Kop-Flex Facility
Hanover, Maryland (a)

Well ID	Zone	TOC elevation	5/1/2017		5/8/2017		8/31/2017		10/25/2017		11/14/2017		5/30/2018		11/7/2018	
			Depth to Water	*Groundwater Elevation*	*Depth to Water*	*Groundwater Elevation*	*Depth to Water*	*Groundwater Elevation*	*Depth to Water*	*Groundwater Elevation*	*Depth to Water*	*Groundwater Elevation*	*Depth to Water*	*Groundwater Elevation*	*Depth to Water*	*Groundwater Elevation*
MW-01	Shallow - Water Table	129.8	15.92	113.88	15.81	113.99	15.49	114.31	NA	NA	14.17	115.63	15.52	114.28	13.99	115.81
MW-04	Shallow - Water Table	124.4	10.95	113.45	10.91	113.49	10.66	113.74	NA	NA	10.97	113.43	10.19	114.21	9.16	115.24
MW-04R (b	Shallow - Water Table	127.5	NA	-	NA	-	NA	-	NA	-	NA	-	NA	-	NA	-
MW-5R	Shallow - Water Table	123.5	16.60	106.90	16.60	106.90	16.90	106.60	NA	NA	16.78	106.72	15.89	107.61	15.51	107.99
MW-09	Shallow - Water Table	125.1	11.41	113.69	11.34	113.76	11.09	114.01	NA	NA	NA	NA	10.78	114.32	9.16	115.94
MW-38R	Shallow - Water Table	125.4	19.94	105.46	19.96	105.44	20.16	105.24	NA	NA	19.93	105.47	19.35	106.05	18.67	106.73
MW-42	Shallow - Water Table	125.9	19.68	106.22	19.67	106.23	19.95	105.95	NA	NA	19.82	106.08	19.16	106.74	18.55	107.35
MW-16	Shallow - Semi-Confined	124.0	11.99	112.01	11.81	112.19	11.90	112.10	NA	NA	12.00	112.00	11.76	112.24	10.96	113.04
MW-18	Shallow - Semi-Confined	125.1	23.30	101.80	23.28	101.82	24.63	100.47	NA	NA	24.41	100.69	23.80	101.30	23.13	101.97
MW-20	Shallow - Semi-Confined	125.4	13.01	112.39	12.24	113.16	12.39	113.01	NA	NA	11.98	113.42	12.15	113.25	11.74	113.66
MW-03	Shallow - Semi-Confined	113.6	6.96	106.64	6.87	106.73	7.59	106.01	NA	NA	7.27	106.33	7.17	106.43	6.43	107.17
MW-39	Shallow - Semi-Confined	124.6	23.05	101.55	23.00	101.60	24.51	100.09	NA	NA	23.93	100.67	23.72	100.88	23.09	101.51
MW-43	Shallow - Semi-Confined	122.8	21.11	101.69	20.90	101.90	21.73	101.07	NA	NA	21.66	101.14	20.47	102.33	20.60	102.20
MW-44	Shallow - Semi-Confined	127.1	17.31	109.79	17.27	109.83	17.18	109.92	NA	NA	17.00	110.10	16.32	110.78	15.78	111.32
MW-45	Shallow - Semi-Confined	126.7	13.67	113.05	13.60	113.12	13.20	113.52	NA	NA	13.80	112.92	12.98	113.74	12.00	114.72
RW-1S	Shallow - Semi-Confined	122.9	20.80	102.10	20.79	102.11	21.49	101.41	NA	NA	21.98	100.92	22.88	100.02	23.97	98.93
RW-2S	Shallow - Semi-Confined	123.5	29.61	93.89	29.74	93.76	32.10	91.40	NA	NA	30.76	92.74	28.37	95.13	27.48	96.02
RW-3S	Shallow - Semi-Confined	125.4	24.32	101.08	24.46	100.94	26.20	99.20	NA	NA	28.47	96.93	26.91	98.49	24.39	101.01
MW-1D	Deep	129.4	56.40	73.00	56.29	73.11	56.70	72.70	58.17	71.23	58.09	71.31	58.03	71.37	57.22	72.18
MW-16D	Deep	124.1	37.98	86.12	38.08	86.02	41.1	83.00	40.71	83.39	40.63	83.47	40.37	83.73	39.33	84.77
MW-21D	Deep	126.3	47.54	78.76	47.61	78.69	56.7	69.60	50.61	75.69	50.53	75.77	50.38	75.92	49.61	76.69
MW-22D	Deep	128.9	43.82	85.03	43.81	85.04	46.71	82.14	46.74	82.11	46.25	82.60	46.30	82.55	35.31	93.54
MW-23D	Deep	125.2	36.71	88.49	36.77	88.43	39.9	85.30	39.21	85.99	39.04	86.16	38.87	86.33	37.72	87.48
MW-24D	Deep	129.1	48.35	80.75	48.37	80.73	55.82	73.28	52.15	76.95	51.99	77.11	50.94	78.16	50.72	78.38
MW-27D	Deep	117.2	28.21	88.99	28.21	88.99	31.11	86.09	30.52	86.68	30.34	86.86	30.20	87.00	29.17	88.03
MW-40D	Deep	124.1	38.01	86.09	38.04	86.06	41.00	83.10	40.75	83.35	40.50	83.60	40.44	83.66	39.60	84.50
MW-41D	Deep	127.1	44.61	82.49	44.62	82.48	49.18	77.92	47.94	79.16	47.71	79.39	47.56	79.54	46.56	80.54
MW-46D	Deep	124.8	NM	-	NM	-	NM	-	NM	-	NM	-	37.37	87.40	32.65	92.12
RW-1D	Deep	126.9	58.88	68.02	58.99	67.91	60.23	66.67	62.62	64.28	63.62	63.28	62.75	64.15	62.97	63.93
RW-2D	Deep	127.4	68.70	58.70	68.44	58.96	70.11	57.29	68.90	58.50	68.95	58.45	69.21	58.19	68.34	59.06

a/ Vertical datum is NAVD-88
NM = not measured
TOC = top of casing
NA = not available because the well had not been installed
Light gray shading denotes wells screened in the shallow (unconfined) zone; blue shading denotes wells screened in the deep (confined) zone.
Continuous pumping of the groundwater recovery well system started on March 29, 2017.
Water levels from both shallow and deep recovery wells were measured in piezometers co-located with the wells.
c/ MW-04 was replaced in September 2022 with MW-04R.
b/ Water level measurements representative of non-pumping conditions in the aquifer system.

Table 12

Historical Water Level Measurements in
Monitoring Wells and Recovery Well Piezometers
Former Kop-Flex Facility
Hanover, Maryland (a)

Well ID	Zone	TOC elevation	5/21/2019		11/19/2019		5/12/2020		11/22/2020		5/9/2021		11/14/2021 (c)		6/26/2022 (c)	
			Depth to Water	*Groundwater Elevation*	*Depth to Water*	*Groundwater Elevation*	*Depth to Water*	*Groundwater Elevation*	*Depth to Water*	*Groundwater Elevation*	*Depth to Water*	*Groundwater Elevation*	*Depth to Water*	*Groundwater Elevation*	*Depth to Water*	*Groundwater Elevation*
MW-01	Shallow - Water Table	129.8	13.98	115.82	16.47	113.33	15.67	114.13	15.58	114.22	14.75	115.05	15.35	114.45	14.85	114.95
MW-04	Shallow - Water Table	124.4	8.80	115.60	11.07	113.33	11.00	113.40	10.85	113.55	9.75	114.65	10.43	113.97	9.90	114.50
MW-04R (b	Shallow - Water Table	127.5	NA	-	NA	-	NA	-	NA	-	NA	-	NA	-	NA	-
MW-5R	Shallow - Water Table	123.5	15.74	107.76	16.61	106.89	16.55	106.95	15.84	107.66	NM	-	13.52	109.98	14.36	109.14
MW-09	Shallow - Water Table	125.1	9.61	115.49	12.00	113.10	11.57	113.53	11.23	113.87	10.35	114.75	10.85	114.25	10.50	114.60
MW-38R	Shallow - Water Table	125.4	19.13	106.27	19.83	105.57	19.03	106.37	19.25	106.15	18.55	106.85	15.63	109.77	17.66	107.74
MW-42	Shallow - Water Table	125.9	18.91	106.99	19.44	106.46	18.85	107.05	NM	-	17.98	107.92	15.64	110.26	NM	-
MW-16	Shallow - Semi-Confined	124.0	9.37	114.63	12.43	111.57	11.66	112.34	11.68	112.32	11.15	112.85	11.05	112.95	11.22	112.78
MW-18	Shallow - Semi-Confined	125.1	22.97	102.13	21.12	103.98	23.10	102.00	23.80	101.30	26.71	98.39	21.42	103.68	22.05	103.05
MW-20	Shallow - Semi-Confined	125.4	10.64	114.76	12.98	112.42	12.57	112.83	12.11	113.29	11.22	114.18	11.34	114.06	14.41	110.99
MW-03	Shallow - Semi-Confined	113.6	7.08	106.52	7.02	106.58	6.09	107.51	6.1	107.50	6.4	107.20	5.86	107.74	6.21	107.39
MW-39	Shallow - Semi-Confined	124.6	23.00	101.60	23.94	100.66	23.04	101.56	23.52	101.08	22.98	101.62	21.29	103.31	22.22	102.38
MW-43	Shallow - Semi-Confined	122.8	21.46	101.34	22.04	100.76	20.98	101.82	21.91	100.89	21.02	101.78	20.10	102.70	20.47	102.33
MW-44	Shallow - Semi-Confined	127.1	15.91	111.19	17.24	109.86	16.30	110.80	16.52	110.58	16.26	110.84	15.21	111.89	15.80	111.30
MW-45	Shallow - Semi-Confined	126.7	11.75	114.97	14.55	112.17	NM	-	13.61	113.11	12.69	114.03	13.35	113.37	12.91	113.81
RW-1S	Shallow - Semi-Confined	122.9	26.42	96.48	28.64	94.26	29.16	93.74	28.13	94.77	25.00	97.90	13.28	109.62	NM	-
RW-2S	Shallow - Semi-Confined	123.5	31.16	92.34	31.70	91.80	33.33	90.17	35.31	88.19	34.85	88.65	16.02	107.48	NM	-
RW-3S	Shallow - Semi-Confined	125.4	22.10	103.30	23.24	102.16	22.85	102.55	26.72	98.68	25.36	100.04	15.69	109.71	NM	-
MW-1D	Deep	129.4	56.55	72.85	59.49	69.91	57.17	72.23	59.91	69.49	57.46	71.94	45.20	84.20	47.46	81.94
MW-16D	Deep	124.1	38.30	85.80	40.99	83.11	38.67	85.43	39.97	84.13	38.81	85.29	37.06	87.04	NM	-
MW-21D	Deep	126.3	48.38	77.92	50.75	75.55	48.50	77.80	50.37	75.93	48.64	77.66	41.50	84.80	43.11	83.19
MW-22D	Deep	128.9	44.02	84.83	46.20	82.65	44.05	84.80	46.55	82.30	44.72	84.13	43.36	85.49	44.90	83.95
MW-23D	Deep	125.2	36.88	88.32	39.40	85.80	37.16	88.04	39.22	85.98	37.36	87.84	36.73	88.47	38.36	86.84
MW-24D	Deep	129.1	49.67	79.43	51.12	77.98	48.80	80.30	53.02	76.08	50.01	79.09	49.40	79.70	51.06	78.04
MW-27D	Deep	117.2	28.15	89.05	30.68	86.52	28.64	88.56	30.62	86.58	28.89	88.31	28.72	88.48	29.82	87.38
MW-40D	Deep	124.1	38.50	85.60	41.16	82.94	38.59	85.51	40.97	83.13	39.00	85.10	37.48	86.62	40.04	84.06
MW-41D	Deep	127.1	45.42	81.68	48.50	78.60	45.28	81.82	48.65	78.45	45.95	81.15	44.51	82.59	46.96	80.14
MW-46D	Deep	124.8	35.47	89.30	37.90	86.87	35.73	89.04	37.72	87.05	35.95	88.82	35.62	89.15	37.13	87.64
RW-1D	Deep	126.9	62.44	64.46	64.86	62.04	NM	-	NM	-	NM	-	41.71	85.19	NM	-
RW-2D	Deep	127.4	68.19	59.21	71.36	56.04	69.35	58.05	69.72	57.68	69.41	57.99	43.90	83.50	NM	-

a/ Vertical datum is NAVD-88
NM = not measured
TOC = top of casing
NA = not available because the well had not been installed
Light gray shading denotes wells screened in the shallow (unconfined) zone; blue shading denotes wells screened in the deep (confined) zone.
Continuous pumping of the groundwater recovery well system started on March 29, 2017.
Water levels from both shallow and deep recovery wells were measured in piezometers co-located with the wells.
c/ MW-04 was replaced in September 2022 with MW-04R.
b/ Water level measurements representative of non-pumping conditions in the aquifer system.

Table 12

Historical Water Level Measurements in
Monitoring Wells and Recovery Well Piezometers
Former Kop-Flex Facility
Hanover, Maryland (a)

Well ID	Zone	TOC elevation	11/7/2022		11/20/2022		5/21/2023 (c)		12/3/2023	
			Depth to Water	*Groundwater Elevation*	*Depth to Water*	*Groundwater Elevation*	*Depth to Water*	*Groundwater Elevation*	*Depth to Water*	*Groundwater Elevation*
MW-01	Shallow - Water Table	129.8	15.66	114.14	15.65	114.15	15.22	114.58	15.73	114.07
MW-04	Shallow - Water Table	124.4	-	- (b)	-	- (b)	-	- (b)	-	- (b)
MW-04R (b	Shallow - Water Table	127.5	13.93	113.54	14.01	113.46	13.60	113.87	14.11	113.36
MW-5R	Shallow - Water Table	123.5	NM	-	15.95	107.55	13.53	109.97	15.32	108.18
MW-09	Shallow - Water Table	125.1	10.81	114.29	11.08	114.02	10.90	114.20	11.29	113.81
MW-38R	Shallow - Water Table	125.4	19.32	106.08	19.01	106.39	16.76	108.64	18.18	107.22
MW-42	Shallow - Water Table	125.9	18.68	107.22	18.48	107.42	15.89	110.01	17.83	108.07
MW-16	Shallow - Semi-Confined	124.0	11.84	112.16	11.75	112.25	11.79	112.21	11.68	112.32
MW-18	Shallow - Semi-Confined	125.1	23.37	101.73	23.39	101.71	21.46	103.64	23.69	101.41
MW-20	Shallow - Semi-Confined	125.4	11.35	114.05	11.73	113.67	11.80	113.60	11.81	113.59
MW-03	Shallow - Semi-Confined	113.6	6.39	107.21	6.29	107.31	6.63	106.97	6.9	106.70
MW-39	Shallow - Semi-Confined	124.6	23.74	100.86	23.49	101.11	21.72	102.88	23.63	100.97
MW-43	Shallow - Semi-Confined	122.8	21.58	101.22	21.51	101.29	20.10	102.70	22.15	100.65
MW-44	Shallow - Semi-Confined	127.1	16.12	110.98	15.85	111.25	15.30	111.80	15.91	111.19
MW-45	Shallow - Semi-Confined	126.7	NM	-	13.54	113.18	13.08	113.64	13.54	113.18
RW-1S	Shallow - Semi-Confined	122.9	20.77	102.13	20.41	102.49	13.22	109.68	18.10	104.80
RW-2S	Shallow - Semi-Confined	123.5	29.30	94.20	28.82	94.68	14.70	108.80	28.91	94.59
RW-3S	Shallow - Semi-Confined	125.4	NM	-	16.94	108.46	15.82	109.58	NM	-
MW-1D	Deep	129.4	NM	-	60.02	69.38	45.61	83.79	58.66	70.74
MW-16D	Deep	124.1	NM	-	NM	-	37.56	86.54	41.89	82.21
MW-21D	Deep	126.3	NM	-	51.95	74.35	40.86	85.44	51.76	74.54
MW-22D	Deep	128.9	NM	-	46.90	81.95	43.52	85.33	48.10	80.75
MW-23D	Deep	125.2	NM	-	39.85	85.35	37.31	87.89	40.28	84.92
MW-24D	Deep	129.1	NM	-	53.11	75.99	49.42	79.68	53.83	75.27
MW-27D	Deep	117.2	NM	-	31.18	86.02	29.24	87.96	31.71	85.49
MW-40D	Deep	124.1	NM	-	41.58	82.52	37.80	86.30	42.06	82.04
MW-41D	Deep	127.1	NM	-	48.78	78.32	44.84	82.26	49.37	77.73
MW-46D	Deep	124.8	NM	-	38.38	86.39	36.26	88.51	38.88	85.89
RW-1D	Deep	126.9	NM	-	64.80	62.10	42.00	84.90	64.03	62.87
RW-2D	Deep	127.4	NM	-	71.59	55.81	45.25	82.15	NM	-

a/ Vertical datum is NAVD-88
NM = not measured
TOC = top of casing
NA = not available because the well had not been installed
Light gray shading denotes wells screened in the shallow (unconfined) zone; blue shading denotes wells screened in the deep (confined) zone.
Continuous pumping of the groundwater recovery well system started on March 29, 2017.
Water levels from both shallow and deep recovery wells were measured in piezometers co-located with the wells.
b/ MW-04 was replaced in September 2022 with MW-04R.
c/ Water level measurements representative of non-pumping conditions in the aquifer system.

Table 13

Deployment Depths for HydraSleeve Samplers
Former Kop-Flex Facility Site
Hanover, Maryland (a)

			Historical Deployment Depths		New Deployment Depths	
Well ID	**Well Depth (ft bgs)**	**Top of Screen**	**Deployment Depth (ft bgs) (b)**	**Sample Interval (ft bgs)**	**Deployment Depth (ft bgs) (b)**	**Sample Interval (ft bgs)**
Shallow Wells						
MW-01	37	27	34.5	32-34.5	32	28.8 - 32.0
MW-03	25.5	16	23.0	20.5-23	21	17.3-20.5
MW-04R	40	30	37.5	35-37.5	35	31.8-35
MW-05R	32	22	29.5	27-29.5	27	23.8-27
MW-09	25	15	22.5	20-22.5	20	16.8 - 20
MW-16	50	40	47.5	45-47.5	45	40.7 - 45
MW-18	56	46	53.5	51-53.5	51	47.8 - 51
MW-20	60	50	57.5	55-57.5	55	51.8 - 55
MW-38R	28	18	25.5	23-25.5	23	20.9 - 24.1
MW-39	50	40	47.5	45-47.5	45	41.8 - 45
MW-42	30	20	27.5	25-27.5	25	21.8 - 25.0
MW-43	46	36	43.5	41-43.5	41	37.8 - 41.0
MW-44	42	32	39.5	37-39.5	37	33.8 - 37.0
Deep Wells						
MW-01D	112	102	109.5	107-109.5	107	103.8 - 107.0
MW-16D	101	91	98.5	96-98.5	98	95.2 - 98.4
MW-21D	102	92	99.5	97-99.5	97	93.8 - 97.0
MW-22D	114	104	111.5	109-111.5	109	105.8 - 109.0
MW-23D	92	82	89.5	87-89.5	87	83.8 - 87
MW-27D	113	103	110.5	108-110.5	108	104.8 - 108.0
MW-40D	97	87	94.5	92-94.5	92	88.8 - 92.0
MW-41D	162	152	159.5	157-159.5	157	153.8 - 157.0

a/ ft bgs = feet below ground surface
b/ Deployment depth is measured at the top of the sampler

Table 14

Field Water Quality Measurements
Former Kop-Flex Facility Site
Hanover, MD
December 2023 (a)

Well ID	Sample Date	Temp (°C)	pH	Sp. Cond (mS/cm)	Turb (NTU)
Shallow Wells					
MW-01	12/3/2023	12.74	4.32	0.147	0
MW-03	12/3/2023	12.12	5.83	NM	297
MW-04	12/3/2023	13.24	5.98	0.429	65.1
MW-09	12/3/2023	14.87	6.45	1.01	11.3
MW-16	12/3/2023	NM	NM	NM	NM
MW-18	12/3/2023	12.21	4.42	NM	14.8
MW-20	12/3/2023	13.26	6.07	0.16	151
MW-38R	12/3/2023	13.66	3.78	NM	42.9
MW-39	12/20/2023	NM	NM	NM	NM
MW-42	12/3/2023	12.91	3.8	NM	9.7
MW-43	12/3/2023	12.93	3.9	NM	46.4
MW-44	12/3/2023	12.8	5.38	0.402	0
MW-5R	12/3/2023	13	3.75	0.581	111
RW-1S	12/3/2023	13.65	4.27	NM	0.4
RW-2S	12/3/2023	13.3	4.07	0.321	0
Deep Wells					
MW-01D	12/3/2023	12.47	4.86	0.151	156
MW-16D	12/3/2023	NM	NM	NM	NM
MW-21D	12/3/2023	12.51	4.46	0.191	0
MW-22D	12/3/2023	12.38	4.68	0.156	39
MW-23D	12/3/2023	13.24	5.66	0.216	130
MW-27D	12/3/2023	11.76	5.67	NM	42.8
MW-40D	12/3/2023	11.94	4.3	0.248	2.6
MW-41D	12/3/2023	12.95	4.41	0.168	13
MW-46D	12/3/2023	12.36	4.95	NM	135
RW-1D	12/3/2023	13.17	4.7	0.2	0
RW-2D	12/3/2023	12.98	4.32	0.147	0

a/ Temp = temperature; °C = degrees Celsius; Sp. Cond = specific conductance; mS/cm = milliSiemens/centimeter; ORP = oxidation-reduction potential; mV = millivolts; Turb = Turbidity; NTU = nephelometric turbidity units.

Table 15

2023 Monitoring Well Sampling Results
Former Kop-Flex Facility
Hanover, Maryland (a)

			Shallow Wells									
	Well ID:		**MW-01**	**MW-03**	**MW-04R**	(d)	**MW-05R**		**MW-09**		**MW-16**	
	Date Sampled:		**12/3/23**	**12/3/23**	**5/21/23**	**12/3/23**	**5/21/23**	**12/3/23**	**5/21/23**	**12/3/23**	**5/21/23**	**12/3/23**
Parameters	**Groundwater Cleanup Standards (µg/L) (b)**											
Acetone	1,400		10.0 U	10.0 U	50.0 U	50.0 U	10.0 U	10.0 U	10.0 U	10.0 U	12.3	200 U
Chloroethane	2,100		1.0 U	1.0 U	5.0 U	5.0 U	1.0 U	1.0 U	1.0 U	1.0 U	96.1	124
1,1-Dichloroethane	2.8		1.0 U	1.0 U	**33.2**	**31.3**	1.2	1.0 U	1.9	2.6	**2,230**	**3,040**
1,2-Dichloroethane	5		1.0 U	1.0 U	5.0 U	5.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	20.0 U
1,1-Dichloroethene	7		1.0 U	1.0 U	**65.5**	**65.8**	1.0 U	1.0 U	**36.0**	**53.4**	**2,510**	**3,990**
1,4-Dioxane	15	(c)	1.0 U	1.1 U	**30.8**	**35.9**	3.3	2.5	4.5	6.4	**89.5**	**96.3**
Ethylbenzene	700		1.0 U	1.0 U	5.0 U	5.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.3	20.0 U
Methyl t-Butyl Ether	20		1.0 U	1.0 U	5.0 U	5.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	20.0 U
Methylene Chloride	5		1.0 U	1.0 U	5.0 U	5.0 U	1.0 U	1.0 U	1.0 U	1.0 U	3.7	20.0 U
Tetrachloroethene	5		1.0 U	1.0 U	5.0 U	5.0 U	1.0 U	1.0 U	1.0 U	1.0 U	**6.3**	20.0 U
1,1,1-Trichloroethane	200		1.0 U	1.0 U	5.0 U	5.0 U	1.6	1.5	1.0 U	1.0 U	**2,230**	**2,200**
Trichloroethene	5		1.0 U	1.0 U	5.0 U	5.0 U	1.0 U	1.0 U	1.0 U	1.0 U	**19.1**	**20.5**
Vinyl Chloride	3		1.0 U	1.0 U	5.0 U	5.0 U	1.0 U	1.0 U	1.0 U	1.0 U	**6.7**	20.0 U
mp-Xylene	(see total)		2.0 U	2.0 U	10.0 U	10.0 U	2.0 U	2.0 U	2.0 U	2.0 U	3.7	40.0 U
o-Xylene	(see total)		1.0 U	1.0 U	5.0 U	5.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.9	20.0 U
Total Xylenes	10,000		3.0 U	3.0 U	15.0 U	15.0 U	3.0 U	3.0 U	3.0 U	3.0 U	5.7	60.0 U

Table 15

2023 Monitoring Well Sampling Results
Former Kop-Flex Facility
Hanover, Maryland (a)

			Shallow Wells													
	Well ID:		**MW-18**		**MW-20**		**MW-38R**		**MW-39**		**MW-42**		**MW-43**		**MW-44**	
	Date Sampled:		**5/21/23**	**12/3/23**	**5/21/23**	**12/3/23**	**5/21/23**	**12/3/23**	**5/21/23**	**12/21/23**	**5/21/23**	**12/3/23**	**5/21/23**	**12/3/23**	**5/21/23**	**12/3/23**
Parameters	**Groundwater Cleanup Standards (µg/L) (b)**															
Acetone	1,400		10.0 U	10.0 U	50.0 U	50.0 U	10.0 U	10.0 U	10.0 U	10.0 U	10.0 U	10.0 U	10.0 U	10.0 U	10.0 U	10.0 U
Chloroethane	2,100		1.0 U	1.0 U	5.0 U	5.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
1,1-Dichloroethane	2.8		1.0 U	1.0 U	**252**	**432**	**6.8**	**4.2**	1.0 U	1.0 U	1.0 U	1.0 U	1.6	1.6	1.2	**3.9**
1,2-Dichloroethane	5		1.0 U	1.0 U	**8.9**	**13.1**	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
1,1-Dichloroethene	7		1.0 U	1.0 U	**307**	**631**	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	**21.2**	**19.9**	1.9	6.8
1,4-Dioxane	15	(c)	1.0 U	1.0 U	**407**	**404**	11.4	**18.2**	1.0 U	1.0 U	5.8	4.1	9.0	8.5	1.9	2.6
Ethylbenzene	700		1.0 U	1.0 U	5.0 U	5.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
Methyl t-Butyl Ether	20		1.0 U	1.0 U	5.0 U	5.0 U	1.0 U	1.0 U	1.1	1.0 U	1.0 U	1.0 U	2.3	1.8	1.0 U	1.0 U
Methylene Chloride	5		1.0 U	1.0 U	5.0 U	5.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
Tetrachloroethene	5		1.0 U	1.0 U	5.0 U	5.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
1,1,1-Trichloroethane	200		1.0 U	1.0 U	5.0 U	5.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	2.6	9.4
Trichloroethene	5		1.0 U	1.0 U	5.0 U	**5.9**	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
Vinyl Chloride	3		1.0 U	1.0 U	5.0 U	5.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
mp-Xylene	(see total)		2.0 U	2.0 U	10.0 U	10.0 U	2.0 U	2.0 U	2.0 U	2.0 U	2.0 U	2.0 U	2.0 U	2.0 U	2.0 U	2.0 U
o-Xylene	(see total)		1.0 U	1.0 U	5.0 U	5.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
Total Xylenes	10,000		3.0 U	3.0 U	15.0 U	15.0 U	3.0 U	3.0 U	3.0 U	3.0 U	3.0 U	3.0 U	3.0 U	3.0 U	3.0 U	3.0 U

Table 15

2023 Monitoring Well Sampling Results
Former Kop-Flex Facility
Hanover, Maryland (a)

			Deep Wells											
	Well ID:		**MW-01D**		**MW-16D**				**MW-21D**		**MW-22D**		**MW-23D**	
	Date Sampled:		**5/21/23**	**12/3/23**	**5/21/23**	**DUP-052123 (e)**	**12/3/23**	**DUP-120323 (e)**	**5/21/23**	**12/3/23**	**5/21/23**	**12/3/23**	**5/21/23**	**12/3/23**
Parameters	**Groundwater Cleanup Standards (µg/L) (b)**													
Acetone	1,400		10.0 U	10.0 U	10.0 U	10.0 U	10.0 U	10.0 U	10.0 U	10.0 U	10.0 U	10.0 U	10.0 U	10.0 U
Chloroethane	2,100		1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
1,1-Dichloroethane	2.8		1.8	**3.8**	**24.8**	**24.9**	**21.8**	**19.7**	1.0 U	1.0 U	1.0 U	1.0 U	**32.4**	**41.2**
1,2-Dichloroethane	5		1.0 U	1.0 U	1.4	1.4	1.1	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.4	1.7
1,1-Dichloroethene	7		**11.1**	**21.3**	**111**	**110**	**103**	**98.3**	**26.1**	**30.8**	**8.4**	**8.5**	**116**	**177**
1,4-Dioxane	15	(c)	4.0	6.5	**36.1**	**21.3**	**34.5**	**27.0**	7.1	7.7	3.0	2.0	**27.0**	**56.1**
Ethylbenzene	700		1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
Methyl t-Butyl Ether	20		1.0 U	1.0 U	1.0 U	1.0 U	1.0	1.0 U	1.2	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
Methylene Chloride	5		1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
Tetrachloroethene	5		1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
1,1,1-Trichloroethane	200		1.0 U	1.0	6.5	6.7	5.2	4.7	1.0 U	1.0 U	1.0 U	1.0 U	8.3	9.3
Trichloroethene	5		1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
Vinyl Chloride	3		1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
mp-Xylene	(see total)		2.0 U	2.0 U	2.0 U	2.0 U	2.0 U	2.0 U	2.0 U	2.0 U	2.0 U	2.0 U	2.0 U	2.0 U
o-Xylene	(see total)		1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
Total Xylenes	10,000		3.0 U	3.0 U	3.0 U	3.0 U	3.0 U	3.0 U	3.0 U	3.0 U	3.0 U	3.0 U	3.0 U	3.0 U

Table 15

2023 Monitoring Well Sampling Results
Former Kop-Flex Facility
Hanover, Maryland (a)

			Deep Wells					
	Well ID:		**MW-27D**	**MW-40D**		**MW-41D**	**MW-46D**	
	Date Sampled:		**12/3/23**	**5/21/23**	**12/3/23**	**12/3/23**	**5/21/23**	**12/3/23**
Parameters	**Groundwater Cleanup Standards (µg/L) (b)**							
Acetone	1,400		10.0 U	10.0 U	10.0 U	10.0 U	10.0 U	10.0 U
Chloroethane	2,100		1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
1,1-Dichloroethane	2.8		1.0 U	1.0 U	1.0 U	1.0 U	1.2	**8.7**
1,2-Dichloroethane	5		1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
1,1-Dichloroethene	7		1.0 U	1.0 U	1.0 U	1.0 U	**19.2**	**51.5**
1,4-Dioxane	15	(c)	1.0 U	1.4 U	1.0 U	1.0 U	1.0 U	**27.3**
Ethylbenzene	700		1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
Methyl t-Butyl Ether	20		1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
Methylene Chloride	5		1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
Tetrachloroethene	5		1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
1,1,1-Trichloroethane	200		1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.6
Trichloroethene	5		1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
Vinyl Chloride	3		1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
mp-Xylene	(see total)		2.0 U	2.0 U	2.0 U	2.0 U	2.0 U	2.0 U
o-Xylene	(see total)		1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
Total Xylenes	10,000		3.0 U	3.0 U	3.0 U	3.0 U	3.0 U	3.0 U

a/ U = not detected above the method detection limit.
Bolded values indicate an exceedence of the Groundwater Cleanup Standards
All sample concentrations in micrograms per liter (µg/l)
b/ All cleanup standards, except for 1,4-dioxane, are equal to the Maryland Generic Numeric Cleanup Standards for Groundwater, Type I and II Aquifers, from the State of Maryland Interim Final Guidance (October 2018). Accessed May 27, 2020: document/MDE%20Soil%20and%20Groundwater%20Cleanup%20Standards%2010-2018%20Interim%20Final%20Update%203-2.pdf
c/ Numeric cleanup standards from WSP's October 2, 2015, Response Action Plan, Revision 2.
d/ MW-04 was replaced in September 2022 with monitoring well MW-4R
e/ This sample was a duplicate of MW-16D

Table 16

Historical Monitoring Well Sampling Results
Former Kop-Flex Facility Site
Hanover, Maryland
(December 2016 - December 2023) (a)

Well ID	Sample Date	Chloroethane	1,1-Dichloroethane	1,2-Dichloroethane	1,1-Dichloroethene	cis-1,2-Dichloroethene	1,4-Dioxane	Methylene Chloride	Tetrachloroethene	1,1,1-Trichloroethane	1,1,2-Trichloroethane	Trichloroethene	Vinyl chloride
Groundwater Cleanup Standards (b)		2,100	2.8	5	7	70	15 (c)	5	5	200	5	5	2
MW-01	5/14/2020	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	2.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
	5/9/2021	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	2.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
	11/14/2021	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	2.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
	6/26/2022	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	0.23	2.0 U	1.0	1.0 U	1.0 U	1.0 U	1.0 U
	11/20/2022	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
	12/3/2023	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
MW-03	12/8/2016	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	4.6	2.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
	5/1/2017	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	2.0 U	2.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
	5/30/2018	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	2.0 U	2.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
	5/21/2019	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	2.0 U	5.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
	5/12/2020	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	2.0 U	5.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
	5/9/2021	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	2.0 U	5.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
	11/14/2021	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	2.0 U	5.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
	6/26/2022	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	2.0 U	5.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
	11/20/2022	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
	12/3/2023	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
MW-04	12/7/2016	10.0 U	**259**	10.0 U	**1,020**	10.0 U	**576**	20.0 U	4.0 U	31.7	10.0 U	10.0 U	10.0 U
	5/2/2017	4.0 U	**103**	4.0 U	**459**	4.0 U	**252**	8.0 U	4.0 U	13.0	4.0 U	4.0 U	4.0 U
	11/15/2017	5.0 U	**29.2**	1.0 J	**151**	1.0 U	**121**	**10.5**	0.69 J	4.3	1.0 U	1.4	1.0 U
	5/30/2018	1.0 U	**33.3**	1.0 U	**153**	1.0 U	**92.7**	2.0 U	1.0 U	4.0	1.0 U	1.0 U	1.0 U
	11/7/2018	1.0 U	**23.3**	1.0 U	**89.9**	1.0 U	1.0 U	2.0 U	1.0 U	1.6	1.0 U	1.0 U	1.0 U
	5/21/2019	1.0 U	**57.7**	1.1	**142**	1.0 U	**111**	5.0 U	1.0 U	1.7	1.0 U	1.1	1.0 U
	11/19/2019	1.0 U	**45.1**	1.1	**126**	1.0 U	**94.2**	5.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
	5/13/2020	1.0 U	**58.6**	1.3	**149**	1.0 U	**84.6**	5.0 U	1.0 U	1.4	1.2	1.2	1.0 U
	11/22/2020	1.0 U	**62.0**	1.6	**141**	1.0 U	**151**	5.0 U	1.0 U	1.0 U	1.0 U	1.2	1.0 U
	5/9/2021	2.5 U	**130**	2.9	**361**	2.5 U	**303**	12.5 U	2.5 U	3.4	2.5 U	2.5 U	2.5 U
	11/14/2021	1.0 U	**82.7**	1.2	**175**	1.0 U	**134**	5.0 U	1.0 U	1.0 U	1.0 U	1.5	1.0 U
	6/26/2022	1.0 U	**173**	3.1	**339**	1.0 U	**86.8**	5.0 U	1.0 U	1.8	1.0 U	3.0	1.0 U

Table 16

Historical Monitoring Well Sampling Results
Former Kop-Flex Facility Site
Hanover, Maryland
(December 2016 - December 2023) (a)

Well ID	Sample Date	Chloroethane	1,1-Dichloroethane	1,2-Dichloroethane	1,1-Dichloroethene	cis-1,2-Dichloroethene	1,4-Dioxane	Methylene Chloride	Tetrachloroethene	1,1,1-Trichloroethane	1,1,2-Trichloroethane	Trichloroethene	Vinyl chloride
Groundwater Cleanup Standards (b)		2,100	2.8	5	7	70	15 (c)	5	5	200	5	5	2
MW-04R	11/20/2022	1.0 U	**37.4**	1.1	**76.0**	1.0 U	**57.3**	1.0 U	1.0 U	1.1	1.0 U	1.0 U	1.0 U
	5/21/2023	1.0 U	**33.2**	1.0 U	**65.5**	1.0 U	**30.8**	1.0 U	1.0 U	1.1	1.0 U	1.0 U	1.0 U
	12/3/2023	1.0 U	**31.3**	1.1	**65.8**	1.0 U	**35.9**	1.0 U	1.0 U	1.1	1.0 U	1.0 U	1.0 U
MW-5R	12/7/2016	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	**16.5**	2.0 U	1.0 U	1.4	1.0 U	1.0 U	1.0 U
	5/1/2017	1.0 U	1.4	1.0 U	1.4	1.0 U	**16.5**	2.0 U	1.0 U	2.7	1.0 U	1.0 U	1.0 U
	11/15/2017	5.0 U	1.6	1.0 U	2.5	1.0 U	11.0	**10.2**	1.0 U	1.7	1.0 U	1.0 U	1.0 U
	5/30/2018	1.0 U	1.8	1.0 U	2.7	1.0 U	11.5	2.0 U	1.0 U	1.4	1.0 U	1.0 U	1.0 U
	11/7/2018	1.0 U	1.0 U	1.0 U	1.3	1.0 U	2.0 U	2.0 U	1.0 U	1.5	1.0 U	1.0 U	1.0 U
	5/21/2019	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	7.6	5.0 U	1.0 U	1.9	1.0 U	1.0 U	1.0 U
	11/19/2019	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	6.8	5.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
	5/12/2020	1.0 U	1.8	1.0 U	1.7	1.0 U	13.4	5.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
	11/22/2020	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	2.2	5.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
	11/14/2021	1.0 U	1.6	1.0 U	1.4	1.0 U	12.0	5.0 U	1.0 U	2.4	1.0 U	1.0 U	1.0 U
	6/26/2022	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0	5.0 U	1.0 U	1.2	1.0 U	1.0 U	1.0 U
	11/20/2022	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.1	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
	5/21/2023	1.0 U	1.2	1.0 U	1.0 U	1.0 U	3.3	1.0 U	1.0 U	1.6	1.0 U	1.0 U	1.0 U
	12/3/2023	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	2.5	1.0 U	1.0 U	1.5	1.0 U	1.0 U	1.0 U
MW-09	12/8/2016	1.0 U	**4.5**	1.0 U	**104**	1.0 U	**95.5**	2.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
	5/2/2017	1.0 U	**2.9**	1.0 U	**63.8**	1.0 U	**20.8**	2.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
	11/15/2017	5.0 U	**3.1**	0.4 J	**60.2**	1.0 U	**32.4**	5.0 U	1.0 U	0.7 J	1.0 U	1.0 U	1.0 U
	5/30/2018	1.0 U	2.2	1.0 U	**49.2**	1.0 U	**23.4**	2.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
	11/7/2018	1.0 U	**4.5**	1.0 U	**75.9**	1.0 U	**37.4**	2.0 U	1.0 U	1.1	1.0 U	1.0 U	1.0 U
	5/21/2019	1.0 U	**3.6**	1.0 U	**70.8**	1.0 U	**32.8**	5.0 U	1.0 U	1.2	1.0 U	1.0 U	1.0 U
	11/19/2019	1.0 U	2.6	1.0 U	**48.7**	1.0 U	**24.4**	5.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
	5/13/2020	1.0 U	2.6	1.0 U	**50.5**	1.0 U	**18.7**	5.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
	11/22/2020	1.0 U	2.5	1.0 U	**56.4**	1.0 U	**25.7**	5.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
	5/9/2021	1.0 U	**3.0**	1.0 U	**56.3**	1.0 U	**23.6**	5.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
	11/14/2021	1.0 U	2.5	1.0 U	**53.3**	1.0 U	**22.6**	5.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
	6/26/2022	1.0 U	**3.0**	1.0 U	**57.7**	1.0 U	4.5	5.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
	11/20/2022	1.0 U	1.9	1.0 U	**35.7**	1.0 U	7.5	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
	5/21/2023	1.0 U	1.9	1.0 U	**36.0**	1.0 U	4.5	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
	12/3/2023	1.0 U	2.6	1.0 U	**53.4**	1.0 U	6.4	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U

Table 16

Historical Monitoring Well Sampling Results
Former Kop-Flex Facility Site
Hanover, Maryland
(December 2016 - December 2023) (a)

Well ID	Sample Date	Chloroethane	1,1-Dichloroethane	1,2-Dichloroethane	1,1-Dichloroethene	cis-1,2-Dichloroethene	1,4-Dioxane	Methylene Chloride	Tetrachloroethene	1,1,1-Trichloroethane	1,1,2-Trichloroethane	Trichloroethene	Vinyl chloride
Groundwater Cleanup Standards (b)		2,100	2.8	5	7	70	15 (c)	5	5	200	5	5	2
MW-16	12/8/2016	200 U	**6,420**	200 U	**26,200**	200 U	**1,450**	400 U	100 U	**4,390**	200 U	200 U	200 U
	5/2/2017	225	**7,910**	100 U	**10,500**	100 U	**971**	200 U	100 U	**8,930**	100 U	100 U	100 U
	11/15/2017	732	**7,110**	**22**	**7,740**	46	**836**	**11**	**18.4**	**5,590**	1.0 U	**69**	**19**
	5/30/2018	249	**6,250**	50 U	**4,690**	50 U	**636**	100 U	50 U	**7,360**	50 U	50 U	50 U
	11/7/2018	275	**7,360**	50 U	**7,800**	50 U	**866**	100 U	50 U	**6,420**	50 U	**74.2**	50 U
	5/22/2019	10 U	**343**	10 U	**1,160**	10 U	**1,230**	50 U	10 U	**216**	10 U	**13.7**	10 U
	11/19/2019	23.4	**608**	10 U	**1,440**	10 U	**81.9**	50 U	10 U	**314**	10 U	**18.3**	10 U
	5/13/2020	10.9	**394**	5 U	**571**	5 U	**39.2**	5 U	5 U	**487**	5 U	**10.7**	5 U
	11/22/2020	20.0 U	**1,560**	20 U	**1,130**	20 U	**84.2**	100 U	20 U	**2,060**	5 U	20.0 U	20 U
	5/9/2021	4.2	**169**	2 U	**276**	2.1	**19.3**	10 U	2.2	123	2 U	**6.2**	2 U
	11/14/2021	12.5 U	**1,350**	12.5 U	**1,630**	12.5 U	**76.0**	62.5 U	12.5 U	**1,720**	12.5 U	12.5 U	12.5 U
	6/26/2022	42.6	**1,030**	1.0 U	**1,210**	1.0 U	**26.4**	1.4	**5.5**	**1,610**	1.0 U	**13.8**	**2.3**
	11/20/2022	136.0	**3,290**	1.0 U	**4,290**	1.0 U	**143.0**	2.2	**9.4**	**2,960**	1.0 U	**28.0**	**13.2**
	5/21/2023	96.1	**2,230**	1.0 U	**2,510**	1.0 U	**89.5**	3.7	**6.3**	**2,230**	1.0 U	**19.1**	**6.7**
	12/3/2023	124.0	**3,040**	20.0 U	**3,990**	20.0 U	**96.3**	20.0 U	20.0 U	**2,200**	20.0 U	**20.5**	20 U
MW-18	12/7/2016	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	2.0 U	2.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
	5/1/2017	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	2.0 U	2.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
	11/15/2017	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	**24.9**	5.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
	5/30/2018	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	2.0 U	2.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
	11/7/2018	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	2.0 U	2.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
	5/21/2019	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	2.0 U	5.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
	11/19/2019	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	2.0 U	5.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
	5/12/2020	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	2.0 U	5.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
	11/22/2020	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	2.0 U	5.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
	5/9/2021	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	2.0 U	5.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
	11/14/2021	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	2.0 U	5.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
	6/26/2022	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	2.0 U	5.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
	11/20/2022	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
	5/21/2023	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
	12/3/2023	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U

Table 16

Historical Monitoring Well Sampling Results
Former Kop-Flex Facility Site
Hanover, Maryland
(December 2016 - December 2023) (a)

Well ID	Sample Date	Chloroethane	1,1-Dichloroethane	1,2-Dichloroethane	1,1-Dichloroethene	cis-1,2-Dichloroethene	1,4-Dioxane	Methylene Chloride	Tetrachloroethene	1,1,1-Trichloroethane	1,1,2-Trichloroethane	Trichloroethene	Vinyl chloride
Groundwater Cleanup Standards (b)		2,100	2.8	5	7	70	15 (c)	5	5	200	5	5	2
MW-20	12/9/2016	2.0 U	**99.7**	**5.1**	**173**	2.0 U	**767**	4.0 U	2.0 U	2.0 U	2.0 U	2.0 U	2.0 U
	5/2/2017	2.0 U	**161**	**7.3**	**286**	2.0 U	**967**	4.0 U	2.0 U	2.0 U	2.0 U	2.0 U	2.0 U
	11/15/2017	5.0 U	**136**	**5.7**	**223**	1.4	**969**	5.0 U	1.0 U	1.0 U	1.9	1.0 U	1.0 U
	5/30/2018	2.0 U	**115**	**5.5**	**205**	2.0 U	**966**	4.0 U	2.0 U	2.0 U	2.0 U	2.0 U	2.0 U
	11/7/2018	2.5 U	**145**	**6.3**	**233**	2.5 U	**986**	5.0 U	2.5 U	2.5 U	2.5 U	2.5 U	2.5 U
	5/21/2019	2.0 U	**157**	**6.5**	**226**	2.0 U	**1,620**	10.0 U	2.0 U	2.0 U	2.0 U	2.0 U	2.0 U
	11/19/2019	2.0 U	**175**	**7.5**	**244**	2.0 U	**1,220**	10.0 U	2.0 U	2.0 U	2.1	2.0 U	2.0 U
	5/13/2020	2.0 U	**188**	**7.7**	**232**	2.0 U	**1,000**	10.0 U	2.0 U	2.0 U	2.0 U	2.0 U	2.0 U
	11/22/2020	2.0 U	**205**	**7.5**	**272**	2.0 U	**1,260**	4.0 U	2.0 U	2.0 U	2.0 U	2.0 U	2.0 U
	5/9/2021	2.0 U	**214**	**7.5**	**267**	2.2	**1,010**	4.0 U	2.0 U	2.0 U	2.0 U	2.0 U	2.0 U
	11/14/2021	2.0 U	**256**	**8.7**	**321**	2.0 U	**1,210**	4.0 U	2.0 U	2.0 U	2.0 U	2.0 U	2.0 U
	6/26/2022	1.0 U	**294**	**10.8**	**426**	2.9	**377**	5.0 U	1.0 U	1.0 U	2.7	2.7	1.0 U
	11/20/2022	1.0 U	**258**	**9.7**	**348**	2.6	**560**	1.0 U	1.0 U	1.0 U	2.4	2.7	1.0 U
	5/21/2023	1.0 U	**252**	**8.9**	**307**	1.0 U	**407**	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
	12/3/2023	5.0 U	**432**	**13.1**	**631**	5.0 U	**404**	5.0 U	5.0 U	5.0 U	5.0 U	5.9 U	1.0 U
MW-38R	12/9/2016	1.0 U	**3.8**	1.0 U	1.0 U	1.0 U	**18.3**	2.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
	5/1/2017	1.0 U	**6.0**	1.0 U	1.0 U	1.0 U	**42.6**	2.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
	11/15/2017	5.0 U	**8.3**	1.0 U	1.0 U	1.0 U	**62.5**	**8.1**	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
	5/30/2018	1.0 U	**4.3**	1.0 U	1.0 U	1.0 U	**40.7**	2.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
	11/7/2018	1.0 U	**6.9**	1.0 U	1.0 U	1.0 U	**39.4**	2.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
	5/21/2019	1.0 U	**4.7**	1.0 U	1.0 U	1.0 U	**43.2**	5.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
	11/19/2019	1.0 U	**7.7**	1.0 U	1.0 U	1.0 U	**51.5**	5.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
	5/12/2020	1.0 U	**6.2**	1.0 U	1.0 U	1.0 U	**40.8**	5.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
	11/22/2020	1.0 U	**6.5**	1.0 U	1.0 U	1.0 U	**40.9**	5.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
	5/9/2021	1.0 U	**5.5**	1.0 U	1.0 U	1.0 U	**47.0**	5.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
	11/19/2021	1.0 U	**6.7**	1.0 U	1.0 U	1.0 U	**46.2**	5.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
	6/26/2022	1.0 U	**7.6**	1.0 U	1.0 U	1.0 U	14.4	5.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
	11/20/2022	1.0 U	**7.1**	1.0 U	1.0 U	1.0 U	**20.1**	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
	5/21/2023	1.0 U	**6.8**	1.0 U	1.0 U	1.0 U	11.4	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
	12/3/2023	1.0 U	**4.2**	1.0 U	1.0 U	1.0 U	**18.2**	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U

Table 16

Historical Monitoring Well Sampling Results
Former Kop-Flex Facility Site
Hanover, Maryland
(December 2016 - December 2023) (a)

Well ID	Sample Date	Chloroethane	1,1-Dichloroethane	1,2-Dichloroethane	1,1-Dichloroethene	cis-1,2-Dichloroethene	1,4-Dioxane	Methylene Chloride	Tetrachloroethene	1,1,1-Trichloroethane	1,1,2-Trichloroethane	Trichloroethene	Vinyl chloride
Groundwater Cleanup Standards (b)		2,100	2.8	5	7	70	15 (c)	5	5	200	5	5	2
MW-39	12/7/2016	1.0 U	1.0 U	1.0 U	1.7	1.0 U	2.5	2.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
	5/1/2017	1.0 U	1.0 U	1.0 U	1.1	1.0 U	3.0	2.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
	11/15/2017	5.0 U	1.0 U	1.0 U	0.6 J	1.0 U	2.2	5.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
	5/30/2018	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	2.0 U	2.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
	11/7/2018	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	2.0 U	2.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
	5/21/2019	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	2.0 U	5.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
	11/19/2019	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	2.0 U	5.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
	5/12/2020	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	2.0 U	5.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
	11/22/2020	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	2.0 U	5.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
	5/9/2021	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	2.0 U	5.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
	11/14/2021	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	2.0 U	5.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
	6/26/2022	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	0.22	5.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
	11/20/2022	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
	5/21/2023	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
	12/21/2023	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
MW-42	12/7/2016	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	4.8	2.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
	5/1/2017	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	8.0	2.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
	11/15/2017	5.0 U	1.0 U	1.0 U	1.0 U	1.0 U	**19.3**	5.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
	5/30/2018	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	7.4	2.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
	11/7/2018	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	10.3	2.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
	5/21/2019	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	10.6	5.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
	11/19/2019	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	5.6	5.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
	5/12/2020	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	11.2	5.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
	1/6/2021	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	13.2	5.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
	5/9/2021	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	13.3	5.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
	11/14/2021	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	12.5	5.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
	7/15/2022	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	5.6	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
	11/20/2022	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	5.4	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
	5/21/2023	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	5.8	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
	12/3/2023	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	4.1	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U

Table 16

Historical Monitoring Well Sampling Results
Former Kop-Flex Facility Site
Hanover, Maryland
(December 2016 - December 2023) (a)

Well ID	Sample Date	Chloroethane	1,1-Dichloroethane	1,2-Dichloroethane	1,1-Dichloroethene	cis-1,2-Dichloroethene	1,4-Dioxane	Methylene Chloride	Tetrachloroethene	1,1,1-Trichloroethane	1,1,2-Trichloroethane	Trichloroethene	Vinyl chloride
Groundwater Cleanup Standards (b)		2,100	2.8	5	7	70	15 (c)	5	5	200	5	5	2
MW-43	12/7/2016	2.0 U	**15.9**	2.1	**171**	2.0 U	**237**	4.0 U	2.0 U	2.0 U	2.0 U	2.0 U	2.0 U
	5/1/2017	2.0 U	**21.3**	2.1	**177**	2.0 U	**206**	4.0 U	2.0 U	2.0 U	2.0 U	2.0 U	2.0 U
	11/15/2017	5.0 U	**15.9**	1.3	**159**	1.0 U	**165**	5.0 U	1.0 U	1.2	1.0 U	1.0 U	1.0 U
	5/30/2018	2.0 U	**5.9**	1.0 U	**68**	1.0 U	**57.6**	2.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
	5/12/2020	1.0 U	**3.8**	1.0 U	**46.3**	1.0 U	**49.0**	5.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
	11/22/2020	1.0 U	**2.9**	1.0 U	**31.8**	1.0 U	**42.7**	5.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
	5/9/2021	1.0 U	2.7	1.0 U	**31.7**	1.0 U	**34.1**	5.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
	11/14/2021	1.0 U	2.6	1.0 U	**31.3**	1.0 U	**34.3**	5.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
	6/26/2022	1.0 U	2.5	1.0 U	**29.4**	1.0 U	7.0	5.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
	11/20/2022	1.0 U	1.7	1.0 U	**20.3**	1.0 U	9.6	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
	5/21/2023	1.0 U	1.6	1.0 U	**21.2**	1.0 U	9.0	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
	12/3/2023	1.0 U	1.6	1.0 U	**19.9**	1.0 U	8.5	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
MW-44	12/7/2016	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	2.0 U	2.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
	5/1/2017	1.0 U	**6.6**	1.0 U	5.9	1.0 U	**49.1**	2.0 U	1.0 U	27.7	1.0 U	1.0 U	1.0 U
	5/30/2018	1.0 U	1.4	1.0 U	1.4	1.0 U	8.4	2.0 U	1.0 U	4.9	1.0 U	1.0 U	1.0 U
	5/21/2019	1.0 U	**14.9**	1.0 U	**22.4**	1.0 U	**64.4**	5.0 U	1.0 U	74.3	1.0 U	1.0 U	1.0 U
	5/13/2020	1.0 U	**3.0**	1.0 U	4.1	1.0 U	**17.7**	5.0 U	1.0 U	11.9	1.0 U	1.0 U	1.0 U
	5/9/2021	1.0 U	1.7	1.0 U	2.9	1.0 U	10.2	5.0 U	1.0 U	6.9	1.0 U	1.0 U	1.0 U
	11/14/2021	1.0 U	**3.8**	1.0 U	**7.2**	1.0 U	13.3	5.0 U	1.0 U	15.4	1.0 U	1.0 U	1.0 U
	6/26/2022	1.0 U	2.3	1.0 U	3.2	1.0 U	2.5	5.0 U	1.0 U	5.9	1.0 U	1.0 U	1.0 U
	11/20/2022	1.0 U	2.4	1.0 U	3.9	1.0 U	4.2	1.0 U	1.0 U	8.0	1.0 U	1.0 U	1.0 U
	5/21/2023	1.0 U	1.2	1.0 U	1.9	1.0 U	1.9	1.0 U	1.0 U	2.6	1.0 U	1.0 U	1.0 U
	12/3/2023	1.0 U	1.6	1.0 U	**6.8**	1.0 U	2.6	1.0 U	1.0 U	9.4	1.0 U	1.0 U	1.0 U
MW-01D	1/2/2017	2.0 U	**72**	4.7	**375**	2.0 U	**236**	4.0 U	2.5 U	37.5	2.0 U	2.0 U	2.0 U
	5/3/2017	2.5 U	**105**	**5.7**	**407**	2.5 U	**329**	5.0 U	2.5 U	37.1	2.5 U	2.5 U	2.5 U
	11/15/2017	5.0 U	**80**	3.8	**277**	0.6 J	**243**	5.0 U	0.519 J	29.8	0.8 J	1.7	1 U
	5/30/2018	1.0 U	**14.9**	1.0 U	**71.4**	1.0 U	**64.4**	2.0 U	1.0 U	5.3	1.0 U	1.0 U	1.0 U
	11/7/2018	1.0 U	**7.1**	1.0 U	**38.8**	1.0 U	2.0 U	2.0 U	1.0 U	3.3	1.0 U	1.0 U	1.0 U
	5/21/2019	1.0 U	2.1	1.0 U	**13.7**	1.0 U	12.8	5.0 U	1.0 U	1.1	1.0 U	1.0 U	1.0 U
	11/19/2019	1.0 U	**3.4**	1.0 U	**17.7**	1.0 U	**17.9**	5.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
	5/18/2020	1.0 U	2.6	1.0 U	**16.5**	1.0 U	12.8	5.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
	11/22/2020	1.0 U	**3.1**	1.0 U	**17.6**	1.0 U	**16.9**	5.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
	5/9/2021	1.0 U	1.8	1.0 U	**12.2**	1.0 U	9.0	5.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U

Table 16

Historical Monitoring Well Sampling Results
Former Kop-Flex Facility Site
Hanover, Maryland
(December 2016 - December 2023) (a)

Well ID	Sample Date	Chloroethane	1,1-Dichloroethane	1,2-Dichloroethane	1,1-Dichloroethene	cis-1,2-Dichloroethene	1,4-Dioxane	Methylene Chloride	Tetrachloroethene	1,1,1-Trichloroethane	1,1,2-Trichloroethane	Trichloroethene	Vinyl chloride
Groundwater Cleanup Standards (b)		2,100	2.8	5	7	70	15 (c)	5	5	200	5	5	2
MW-01D	11/14/2021	1.0 U	**3.8**	1.0 U	**22.4**	1.0 U	**16.5**	5.0 U	1.0 U	1.5	1.0 U	1.0 U	1.0 U
	6/26/2022	1.0 U	**3.1**	1.0 U	**19.1**	1.0 U	4.0	5.0 U	1.0 U	1.3	1.0 U	1.0 U	1.0 U
	11/20/2022	1.0 U	**3.0**	1.0 U	**16.8**	1.0 U	6.8	1.0 U	1.0 U	1.0	1.0 U	1.0 U	1.0 U
	5/21/2023	1.0 U	**1.8**	1.0 U	**11.1**	1.0 U	4.0	1.0 U	1.0 U	1.0	1.0 U	1.0 U	1.0 U
	12/3/2023	1.0 U	**3.8**	1.0 U	**21.3**	1.0 U	6.5	1.0 U	1.0 U	1.0	1.0 U	1.0 U	1.0 U
MW-16D	12/8/2016	2.0 U	**56.6**	2.9	**254**	2.0 U	**202**	4.0 U	2.0 U	21	2.0 U	2.0 U	2.0 U
	5/2/2017	2.0 U	**43.7**	2.9	**235**	2.0 U	**182**	4.0 U	2.0 U	16.4	2.0 U	2.0 U	2.0 U
	11/15/2017	5.0 U	**29.7**	1.9	**179**	0.3 J	**192**	**10.0**	1.0 U	15.1	0.5 J	0.9 J	1.0 U
	5/30/2018	1.0 U	**26.4**	1.6	**180**	1.0 U	**153**	2.0 U	1.0 U	10.3	1.0 U	1.0 U	1.0 U
	11/7/2018	1.0 U	**27.5**	1.8	**161**	1.0 U	**158**	2.0 U	1.0 U	12.5	1.0 U	1.0 U	1.0 U
	5/22/2019	1.0 U	**28.5**	2.1	**172**	1.0 U	**148**	5.0 U	1.0 U	14.5	1.0 U	1.0 U	1.0 U
	11/19/2019	1.0 U	**25.6**	1.7	**133**	1.0 U	**140**	5.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
	5/13/2020	1.0 U	**29.1**	1.9	**145**	1.0 U	**130**	5.0 U	1.0 U	11.7	1.0 U	1.0 U	1.0 U
	12/8/2020	1.0 U	**25.9**	1.6	**127**	1.0 U	**105**	5.0 U	1.0 U	10.1	1.0 U	1.0 U	1.0 U
	5/9/2021	1.0 U	**27.7**	1.7	**130**	1.0 U	**107**	5.0 U	1.0 U	9.5	1.0 U	1.0 U	1.0 U
	11/14/2021	1.0 U	**21.5**	1.1	**98.7**	1.0 U	**84.5**	5.0 U	1.0 U	6.9	1.0 U	1.0 U	1.0 U
	7/15/2022	1.0 U	**27.4**	1.7	**136.0**	1.0 U	**39.2**	1.0 U	1.0 U	8.3	1.0 U	1.0 U	1.0 U
	12/29/2022	1.0 U	**16.4**	1.0 U	**80.1**	1.0 U	**29.9**	5.0 U	1.0 U	4.7	1.0 U	1.0 U	1.0 U
	5/21/2023	1.0 U	**24.8**	1.4	**111.0**	1.0 U	**36.1**	1.0 U	1.0 U	6.5	1.0 U	1.0 U	1.0 U
Duplicate	5/21/2023	1.0 U	**24.9**	1.4	**110.0**	1.0 U	**21.3**	1.0 U	1.0 U	6.7	1.0 U	1.0 U	1.0 U
	12/3/2023	1.0 U	**21.8**	1.4	**103.0**	1.0 U	**34.5**	1.0 U	1.0 U	5.2	1.0 U	1.0 U	1.0 U
Duplicate	12/3/2023	1.0 U	**19.7**	1.0 U	**98.3**	1.0 U	**27.0**	1.0 U	1.0 U	4.7	1.0 U	1.0 U	1.0 U
MW-21D	12/16/2016	1.0 U	2.6	1.0 U	**23.4**	1.0 U	**18.6**	2.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
	5/1/2017	1.0 U	**6.9**	1.4	**111**	1.0 U	**57.5**	2.0 U	1.0 U	2.3	1.0 U	1.0 U	1.0 U
	11/15/2017	5.0 U	2.0	1.0 U	**14.4**	1.0 U	**18.5**	5.0 U	1.0 U	0.7 J	1.0 U	1.0 U	1.0 U
	5/30/2018	1.0 U	1.0	1.0 U	**38.8**	1.0 U	**32.2**	2.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
	11/7/2018	1.0 U	1.0 U	1.0 U	**30.0**	1.0 U	**18.0**	2.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
	5/21/2019	1.0 U	1.0 U	1.0 U	**9.9**	1.0 U	8.4	5.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
	11/19/2019	1.0 U	1.0 U	1.0 U	4.1	1.0 U	4.1	5.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
	5/18/2020	1.0 U	1.0 U	1.0 U	**13.6**	1.0 U	7.6	5.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
	11/22/2020	1.0 U	1.0 U	1.0 U	**7.8**	1.0 U	5.1	5.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
	5/9/2021	1.0 U	1.0 U	1.0 U	4.1	1.0 U	2.8	5.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
	11/14/2021	1.0 U	1.0 U	1.0 U	**18.7**	1.0 U	12.9	5.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
	6/26/2022	1.0 U	1.0 U	1.0 U	**24.5**	1.0 U	4.2	5.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
	11/20/2022	1.0 U	1.0 U	1.0 U	**17.6**	1.0 U	5.5	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
	5/21/2023	1.0 U	1.0 U	1.0 U	**26.1**	1.0 U	7.1	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
	12/3/2023	1.0 U	1.0 U	1.0 U	**30.8**	1.0 U	7.7	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U

Table 16

Historical Monitoring Well Sampling Results
Former Kop-Flex Facility Site
Hanover, Maryland
(December 2016 - December 2023) (a)

Well ID	Sample Date	Chloroethane	1,1-Dichloroethane	1,2-Dichloroethane	1,1-Dichloroethene	cis-1,2-Dichloroethene	1,4-Dioxane	Methylene Chloride	Tetrachloroethene	1,1,1-Trichloroethane	1,1,2-Trichloroethane	Trichloroethene	Vinyl chloride
Groundwater Cleanup Standards (b)		2,100	2.8	5	7	70	15 (c)	5	5	200	5	5	2
MW-22D	12/7/2016	1.0 U	2.5	1.0 U	**31.5**	1.0 U	**24.5**	2.0 U	1.0 U	4.1	1.0 U	1.0 U	1.0 U
	5/2/2017	1.0 U	2.5	1.0 U	**36.9**	1.0 U	**24.6**	2.0 U	1.0 U	3.7	1.0 U	1.0 U	1.0 U
	11/15/2017	5.0 U	1.72	1.0 U	**24.4**	1.0 U	**19.6**	5.0 U	1.0 U	2.8	1.0 U	1.0 U	1.0 U
	5/30/2018	1.0 U	1.0 U	1.0 U	**13.1**	1.0 U	7.9	2.0 U	1.0 U	1.1	1.0 U	1.0 U	1.0 U
	11/7/2018	1.0 U	1.0 U	1.0 U	**9.7**	1.0 U	2.0 U	2.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
	5/21/2019	1.0 U	1.0 U	1.0 U	6.3	1.0 U	5.1	5.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
	11/19/2019	1.0 U	1.0 U	1.0 U	5.6	1.0 U	4.9	5.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
	5/18/2020	1.0 U	1.0 U	1.0 U	6.2	1.0 U	4.6	5.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
	11/22/2020	1.0 U	1.0 U	1.0 U	**7.1**	1.0 U	4.9	5.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
	5/9/2021	1.0 U	1.0 U	1.0 U	5.9	1.0 U	4.0	5.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
	11/14/2021	1.0 U	1.0 U	1.0 U	6.2	1.0 U	5.2	5.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
	6/26/2022	1.0 U	1.0 U	1.0 U	**9.0**	1.0 U	1.6	5.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
	11/20/2022	1.0 U	1.0 U	1.0 U	6.1	1.0 U	2.7	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
	5/21/2023	1.0 U	1.0 U	1.0 U	**8.4**	1.0 U	3.0	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
	12/3/2023	1.0 U	1.0 U	1.0 U	**8.5**	1.0 U	2.0	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
MW-23D	1/2/2017	2.0 U	**26.4**	2.0 U	**140**	2.0 U	**151**	**8.3**	1.0 U	17.0	2.0 U	2.0 U	2.0 U
	5/1/2017	2.0 U	**39.1**	2.4	**208**	2.0 U	**177**	4.0 U	2.0 U	19.9	2.0 U	2.0 U	2.0 U
	11/15/2017	5.0 U	**31.1**	1.9	**179**	0.3 J	**158**	5.0 U	0.417 J	19.3	0.4 J	0.9 J	1.0 U
	5/30/2018	1.0 U	**30.5**	1.6	**172**	1.0 U	**148**	2.0 U	1.0 U	14.8	1.0 U	1.0 U	1.0 U
	11/7/2018	1.0 U	**36.2**	1.9	**185**	1.0 U	**146**	2.0 U	1.0 U	17.0	1.0 U	1.0 U	1.0 U
	5/21/2019	1.0 U	**18.5**	1.2	**96.4**	1.0 U	**70.7**	5.0 U	1.0 U	8.6	1.0 U	1.0 U	1.0 U
	11/19/2019	1.0 U	**22.7**	1.4	**107**	1.0 U	**109**	5.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
	5/13/2020	1.0 U	**35.2**	1.8	**142**	1.0 U	**112**	5.0 U	1.0 U	13.6	1.0 U	1.0 U	1.0 U
	11/22/2020	1.0 U	**26.3**	1.2	**106**	1.0 U	**96.7**	5.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
	5/9/2021	1.0 U	**31.8**	1.5	**126**	1.0 U	**99.0**	5.0 U	1.0 U	11.7	1.0 U	1.0 U	1.0 U
	11/14/2021	1.0 U	**28.5**	1.1	**110**	1.0 U	**92.4**	5.0 U	1.0 U	9.2	1.0 U	1.0 U	1.0 U
	6/26/2022	1.0 U	**34.6**	1.5	**138**	1.0 U	**27.0**	5.0 U	1.0 U	10.7	1.0 U	1.0 U	1.0 U
	11/20/2022	1.0 U	**33.6**	1.7	**140**	1.0 U	**59.6**	1.0 U	1.0 U	9.7	1.0 U	1.0 U	1.0 U
	5/21/2023	1.0 U	**32.4**	1.4	**116**	1.0 U	**27.0**	1.0 U	1.0 U	8.3	1.0 U	1.0 U	1.0 U
	12/3/2023	1.0 U	**41.2**	1.4	**177**	1.0 U	**56.1**	1.0 U	1.0 U	9.3	1.0 U	1.0 U	1.0 U

Table 16

Historical Monitoring Well Sampling Results
Former Kop-Flex Facility Site
Hanover, Maryland
(December 2016 - December 2023) (a)

Well ID	Sample Date	Chloroethane	1,1-Dichloroethane	1,2-Dichloroethane	1,1-Dichloroethene	cis-1,2-Dichloroethene	1,4-Dioxane	Methylene Chloride	Tetrachloroethene	1,1,1-Trichloroethane	1,1,2-Trichloroethane	Trichloroethene	Vinyl chloride
Groundwater Cleanup Standards (b)		2,100	2.8	5	7	70	15 (c)	5	5	200	5	5	2
MW-27D	12/7/2016	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	2.0 U	2.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
	5/1/2017	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	3.6	2.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
	5/30/2018	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	2.0 U	2.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
	5/21/2019	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	2.0 U	2.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
	5/13/2020	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	2.0 U	2.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
	5/9/2021	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	2.0 U	2.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
MW-27D	11/14/2021	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	2.0 U	2.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
	6/26/2022	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	0.13	5.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
	11/20/2022	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
	12/3/2023	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
MW-40D	12/9/2016	1.0 U	**2.9**	1.0 U	**18.1**	1.0 U	9.4	2.0 U		1.0 U	1.0 U	1.0 U	1.0 U
MW-40D	5/1/2017	1.0 U	**3.1**	1.0 U	**17.4**	1.0 U	8.5	2.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
	11/15/2017	5.0 U	0.9 J	1.0 U	5.2	1.0 U	5.2	**9.7**	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
	5/30/2018	1.0 U	1.0 U	1.0 U	2.9	1.0 U	2.0 U	2.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
	11/7/2018	1.0 U	1.0 U	1.0 U	4.4	1.0 U	2.7	2.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
	5/21/2019	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	2.0 U	5.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
	11/19/2019	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	2.0 U	5.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
	5/18/2020	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	2.0 U	5.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
	11/22/2020	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	2.0 U	5.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
	5/9/2021	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	2.0 U	5.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
	11/14/2021	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	2.0 U	5.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
	6/26/2022	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	0.18	5.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
	11/20/2022	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
	5/21/2023	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
	12/3/2023	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U

Table 16

Historical Monitoring Well Sampling Results
Former Kop-Flex Facility Site
Hanover, Maryland
(December 2016 - December 2023) (a)

Well ID	Sample Date	Chloroethane	1,1-Dichloroethane	1,2-Dichloroethane	1,1-Dichloroethene	cis-1,2-Dichloroethene	1,4-Dioxane	Methylene Chloride	Tetrachloroethene	1,1,1-Trichloroethane	1,1,2-Trichloroethane	Trichloroethene	Vinyl chloride
Groundwater Cleanup Standards (b)		2,100	2.8	5	7	70	15 (c)	5	5	200	5	5	2
MW-41D	12/16/2016	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	2.8	2.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
	5/17/2017	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	2.4	2.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
	5/30/2018	1.0 U	1.0 U	1.0 U	1.1	1.0 U	2.0 U	2.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
	5/21/2019	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	2.1	5.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
	5/18/2020	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	2.0 U	5.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
	5/9/2021	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	2.0 U	5.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
	11/14/2021	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	2.0 U	5.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
	6/26/2022	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	0.62	5.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
	11/20/2022	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.1	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
	12/3/2023	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U

a/ U = not detected above the method detection limit
Bolded values indicate an exceedence of the Groundwater Cleanup Standards
All sample concentrations in micrograms per liter (µg/l)
b/ All cleanup standards, except for 1,4-dioxane, are equal to the Maryland Generic Numeric Cleanup Standards for Groundwater, Type I and II Aquifers, from the State of Maryland Interim Final Guidance (October 2018). Accessed May 27, 2020: https://mde.maryland.gov/programs/LAND/MarylandBrownfieldVCP/Documents/www.mde.state.md.us/assets/docu
c/ Numeric cleanup standards from WSP's October 2, 2015, Response Action Plan, Revision 2.

Table 17

Mann-Kendall Trend Analysis Results for Onsite Monitoring Wells
Former Kop-Flex Facility
Hanover, Maryland (a)

Well ID	1,1-DCA	1,1-DCE	1,4-Dioxane
	Trend	Trend	Trend
Onsite Shallow Monitoring Wells			
MW-04	No Trend (Possibly Increasing)	Stable	Stable
MW-5R	(b)	(b)	Decreasing
MW-09	Decreasing	Decreasing	Decreasing
MW-16	Stable	Decreasing	Decreasing
MW-20	Increasing	Increasing	Stable
MW-38R	No Trend	(b)	Stable
MW-42	(b)	(b)	Stable
MW-43	Decreasing	Decreasing	Decreasing
MW-44	Stable	No Trend	Stable
Onsite Deep Monitoring Wells			
MW-01D	Decreasing	Decreasing	Decreasing
MW-16D	Decreasing	Decreasing	Decreasing
MW-21D	(b)	No Trend	Decreasing
MW-22D	(b)	Decreasing	Decreasing
MW-23D	No Trend	Stable	Decreasing
MW-41D	(b)	(b)	No Trend/Stable (Possibly Decreasing)

a/ 1,1-DCA = 1,1-dichloroethane; 1,1-DCE = 1,1-dichloroethene;

b/ Trend analysis not performed because more than 50% of the samples had non-detect concentrations of this compound.

APPENDIX

A LAB REPORTS FOR SYSTEM SAMPLING

PHASE SEPARATION SCIENCE

6630 Baltimore National Pike
Baltimore, MD 21228
410-747-8770
800-932-9047
www.phaseonline.com

Certificate of Analysis

Project Name: Kop-Flex
PSS Project No.: 23012507

February 9, 2023

Eric Johnson
WSP USA - Herndon
13530 Dulles Technology Dr, Ste 300
Herndon, VA 20171

Reference: PSS Project No: **23012507**
Project Name: Kop-Flex
Project Location: Hanover, MD
Project ID.: 31405608.010/0202

Dear Eric Johnson:

This report includes the analytical results from the analyses performed on the samples received under the project name referenced above and identified with the Phase Separation Science (PSS) Project number(s) **23012507**.

All work reported herein has been performed in accordance with current NELAP standards, referenced methodologies, PSS Standard Operating Procedures and the PSS Quality Assurance Manual unless otherwise noted in the Case Narrative Summary. PSS is limited in liability to the actual cost of the sample analysis done.

PSS reserves the right to return any unused samples, extracts or related solutions. Otherwise, the samples are scheduled for disposal, without any further notice, on March 1, 2023, with the exception of air canisters which are cleaned immediately following analysis. This includes any samples that were received with a request to be held but lacked a specific hold period. It is your responsibility to provide a written request defining a specific disposal date if additional storage is required. Upon receipt, the request will be acknowledged by PSS, thus extending the storage period.

This report shall not be reproduced except in full, without the written approval of an authorized PSS representative. A copy of this report will be retained by PSS for at least 5 years, after which time it will be disposed of without further notice, unless prior arrangements have been made.

We thank you for selecting Phase Separation Science, Inc. to serve your analytical needs. If you have any questions concerning this report, do not hesitate to contact us at 410-747-8770 or info@phaseonline.com.

Sincerely,

Dan Prucnal
Laboratory Manager

PHASE SEPARATION SCIENCE

6630 Baltimore National Pike
Baltimore, MD 21228
410-747-8770
800-932-9047
www.phaseonline.com

Explanation of Qualifiers

Project Name: Kop-Flex
PSS Project No.: 23012507

Project ID: 31405608.010/0202

The following samples were received under chain of custody by Phase Separation Science (PSS) on 01/25/2023 at 11:50 am

PSS Sample ID	Sample ID	Matrix	Date/Time Collected
23012507-001	Effluent VSP-4	WASTE WATER	01/25/23 09:30

Please reference the Chain of Custody and Sample Receipt Checklist for specific container counts and preservatives. Any sample conditions not in compliance with sample acceptance criteria are described in Case Narrative Summary.

Notes:

1. The presence of a common laboratory contaminant such as methylene chloride may be considered a possible laboratory artifact. Where observed, appropriate consideration of data should be taken.
2. Unless otherwise noted in the case narrative, results are reported on a dry weight basis with the exception of pH, flashpoint, moisture, and paint filter test.
3. Drinking water samples collected for the purpose of compliance with SDWA may not be suitable for their intended use unless collected by a certified sampler [COMAR 26.08.05.07.C.2].
4. The analyses of 1,2-dibromo-3-chloropropane (DBCP) and 1,2-dibromoethane (EDB) by EPA 524.2 and calcium, magnesium, sodium and iron by EPA 200.8 are not currently promulgated for use in testing to meet the Safe Drinking Water Act and as such cannot be used for compliance purposes. The listings of the current promulgated methods for testing in compliance with the Safe Drinking Water Act can be found in the 40 CFR part 141.1, for the primary drinking water contaminates, and part 141.3, for the secondary drinking water contaminates.
5. Sample prepared under EPA 3550C with concentrations greater than 20 mg/Kg should employ the microtip extraction procedure if required to meet data quality objectives.
6. The analysis of acrolein by EPA 624 must be analyzed within three days of sampling unless pH is adjusted to 4-5 units [40 CFR part 136.3(e)].
7. Method 180.1, The Determination of Turbidity by Nephelometry, recommends samples over 40 NTU be diluted until the turbidity falls below 40 units. Routine samples over 40 NTU may not be diluted as long as the data quality objectives are not affected.
8. Alkalinity results analyzed by EPA 310.2 that are reported by dilution are estimated and are not in compliance with method requirements.

Standard Flags/Abbreviations:

B	A target analyte or common laboratory contaminant was identified in the method blank. Its presence indicates possible field or laboratory contamination.
C	Results Pending Final Confirmation.
E	The data exceeds the upper calibration limit; therefore, the concentration is reported as estimated.
Fail	The result exceeds the regulatory level for Toxicity Characteristic (TCLP) as cited in 40 CFR 261.24 Table 1.
J	The target analyte was positively identified below the reporting limit but greater than the MDL.
MDL	This is the Laboratory Method Detection Limit which is equivalent to the Limit of Detection (LOD). The LOD is the minimum result, which can be reliably discriminated from a blank with a predetermined confidence level. This value will remain constant across multiple similar instrumentation and among different analysts. An LOD is analyte and matrix specific. instrumentation and among different analysts. An LOD is analyte and matrix specific.
ND	Not Detected at or above the reporting limit.
RL	PSS Reporting Limit.
U	Not detected.

Certifications:

NELAP Certifications: PA 68-03330, VA 460156
State Certifications: MD 179, WV 303
Regulated Soil Permit: P330-12-00268
NSWC USCG Accepted Laboratory
LDBE MWAA LD1997-0041-2015

PHASE SEPARATION SCIENCE

6630 Baltimore National Pike
Baltimore, MD 21228
410-747-8770
800-932-9047
www.phaseonline.com

Certificate of Analysis

Project Name: Kop-Flex
PSS Project No.: 23012507

Sample ID: Effluent VSP-4 **Date/Time Sampled: 01/25/2023 09:30** **PSS Sample ID: 23012507-001**
Matrix: WASTE WATER **Date/Time Received: 01/25/2023 11:50**

Total Metals — Analytical Method: EPA 200.8 — Preparation Method: E200.8

	Result	Units	RL	Flag	Dil	Prepared	Analyzed	Analyst
Copper	**8.0**	ug/L	1.0		1	01/26/23	01/26/23 19:51	1059
Lead	ND	ug/L	1.0		1	01/26/23	01/26/23 19:51	1059
Nickel	**15.2**	ug/L	1.00		1	01/26/23	02/08/23 16:26	1064
Zinc	**38.4**	ug/L	20.0		1	01/26/23	01/26/23 19:51	1059

Dissolved Metals — Analytical Method: EPA 200.8 Dissolved — Preparation Method: E200.8

	Result	Units	RL	Flag	Dil	Prepared	Analyzed	Analyst
Copper	**4.1**	ug/L	1.0		1	01/27/23	01/27/23 11:35	1059
Lead	ND	ug/L	1.0		1	01/27/23	01/27/23 11:35	1059
Nickel	**13.5**	ug/L	1.00		1	01/27/23	02/08/23 16:31	1059
Zinc	**23.7**	ug/L	20.0		1	01/27/23	01/27/23 11:35	1059

VOC (Full List) — Analytical Method: EPA 624 .1 — Preparation Method: E624.1

pH=7

	Result	Units	RL	Flag	Dil	Prepared	Analyzed	Analyst
Acrolein	ND	ug/L	5.0		1	01/27/23	01/27/23 13:04	1011
Acrylonitrile	ND	ug/L	5.0		1	01/27/23	01/27/23 13:04	1011
Dichlorodifluoromethane	ND	ug/L	1.0		1	01/27/23	01/27/23 13:04	1011
Chloromethane	ND	ug/L	1.0		1	01/27/23	01/27/23 13:04	1011
Vinyl Chloride	ND	ug/L	1.0		1	01/27/23	01/27/23 13:04	1011
Bromomethane	ND	ug/L	1.0		1	01/27/23	01/27/23 13:04	1011
Chloroethane	ND	ug/L	1.0		1	01/27/23	01/27/23 13:04	1011
Trichlorofluoromethane	ND	ug/L	1.0		1	01/27/23	01/27/23 13:04	1011
2-Chloroethyl Vinyl Ether	ND	ug/L	1.0		1	01/27/23	01/27/23 13:04	1011
1,1-Dichloroethene	ND	ug/L	1.0		1	01/27/23	01/27/23 13:04	1011
Methylene Chloride	ND	ug/L	1.0		1	01/27/23	01/27/23 13:04	1011
trans-1,2-dichloroethene	ND	ug/L	1.0		1	01/27/23	01/27/23 13:04	1011
1,1-Dichloroethane	ND	ug/L	1.0		1	01/27/23	01/27/23 13:04	1011
Chloroform	ND	ug/L	1.0		1	01/27/23	01/27/23 13:04	1011
1,1,1-Trichloroethane	ND	ug/L	1.0		1	01/27/23	01/27/23 13:04	1011
Carbon Tetrachloride	ND	ug/L	1.0		1	01/27/23	01/27/23 13:04	1011
Benzene	ND	ug/L	1.0		1	01/27/23	01/27/23 13:04	1011
1,2-Dichloroethane	ND	ug/L	1.0		1	01/27/23	01/27/23 13:04	1011

PHASE SEPARATION SCIENCE

6630 Baltimore National Pike
Baltimore, MD 21228
410-747-8770
800-932-9047
www.phaseonline.com

Certificate of Analysis

Project Name: Kop-Flex
PSS Project No.: 23012507

Sample ID: Effluent VSP-4 **Date/Time Sampled: 01/25/2023 09:30** **PSS Sample ID: 23012507-001**
Matrix: WASTE WATER **Date/Time Received: 01/25/2023 11:50**

VOC (Full List) Analytical Method: EPA 624 .1 Preparation Method: E624.1

pH=7

	Result	Units	RL	Flag	Dil	Prepared	Analyzed	Analyst
Trichloroethene	ND	ug/L	1.0		1	01/27/23	01/27/23 13:04	1011
1,2-Dichloropropane	ND	ug/L	1.0		1	01/27/23	01/27/23 13:04	1011
Bromodichloromethane	ND	ug/L	1.0		1	01/27/23	01/27/23 13:04	1011
cis-1,3-Dichloropropene	ND	ug/L	1.0		1	01/27/23	01/27/23 13:04	1011
Toluene	ND	ug/L	1.0		1	01/27/23	01/27/23 13:04	1011
trans-1,3-dichloropropene	ND	ug/L	1.0		1	01/27/23	01/27/23 13:04	1011
1,1,2-Trichloroethane	ND	ug/L	1.0		1	01/27/23	01/27/23 13:04	1011
Tetrachloroethylene	ND	ug/L	1.0		1	01/27/23	01/27/23 13:04	1011
Dibromochloromethane	ND	ug/L	1.0		1	01/27/23	01/27/23 13:04	1011
Chlorobenzene	ND	ug/L	1.0		1	01/27/23	01/27/23 13:04	1011
Ethylbenzene	ND	ug/L	1.0		1	01/27/23	01/27/23 13:04	1011
Bromoform	ND	ug/L	1.0		1	01/27/23	01/27/23 13:04	1011
1,1,2,2-Tetrachloroethane	ND	ug/L	1.0		1	01/27/23	01/27/23 13:04	1011
1,3-Dichlorobenzene	ND	ug/L	1.0		1	01/27/23	01/27/23 13:04	1011
1,4-Dichlorobenzene	ND	ug/L	1.0		1	01/27/23	01/27/23 13:04	1011
1,2-Dichlorobenzene	ND	ug/L	1.0		1	01/27/23	01/27/23 13:04	1011

Surrogate(s)	***Recovery***		***Limits***			
Dibromofluoromethane	*103*	*%*	*94-108*	*1*	*01/27/23*	*01/27/23 13:04*	*1011*
4-Bromofluorobenzene	*100*	*%*	*77-120*	*1*	*01/27/23*	*01/27/23 13:04*	*1011*
Toluene-D8	*101*	*%*	*95-104*	*1*	*01/27/23*	*01/27/23 13:04*	*1011*

Hardness, Total by Calculation Analytical Method: SM 2340B Preparation Method: E200.8

	Result	Units	RL	Flag	Dil	Prepared	Analyzed	Analyst
Hardness (Ca & Mg)	**25**	mg/L	0.66		1	01/26/23	01/26/23 19:51	1059

PHASE SEPARATION SCIENCE

6630 Baltimore National Pike
Baltimore, MD 21228
410-747-8770
800-932-9047
www.phaseonline.com

Certificate of Analysis

Project Name: Kop-Flex
PSS Project No.: 23012507

Sample ID: Effluent VSP-4 **Date/Time Sampled: 01/25/2023 09:30** **PSS Sample ID: 23012507-001**
Matrix: WASTE WATER **Date/Time Received: 01/25/2023 11:50**

Total Suspended Solids — Analytical Method: SM 2540D -2015

	Result	Units	RL	Flag	Dil	Prepared	Analyzed	Analyst
Suspended Solids	ND	mg/L	1.0		1	01/30/23	01/30/23 10:52	1073

Biochemical Oxygen Demand — Analytical Method: SM 5210B -2011

	Result	Units	RL	Flag	Prepared	Analyzed	Analyst
Biochemical Oxygen Demand, 5 day	ND	mg/L	2		01/26/23	01/26/23 12:36	4009

6630 Baltimore National Pike
Baltimore, MD 21228
410-747-8770
800-932-9047
www.phaseonline.com

Project Name: Kop-Flex

PSS Project No.: 23012507

Any holding time exceedances, deviations from the method specifications, regulatory requirements or variations to the procedures outlined in the PSS Quality Assurance Manual are outlined below.

Matrix spike and matrix spike duplicate analyses may not be performed due to insufficient sample quantity. In these instances, a laboratory control sample and laboratory control sample duplicate are analyzed unless otherwise noted or specified in the method.

Sample Receipt:

All sample receipt conditions were acceptable.

23012507: Analyses associated with analyst code 4009 were performed by
Martel Laboratories, Inc., 1025 Cromwell Bridge Road, Towson, MD 21204

Analytical:

Dissolved Metals

Batch: 200848
Method exceedance: A target analyte was detected in the method blank; see QC summary.

Batch: 200933
Method exceedance: Low-Level Readback falls outside of acceptance limits (80% - 120%) at 121% for nickel.

NELAP accreditation was held for all analyses performed unless noted below. See www.phaseonline.com for complete PSS scope of accreditation.
Analytical Method(s): SM 5210B -2011

PHASE SEPARATION SCIENCE

6630 Baltimore National Pike
Baltimore, MD 21228
410-747-8770
800-932-9047
www.phaseonline.com

Lab Chronology

Project Name: Kop-Flex
PSS Project No.: 23012507

Method	Client Sample ID	Analysis Type	PSS Sample ID	Mtx	Prep Batch	Analytical Batch	Prepared	Analyzed
EPA 200.8	Effluent VSP-4	Initial	23012507-001	W	94016	200700	01/26/2023 09:30	01/26/2023 19:51
	94016-1-BKS	BKS	94016-1-BKS	W	94016	200700	01/26/2023 09:30	01/26/2023 18:54
	94016-1-BLK	BLK	94016-1-BLK	W	94016	200700	01/26/2023 09:30	01/26/2023 18:49
	NW Bioretention Riser S	MS	23012308-001 S	W	94016	200700	01/26/2023 09:30	01/26/2023 19:04
	NW Bioretention Riser SD	MSD	23012308-001 S	W	94016	200700	01/26/2023 09:30	01/26/2023 19:09
	94016-1-BKS	Reanalysis	94016-1-BKS	W	94016	200741	01/26/2023 09:30	01/30/2023 11:16
	94016-1-BLK	Reanalysis	94016-1-BLK	W	94016	200741	01/26/2023 09:30	01/30/2023 11:11
	Effluent VSP-4	Reanalysis	23012507-001	W	94016	201017	01/26/2023 09:30	02/08/2023 16:26
EPA 200.8 Dissolved	Effluent VSP-4	Initial	23012507-001	W	94025	200709	01/27/2023 08:21	01/27/2023 11:35
	94025-1-BKS	BKS	94025-1-BKS	W	94025	200709	01/27/2023 08:21	01/27/2023 11:29
	94025-1-BLK	BLK	94025-1-BLK	W	94025	200709	01/27/2023 08:21	01/27/2023 11:24
	Effluent VSP-4 S	MS	23012507-001 S	W	94025	200709	01/27/2023 08:21	01/27/2023 11:40
	Effluent VSP-4 SD	MSD	23012507-001 S	W	94025	200709	01/27/2023 08:21	01/27/2023 11:45
	Effluent VSP-4 S	Reanalysis	23012507-001 S	W	94025	200848	01/27/2023 08:21	02/01/2023 17:36
	Effluent VSP-4 SD	Reanalysis	23012507-001 S	W	94025	200848	01/27/2023 08:21	02/01/2023 17:42
	94025-1-BKS	Reanalysis	94025-1-BKS	W	94025	200933	01/27/2023 08:21	02/03/2023 13:17
	94025-1-BLK	Reanalysis	94025-1-BLK	W	94025	200933	01/27/2023 08:21	02/03/2023 13:12
	Effluent VSP-4	Reanalysis	23012507-001	W	94025	201016	01/27/2023 08:21	02/08/2023 16:31
EPA 624 .1	Effluent VSP-4	Initial	23012507-001	W	94050	200730	01/27/2023 08:48	01/27/2023 13:04
	94050-1-BKS	BKS	94050-1-BKS	W	94050	200730	01/27/2023 08:48	01/27/2023 09:10
	94050-1-BLK	BLK	94050-1-BLK	W	94050	200730	01/27/2023 08:48	01/27/2023 11:16
	Effluent VSP-4 S	MS	23012507-001 S	W	94050	200730	01/27/2023 08:48	01/27/2023 14:49
	Effluent VSP-4 SD	MSD	23012507-001 S	W	94050	200730	01/27/2023 08:48	01/27/2023 15:12
SM 2340B	Effluent VSP-4	Initial	23012507-001	W	94016	200700	01/26/2023 09:30	01/26/2023 19:51
SM 2540D -2015	Effluent VSP-4	Initial	23012507-001	W	200734	200734	01/30/2023 10:52	01/30/2023 10:52
	200734-1-BKS	BKS	200734-1-BKS	W	200734	200734	01/30/2023 10:52	01/30/2023 10:52
	200734-1-BLK	BLK	200734-1-BLK	W	200734	200734	01/30/2023 10:52	01/30/2023 10:52
	001 D	MD	23012502-001 D	W	200734	200734	01/30/2023 10:52	01/30/2023 10:52
	SE Outfall D	MD	23012614-001 D	W	200734	200734	01/28/2023 15:35	01/28/2023 15:35
SM 5210B -2011	Effluent VSP-4	Initial	23012507-001	W	200965	200965	01/26/2023 12:36	01/26/2023 12:36

Analytical Method: SM 2540D -2015

Seq Number: 200734 Matrix: Water
MB Sample Id: 200734-1-BLK LCS Sample Id: 200734-1-BKS

Parameter	MB Result	Spike Amount	LCS Result	LCS %Rec	Limits	Units	Flag
Suspended Solids	<1.000	100.7	97.90	97	86-110	mg/L	

Analytical Method: EPA 200.8 Prep Method: E200.8_PREP

Seq Number: 200700 Matrix: Water Date Prep: 01/26/23
MB Sample Id: 94016-1-BLK LCS Sample Id: 94016-1-BKS

Parameter	MB Result	Spike Amount	LCS Result	LCS %Rec	Limits	Units	Flag
Copper	<1.000	50.00	46.96	94	85-115	ug/L	
Lead	<1.000	50.00	48.93	98	85-115	ug/L	
Nickel	<1.000	50.00	43.09	86	85-115	ug/L	
Zinc	<20.00	100	96.39	96	85-115	ug/L	

Analytical Method: EPA 200.8 Prep Method: E200.8_PREP

Seq Number: 200741 Matrix: Water Date Prep: 01/26/23
REBLK Sample Id: 94016-1-BLK LCS Sample Id: 94016-1-BKS

Parameter	REBLK Result	Spike Amount	LCS Result	LCS %Rec	Limits	Units	Flag
Copper	<1.000	50.00	52.12	104	85-115	ug/L	
Lead	<1.000	50.00	50.12	100	85-115	ug/L	
Nickel	<1.000	50.00	47.32	95	85-115	ug/L	
Zinc	<20.00	100	107.1	107	85-115	ug/L	

Analytical Method: EPA 200.8 Dissolved Prep Method: E200.8_PREP

Seq Number: 200709 Matrix: Water Date Prep: 01/27/23
MB Sample Id: 94025-1-BLK LCS Sample Id: 94025-1-BKS

Parameter	MB Result	Spike Amount	LCS Result	LCS %Rec	Limits	Units	Flag
Copper	<1.000	50.00	46.71	93	85-115	ug/L	
Lead	<1.000	50.00	49.59	99	85-115	ug/L	
Zinc	<20.00	100	94.82	95	85-115	ug/L	

Analytical Method: EPA 200.8 Dissolved Prep Method: E200.8_PREP

Seq Number: 200933 Matrix: Water Date Prep: 01/27/23
MB Sample Id: 94025-1-BLK LCS Sample Id: 94025-1-BKS

Parameter	MB Result	Spike Amount	LCS Result	LCS %Rec	Limits	Units	Flag
Nickel	<1.000	50.00	49.92	100	85-115	ug/L	

PHASE SEPARATION SCIENCE

6630 Baltimore National Pike
Baltimore, MD 21228
410-747-8770
800-932-9047
www.phaseonline.com

QC Summary

Project Name Kop-Flex
PSS Project No.: 23012507

Analytical Method: EPA 200.8 Dissolved Prep Method: E200.8_PREP
Seq Number: 200709 Matrix: Waste Water Date Prep: 01/27/23
Parent Sample Id: 23012507-001 MS Sample Id: 23012507-001 S MSD Sample Id: 23012507-001 SD

Parameter	Parent Result	Spike Amount	MS Result	MS %Rec	MSD Result	MSD %Rec	Limits	RPD	RPD Limit	Units	Flag
Copper	4.139	50.00	50.79	93	50.48	93	70-130	1	25	ug/L	
Lead	<1.000	50.00	48.83	98	48.24	96	70-130	1	25	ug/L	
Zinc	23.65	100	118.9	95	119.8	96	70-130	1	25	ug/L	

Analytical Method: EPA 200.8 Dissolved Prep Method: E200.8_PREP
Seq Number: 200848 Matrix: Waste Water Date Prep: 01/27/23
Parent Sample Id: 23012507-001 MS Sample Id: 23012507-001 S MSD Sample Id: 23012507-001 SD

Parameter	Parent Result	Spike Amount	MS Result	MS %Rec	MSD Result	MSD %Rec	Limits	RPD	RPD Limit	Units	Flag
Nickel	16.72	50.00	67.96	102	67.57	102	70-130	1	25	ug/L	

PHASE SEPARATION SCIENCE

6630 Baltimore National Pike
Baltimore, MD 21228
410-747-8770
800-932-9047
www.phaseonline.com

QC Summary

Project Name Kop-Flex
PSS Project No.: 23012507

Analytical Method: EPA 624 .1
Prep Method: E624PREP
Seq Number: 200730
Matrix: Water
Date Prep: 01/27/23
MB Sample Id: 94050-1-BLK
LCS Sample Id: 94050-1-BKS

Parameter	MB Result	Spike Amount	LCS Result	LCS %Rec	Limits	Units	Flag
Acrolein	<0.005000	50.00	44.17	88	60-140	ug/L	
Acrylonitrile	<0.005000	50.00	45.85	92	60-140	ug/L	
Dichlorodifluoromethane	<0.001000	50.00	41.52	83	51-128	ug/L	
Chloromethane	0.1100	50.00	29.85	60	1-205	ug/L	
Vinyl Chloride	<0.001000	50.00	45.24	90	5-195	ug/L	
Bromomethane	<0.001000	50.00	40.30	81	15-185	ug/L	
Chloroethane	<0.001000	50.00	34.79	70	40-160	ug/L	
Trichlorofluoromethane	<0.001000	50.00	49.10	98	50-150	ug/L	
2-Chloroethyl Vinyl Ether	<0.001000	50.00	32.28	65	1-225	ug/L	
1,1-Dichloroethene	<0.001000	50.00	50.56	101	50-150	ug/L	
Methylene Chloride	<0.001000	50.00	48.33	97	60-140	ug/L	
trans-1,2-dichloroethene	<0.001000	50.00	49.91	100	70-130	ug/L	
1,1-Dichloroethane	<0.001000	50.00	47.96	96	70-130	ug/L	
Chloroform	<0.001000	50.00	50.71	101	70-135	ug/L	
1,1,1-Trichloroethane	<0.001000	50.00	54.40	109	70-130	ug/L	
Carbon Tetrachloride	<0.001000	50.00	56.81	114	70-130	ug/L	
Benzene	<0.001000	50.00	48.63	97	65-135	ug/L	
1,2-Dichloroethane	<0.001000	50.00	50.63	101	70-130	ug/L	
Trichloroethene	<0.001000	50.00	49.28	99	65-135	ug/L	
1,2-Dichloropropane	<0.001000	50.00	46.75	94	35-165	ug/L	
Bromodichloromethane	<0.001000	50.00	54.85	110	65-135	ug/L	
cis-1,3-Dichloropropene	<0.001000	50.00	53.95	108	25-175	ug/L	
Toluene	<0.001000	50.00	48.28	97	70-130	ug/L	
trans-1,3-dichloropropene	<0.001000	50.00	50.98	102	50-150	ug/L	
1,1,2-Trichloroethane	<0.001000	50.00	49.56	99	70-130	ug/L	
Tetrachloroethylene	0.08000	50.00	50.08	100	70-130	ug/L	
Dibromochloromethane	<0.001000	50.00	57.89	116	70-135	ug/L	
Chlorobenzene	<0.001000	50.00	47.59	95	65-135	ug/L	
Ethylbenzene	0.03000	50.00	47.35	95	60-140	ug/L	
Bromoform	<0.001000	50.00	54.93	110	70-130	ug/L	
1,1,2,2-Tetrachloroethane	<0.001000	50.00	45.63	91	60-140	ug/L	
1,3-Dichlorobenzene	0.1000	50.00	45.97	92	70-130	ug/L	
1,4-Dichlorobenzene	<0.001000	50.00	44.99	90	65-135	ug/L	
1,2-Dichlorobenzene	0.06000	50.00	46.74	93	65-135	ug/L	

Surrogate	MB %Rec	MB Flag	LCS Result	LCS Flag	Limits	Units
Dibromofluoromethane	105		103		94-108	%
4-Bromofluorobenzene	98		94		77-120	%
Toluene-D8	102		102		95-104	%

PHASE SEPARATION SCIENCE

6630 Baltimore National Pike
Baltimore, MD 21228
410-747-8770
800-932-9047
www.phaseonline.com

QC Summary

Project Name Kop-Flex
PSS Project No.: 23012507

Analytical Method: EPA 624 .1 Prep Method: E624PREP
Seq Number: 200730 Matrix: Waste Water Date Prep: 01/27/23
Parent Sample Id: 23012507-001 MS Sample Id: 23012507-001 S MSD Sample Id: 23012507-001 SD

Parameter	Parent Result	Spike Amount	MS Result	MS %Rec	MSD Result	MSD %Rec	Limits	RPD	RPD Limit	Units	Flag
Acrolein	<5.000	50.00	38.24	76	39.00	78	40-160	2	60	ug/L	
Acrylonitrile	<5.000	50.00	36.49	73	43.20	86	40-160	17	60	ug/L	
Dichlorodifluoromethane	<1.000	50.00	48.33	97	44.00	88	49-132	9	14	ug/L	
Chloromethane	<1.000	50.00	37.82	76	33.81	68	1-273	11	60	ug/L	
Vinyl Chloride	<1.000	50.00	46.44	93	42.36	85	1-251	9	66	ug/L	
Bromomethane	<1.000	50.00	49.38	99	44.72	89	1-242	10	61	ug/L	
Chloroethane	<1.000	50.00	38.63	77	35.91	72	14-230	7	78	ug/L	
Trichlorofluoromethane	<1.000	50.00	51.16	102	47.20	94	17-181	8	84	ug/L	
2-Chloroethyl Vinyl Ether	<1.000	50.00	29.68	59	28.72	57	1-305	3	71	ug/L	
1,1-Dichloroethene	<1.000	50.00	53.41	107	49.95	100	1-234	7	32	ug/L	
Methylene Chloride	<1.000	50.00	49.07	98	48.32	97	1-221	2	28	ug/L	
trans-1,2-dichloroethene	<1.000	50.00	54.29	109	49.55	99	54-156	9	45	ug/L	
1,1-Dichloroethane	<1.000	50.00	45.31	91	47.88	96	59-155	6	40	ug/L	
Chloroform	<1.000	50.00	50.48	101	49.47	99	51-138	2	54	ug/L	
1,1,1-Trichloroethane	<1.000	50.00	55.07	110	52.09	104	52-162	6	36	ug/L	
Carbon Tetrachloride	<1.000	50.00	59.45	119	53.84	108	70-140	10	41	ug/L	
Benzene	<1.000	50.00	51.74	103	47.48	95	37-151	9	61	ug/L	
1,2-Dichloroethane	<1.000	50.00	49.50	99	48.00	96	49-155	3	49	ug/L	
Trichloroethene	<1.000	50.00	52.83	106	48.62	97	70-157	8	48	ug/L	
1,2-Dichloropropane	<1.000	50.00	49.41	99	45.94	92	1-210	7	55	ug/L	
Bromodichloromethane	<1.000	50.00	56.07	112	51.38	103	35-155	9	56	ug/L	
cis-1,3-Dichloropropene	<1.000	50.00	55.79	112	51.42	103	1-227	8	58	ug/L	
Toluene	<1.000	50.00	51.55	103	46.82	94	47-150	10	41	ug/L	
trans-1,3-dichloropropene	<1.000	50.00	51.22	102	47.92	96	17-183	7	86	ug/L	
1,1,2-Trichloroethane	<1.000	50.00	50.29	101	47.32	95	52-150	6	45	ug/L	
Tetrachloroethylene	<1.000	50.00	54.10	108	48.78	98	64-148	10	39	ug/L	
Dibromochloromethane	<1.000	50.00	57.10	114	52.95	106	53-149	8	50	ug/L	
Chlorobenzene	<1.000	50.00	50.28	101	45.96	92	37-160	9	53	ug/L	
Ethylbenzene	<1.000	50.00	50.97	102	46.08	92	37-162	10	63	ug/L	
Bromoform	<1.000	50.00	52.12	104	49.19	98	45-169	6	42	ug/L	
1,1,2,2-Tetrachloroethane	<1.000	50.00	42.16	84	42.00	84	46-157	0	61	ug/L	
1,3-Dichlorobenzene	<1.000	50.00	47.32	95	43.91	88	59-156	7	43	ug/L	
1,4-Dichlorobenzene	<1.000	50.00	46.29	93	43.03	86	18-190	7	57	ug/L	
1,2-Dichlorobenzene	<1.000	50.00	46.69	93	44.17	88	18-190	6	57	ug/L	

Surrogate	MS Result	MS Flag	MSD Result	MSD Flag	Limits	Units
Dibromofluoromethane	106		106		94-108	%
4-Bromofluorobenzene	91		95		77-120	%
Toluene-D8	101		100		95-104	%

F = RPD exceeded the laboratory control limits
X = Recovery of MS, MSD or both outside of QC Criteria
H= Recovery of BS,BSD or both exceeded the laboratory control limits
L = Recovery of BS,BSD or both below the laboratory control limits

Analytical Method: EPA 200.8
Seq Number: 200700 Matrix: Water
CCV Sample Id: CCV 2 Analyzed Date: 01/26/23 18:33

Parameter	Spike Amount	CCV Result	CCV %Rec	Limits	Units	Flag
Copper	100	94.84	95	85-115	ug/L	
Lead	100	97.72	98	85-115	ug/L	
Zinc	200	196.3	98	85-115	ug/L	

Analytical Method: EPA 200.8
Seq Number: 200700 Matrix: Water
CCV Sample Id: CCV 3 Analyzed Date: 01/26/23 19:41

Parameter	Spike Amount	CCV Result	CCV %Rec	Limits	Units	Flag
Copper	100	97.01	97	85-115	ug/L	
Lead	100	111.1	111	85-115	ug/L	
Zinc	200	205.7	103	85-115	ug/L	

Analytical Method: EPA 200.8
Seq Number: 200700 Matrix: Water
CCV Sample Id: CCV 4 Analyzed Date: 01/26/23 20:48

Parameter	Spike Amount	CCV Result	CCV %Rec	Limits	Units	Flag
Copper	100	95.57	96	85-115	ug/L	
Lead	100	100.4	100	85-115	ug/L	
Zinc	200	203	102	85-115	ug/L	

Analytical Method: EPA 200.8
Seq Number: 200741 Matrix: Water
CCV Sample Id: CCV 1 Analyzed Date: 01/30/23 12:09

Parameter	Spike Amount	CCV Result	CCV %Rec	Limits	Units	Flag
Copper	100	108	108	85-115	ug/L	
Lead	100	107.2	107	85-115	ug/L	
Nickel	100	98.25	98	85-115	ug/L	
Zinc	200	221.2	111	85-115	ug/L	

Analytical Method: EPA 200.8
Seq Number: 201017 Matrix: Water
CCV Sample Id: CCV 1 Analyzed Date: 02/08/23 19:11

Parameter	Spike Amount	CCV Result	CCV %Rec	Limits	Units	Flag
Nickel	100	96.91	97	85-115	ug/L	

Analytical Method: EPA 200.8
Seq Number: 200700 Matrix: Water
Parent Sample Id: ICV 1 ICV Sample Id: ICV 1 Analyzed Date: 01/26/23 15:58

Parameter	Spike Amount	ICV Result	ICV %Rec	Limits	Units	Flag
Copper	50.00	49.29	99	90-110	ug/L	
Lead	50.00	51.34	103	90-110	ug/L	
Zinc	100	101.5	102	90-110	ug/L	

Analytical Method: EPA 200.8
Seq Number: 200741 Matrix: Water
Parent Sample Id: ICV 1 ICV Sample Id: ICV 1 Analyzed Date: 01/30/23 10:43

Parameter	Spike Amount	ICV Result	ICV %Rec	Limits	Units	Flag
Copper	50.00	49.29	99	90-110	ug/L	
Lead	50.00	50.20	100	90-110	ug/L	
Nickel	50.00	46.14	92	90-110	ug/L	
Zinc	100	98.87	99	90-110	ug/L	

Analytical Method: EPA 200.8
Seq Number: 201017 Matrix: Water
Parent Sample Id: ICV 1 ICV Sample Id: ICV 1 Analyzed Date: 02/08/23 16:01

Parameter	Spike Amount	ICV Result	ICV %Rec	Limits	Units	Flag
Nickel	50.00	46.50	93	90-110	ug/L	

Analytical Method: EPA 200.8 Dissolved
Seq Number: 200709 Matrix: Water
CCV Sample Id: CCV 1 Analyzed Date: 01/27/23 12:06

Parameter	Spike Amount	CCV Result	CCV %Rec	Limits	Units	Flag
Copper	100	94.76	95	85-115	ug/L	
Lead	100	101	101	85-115	ug/L	
Zinc	200	192.9	96	85-115	ug/L	

Analytical Method: EPA 200.8 Dissolved
Seq Number: 200848 Matrix: Water
CCV Sample Id: CCV 1 Analyzed Date: 02/01/23 16:59

Parameter	Spike Amount	CCV Result	CCV %Rec	Limits	Units	Flag
Nickel	100	96.23	96	85-115	ug/L	

Analytical Method: EPA 200.8 Dissolved
Seq Number: 200848 Matrix: Water
CCV Sample Id: CCV 2 Analyzed Date: 02/01/23 17:52

Parameter	Spike Amount	CCV Result	CCV %Rec	Limits	Units	Flag
Nickel	100	95.71	96	85-115	ug/L	

Analytical Method: EPA 200.8 Dissolved
Seq Number: 200933 Matrix: Water
CCV Sample Id: CCV 1 Analyzed Date: 02/03/23 15:23

Parameter	Spike Amount	CCV Result	CCV %Rec	Limits	Units	Flag
Nickel	100	99.50	100	85-115	ug/L	

Analytical Method: EPA 200.8 Dissolved
Seq Number: 201016 Matrix: Water
CCV Sample Id: CCV 1 Analyzed Date: 02/08/23 19:11

Parameter	Spike Amount	CCV Result	CCV %Rec	Limits	Units	Flag
Nickel	100	96.91	97	85-115	ug/L	

Analytical Method: EPA 200.8 Dissolved
Seq Number: 200709 Matrix: Water
Parent Sample Id: ICV 1 ICV Sample Id: ICV 1 Analyzed Date: 01/27/23 10:58

Parameter	Spike Amount	ICV Result	ICV %Rec	Limits	Units	Flag
Copper	50.00	49.19	98	90-110	ug/L	
Lead	50.00	52.04	104	90-110	ug/L	
Zinc	100	100.2	100	90-110	ug/L	

Analytical Method: EPA 200.8 Dissolved
Seq Number: 200848 Matrix: Water
Parent Sample Id: ICV 1 ICV Sample Id: ICV 1 Analyzed Date: 02/01/23 15:22

Parameter	Spike Amount	ICV Result	ICV %Rec	Limits	Units	Flag
Nickel	50.00	53.23	106	90-110	ug/L	

Analytical Method: EPA 200.8 Dissolved

Seq Number: 200933 Matrix: Water
Parent Sample Id: ICV 1 ICV Sample Id: ICV 1 Analyzed Date: 02/03/23 11:45

Parameter	Spike Amount	ICV Result	ICV %Rec	Limits	Units	Flag
Nickel	50.00	49.82	100	90-110	ug/L	

Analytical Method: EPA 200.8 Dissolved

Seq Number: 201016 Matrix: Water
Parent Sample Id: ICV 1 ICV Sample Id: ICV 1 Analyzed Date: 02/08/23 16:01

Parameter	Spike Amount	ICV Result	ICV %Rec	Limits	Units	Flag
Nickel	50.00	46.50	93	90-110	ug/L	

PHASE SEPARATION SCIENCE

6630 Baltimore National Pike
Baltimore, MD 21228
410-747-8770
800-932-9047
www.phaseonline.com

QC Summary

Project Name Kop-Flex
PSS Project No.: 23012507

Analytical Method: EPA 624 .1

Seq Number: 200325 Matrix: Water
Parent Sample Id: ICV-01 ICV Sample Id: ICV-01 Analyzed Date: 01/11/23 15:13

Parameter	Spike Amount	ICV Result	ICV %Rec	Limits	Units	Flag
Acrolein	0.05000	0.04818	96	60-140	mg/L	
Acrylonitrile	0.05000	0.05391	108	60-140	mg/L	
Dichlorodifluoromethane	0.05000	0.04760	95	51-128	mg/L	
Chloromethane	0.05000	0.04857	97	1-205	mg/L	
Vinyl Chloride	0.05000	0.04797	96	5-195	mg/L	
Bromomethane	0.05000	0.05090	102	15-185	mg/L	
Chloroethane	0.05000	0.04963	99	40-160	mg/L	
Trichlorofluoromethane	0.05000	0.04867	97	50-150	mg/L	
2-Chloroethyl Vinyl Ether	0.05000	0.05441	109	1-225	mg/L	
1,1-Dichloroethene	0.05000	0.05147	103	50-150	mg/L	
Methylene Chloride	0.05000	0.05060	101	60-140	mg/L	
trans-1,2-dichloroethene	0.05000	0.05036	101	70-130	mg/L	
1,1-Dichloroethane	0.05000	0.05138	103	70-130	mg/L	
Chloroform	0.05000	0.05092	102	70-135	mg/L	
1,1,1-Trichloroethane	0.05000	0.05134	103	70-130	mg/L	
Carbon Tetrachloride	0.05000	0.05169	103	70-130	mg/L	
Benzene	0.05000	0.05155	103	65-135	mg/L	
1,2-Dichloroethane	0.05000	0.05021	100	70-130	mg/L	
Trichloroethene	0.05000	0.05050	101	65-135	mg/L	
1,2-Dichloropropane	0.05000	0.05274	105	35-165	mg/L	
Bromodichloromethane	0.05000	0.05357	107	65-135	mg/L	
cis-1,3-Dichloropropene	0.05000	0.05549	111	25-175	mg/L	
Toluene	0.05000	0.05043	101	70-130	mg/L	
trans-1,3-dichloropropene	0.05000	0.05121	102	50-150	mg/L	
1,1,2-Trichloroethane	0.05000	0.05193	104	70-130	mg/L	
Tetrachloroethylene	0.05000	0.04780	96	70-130	mg/L	
Dibromochloromethane	0.05000	0.05553	111	70-135	mg/L	
Chlorobenzene	0.05000	0.05092	102	65-135	mg/L	
Ethylbenzene	0.05000	0.05118	102	60-140	mg/L	
Bromoform	0.05000	0.05087	102	70-130	mg/L	
1,1,2,2-Tetrachloroethane	0.05000	0.05314	106	60-140	mg/L	
1,3-Dichlorobenzene	0.05000	0.04976	100	70-130	mg/L	
1,4-Dichlorobenzene	0.05000	0.04917	98	65-135	mg/L	
1,2-Dichlorobenzene	0.05000	0.05092	102	65-135	mg/L	

Surrogate	ICV Result	Limits	Units	Flag
Dibromofluoromethane	99	94-108	%	
4-Bromofluorobenzene	100	77-120	%	
Toluene-D8	100	95-104	%	

X = Recovery outside of QC Criteria

PHASE SEPARATION SCIENCE

CHAIN OF CUSTODY FORM

All fields must be completed accurately. Shaded sections for lab use only.

www.phaseonline.com ~ info@phaseonline.com

6630 Baltimore National Pike • Suite 103-A • Baltimore, Maryland 21228 • (410) 747-8770 • (800) 932-9047

① PSS CLIENT: WSP | OFFICE LOCATION: Herndon, VA | PSS Work Order #: 23012507 | PAGE 1 OF 1

BILL TO (if different): | PHONE #: 703-709-6500

CONTACT: ~~Shannon~~ Eric Johnson | EMAIL: eric.johnson@wsp.com

PROJECT NAME: Kop-Flex | PROJECT #: 31405608.010/020

SITE LOCATION: Hanover, MD | P.O. #:

SAMPLER(S): Shannon Burke, Tushar Khaire | QAPP CERT #:

Matrix Codes: **SW**=Surface Water **DW**=Drinking Water **GW**=Ground Water **WW**=Waste Water **O**=Oil **S**=Soil **SOL**=Solid **A**=Air **WI**=Wipe

② Preservatives Use Codes: 1.6 | 3 | 3 | 6 | 6

PSS ID	SAMPLE IDENTIFICATION	DATE SAMPLED	TIME SAMPLED	MATRIX Use Codes	# OF CONTAINERS	SAMPLE TYPE: C=COMPOSITE G=GRAB	③ Analysis/Method Required: VOCs (624)	Dissolved metals (200.8)	Total metals + hardness (200.8)	TSS	BOD
1	Effluent VSP-4	1/25/23	0930	WW	7	G	X	X	X	X	X

Preservative Codes: 1 - HCL; 2 - H_2SO_4; 3 - HNO_3; 4 - NaOH; 5 - E624KIT; 6 - ICE; 7 - Sodium Thiosulfate; 8 - Ascorbic Acid; 9 - TerraCore Kit

⑤

Relinquished By:	Date	Time	Received By:
(1) Shannon Burke	1/25/23	1055	2455
(2) 2455	1/25/23	1100	
(3)	1/25/23	1130	
(4)			

④ **Requested TAT (One TAT per COC)**
☐ 5-Day ☐ 3-Day ☐ 2-Day
☐ Next Day ☐ Emergency ☒ Other

STATE RESULTS REPORTED TO:
☐ MD ☐ DE ☐ PA ☐ VA ☐ WV
☐ OTHER

COMPLIANCE?
☐ DW ☐ WW

EDD FORMAT TYPE

Ice Present: Pres

Custody Seal: Pres/Cooler TB-1.9°C

Coolers: 1 Temp: 2.3-2.6°C

Shipping Carrier: NE

Special Instructions:
Standard 10-day TAT
Metals = Cu, Pb, Ni, Zn
Dissolved metals field-filtered

This chain of custody is a legal document. The client (PSS Client), by signing, or having client's agent sign, this "Chain of Custody Form", agrees to pay for the above requested services per the latest version of the Service Brochure or PSS-provided quotation including any and all attorney's or other reasonable fees if collection becomes necessary.

PHASE SEPARATION SCIENCE

6630 Baltimore National Pike
Baltimore, MD 21228
410-747-8770
800-932-9047
www.phaseonline.com

Sample Receipt Checklist

Project Name: Kop-Flex
PSS Project No.: 23012507

Client Name WSP USA - Herndon
Disposal Date 03/01/2023

Received By Marissa Vertucci
Date Received 01/25/2023 11:50:00 AM
Delivered By Trans Time Express
Tracking No Not Applicable
Logged In By Marissa Vertucci

Shipping Container(s)
No. of Coolers 1

		Ice	Present
Custody Seal(s) Intact?	Yes	Temp (deg C)	2.6
Seal(s) Signed / Dated?	Yes	Temp Blank Present	Yes

Documentation

		Sampler Name	S. Burke, T. Khaire
COC agrees with sample labels?	Yes	MD DW Cert. No.	N/A
Chain of Custody	Yes		

Sample Container

		Custody Seal(s) Intact?	Not Applicable
Appropriate for Specified Analysis?	Yes	Seal(s) Signed / Dated	Not Applicable
Intact?	Yes		
Labeled and Labels Legible?	Yes		

Holding Time

		Total No. of Samples Received	1
All Samples Received Within Holding Time(s)?	Yes	Total No. of Containers Received	7

Preservation

Total Metals	(pH<2)	Yes
Dissolved Metals, filtered within 15 minutes of collection	(pH<2)	Yes
Orthophosphorus, filtered within 15 minutes of collection		N/A
Cyanides	(pH>12)	N/A
Sulfide	(pH>9)	N/A
TOC, DOC (field filtered), COD, Phenols	(pH<2)	N/A
TOX, TKN, NH3, Total Phos	(pH<2)	N/A
VOC, BTEX (VOA Vials Rcvd Preserved)	(pH<2)	Yes
Do VOA vials have zero headspace?		Yes
624 VOC (Rcvd at least one unpreserved VOA vial)		Yes
524 VOC (Rcvd with trip blanks)	(pH<2)	N/A

Comments: (Any "No" response must be detailed in the comments section below.)

For any improper preservation conditions, list sample ID, preservative added (reagent ID number) below as well as documentation of any client notification as well as client instructions. Samples for pH, chlorine and dissolved oxygen should be analyzed as soon as possible, preferably in the field at the time of sampling. Samples which require thermal preservation shall be considered acceptable when received at a temperature above freezing to 6°C. Samples that are hand delivered on the day that they are collected may not meet these criteria but shall be considered acceptable if there is evidence that the chilling process has begun such as arrival on ice.

Samples Inspected/Checklist Completed By: Marissa Vertucci Date: 01/25/2023

PM Review and Approval: Amber Confer Date: 01/25/2023

PHASE SEPARATION SCIENCE

6630 Baltimore National Pike
Baltimore, MD 21228
410-747-8770
800-932-9047
www.phaseonline.com

Certificate of Analysis

Project Name: Kop-Flex
PSS Project No.: 23012508

February 8, 2023

Eric Johnson
WSP USA - Herndon
13530 Dulles Technology Dr, Ste 300
Herndon, VA 20171

Reference: PSS Project No: **23012508**
Project Name: Kop-Flex
Project Location: Hanover, MD
Project ID.: 31405608.010/0202

Dear Eric Johnson:

This report includes the analytical results from the analyses performed on the samples received under the project name referenced above and identified with the Phase Separation Science (PSS) Project number(s) **23012508**.

All work reported herein has been performed in accordance with current NELAP standards, referenced methodologies, PSS Standard Operating Procedures and the PSS Quality Assurance Manual unless otherwise noted in the Case Narrative Summary. PSS is limited in liability to the actual cost of the sample analysis done.

PSS reserves the right to return any unused samples, extracts or related solutions. Otherwise, the samples are scheduled for disposal, without any further notice, on March 1, 2023, with the exception of air canisters which are cleaned immediately following analysis. This includes any samples that were received with a request to be held but lacked a specific hold period. It is your responsibility to provide a written request defining a specific disposal date if additional storage is required. Upon receipt, the request will be acknowledged by PSS, thus extending the storage period.

This report shall not be reproduced except in full, without the written approval of an authorized PSS representative. A copy of this report will be retained by PSS for at least 5 years, after which time it will be disposed of without further notice, unless prior arrangements have been made.

We thank you for selecting Phase Separation Science, Inc. to serve your analytical needs. If you have any questions concerning this report, do not hesitate to contact us at 410-747-8770 or info@phaseonline.com.

Sincerely,

Dan Prucnal
Laboratory Manager

PHASE SEPARATION SCIENCE

6630 Baltimore National Pike
Baltimore, MD 21228
410-747-8770
800-932-9047
www.phaseonline.com

Explanation of Qualifiers

Project Name: Kop-Flex
PSS Project No.: 23012508

Project ID: 31405608.010/0202

The following samples were received under chain of custody by Phase Separation Science (PSS) on 01/25/2023 at 11:50 am

PSS Sample ID	Sample ID	Matrix	Date/Time Collected
23012508-001	Effluent VSP-4	WASTE WATER	01/25/23 09:30
23012508-002	Influent VSP-1	GROUND WATER	01/25/23 09:45
23012508-003	TB-012523	WATER	01/25/23 00:00

Please reference the Chain of Custody and Sample Receipt Checklist for specific container counts and preservatives. Any sample conditions not in compliance with sample acceptance criteria are described in Case Narrative Summary.

Notes:

1. The presence of a common laboratory contaminant such as methylene chloride may be considered a possible laboratory artifact. Where observed, appropriate consideration of data should be taken.
2. Unless otherwise noted in the case narrative, results are reported on a dry weight basis with the exception of pH, flashpoint, moisture, and paint filter test.
3. Drinking water samples collected for the purpose of compliance with SDWA may not be suitable for their intended use unless collected by a certified sampler [COMAR 26.08.05.07.C.2].
4. The analyses of 1,2-dibromo-3-chloropropane (DBCP) and 1,2-dibromoethane (EDB) by EPA 524.2 and calcium, magnesium, sodium and iron by EPA 200.8 are not currently promulgated for use in testing to meet the Safe Drinking Water Act and as such cannot be used for compliance purposes. The listings of the current promulgated methods for testing in compliance with the Safe Drinking Water Act can be found in the 40 CFR part 141.1, for the primary drinking water contaminates, and part 141.3, for the secondary drinking water contaminates.
5. Sample prepared under EPA 3550C with concentrations greater than 20 mg/Kg should employ the microtip extraction procedure if required to meet data quality objectives.
6. The analysis of acrolein by EPA 624 must be analyzed within three days of sampling unless pH is adjusted to 4-5 units [40 CFR part 136.3(e)].
7. Method 180.1, The Determination of Turbidity by Nephelometry, recommends samples over 40 NTU be diluted until the turbidity falls below 40 units. Routine samples over 40 NTU may not be diluted as long as the data quality objectives are not affected.
8. Alkalinity results analyzed by EPA 310.2 that are reported by dilution are estimated and are not in compliance with method requirements.

Standard Flags/Abbreviations:

B	A target analyte or common laboratory contaminant was identified in the method blank. Its presence indicates possible field or laboratory contamination.
C	Results Pending Final Confirmation.
E	The data exceeds the upper calibration limit; therefore, the concentration is reported as estimated.
Fail	The result exceeds the regulatory level for Toxicity Characteristic (TCLP) as cited in 40 CFR 261.24 Table 1.
J	The target analyte was positively identified below the reporting limit but greater than the MDL.
MDL	This is the Laboratory Method Detection Limit which is equivalent to the Limit of Detection (LOD). The LOD is the minimum result, which can be reliably discriminated from a blank with a predetermined confidence level. This value will remain constant across multiple similar instrumentation and among different analysts. An LOD is analyte and matrix specific. instrumentation and among different analysts. An LOD is analyte and matrix specific.
ND	Not Detected at or above the reporting limit.
RL	PSS Reporting Limit.
U	Not detected.

Certifications:

NELAP Certifications: PA 68-03330, VA 460156
State Certifications: MD 179, WV 303
Regulated Soil Permit: P330-12-00268
NSWC USCG Accepted Laboratory
LDBE MWAA LD1997-0041-2015

PHASE SEPARATION SCIENCE

6630 Baltimore National Pike
Baltimore, MD 21228
410-747-8770
800-932-9047
www.phaseonline.com

Certificate of Analysis

Project Name: Kop-Flex
PSS Project No.: 23012508

Sample ID: Effluent VSP-4 **Date/Time Sampled: 01/25/2023 09:30** **PSS Sample ID: 23012508-001**
Matrix: WASTE WATER **Date/Time Received: 01/25/2023 11:50**

1,4-Dioxane by GC/MS - SIM — Analytical Method: SW-846 8260 D-SIM — Preparation Method: SW5030B

	Result	Units	RL	Flag	Dil	Prepared	Analyzed	Analyst
1,4-Dioxane (P-Dioxane)	**5.3**	ug/L	1.0		1	02/07/23	02/07/23 21:05	1011
Surrogate(s)	***Recovery***		***Limits***					
Toluene-D8	*93*	*%*	*80-120*		*1*	*02/07/23*	*02/07/23 21:05*	*1011*

PHASE SEPARATION SCIENCE

6630 Baltimore National Pike
Baltimore, MD 21228
410-747-8770
800-932-9047
www.phaseonline.com

Certificate of Analysis

Project Name: Kop-Flex
PSS Project No.: 23012508

Sample ID: Influent VSP-1 **Date/Time Sampled: 01/25/2023 09:45** **PSS Sample ID: 23012508-002**
Matrix: GROUND WATER **Date/Time Received: 01/25/2023 11:50**

TCL Volatile Organic Compounds Analytical Method: SW-846 8260 D Preparation Method: SW5030B

Qualifier(s): See Batch 200784 on Case Narrative.

	Result	Units	RL	Flag	Dil	Prepared	Analyzed	Analyst
Acetone	ND	ug/L	5.0		1	01/31/23	01/31/23 13:02	1011
Benzene	ND	ug/L	1.0		1	01/31/23	01/31/23 13:02	1011
Bromochloromethane	ND	ug/L	1.0		1	01/31/23	01/31/23 13:02	1011
Bromodichloromethane	ND	ug/L	1.0		1	01/31/23	01/31/23 13:02	1011
Bromoform	ND	ug/L	1.0		1	01/31/23	01/31/23 13:02	1011
Bromomethane	ND	ug/L	1.0		1	01/31/23	01/31/23 13:02	1011
2-Butanone (MEK)	ND	ug/L	5.0		1	01/31/23	01/31/23 13:02	1011
Carbon Disulfide	ND	ug/L	1.0		1	01/31/23	01/31/23 13:02	1011
Carbon tetrachloride	ND	ug/L	1.0		1	01/31/23	01/31/23 13:02	1011
Chlorobenzene	ND	ug/L	1.0		1	01/31/23	01/31/23 13:02	1011
Chloroethane	**4.5**	ug/L	1.0		1	01/31/23	01/31/23 13:02	1011
Chloroform	ND	ug/L	1.0		1	01/31/23	01/31/23 13:02	1011
Chloromethane	ND	ug/L	1.0		1	01/31/23	01/31/23 13:02	1011
Cyclohexane	ND	ug/L	1.0		1	01/31/23	01/31/23 13:02	1011
1,2-Dibromo-3-chloropropane	ND	ug/L	1.0		1	01/31/23	01/31/23 13:02	1011
Dibromochloromethane	ND	ug/L	1.0		1	01/31/23	01/31/23 13:02	1011
1,2-Dibromoethane	ND	ug/L	1.0		1	01/31/23	01/31/23 13:02	1011
1,2-Dichlorobenzene	ND	ug/L	1.0		1	01/31/23	01/31/23 13:02	1011
1,3-Dichlorobenzene	ND	ug/L	1.0		1	01/31/23	01/31/23 13:02	1011
Dichlorodifluoromethane	ND	ug/L	1.0		1	01/31/23	01/31/23 13:02	1011
1,4-Dichlorobenzene	ND	ug/L	1.0		1	01/31/23	01/31/23 13:02	1011
1,1-Dichloroethane	**52**	ug/L	1.0		1	01/31/23	01/31/23 13:02	1011
1,2-Dichloroethane	**1.3**	ug/L	1.0		1	01/31/23	01/31/23 13:02	1011
cis-1,2-Dichloroethene	**1.7**	ug/L	1.0		1	01/31/23	01/31/23 13:02	1011
1,1-Dichloroethene	**220**	ug/L	1.0		1	01/31/23	01/31/23 13:02	1011
1,2-Dichloropropane	ND	ug/L	1.0		1	01/31/23	01/31/23 13:02	1011
cis-1,3-Dichloropropene	ND	ug/L	1.0		1	01/31/23	01/31/23 13:02	1011
trans-1,3-Dichloropropene	ND	ug/L	1.0		1	01/31/23	01/31/23 13:02	1011
trans-1,2-Dichloroethene	ND	ug/L	1.0		1	01/31/23	01/31/23 13:02	1011
Ethylbenzene	ND	ug/L	1.0		1	01/31/23	01/31/23 13:02	1011
2-Hexanone (MBK)	ND	ug/L	5.0		1	01/31/23	01/31/23 13:02	1011
Isopropylbenzene	ND	ug/L	1.0		1	01/31/23	01/31/23 13:02	1011
Methyl Acetate	ND	ug/L	1.0		1	01/31/23	01/31/23 13:02	1011
Methylcyclohexane	ND	ug/L	1.0		1	01/31/23	01/31/23 13:02	1011
Methylene chloride	ND	ug/L	1.0		1	01/31/23	01/31/23 13:02	1011

PHASE SEPARATION SCIENCE

6630 Baltimore National Pike
Baltimore, MD 21228
410-747-8770
800-932-9047
www.phaseonline.com

Certificate of Analysis

Project Name: Kop-Flex
PSS Project No.: 23012508

Sample ID: Influent VSP-1 **Date/Time Sampled: 01/25/2023 09:45** **PSS Sample ID: 23012508-002**
Matrix: GROUND WATER **Date/Time Received: 01/25/2023 11:50**

TCL Volatile Organic Compounds — Analytical Method: SW-846 8260 D — Preparation Method: SW5030B

Qualifier(s): See Batch 200784 on Case Narrative.

	Result	Units	RL	Flag	Dil	Prepared	Analyzed	Analyst
4-Methyl-2-Pentanone (MIBK)	ND	ug/L	5.0		1	01/31/23	01/31/23 13:02	1011
Methyl-t-Butyl Ether	ND	ug/L	1.0		1	01/31/23	01/31/23 13:02	1011
Naphthalene	ND	ug/L	1.0		1	01/31/23	01/31/23 13:02	1011
Styrene	ND	ug/L	1.0		1	01/31/23	01/31/23 13:02	1011
1,1,2,2-Tetrachloroethane	ND	ug/L	1.0		1	01/31/23	01/31/23 13:02	1011
Tetrachloroethene	ND	ug/L	1.0		1	01/31/23	01/31/23 13:02	1011
Toluene	ND	ug/L	1.0		1	01/31/23	01/31/23 13:02	1011
1,2,3-Trichlorobenzene	ND	ug/L	1.0		1	01/31/23	01/31/23 13:02	1011
1,2,4-Trichlorobenzene	ND	ug/L	1.0		1	01/31/23	01/31/23 13:02	1011
1,1,1-Trichloroethane	**17**	ug/L	1.0		1	01/31/23	01/31/23 13:02	1011
Trichloroethene	**1.0**	ug/L	1.0		1	01/31/23	01/31/23 13:02	1011
1,1,2-Trichloroethane	ND	ug/L	1.0		1	01/31/23	01/31/23 13:02	1011
Trichlorofluoromethane	ND	ug/L	1.0		1	01/31/23	01/31/23 13:02	1011
1,1,2-Trichlorotrifluoroethane	ND	ug/L	1.0		1	01/31/23	01/31/23 13:02	1011
Vinyl chloride	ND	ug/L	1.0		1	01/31/23	01/31/23 13:02	1011
m&p-Xylene	ND	ug/L	2.0		1	01/31/23	01/31/23 13:02	1011
o-Xylene	ND	ug/L	1.0		1	01/31/23	01/31/23 13:02	1011

Surrogate(s)	*Recovery*		*Limits*				
4-Bromofluorobenzene	*107*	*%*	*88-120*		*1*	*01/31/23*	*01/31/23 13:02*	*1011*
Dibromofluoromethane	*93*	*%*	*92-107*		*1*	*01/31/23*	*01/31/23 13:02*	*1011*
Toluene-D8	*100*	*%*	*95-106*		*1*	*01/31/23*	*01/31/23 13:02*	*1011*

1,4-Dioxane by GC/MS - SIM — Analytical Method: SW-846 8260 D-SIM — Preparation Method: SW5030B

	Result	Units	RL	Flag	Dil	Prepared	Analyzed	Analyst
1,4-Dioxane (P-Dioxane)	**94**	ug/L	10		10	02/07/23	02/07/23 21:50	1011

Surrogate(s)	*Recovery*		*Limits*				
Toluene-D8	*100*	*%*	*80-120*		*10*	*02/07/23*	*02/07/23 21:50*	*1011*

PHASE SEPARATION SCIENCE

6630 Baltimore National Pike
Baltimore, MD 21228
410-747-8770
800-932-9047
www.phaseonline.com

Certificate of Analysis

Project Name: Kop-Flex
PSS Project No.: 23012508

Sample ID: TB-012523 **Date/Time Sampled: 01/25/2023 00:00** **PSS Sample ID: 23012508-003**
Matrix: WATER **Date/Time Received: 01/25/2023 11:50**

VOC (Full List) Analytical Method: EPA 624 .1 Preparation Method: E624.1

pH=2

	Result	Units	RL	Flag	Dil	Prepared	Analyzed	Analyst
Acrolein	ND	ug/L	5.0		1	01/27/23	01/27/23 13:27	1011
Acrylonitrile	ND	ug/L	5.0		1	01/27/23	01/27/23 13:27	1011
Dichlorodifluoromethane	ND	ug/L	1.0		1	01/27/23	01/27/23 13:27	1011
Chloromethane	ND	ug/L	1.0		1	01/27/23	01/27/23 13:27	1011
Vinyl Chloride	ND	ug/L	1.0		1	01/27/23	01/27/23 13:27	1011
Bromomethane	ND	ug/L	1.0		1	01/27/23	01/27/23 13:27	1011
Chloroethane	ND	ug/L	1.0		1	01/27/23	01/27/23 13:27	1011
Trichlorofluoromethane	ND	ug/L	1.0		1	01/27/23	01/27/23 13:27	1011
2-Chloroethyl Vinyl Ether	ND	ug/L	1.0		1	01/27/23	01/27/23 13:27	1011
1,1-Dichloroethene	ND	ug/L	1.0		1	01/27/23	01/27/23 13:27	1011
Methylene Chloride	ND	ug/L	1.0		1	01/27/23	01/27/23 13:27	1011
trans-1,2-dichloroethene	ND	ug/L	1.0		1	01/27/23	01/27/23 13:27	1011
1,1-Dichloroethane	ND	ug/L	1.0		1	01/27/23	01/27/23 13:27	1011
Chloroform	ND	ug/L	1.0		1	01/27/23	01/27/23 13:27	1011
1,1,1-Trichloroethane	ND	ug/L	1.0		1	01/27/23	01/27/23 13:27	1011
Carbon Tetrachloride	ND	ug/L	1.0		1	01/27/23	01/27/23 13:27	1011
Benzene	ND	ug/L	1.0		1	01/27/23	01/27/23 13:27	1011
1,2-Dichloroethane	ND	ug/L	1.0		1	01/27/23	01/27/23 13:27	1011
Trichloroethene	ND	ug/L	1.0		1	01/27/23	01/27/23 13:27	1011
1,2-Dichloropropane	ND	ug/L	1.0		1	01/27/23	01/27/23 13:27	1011
Bromodichloromethane	ND	ug/L	1.0		1	01/27/23	01/27/23 13:27	1011
cis-1,3-Dichloropropene	ND	ug/L	1.0		1	01/27/23	01/27/23 13:27	1011
Toluene	ND	ug/L	1.0		1	01/27/23	01/27/23 13:27	1011
trans-1,3-dichloropropene	ND	ug/L	1.0		1	01/27/23	01/27/23 13:27	1011
1,1,2-Trichloroethane	ND	ug/L	1.0		1	01/27/23	01/27/23 13:27	1011
Tetrachloroethylene	ND	ug/L	1.0		1	01/27/23	01/27/23 13:27	1011
Dibromochloromethane	ND	ug/L	1.0		1	01/27/23	01/27/23 13:27	1011
Chlorobenzene	ND	ug/L	1.0		1	01/27/23	01/27/23 13:27	1011
Ethylbenzene	ND	ug/L	1.0		1	01/27/23	01/27/23 13:27	1011
Bromoform	ND	ug/L	1.0		1	01/27/23	01/27/23 13:27	1011
1,1,2,2-Tetrachloroethane	ND	ug/L	1.0		1	01/27/23	01/27/23 13:27	1011
1,3-Dichlorobenzene	ND	ug/L	1.0		1	01/27/23	01/27/23 13:27	1011
1,4-Dichlorobenzene	ND	ug/L	1.0		1	01/27/23	01/27/23 13:27	1011
1,2-Dichlorobenzene	ND	ug/L	1.0		1	01/27/23	01/27/23 13:27	1011

PHASE SEPARATION SCIENCE

6630 Baltimore National Pike
Baltimore, MD 21228
410-747-8770
800-932-9047
www.phaseonline.com

Certificate of Analysis

Project Name: Kop-Flex
PSS Project No.: 23012508

Sample ID: TB-012523 **Date/Time Sampled: 01/25/2023 00:00** **PSS Sample ID: 23012508-003**
Matrix: WATER **Date/Time Received: 01/25/2023 11:50**

VOC (Full List) Analytical Method: EPA 624 .1 Preparation Method: E624.1

pH=2

Surrogate(s)	*Recovery*		*Limits*				
Dibromofluoromethane	*106*	*%*	*94-108*	*1*	*01/27/23*	*01/27/23 13:27*	*1011*
4-Bromofluorobenzene	*98*	*%*	*77-120*	*1*	*01/27/23*	*01/27/23 13:27*	*1011*
Toluene-D8	*101*	*%*	*95-104*	*1*	*01/27/23*	*01/27/23 13:27*	*1011*

1,4-Dioxane by GC/MS - SIM Analytical Method: SW-846 8260 D-SIM Preparation Method: SW5030B

	Result	Units	RL	Flag	Dil	Prepared	Analyzed	Analyst
1,4-Dioxane (P-Dioxane)	ND	ug/L	1.0		1	02/07/23	02/07/23 21:27	1011

Surrogate(s)	*Recovery*		*Limits*				
Toluene-D8	*105*	*%*	*80-120*	*1*	*02/07/23*	*02/07/23 21:27*	*1011*

6630 Baltimore National Pike
Baltimore, MD 21228
410-747-8770
800-932-9047
www.phaseonline.com

Project Name: Kop-Flex

PSS Project No.: 23012508

Any holding time exceedances, deviations from the method specifications, regulatory requirements or variations to the procedures outlined in the PSS Quality Assurance Manual are outlined below.

Matrix spike and matrix spike duplicate analyses may not be performed due to insufficient sample quantity. In these instances, a laboratory control sample and laboratory control sample duplicate are analyzed unless otherwise noted or specified in the method.

Sample Receipt:

All sample receipt conditions were acceptable.

Analytical:

TCL Volatile Organic Compounds

Batch: 200784

Continuing calibration verification standard (CCV) meets method criteria in that more than 80% of analytes are within acceptance limits, see QC summary.

Laboratory control sample (LCS) exceedances identified; see QC summary. Exceedances meet marginal exceedance criteria.

Method exceedance: Quality control sample surrogate exceedances identified, see QC summary.

NELAP accreditation was held for all analyses performed unless noted below. See www.phaseonline.com for complete PSS scope of accreditation.

SW-846 8260 D-SIM: 1,4-Dioxane

PHASE SEPARATION SCIENCE

6630 Baltimore National Pike
Baltimore, MD 21228
410-747-8770
800-932-9047
www.phaseonline.com

Lab Chronology

Project Name: Kop-Flex
PSS Project No.: 23012508

Method	Client Sample ID	Analysis Type	PSS Sample ID	Mtx	Prep Batch	Analytical Batch	Prepared	Analyzed
EPA 624 .1	TB-012523	Initial	23012508-003	W	94050	200730	01/27/2023 08:48	01/27/2023 13:27
	94050-1-BKS	BKS	94050-1-BKS	W	94050	200730	01/27/2023 08:48	01/27/2023 09:10
	94050-1-BLK	BLK	94050-1-BLK	W	94050	200730	01/27/2023 08:48	01/27/2023 11:16
	Effluent VSP-4 S	MS	23012507-001 S	W	94050	200730	01/27/2023 08:48	01/27/2023 14:49
	Effluent VSP-4 SD	MSD	23012507-001 S	W	94050	200730	01/27/2023 08:48	01/27/2023 15:12
SW-846 8260 D	Influent VSP-1	Initial	23012508-002	W	94081	200784	01/31/2023 08:49	01/31/2023 13:02
	94081-1-BKS	BKS	94081-1-BKS	W	94081	200784	01/31/2023 08:49	01/31/2023 08:49
	94081-1-BLK	BLK	94081-1-BLK	W	94081	200784	01/31/2023 08:49	01/31/2023 10:29
	WS-01 S	MS	23013010-001 S	W	94081	200784	01/31/2023 08:49	01/31/2023 15:18
	WS-01 SD	MSD	23013010-001 S	W	94081	200784	01/31/2023 08:49	01/31/2023 15:41
SW-846 8260 D-SIM	Effluent VSP-4	Initial	23012508-001	W	94187	200975	02/07/2023 15:23	02/07/2023 21:05
	Influent VSP-1	Initial	23012508-002	W	94187	200975	02/07/2023 15:23	02/07/2023 21:50
	TB-012523	Initial	23012508-003	W	94187	200975	02/07/2023 15:23	02/07/2023 21:27
	94187-1-BKS	BKS	94187-1-BKS	W	94187	200975	02/07/2023 15:23	02/07/2023 19:37
	94187-1-BLK	BLK	94187-1-BLK	W	94187	200975	02/07/2023 15:23	02/07/2023 20:43
	94187-1-BSD	BSD	94187-1-BSD	W	94187	200975	02/07/2023 15:23	02/07/2023 19:59

PHASE SEPARATION SCIENCE

6630 Baltimore National Pike
Baltimore, MD 21228
410-747-8770
800-932-9047
www.phaseonline.com

QC Summary

Project Name Kop-Flex
PSS Project No.: 23012508

Analytical Method: EPA 624 .1
Prep Method: E624PREP
Seq Number: 200730
Matrix: Water
Date Prep: 01/27/23
MB Sample Id: 94050-1-BLK
LCS Sample Id: 94050-1-BKS

Parameter	MB Result	Spike Amount	LCS Result	LCS %Rec	Limits	Units	Flag
Acrolein	<0.005000	50.00	44.17	88	60-140	ug/L	
Acrylonitrile	<0.005000	50.00	45.85	92	60-140	ug/L	
Dichlorodifluoromethane	<0.001000	50.00	41.52	83	51-128	ug/L	
Chloromethane	0.1100	50.00	29.85	60	1-205	ug/L	
Vinyl Chloride	<0.001000	50.00	45.24	90	5-195	ug/L	
Bromomethane	<0.001000	50.00	40.30	81	15-185	ug/L	
Chloroethane	<0.001000	50.00	34.79	70	40-160	ug/L	
Trichlorofluoromethane	<0.001000	50.00	49.10	98	50-150	ug/L	
2-Chloroethyl Vinyl Ether	<0.001000	50.00	32.28	65	1-225	ug/L	
1,1-Dichloroethene	<0.001000	50.00	50.56	101	50-150	ug/L	
Methylene Chloride	<0.001000	50.00	48.33	97	60-140	ug/L	
trans-1,2-dichloroethene	<0.001000	50.00	49.91	100	70-130	ug/L	
1,1-Dichloroethane	<0.001000	50.00	47.96	96	70-130	ug/L	
Chloroform	<0.001000	50.00	50.71	101	70-135	ug/L	
1,1,1-Trichloroethane	<0.001000	50.00	54.40	109	70-130	ug/L	
Carbon Tetrachloride	<0.001000	50.00	56.81	114	70-130	ug/L	
Benzene	<0.001000	50.00	48.63	97	65-135	ug/L	
1,2-Dichloroethane	<0.001000	50.00	50.63	101	70-130	ug/L	
Trichloroethene	<0.001000	50.00	49.28	99	65-135	ug/L	
1,2-Dichloropropane	<0.001000	50.00	46.75	94	35-165	ug/L	
Bromodichloromethane	<0.001000	50.00	54.85	110	65-135	ug/L	
cis-1,3-Dichloropropene	<0.001000	50.00	53.95	108	25-175	ug/L	
Toluene	<0.001000	50.00	48.28	97	70-130	ug/L	
trans-1,3-dichloropropene	<0.001000	50.00	50.98	102	50-150	ug/L	
1,1,2-Trichloroethane	<0.001000	50.00	49.56	99	70-130	ug/L	
Tetrachloroethylene	0.08000	50.00	50.08	100	70-130	ug/L	
Dibromochloromethane	<0.001000	50.00	57.89	116	70-135	ug/L	
Chlorobenzene	<0.001000	50.00	47.59	95	65-135	ug/L	
Ethylbenzene	0.03000	50.00	47.35	95	60-140	ug/L	
Bromoform	<0.001000	50.00	54.93	110	70-130	ug/L	
1,1,2,2-Tetrachloroethane	<0.001000	50.00	45.63	91	60-140	ug/L	
1,3-Dichlorobenzene	0.1000	50.00	45.97	92	70-130	ug/L	
1,4-Dichlorobenzene	<0.001000	50.00	44.99	90	65-135	ug/L	
1,2-Dichlorobenzene	0.06000	50.00	46.74	93	65-135	ug/L	

Surrogate	MB %Rec	MB Flag	LCS Result	LCS Flag	Limits	Units
Dibromofluoromethane	105		103		94-108	%
4-Bromofluorobenzene	98		94		77-120	%
Toluene-D8	102		102		95-104	%

PHASE SEPARATION SCIENCE

6630 Baltimore National Pike
Baltimore, MD 21228
410-747-8770
800-932-9047
www.phaseonline.com

QC Summary

Project Name Kop-Flex
PSS Project No.: 23012508

Analytical Method: SW-846 8260 D
Prep Method: SW5030B
Seq Number: 200784
Matrix: Water
Date Prep: 01/31/23
MB Sample Id: 94081-1-BLK
LCS Sample Id: 94081-1-BKS

Parameter	MB Result	Spike Amount	LCS Result	LCS %Rec	Limits	Units	Flag
Acetone	<5.000	50.00	43.80	88	49-154	ug/L	
Benzene	<1.000	50.00	46.88	94	76-112	ug/L	
Bromochloromethane	<1.000	50.00	58.98	118	74-119	ug/L	
Bromodichloromethane	<1.000	50.00	54.95	110	78-117	ug/L	
Bromoform	<1.000	50.00	56.60	113	69-123	ug/L	
Bromomethane	<1.000	50.00	44.52	89	42-118	ug/L	
2-Butanone (MEK)	<5.000	50.00	49.51	99	55-136	ug/L	
Carbon Disulfide	<1.000	50.00	51.92	104	80-124	ug/L	
Carbon tetrachloride	<1.000	50.00	58.41	117	77-119	ug/L	
Chlorobenzene	<1.000	50.00	50.39	101	76-114	ug/L	
Chloroethane	<1.000	50.00	35.40	71	61-113	ug/L	
Chloroform	<1.000	50.00	49.74	99	75-113	ug/L	
Chloromethane	<1.000	50.00	30.61	61	41-148	ug/L	
Cyclohexane	<1.000	50.00	40.50	81	76-135	ug/L	
1,2-Dibromo-3-chloropropane	<1.000	50.00	56.15	112	52-131	ug/L	
Dibromochloromethane	<1.000	50.00	61.06	122	79-121	ug/L	H
1,2-Dibromoethane	<1.000	50.00	53.52	107	77-119	ug/L	
1,2-Dichlorobenzene	<1.000	50.00	51.65	103	75-121	ug/L	
1,3-Dichlorobenzene	<1.000	50.00	50.81	102	77-120	ug/L	
Dichlorodifluoromethane	<1.000	50.00	42.07	84	49-122	ug/L	
1,4-Dichlorobenzene	<1.000	50.00	49.57	99	76-118	ug/L	
1,1-Dichloroethane	<1.000	50.00	43.34	87	75-118	ug/L	
1,2-Dichloroethane	<1.000	50.00	45.91	92	72-115	ug/L	
cis-1,2-Dichloroethene	<1.000	50.00	51.43	103	75-119	ug/L	
1,1-Dichloroethene	<1.000	50.00	52.73	105	74-119	ug/L	
1,2-Dichloropropane	<1.000	50.00	42.42	85	76-115	ug/L	
cis-1,3-Dichloropropene	<1.000	50.00	55.09	110	83-122	ug/L	
trans-1,3-Dichloropropene	<1.000	50.00	51.74	103	76-118	ug/L	
trans-1,2-Dichloroethene	<1.000	50.00	51.62	103	73-121	ug/L	
Ethylbenzene	<1.000	50.00	50.54	101	78-118	ug/L	
2-Hexanone (MBK)	<5.000	50.00	50.97	102	55-136	ug/L	
Isopropylbenzene	<1.000	50.00	51.23	102	76-126	ug/L	
Methyl Acetate	<1.000	50.00	40.81	82	61-117	ug/L	
Methylcyclohexane	<1.000	50.00	49.59	99	82-126	ug/L	
Methylene chloride	<1.000	50.00	48.09	96	75-113	ug/L	
4-Methyl-2-Pentanone (MIBK)	<5.000	50.00	46.08	92	57-127	ug/L	
Methyl-t-Butyl Ether	<1.000	50.00	48.49	97	71-114	ug/L	
Naphthalene	<1.000	50.00	46.76	94	60-122	ug/L	
Styrene	<1.000	50.00	52.13	104	81-124	ug/L	
1,1,2,2-Tetrachloroethane	<1.000	50.00	48.28	97	66-123	ug/L	
Tetrachloroethene	<1.000	50.00	52.24	104	76-123	ug/L	
Toluene	<1.000	50.00	49.36	99	77-112	ug/L	
1,2,3-Trichlorobenzene	<1.000	50.00	47.82	96	73-129	ug/L	
1,2,4-Trichlorobenzene	<1.000	50.00	48.64	97	73-130	ug/L	
1,1,1-Trichloroethane	<1.000	50.00	54.12	108	79-118	ug/L	
Trichloroethene	<1.000	50.00	50.03	100	77-112	ug/L	
1,1,2-Trichloroethane	<1.000	50.00	50.58	101	75-115	ug/L	
Trichlorofluoromethane	<1.000	50.00	49.41	99	74-125	ug/L	
1,1,2-Trichlorotrifluoroethane	<1.000	50.00	52.82	106	77-123	ug/L	
Vinyl chloride	<1.000	50.00	43.24	86	53-151	ug/L	
m&p-Xylene	<2.000	100	101.3	101	79-121	ug/L	

PHASE SEPARATION SCIENCE

6630 Baltimore National Pike
Baltimore, MD 21228
410-747-8770
800-932-9047
www.phaseonline.com

QC Summary

Project Name Kop-Flex
PSS Project No.: 23012508

Analytical Method: SW-846 8260 D
Prep Method: SW5030B
Seq Number: 200784
Matrix: Water
Date Prep: 01/31/23
MB Sample Id: 94081-1-BLK
LCS Sample Id: 94081-1-BKS

Parameter	MB Result	Spike Amount	LCS Result	LCS %Rec	Limits	Units	Flag
o-Xylene	<1.000	50.00	51.48	103	78-122	ug/L	

Surrogate	MB %Rec	MB Flag	LCS Result	LCS Flag	Limits	Units
4-Bromofluorobenzene	100		97		88-120	%
Dibromofluoromethane	106		108	*	92-107	%
Toluene-D8	102		98		95-106	%

Analytical Method: SW-846 8260 D-SIM
Prep Method: SW5030B
Seq Number: 200975
Matrix: Water
Date Prep: 02/07/23
MB Sample Id: 94187-1-BLK
LCS Sample Id: 94187-1-BKS
LCSD Sample Id: 94187-1-BSD

Parameter	MB Result	Spike Amount	LCS Result	LCS %Rec	LCSD Result	LCSD %Rec	Limits	RPD	RPD Limit	Units	Flag
1,4-Dioxane (P-Dioxane)	<1.000	30.00	31.22	104	31.44	105	50-150	1	20	ug/L	

Surrogate	MB %Rec	MB Flag	LCS Result	LCS Flag	LCSD Result	LCSD Flag	Limits	Units
Toluene-D8	100		97		108		80-120	%

F = RPD exceeded the laboratory control limits
X = Recovery of MS, MSD or both outside of QC Criteria
H= Recovery of BS,BSD or both exceeded the laboratory control limits
L = Recovery of BS,BSD or both below the laboratory control limits

PHASE SEPARATION SCIENCE

6630 Baltimore National Pike
Baltimore, MD 21228
410-747-8770
800-932-9047
www.phaseonline.com

QC Summary

Project Name Kop-Flex
PSS Project No.: 23012508

Analytical Method: EPA 624 .1

Seq Number: 200325 Matrix: Water
Parent Sample Id: ICV-01 ICV Sample Id: ICV-01 Analyzed Date: 01/11/23 15:13

Parameter	Spike Amount	ICV Result	ICV %Rec	Limits	Units	Flag
Acrolein	0.05000	0.04818	96	60-140	mg/L	
Acrylonitrile	0.05000	0.05391	108	60-140	mg/L	
Dichlorodifluoromethane	0.05000	0.04760	95	51-128	mg/L	
Chloromethane	0.05000	0.04857	97	1-205	mg/L	
Vinyl Chloride	0.05000	0.04797	96	5-195	mg/L	
Bromomethane	0.05000	0.05090	102	15-185	mg/L	
Chloroethane	0.05000	0.04963	99	40-160	mg/L	
Trichlorofluoromethane	0.05000	0.04867	97	50-150	mg/L	
2-Chloroethyl Vinyl Ether	0.05000	0.05441	109	1-225	mg/L	
1,1-Dichloroethene	0.05000	0.05147	103	50-150	mg/L	
Methylene Chloride	0.05000	0.05060	101	60-140	mg/L	
trans-1,2-dichloroethene	0.05000	0.05036	101	70-130	mg/L	
1,1-Dichloroethane	0.05000	0.05138	103	70-130	mg/L	
Chloroform	0.05000	0.05092	102	70-135	mg/L	
1,1,1-Trichloroethane	0.05000	0.05134	103	70-130	mg/L	
Carbon Tetrachloride	0.05000	0.05169	103	70-130	mg/L	
Benzene	0.05000	0.05155	103	65-135	mg/L	
1,2-Dichloroethane	0.05000	0.05021	100	70-130	mg/L	
Trichloroethene	0.05000	0.05050	101	65-135	mg/L	
1,2-Dichloropropane	0.05000	0.05274	105	35-165	mg/L	
Bromodichloromethane	0.05000	0.05357	107	65-135	mg/L	
cis-1,3-Dichloropropene	0.05000	0.05549	111	25-175	mg/L	
Toluene	0.05000	0.05043	101	70-130	mg/L	
trans-1,3-dichloropropene	0.05000	0.05121	102	50-150	mg/L	
1,1,2-Trichloroethane	0.05000	0.05193	104	70-130	mg/L	
Tetrachloroethylene	0.05000	0.04780	96	70-130	mg/L	
Dibromochloromethane	0.05000	0.05553	111	70-135	mg/L	
Chlorobenzene	0.05000	0.05092	102	65-135	mg/L	
Ethylbenzene	0.05000	0.05118	102	60-140	mg/L	
Bromoform	0.05000	0.05087	102	70-130	mg/L	
1,1,2,2-Tetrachloroethane	0.05000	0.05314	106	60-140	mg/L	
1,3-Dichlorobenzene	0.05000	0.04976	100	70-130	mg/L	
1,4-Dichlorobenzene	0.05000	0.04917	98	65-135	mg/L	
1,2-Dichlorobenzene	0.05000	0.05092	102	65-135	mg/L	

Surrogate	ICV Result	Limits	Units	Flag
Dibromofluoromethane	99	94-108	%	
4-Bromofluorobenzene	100	77-120	%	
Toluene-D8	100	95-104	%	

PHASE SEPARATION SCIENCE

6630 Baltimore National Pike
Baltimore, MD 21228
410-747-8770
800-932-9047
www.phaseonline.com

QC Summary

Project Name Kop-Flex
PSS Project No.: 23012508

Analytical Method: SW-846 8260 D

Seq Number: 200784 Matrix: Water

CCV Sample Id: CCV-01 Analyzed Date: 01/31/23 08:49

Parameter	Spike Amount	CCV Result	CCV %Rec	Limits	Units	Flag
Acetone	50.00	43.80	88	80-120	ug/L	
Benzene	50.00	46.88	94	80-120	ug/L	
Bromochloromethane	50.00	58.98	118	80-120	ug/L	
Bromodichloromethane	50.00	54.95	110	80-120	ug/L	
Bromoform	50.00	56.60	113	80-120	ug/L	
Bromomethane	50.00	44.52	89	80-120	ug/L	
2-Butanone (MEK)	50.00	49.51	99	80-120	ug/L	
Carbon Disulfide	50.00	51.92	104	80-120	ug/L	
Carbon tetrachloride	50.00	58.41	117	80-120	ug/L	
Chlorobenzene	50.00	50.39	101	80-120	ug/L	
Chloroethane	50.00	35.40	71	80-120	ug/L	X
Chloroform	50.00	49.74	99	80-120	ug/L	
Chloromethane	50.00	30.61	61	80-120	ug/L	X
Cyclohexane	50.00	40.50	81	80-120	ug/L	
1,2-Dibromo-3-chloropropane	50.00	56.15	112	80-120	ug/L	
Dibromochloromethane	50.00	61.06	122	80-120	ug/L	X
1,2-Dibromoethane	50.00	53.52	107	80-120	ug/L	
1,2-Dichlorobenzene	50.00	51.65	103	80-120	ug/L	
1,3-Dichlorobenzene	50.00	50.81	102	80-120	ug/L	
Dichlorodifluoromethane	50.00	42.07	84	80-120	ug/L	
1,4-Dichlorobenzene	50.00	49.57	99	80-120	ug/L	
1,1-Dichloroethane	50.00	43.34	87	80-120	ug/L	
1,2-Dichloroethane	50.00	45.91	92	80-120	ug/L	
cis-1,2-Dichloroethene	50.00	51.43	103	80-120	ug/L	
1,1-Dichloroethene	50.00	52.73	105	80-120	ug/L	
1,2-Dichloropropane	50.00	42.42	85	80-120	ug/L	
cis-1,3-Dichloropropene	50.00	55.09	110	80-120	ug/L	
trans-1,3-Dichloropropene	50.00	51.74	103	80-120	ug/L	
trans-1,2-Dichloroethene	50.00	51.62	103	80-120	ug/L	
Ethylbenzene	50.00	50.54	101	80-120	ug/L	
2-Hexanone (MBK)	50.00	50.97	102	80-120	ug/L	
Isopropylbenzene	50.00	51.23	102	80-120	ug/L	
Methyl Acetate	50.00	40.81	82	80-120	ug/L	
Methylcyclohexane	50.00	49.59	99	80-120	ug/L	
Methylene chloride	50.00	48.09	96	80-120	ug/L	
4-Methyl-2-Pentanone (MIBK)	50.00	46.08	92	80-120	ug/L	
Methyl-t-Butyl Ether	50.00	48.49	97	80-120	ug/L	
Naphthalene	50.00	46.76	94	80-120	ug/L	
Styrene	50.00	52.13	104	80-120	ug/L	
1,1,2,2-Tetrachloroethane	50.00	48.28	97	80-120	ug/L	
Tetrachloroethene	50.00	52.24	104	80-120	ug/L	
Toluene	50.00	49.36	99	80-120	ug/L	
1,2,3-Trichlorobenzene	50.00	47.82	96	80-120	ug/L	
1,2,4-Trichlorobenzene	50.00	48.64	97	80-120	ug/L	
1,1,1-Trichloroethane	50.00	54.12	108	80-120	ug/L	
Trichloroethene	50.00	50.03	100	80-120	ug/L	
1,1,2-Trichloroethane	50.00	50.58	101	80-120	ug/L	
Trichlorofluoromethane	50.00	49.41	99	80-120	ug/L	
1,1,2-Trichlorotrifluoroethane	50.00	52.82	106	80-120	ug/L	
Vinyl chloride	50.00	43.24	86	80-120	ug/L	
m&p-Xylene	100	101.3	101	80-120	ug/L	

PHASE SEPARATION SCIENCE

6630 Baltimore National Pike
Baltimore, MD 21228
410-747-8770
800-932-9047
www.phaseonline.com

QC Summary

Project Name Kop-Flex
PSS Project No.: 23012508

Analytical Method: SW-846 8260 D

Seq Number: 200784 Matrix: Water

CCV Sample Id: CCV-01 Analyzed Date: 01/31/23 08:49

Parameter	Spike Amount	CCV Result	CCV %Rec	Limits	Units	Flag
o-Xylene	50.00	51.48	103	80-120	ug/L	

Surrogate	CCV Result	Limits	Units	Flag
4-Bromofluorobenzene	97	80-120	%	
Dibromofluoromethane	108	80-120	%	
Toluene-D8	98	80-120	%	

Analytical Method: SW-846 8260 D

Seq Number: 200324 Matrix: Water

Parent Sample Id: ICV-01 ICV Sample Id: ICV-01 Analyzed Date: 01/11/23 15:13

Parameter	Spike Amount	ICV Result	ICV %Rec	Limits	Units	Flag
Acetone	50.00	52.14	104	70-130	ug/L	
Benzene	50.00	51.55	103	70-130	ug/L	
Bromochloromethane	50.00	51.65	103	70-130	ug/L	
Bromodichloromethane	50.00	53.57	107	70-130	ug/L	
Bromoform	50.00	50.87	102	70-130	ug/L	
Bromomethane	50.00	50.90	102	70-130	ug/L	
2-Butanone (MEK)	50.00	53.73	107	70-130	ug/L	
Carbon Disulfide	50.00	53.87	108	70-130	ug/L	
Carbon tetrachloride	50.00	51.69	103	70-130	ug/L	
Chlorobenzene	50.00	50.92	102	70-130	ug/L	
Chloroethane	50.00	49.63	99	70-130	ug/L	
Chloroform	50.00	50.92	102	70-130	ug/L	
Chloromethane	50.00	48.57	97	70-130	ug/L	
Cyclohexane	50.00	51.10	102	70-130	ug/L	
1,2-Dibromo-3-chloropropane	50.00	58.93	118	70-130	ug/L	
Dibromochloromethane	50.00	55.53	111	70-130	ug/L	
1,2-Dibromoethane	50.00	53.46	107	70-130	ug/L	
1,2-Dichlorobenzene	50.00	50.92	102	70-130	ug/L	
1,3-Dichlorobenzene	50.00	49.76	100	70-130	ug/L	
Dichlorodifluoromethane	50.00	47.60	95	70-130	ug/L	
1,4-Dichlorobenzene	50.00	49.17	98	70-130	ug/L	
1,1-Dichloroethane	50.00	51.38	103	70-130	ug/L	
1,2-Dichloroethane	50.00	50.21	100	70-130	ug/L	
cis-1,2-Dichloroethene	50.00	51.23	102	70-130	ug/L	
1,1-Dichloroethene	50.00	51.47	103	70-130	ug/L	
1,2-Dichloropropane	50.00	52.74	105	70-130	ug/L	
cis-1,3-Dichloropropene	50.00	55.49	111	70-130	ug/L	
trans-1,3-Dichloropropene	50.00	51.21	102	70-130	ug/L	
trans-1,2-Dichloroethene	50.00	50.36	101	70-130	ug/L	
Ethylbenzene	50.00	51.18	102	70-130	ug/L	
2-Hexanone (MBK)	50.00	53.99	108	70-130	ug/L	
Isopropylbenzene	50.00	52.44	105	70-130	ug/L	
Methyl Acetate	50.00	50.93	102	70-130	ug/L	
Methylcyclohexane	50.00	49.52	99	70-130	ug/L	
Methylene chloride	50.00	50.60	101	70-130	ug/L	
4-Methyl-2-Pentanone (MIBK)	50.00	54.48	109	70-130	ug/L	
Methyl-t-Butyl Ether	50.00	53.94	108	70-130	ug/L	
Naphthalene	50.00	55.58	111	70-130	ug/L	
Styrene	50.00	53.30	107	70-130	ug/L	
1,1,2,2-Tetrachloroethane	50.00	53.14	106	70-130	ug/L	
Tetrachloroethene	50.00	47.80	96	70-130	ug/L	
Toluene	50.00	50.43	101	70-130	ug/L	
1,2,3-Trichlorobenzene	50.00	50.41	101	70-130	ug/L	
1,2,4-Trichlorobenzene	50.00	50.32	101	70-130	ug/L	
1,1,1-Trichloroethane	50.00	51.34	103	70-130	ug/L	
Trichloroethene	50.00	50.50	101	70-130	ug/L	
1,1,2-Trichloroethane	50.00	51.93	104	70-130	ug/L	
Trichlorofluoromethane	50.00	48.67	97	70-130	ug/L	
1,1,2-Trichlorotrifluoroethane	50.00	48.12	96	70-130	ug/L	
Vinyl chloride	50.00	47.97	96	70-130	ug/L	
m&p-Xylene	100	101.5	102	70-130	ug/L	

Analytical Method: SW-846 8260 D

Seq Number: 200324 Matrix: Water
Parent Sample Id: ICV-01 ICV Sample Id: ICV-01 Analyzed Date: 01/11/23 15:13

Parameter	Spike Amount	ICV Result	ICV %Rec	Limits	Units	Flag
o-Xylene	50.00	51.08	102	70-130	ug/L	

Surrogate	ICV Result	Limits	Units	Flag
4-Bromofluorobenzene	100	70-130	%	
Dibromofluoromethane	99	70-130	%	
Toluene-D8	100	70-130	%	

Analytical Method: SW-846 8260 D-SIM

Seq Number: 200975 Matrix: Water
CCV Sample Id: CCV-01 Analyzed Date: 02/07/23 19:14

Parameter	Spike Amount	CCV Result	CCV %Rec	Limits	Units	Flag
1,4-Dioxane (P-Dioxane)	30.00	31.58	105	80-120	ug/L	

Surrogate	CCV Result	Limits	Units	Flag
Toluene-D8	106	80-120	%	

Analytical Method: SW-846 8260 D-SIM

Seq Number: 200975 Matrix: Water
Parent Sample Id: ICV-01 ICV Sample Id: ICV-01 Analyzed Date: 02/07/23 18:52

Parameter	Spike Amount	ICV Result	ICV %Rec	Limits	Units	Flag
1,4-Dioxane (P-Dioxane)	30.00	30.86	103	70-130	ug/L	

Surrogate	ICV Result	Limits	Units	Flag
Toluene-D8	96	80-120	%	

X = Recovery outside of QC Criteria

CHAIN OF CUSTODY FORM

PHASE SEPARATION SCIENCE

All fields must be completed accurately. Shaded sections for lab use only.

www.phaseonline.com ~ info@phaseonline.com

6630 Baltimore National Pike • Suite 103-A • Baltimore, Maryland 21228 • (410) 747-8770 • (800) 932-9047

① PSS CLIENT: WSP | OFFICE LOCATION: Herndon, VA

BILL TO (if different): | PHONE #: 703-709-6500

CONTACT: Eric Johnson | EMAIL: eric.johnson@wsp.com

PROJECT NAME: Kop-Flex | PROJECT #: 31405608.010/020

SITE LOCATION: Hanover, MD | P.O. #:

SAMPLER(S): Shannon Burke, Tushar Khare | DW CERT #:

PSS Work Order #: 23012508 | PAGE 1 OF 1

Matrix Codes: **SW**=Surface Water **DW**=Drinking Water **GW**=Ground Water **WW**=Waste Water **O**=Oil **S**=Soil **SOL**=Solid **A**=Air **WI**=Wipe

② ③

PSS ID	SAMPLE IDENTIFICATION	DATE SAMPLED	TIME SAMPLED	MATRIX Use Codes	# OF CONTAINERS	SAMPLE TYPE: C=COMPOSITE G=GRAB	Preservatives Use Codes	1	1	1								
							Analysis/ Method Required	1,4-dioxane (8260 SIM)	VOCs (8260)	VOCs (624)								
1	Effluent VSP-4	1/25/23	0930	WW	3	G		X										
2	Influent VSP-1	1/25/23	0945	GW	6	G		X	X									
3	TB-012523	1/25/23	—	TB	4	—		X		X								

Preservative Codes: 1 - HCL; 2 - H_2SO_4; 3 - HNO_3; 4 - NaOH; 5 - E624KIT; 6 - ICE; 7 - Sodium Thiosulfate; 8 - Ascorbic Acid; 9 - TerraCore Kit

⑤

Relinquished By:	Date	Time	Received By:
(1) Shannon Burke	1/25/23	1055	2458
(2) 2458	1/25/23	1100	
(3)	1/25/23	1150	
(4)			

④

Requested TAT (One TAT per COC)

☐ 5-Day ☐ 3-Day ☐ 2-Day
☐ Next Day ☐ Emergency ☒ Other

STATE RESULTS REPORTED TO:
☐ MD ☐ DE ☐ PA ☐ VA ☐ WV
☐ OTHER

COMPLIANCE?
☐ DW ☐ WW

EDD FORMAT TYPE

Ice Present: Pres

Custody Seal: Pres/Cooler TB 1.9°C

Coolers: 1 Temp: 2.3-2.6°C

Shipping Carrier: THE

Special Instructions: Standard 10-day TAT

This chain of custody is a legal document. The client (PSS Client), by signing, or having client's agent sign, this "Chain of Custody Form", agrees to pay for the above requested services per the latest version of the Service Brochure or PSS-provided quotation including any and all attorney's or other reasonable fees if collection becomes necessary.

PHASE SEPARATION SCIENCE

6630 Baltimore National Pike
Baltimore, MD 21228
410-747-8770
800-932-9047
www.phaseonline.com

Sample Receipt Checklist

Project Name: Kop-Flex
PSS Project No.: 23012508

Client Name WSP USA - Herndon
Disposal Date 03/01/2023

Received By Marissa Vertucci
Date Received 01/25/2023 11:50:00 AM
Delivered By Trans Time Express
Tracking No Not Applicable
Logged In By Marissa Vertucci

Shipping Container(s)
No. of Coolers 1

Custody Seal(s) Intact?	Yes	Ice	Present
Seal(s) Signed / Dated?	Yes	Temp (deg C)	2.6
		Temp Blank Present	Yes

Documentation

COC agrees with sample labels?	Yes	Sampler Name	S. Burke, T. Khaire
Chain of Custody	Yes	MD DW Cert. No.	N/A

Sample Container

Appropriate for Specified Analysis?	Yes	Custody Seal(s) Intact?	Not Applicable
Intact?	Yes	Seal(s) Signed / Dated	Not Applicable
Labeled and Labels Legible?	Yes		

Holding Time

All Samples Received Within Holding Time(s)?	Yes	Total No. of Samples Received	3
		Total No. of Containers Received	13

Preservation

Total Metals	(pH<2)	N/A
Dissolved Metals, filtered within 15 minutes of collection	(pH<2)	N/A
Orthophosphorus, filtered within 15 minutes of collection		N/A
Cyanides	(pH>12)	N/A
Sulfide	(pH>9)	N/A
TOC, DOC (field filtered), COD, Phenols	(pH<2)	N/A
TOX, TKN, NH3, Total Phos	(pH<2)	N/A
VOC, BTEX (VOA Vials Rcvd Preserved)	(pH<2)	Yes
Do VOA vials have zero headspace?		Yes
624 VOC (Rcvd at least one unpreserved VOA vial)		N/A
524 VOC (Rcvd with trip blanks)	(pH<2)	N/A

Comments: (Any "No" response must be detailed in the comments section below.)

For any improper preservation conditions, list sample ID, preservative added (reagent ID number) below as well as documentation of any client notification as well as client instructions. Samples for pH, chlorine and dissolved oxygen should be analyzed as soon as possible, preferably in the field at the time of sampling. Samples which require thermal preservation shall be considered acceptable when received at a temperature above freezing to 6°C. Samples that are hand delivered on the day that they are collected may not meet these criteria but shall be considered acceptable if there is evidence that the chilling process has begun such as arrival on ice.

Samples Inspected/Checklist Completed By: Marissa Vertucci Date: 01/25/2023

PM Review and Approval: Amber Confer Date: 01/25/2023

PHASE SEPARATION SCIENCE

6630 Baltimore National Pike
Baltimore, MD 21228
410-747-8770
800-932-9047
www.phaseonline.com

Certificate of Analysis

Project Name: Kop-Flex
PSS Project No.: 23020806

February 22, 2023

Eric Johnson
WSP USA - Herndon
13530 Dulles Technology Dr, Ste 300
Herndon, VA 20171

Reference: PSS Project No: **23020806**
Project Name: Kop-Flex
Project Location: Hanover, MD
Project ID.: 31405608.010/02.02

Dear Eric Johnson:

This report includes the analytical results from the analyses performed on the samples received under the project name referenced above and identified with the Phase Separation Science (PSS) Project number(s) **23020806**.

All work reported herein has been performed in accordance with current NELAP standards, referenced methodologies, PSS Standard Operating Procedures and the PSS Quality Assurance Manual unless otherwise noted in the Case Narrative Summary. PSS is limited in liability to the actual cost of the sample analysis done.

PSS reserves the right to return any unused samples, extracts or related solutions. Otherwise, the samples are scheduled for disposal, without any further notice, on March 15, 2023, with the exception of air canisters which are cleaned immediately following analysis. This includes any samples that were received with a request to be held but lacked a specific hold period. It is your responsibility to provide a written request defining a specific disposal date if additional storage is required. Upon receipt, the request will be acknowledged by PSS, thus extending the storage period.

This report shall not be reproduced except in full, without the written approval of an authorized PSS representative. A copy of this report will be retained by PSS for at least 5 years, after which time it will be disposed of without further notice, unless prior arrangements have been made.

We thank you for selecting Phase Separation Science, Inc. to serve your analytical needs. If you have any questions concerning this report, do not hesitate to contact us at 410-747-8770 or info@phaseonline.com.

Sincerely,

Dan Prucnal
Laboratory Manager

PHASE SEPARATION SCIENCE

6630 Baltimore National Pike
Baltimore, MD 21228
410-747-8770
800-932-9047
www.phaseonline.com

Explanation of Qualifiers

Project Name: Kop-Flex
PSS Project No.: 23020806

Project ID: 31405608.010/02.02

The following samples were received under chain of custody by Phase Separation Science (PSS) on 02/08/2023 at 11:30 am

PSS Sample ID	Sample ID	Matrix	Date/Time Collected
23020806-001	Effluent VSP-4	WASTE WATER	02/08/23 09:30

Please reference the Chain of Custody and Sample Receipt Checklist for specific container counts and preservatives. Any sample conditions not in compliance with sample acceptance criteria are described in Case Narrative Summary.

Notes:

1. The presence of a common laboratory contaminant such as methylene chloride may be considered a possible laboratory artifact. Where observed, appropriate consideration of data should be taken.
2. Unless otherwise noted in the case narrative, results are reported on a dry weight basis with the exception of pH, flashpoint, moisture, and paint filter test.
3. Drinking water samples collected for the purpose of compliance with SDWA may not be suitable for their intended use unless collected by a certified sampler [COMAR 26.08.05.07.C.2].
4. The analyses of 1,2-dibromo-3-chloropropane (DBCP) and 1,2-dibromoethane (EDB) by EPA 524.2 and calcium, magnesium, sodium and iron by EPA 200.8 are not currently promulgated for use in testing to meet the Safe Drinking Water Act and as such cannot be used for compliance purposes. The listings of the current promulgated methods for testing in compliance with the Safe Drinking Water Act can be found in the 40 CFR part 141.1, for the primary drinking water contaminates, and part 141.3, for the secondary drinking water contaminates.
5. Sample prepared under EPA 3550C with concentrations greater than 20 mg/Kg should employ the microtip extraction procedure if required to meet data quality objectives.
6. The analysis of acrolein by EPA 624 must be analyzed within three days of sampling unless pH is adjusted to 4-5 units [40 CFR part 136.3(e)].
7. Method 180.1, The Determination of Turbidity by Nephelometry, recommends samples over 40 NTU be diluted until the turbidity falls below 40 units. Routine samples over 40 NTU may not be diluted as long as the data quality objectives are not affected.
8. Alkalinity results analyzed by EPA 310.2 that are reported by dilution are estimated and are not in compliance with method requirements.

Standard Flags/Abbreviations:

B	A target analyte or common laboratory contaminant was identified in the method blank. Its presence indicates possible field or laboratory contamination.
C	Results Pending Final Confirmation.
E	The data exceeds the upper calibration limit; therefore, the concentration is reported as estimated.
Fail	The result exceeds the regulatory level for Toxicity Characteristic (TCLP) as cited in 40 CFR 261.24 Table 1.
J	The target analyte was positively identified below the reporting limit but greater than the MDL.
MDL	This is the Laboratory Method Detection Limit which is equivalent to the Limit of Detection (LOD). The LOD is the minimum result, which can be reliably discriminated from a blank with a predetermined confidence level. This value will remain constant across multiple similar instrumentation and among different analysts. An LOD is analyte and matrix specific. instrumentation and among different analysts. An LOD is analyte and matrix specific.
ND	Not Detected at or above the reporting limit.
RL	PSS Reporting Limit.
U	Not detected.

Certifications:

NELAP Certifications: PA 68-03330, VA 460156
State Certifications: MD 179, WV 303
Regulated Soil Permit: P330-12-00268
NSWC USCG Accepted Laboratory
LDBE MWAA LD1997-0041-2015

PHASE SEPARATION SCIENCE

6630 Baltimore National Pike
Baltimore, MD 21228
410-747-8770
800-932-9047
www.phaseonline.com

Certificate of Analysis

Project Name: Kop-Flex
PSS Project No.: 23020806

Sample ID: Effluent VSP-4 **Date/Time Sampled: 02/08/2023 09:30** **PSS Sample ID: 23020806-001**
Matrix: WASTE WATER **Date/Time Received: 02/08/2023 11:30**

Total Metals — Analytical Method: EPA 200.8 — Preparation Method: E200.8

	Result	Units	RL	Flag	Dil	Prepared	Analyzed	Analyst
Copper	**6.6**	ug/L	1.0		1	02/13/23	02/14/23 18:59	1064
Lead	**3.0**	ug/L	1.0		1	02/13/23	02/14/23 18:59	1064
Nickel	**17.8**	ug/L	1.00		1	02/13/23	02/14/23 18:59	1064
Zinc	**32.3**	ug/L	20.0		1	02/13/23	02/14/23 18:59	1064

Dissolved Metals — Analytical Method: EPA 200.8 Dissolved — Preparation Method: E200.8

	Result	Units	RL	Flag	Dil	Prepared	Analyzed	Analyst
Copper	**4.2**	ug/L	1.0		1	02/14/23	02/14/23 12:25	1059
Lead	ND	ug/L	1.0		1	02/14/23	02/14/23 12:25	1059
Nickel	**17.3**	ug/L	1.00		1	02/14/23	02/14/23 12:25	1059
Zinc	**25.2**	ug/L	20.0		1	02/14/23	02/14/23 12:25	1059

VOC (Full List) — Analytical Method: EPA 624 .1 — Preparation Method: E624.1

pH=7

	Result	Units	RL	Flag	Dil	Prepared	Analyzed	Analyst
Acrolein	ND	ug/L	5.0		1	02/08/23	02/08/23 13:47	1011
Acrylonitrile	ND	ug/L	5.0		1	02/08/23	02/08/23 13:47	1011
Dichlorodifluoromethane	ND	ug/L	1.0		1	02/08/23	02/08/23 13:47	1011
Chloromethane	ND	ug/L	1.0		1	02/08/23	02/08/23 13:47	1011
Vinyl Chloride	ND	ug/L	1.0		1	02/08/23	02/08/23 13:47	1011
Bromomethane	ND	ug/L	1.0		1	02/08/23	02/08/23 13:47	1011
Chloroethane	ND	ug/L	1.0		1	02/08/23	02/08/23 13:47	1011
Trichlorofluoromethane	ND	ug/L	1.0		1	02/08/23	02/08/23 13:47	1011
2-Chloroethyl Vinyl Ether	ND	ug/L	1.0		1	02/08/23	02/08/23 13:47	1011
1,1-Dichloroethene	ND	ug/L	1.0		1	02/08/23	02/08/23 13:47	1011
Methylene Chloride	ND	ug/L	1.0		1	02/08/23	02/08/23 13:47	1011
trans-1,2-dichloroethene	ND	ug/L	1.0		1	02/08/23	02/08/23 13:47	1011
1,1-Dichloroethane	ND	ug/L	1.0		1	02/08/23	02/08/23 13:47	1011
Chloroform	ND	ug/L	1.0		1	02/08/23	02/08/23 13:47	1011
1,1,1-Trichloroethane	ND	ug/L	1.0		1	02/08/23	02/08/23 13:47	1011
Carbon Tetrachloride	ND	ug/L	1.0		1	02/08/23	02/08/23 13:47	1011
Benzene	ND	ug/L	1.0		1	02/08/23	02/08/23 13:47	1011
1,2-Dichloroethane	ND	ug/L	1.0		1	02/08/23	02/08/23 13:47	1011

PHASE SEPARATION SCIENCE

6630 Baltimore National Pike
Baltimore, MD 21228
410-747-8770
800-932-9047
www.phaseonline.com

Certificate of Analysis

Project Name: Kop-Flex
PSS Project No.: 23020806

Sample ID: Effluent VSP-4 **Date/Time Sampled: 02/08/2023 09:30** **PSS Sample ID: 23020806-001**
Matrix: WASTE WATER **Date/Time Received: 02/08/2023 11:30**

VOC (Full List) Analytical Method: EPA 624 .1 Preparation Method: E624.1

pH=7

	Result	Units	RL	Flag	Dil	Prepared	Analyzed	Analyst
Trichloroethene	ND	ug/L	1.0		1	02/08/23	02/08/23 13:47	1011
1,2-Dichloropropane	ND	ug/L	1.0		1	02/08/23	02/08/23 13:47	1011
Bromodichloromethane	ND	ug/L	1.0		1	02/08/23	02/08/23 13:47	1011
cis-1,3-Dichloropropene	ND	ug/L	1.0		1	02/08/23	02/08/23 13:47	1011
Toluene	ND	ug/L	1.0		1	02/08/23	02/08/23 13:47	1011
trans-1,3-dichloropropene	ND	ug/L	1.0		1	02/08/23	02/08/23 13:47	1011
1,1,2-Trichloroethane	ND	ug/L	1.0		1	02/08/23	02/08/23 13:47	1011
Tetrachloroethylene	ND	ug/L	1.0		1	02/08/23	02/08/23 13:47	1011
Dibromochloromethane	ND	ug/L	1.0		1	02/08/23	02/08/23 13:47	1011
Chlorobenzene	ND	ug/L	1.0		1	02/08/23	02/08/23 13:47	1011
Ethylbenzene	ND	ug/L	1.0		1	02/08/23	02/08/23 13:47	1011
Bromoform	ND	ug/L	1.0		1	02/08/23	02/08/23 13:47	1011
1,1,2,2-Tetrachloroethane	ND	ug/L	1.0		1	02/08/23	02/08/23 13:47	1011
1,3-Dichlorobenzene	ND	ug/L	1.0		1	02/08/23	02/08/23 13:47	1011
1,4-Dichlorobenzene	ND	ug/L	1.0		1	02/08/23	02/08/23 13:47	1011
1,2-Dichlorobenzene	ND	ug/L	1.0		1	02/08/23	02/08/23 13:47	1011

Surrogate(s)	***Recovery***		***Limits***			
Dibromofluoromethane	*94*	*%*	*94-108*	*1*	*02/08/23*	*02/08/23 13:47*	*1011*
4-Bromofluorobenzene	*100*	*%*	*77-120*	*1*	*02/08/23*	*02/08/23 13:47*	*1011*
Toluene-D8	*103*	*%*	*95-104*	*1*	*02/08/23*	*02/08/23 13:47*	*1011*

Hardness, Total by Calculation Analytical Method: SM 2340B Preparation Method: E200.8

	Result	Units	RL	Flag	Dil	Prepared	Analyzed	Analyst
Hardness (Ca & Mg)	**23**	mg/L	0.66		1	02/13/23	02/14/23 18:59	1064

PHASE SEPARATION SCIENCE

6630 Baltimore National Pike
Baltimore, MD 21228
410-747-8770
800-932-9047
www.phaseonline.com

Certificate of Analysis

Project Name: Kop-Flex
PSS Project No.: 23020806

Sample ID: Effluent VSP-4 **Date/Time Sampled: 02/08/2023 09:30** **PSS Sample ID: 23020806-001**
Matrix: WASTE WATER **Date/Time Received: 02/08/2023 11:30**

Total Suspended Solids — Analytical Method: SM 2540D -2015

	Result	Units	RL	Flag	Dil	Prepared	Analyzed	Analyst
Suspended Solids	ND	mg/L	1.0		1	02/11/23	02/11/23 13:40	1073

Biochemical Oxygen Demand — Analytical Method: SM5210B-2016

Qualifier(s): See Batch 201322 on Case Narrative.

	Result	Units	RL	Flag	Prepared	Analyzed	Analyst
Biochemical Oxygen Demand, 5 day	ND	mg/L	2		02/09/23	02/09/23 12:44	4009

6630 Baltimore National Pike
Baltimore, MD 21228
410-747-8770
800-932-9047
www.phaseonline.com

Project Name: Kop-Flex

PSS Project No.: 23020806

Any holding time exceedances, deviations from the method specifications, regulatory requirements or variations to the procedures outlined in the PSS Quality Assurance Manual are outlined below.

Matrix spike and matrix spike duplicate analyses may not be performed due to insufficient sample quantity. In these instances, a laboratory control sample and laboratory control sample duplicate are analyzed unless otherwise noted or specified in the method.

Sample Receipt:

All sample receipt conditions were acceptable.

23020806: Analyses associated with analyst code 4009 were performed by
Martel Laboratories, Inc., 1025 Cromwell Bridge Road, Towson, MD 21204

Analytical:

Biochemical Oxygen Demand

Batch: 201322

The standard check solution value was outside acceptable limits (167.5-228.5 mg/l) at 150 mg/l.

NELAP accreditation was held for all analyses performed unless noted below. See www.phaseonline.com for complete PSS scope of accreditation.

PHASE SEPARATION SCIENCE

6630 Baltimore National Pike
Baltimore, MD 21228
410-747-8770
800-932-9047
www.phaseonline.com

Lab Chronology

Project Name: Kop-Flex
PSS Project No.: 23020806

Method	Client Sample ID	Analysis Type	PSS Sample ID	Mtx	Prep Batch	Analytical Batch	Prepared	Analyzed
EPA 200.8	Effluent VSP-4	Initial	23020806-001	W	94250	201172	02/13/2023 11:45	02/14/2023 18:59
	94250-1-BKS	BKS	94250-1-BKS	W	94250	201172	02/13/2023 11:45	02/14/2023 18:54
	94250-1-BLK	BLK	94250-1-BLK	W	94250	201172	02/13/2023 11:45	02/14/2023 18:49
	Effluent VSP-4 S	MS	23020806-001 S	W	94250	201172	02/13/2023 11:45	02/14/2023 19:04
	Effluent VSP-4 SD	MSD	23020806-001 S	W	94250	201172	02/13/2023 11:45	02/14/2023 19:09
EPA 200.8 Dissolved	Effluent VSP-4	Initial	23020806-001	W	94268	201174	02/14/2023 11:25	02/14/2023 12:25
	94268-1-BKS	BKS	94268-1-BKS	W	94268	201174	02/14/2023 11:25	02/14/2023 12:20
	94268-1-BLK	BLK	94268-1-BLK	W	94268	201174	02/14/2023 11:25	02/14/2023 12:14
	Effluent VSP-4 S	MS	23020806-001 S	W	94268	201174	02/14/2023 11:25	02/14/2023 12:30
	Effluent VSP-4 SD	MSD	23020806-001 S	W	94268	201174	02/14/2023 11:25	02/14/2023 12:35
EPA 624 .1	Effluent VSP-4	Initial	23020806-001	W	94211	201018	02/08/2023 09:40	02/08/2023 13:47
	94211-1-BKS	BKS	94211-1-BKS	W	94211	201018	02/08/2023 09:40	02/08/2023 10:36
	94211-1-BLK	BLK	94211-1-BLK	W	94211	201018	02/08/2023 09:40	02/08/2023 11:54
	1015 Discharge 020323 S	MS	23020317-001 S	W	94211	201018	02/08/2023 09:40	02/08/2023 15:17
	1015 Discharge 020323 SD	MSD	23020317-001 S	W	94211	201018	02/08/2023 09:40	02/08/2023 15:40
SM 2340B	94250-1-BKS	BKS	94250-1-BKS	W	94250	201239	02/13/2023 11:45	02/16/2023 20:05
	94250-1-BLK	BLK	94250-1-BLK	W	94250	201239	02/13/2023 11:45	02/16/2023 20:00
	Effluent VSP-4	Initial	23020806-001	W	94250	201364	02/13/2023 11:45	02/14/2023 18:59
SM 2540D -2015	Effluent VSP-4	Initial	23020806-001	W	201076	201076	02/11/2023 13:40	02/11/2023 13:40
	201076-1-BKS	BKS	201076-1-BKS	W	201076	201076	02/11/2023 13:40	02/11/2023 13:40
	201076-1-BLK	BLK	201076-1-BLK	W	201076	201076	02/11/2023 13:40	02/11/2023 13:40
	633-020723-01 D	MD	23020702-001 D	W	201076	201076	02/11/2023 13:40	02/11/2023 13:40
	004 QC D	MD	23020910-002 D	W	201076	201076	02/11/2023 13:40	02/11/2023 13:40
SM5210B-2016	Effluent VSP-4	Initial	23020806-001	W	201322	201322	02/09/2023 12:44	02/09/2023 12:44

PHASE SEPARATION SCIENCE

6630 Baltimore National Pike
Baltimore, MD 21228
410-747-8770
800-932-9047
www.phaseonline.com

QC Summary

Project Name Kop-Flex
PSS Project No.: 23020806

Analytical Method: SM 2540D -2015
Seq Number: 201076 Matrix: Water
MB Sample Id: 201076-1-BLK LCS Sample Id: 201076-1-BKS

Parameter	MB Result	Spike Amount	LCS Result	LCS %Rec	Limits	Units	Flag
Suspended Solids	<1.000	100.5	98.00	98	86-110	mg/L	

Analytical Method: EPA 200.8 Prep Method: E200.8_PREP
Seq Number: 201172 Matrix: Water Date Prep: 02/13/23
MB Sample Id: 94250-1-BLK LCS Sample Id: 94250-1-BKS

Parameter	MB Result	Spike Amount	LCS Result	LCS %Rec	Limits	Units	Flag
Copper	<1.000	50.00	50.11	100	85-115	ug/L	
Lead	<1.000	50.00	51.31	103	85-115	ug/L	
Nickel	<1.000	50.00	48.48	97	85-115	ug/L	
Zinc	<20.00	100	103.2	103	85-115	ug/L	

Analytical Method: EPA 200.8 Prep Method: E200.8_PREP
Seq Number: 201172 Matrix: Waste Water Date Prep: 02/13/23
Parent Sample Id: 23020806-001 MS Sample Id: 23020806-001 S MSD Sample Id: 23020806-001 SD

Parameter	Parent Result	Spike Amount	MS Result	MS %Rec	MSD Result	MSD %Rec	Limits	RPD	RPD Limit	Units	Flag
Copper	6.641	50.00	56.86	100	55.88	98	70-130	2	25	ug/L	
Lead	2.975	50.00	51.11	96	50.01	94	70-130	2	25	ug/L	
Nickel	17.82	50.00	66.89	98	65.72	96	70-130	2	25	ug/L	
Zinc	32.31	100	137.2	105	134.3	102	70-130	2	25	ug/L	

Analytical Method: EPA 200.8 Dissolved Prep Method: E200.8_PREP
Seq Number: 201174 Matrix: Water Date Prep: 02/14/23
MB Sample Id: 94268-1-BLK LCS Sample Id: 94268-1-BKS

Parameter	MB Result	Spike Amount	LCS Result	LCS %Rec	Limits	Units	Flag
Copper	<1.000	50.00	51.84	104	85-115	ug/L	
Lead	<1.000	50.00	53.20	106	85-115	ug/L	
Nickel	<1.000	50.00	52.05	104	85-115	ug/L	
Zinc	<20.00	100	105	105	85-115	ug/L	

PHASE SEPARATION SCIENCE

6630 Baltimore National Pike
Baltimore, MD 21228
410-747-8770
800-932-9047
www.phaseonline.com

QC Summary

Project Name Kop-Flex
PSS Project No.: 23020806

Analytical Method: EPA 200.8 Dissolved Prep Method: E200.8_PREP
Seq Number: 201174 Matrix: Waste Water Date Prep: 02/14/23
Parent Sample Id: 23020806-001 MS Sample Id: 23020806-001 S MSD Sample Id: 23020806-001 SD

Parameter	Parent Result	Spike Amount	MS Result	MS %Rec	MSD Result	MSD %Rec	Limits	RPD	RPD Limit	Units	Flag
Copper	4.184	50.00	54.94	102	53.93	99	70-130	2	25	ug/L	
Lead	<1.000	50.00	51.43	103	50.42	101	70-130	2	25	ug/L	
Nickel	17.27	50.00	68.43	102	68.26	102	70-130	0	25	ug/L	
Zinc	25.21	100	130	105	128.7	103	70-130	1	25	ug/L	

Analytical Method: SM 2340B Prep Method: E200.8_PREP
Seq Number: 201239 Matrix: Water Date Prep: 02/13/23
MB Sample Id: 94250-1-BLK

Parameter	MB Result	LOD	RL	Units	Flag
Hardness (Ca & Mg)	ND	0.7000	0.7000	mg/L	

PHASE SEPARATION SCIENCE

6630 Baltimore National Pike
Baltimore, MD 21228
410-747-8770
800-932-9047
www.phaseonline.com

QC Summary

Project Name Kop-Flex
PSS Project No.: 23020806

Analytical Method: EPA 624 .1
Prep Method: E624PREP
Seq Number: 201018
Matrix: Water
Date Prep: 02/08/23
MB Sample Id: 94211-1-BLK
LCS Sample Id: 94211-1-BKS

Parameter	MB Result	Spike Amount	LCS Result	LCS %Rec	Limits	Units	Flag
Acrolein	<0.005000	50.00	36.70	73	60-140	ug/L	
Acrylonitrile	<0.005000	50.00	39.54	79	60-140	ug/L	
Dichlorodifluoromethane	0.03000	50.00	43.16	86	51-128	ug/L	
Chloromethane	<0.001000	50.00	41.27	83	1-205	ug/L	
Vinyl Chloride	<0.001000	50.00	34.05	68	5-195	ug/L	
Bromomethane	<0.001000	50.00	47.99	96	15-185	ug/L	
Chloroethane	<0.001000	50.00	40.38	81	40-160	ug/L	
Trichlorofluoromethane	<0.001000	50.00	38.80	78	50-150	ug/L	
2-Chloroethyl Vinyl Ether	<0.001000	50.00	30.88	62	1-225	ug/L	
1,1-Dichloroethene	<0.001000	50.00	46.65	93	50-150	ug/L	
Methylene Chloride	<0.001000	50.00	45.25	91	60-140	ug/L	
trans-1,2-dichloroethene	<0.001000	50.00	46.19	92	70-130	ug/L	
1,1-Dichloroethane	<0.001000	50.00	42.93	86	70-130	ug/L	
Chloroform	0.01000	50.00	42.36	85	70-135	ug/L	
1,1,1-Trichloroethane	<0.001000	50.00	41.87	84	70-130	ug/L	
Carbon Tetrachloride	<0.001000	50.00	40.61	81	70-130	ug/L	
Benzene	<0.001000	50.00	45.55	91	65-135	ug/L	
1,2-Dichloroethane	<0.001000	50.00	40.66	81	70-130	ug/L	
Trichloroethene	<0.001000	50.00	45.88	92	65-135	ug/L	
1,2-Dichloropropane	<0.001000	50.00	44.35	89	35-165	ug/L	
Bromodichloromethane	<0.001000	50.00	41.79	84	65-135	ug/L	
cis-1,3-Dichloropropene	<0.001000	50.00	44.19	88	25-175	ug/L	
Toluene	<0.001000	50.00	47.17	94	70-130	ug/L	
trans-1,3-dichloropropene	<0.001000	50.00	43.25	87	50-150	ug/L	
1,1,2-Trichloroethane	<0.001000	50.00	45.05	90	70-130	ug/L	
Tetrachloroethylene	<0.001000	50.00	47.49	95	70-130	ug/L	
Dibromochloromethane	<0.001000	50.00	42.45	85	70-135	ug/L	
Chlorobenzene	<0.001000	50.00	46.43	93	65-135	ug/L	
Ethylbenzene	0.05000	50.00	45.86	92	60-140	ug/L	
Bromoform	<0.001000	50.00	41.77	84	70-130	ug/L	
1,1,2,2-Tetrachloroethane	<0.001000	50.00	39.17	78	60-140	ug/L	
1,3-Dichlorobenzene	0.1600	50.00	47.64	95	70-130	ug/L	
1,4-Dichlorobenzene	<0.001000	50.00	47.21	94	65-135	ug/L	
1,2-Dichlorobenzene	0.09000	50.00	46.38	93	65-135	ug/L	

Surrogate	MB %Rec	MB Flag	LCS Result	LCS Flag	Limits	Units
Dibromofluoromethane	94		97		94-108	%
4-Bromofluorobenzene	100		92		77-120	%
Toluene-D8	101		101		95-104	%

F = RPD exceeded the laboratory control limits
X = Recovery of MS, MSD or both outside of QC Criteria
H= Recovery of BS,BSD or both exceeded the laboratory control limits
L = Recovery of BS,BSD or both below the laboratory control limits

Analytical Method: EPA 200.8
Seq Number: 201172 Matrix: Water
CCV Sample Id: CCV 1 Analyzed Date: 02/14/23 18:33

Parameter	Spike Amount	CCV Result	CCV %Rec	Limits	Units	Flag
Copper	100	101.4	101	85-115	ug/L	
Lead	100	103.3	103	85-115	ug/L	
Nickel	100	98.42	98	85-115	ug/L	
Zinc	200	213	107	85-115	ug/L	

Analytical Method: EPA 200.8
Seq Number: 201172 Matrix: Water
CCV Sample Id: CCV 2 Analyzed Date: 02/14/23 19:40

Parameter	Spike Amount	CCV Result	CCV %Rec	Limits	Units	Flag
Copper	100	101.4	101	85-115	ug/L	
Lead	100	101.4	101	85-115	ug/L	
Nickel	100	98.76	99	85-115	ug/L	
Zinc	200	211.7	106	85-115	ug/L	

Analytical Method: EPA 200.8
Seq Number: 201172 Matrix: Water
CCV Sample Id: CCV 3 Analyzed Date: 02/14/23 20:46

Parameter	Spike Amount	CCV Result	CCV %Rec	Limits	Units	Flag
Copper	100	100.5	101	85-115	ug/L	
Lead	100	90.62	91	85-115	ug/L	
Nickel	100	97.48	97	85-115	ug/L	
Zinc	200	209.9	105	85-115	ug/L	

Analytical Method: EPA 200.8
Seq Number: 201172 Matrix: Water
CCV Sample Id: CCV 4 Analyzed Date: 02/14/23 21:52

Parameter	Spike Amount	CCV Result	CCV %Rec	Limits	Units	Flag
Copper	100	100.7	101	85-115	ug/L	
Lead	100	100.3	100	85-115	ug/L	
Nickel	100	97.52	98	85-115	ug/L	
Zinc	200	210.2	105	85-115	ug/L	

Analytical Method: EPA 200.8

Seq Number: 201172 Matrix: Water

Parent Sample Id: ICV 1 ICV Sample Id: ICV 1 Analyzed Date: 02/14/23 17:12

Parameter	Spike Amount	ICV Result	ICV %Rec	Limits	Units	Flag
Copper	50.00	52.08	104	90-110	ug/L	
Lead	50.00	54.73	109	90-110	ug/L	
Nickel	50.00	50.77	102	90-110	ug/L	
Zinc	100	108	108	90-110	ug/L	

Analytical Method: EPA 200.8 Dissolved

Seq Number: 201174 Matrix: Water

CCV Sample Id: CCV 1 Analyzed Date: 02/14/23 13:12

Parameter	Spike Amount	CCV Result	CCV %Rec	Limits	Units	Flag
Copper	100	102.6	103	85-115	ug/L	
Lead	100	105.9	106	85-115	ug/L	
Nickel	100	104.4	104	85-115	ug/L	
Zinc	200	211.2	106	85-115	ug/L	

Analytical Method: EPA 200.8 Dissolved

Seq Number: 201174 Matrix: Water

Parent Sample Id: ICV 1 ICV Sample Id: ICV 1 Analyzed Date: 02/14/23 11:48

Parameter	Spike Amount	ICV Result	ICV %Rec	Limits	Units	Flag
Copper	50.00	51.22	102	90-110	ug/L	
Lead	50.00	52.97	106	90-110	ug/L	
Nickel	50.00	50.91	102	90-110	ug/L	
Zinc	100	105.3	105	90-110	ug/L	

PHASE SEPARATION SCIENCE

6630 Baltimore National Pike
Baltimore, MD 21228
410-747-8770
800-932-9047
www.phaseonline.com

QC Summary

Project Name Kop-Flex
PSS Project No.: 23020806

Analytical Method: EPA 624 .1

Seq Number: 200941 Matrix: Water
Parent Sample Id: ICV-01 ICV Sample Id: ICV-01 Analyzed Date: 02/06/23 17:55

Parameter	Spike Amount	ICV Result	ICV %Rec	Limits	Units	Flag
Acrolein	0.05000	0.04643	93	60-140	mg/L	
Acrylonitrile	0.05000	0.05075	102	60-140	mg/L	
Dichlorodifluoromethane	0.05000	0.04698	94	51-128	mg/L	
Chloromethane	0.05000	0.04957	99	1-205	mg/L	
Vinyl Chloride	0.05000	0.04006	80	5-195	mg/L	
Bromomethane	0.05000	0.04615	92	15-185	mg/L	
Chloroethane	0.05000	0.04648	93	40-160	mg/L	
Trichlorofluoromethane	0.05000	0.04248	85	50-150	mg/L	
2-Chloroethyl Vinyl Ether	0.05000	0.04683	94	1-225	mg/L	
1,1-Dichloroethene	0.05000	0.04787	96	50-150	mg/L	
Methylene Chloride	0.05000	0.04941	99	60-140	mg/L	
trans-1,2-dichloroethene	0.05000	0.04978	100	70-130	mg/L	
1,1-Dichloroethane	0.05000	0.04864	97	70-130	mg/L	
Chloroform	0.05000	0.04640	93	70-135	mg/L	
1,1,1-Trichloroethane	0.05000	0.04600	92	70-130	mg/L	
Carbon Tetrachloride	0.05000	0.04446	89	70-130	mg/L	
Benzene	0.05000	0.04996	100	65-135	mg/L	
1,2-Dichloroethane	0.05000	0.04536	91	70-130	mg/L	
Trichloroethene	0.05000	0.04825	97	65-135	mg/L	
1,2-Dichloropropane	0.05000	0.05011	100	35-165	mg/L	
Bromodichloromethane	0.05000	0.04619	92	65-135	mg/L	
cis-1,3-Dichloropropene	0.05000	0.04808	96	25-175	mg/L	
Toluene	0.05000	0.04886	98	70-130	mg/L	
trans-1,3-dichloropropene	0.05000	0.04796	96	50-150	mg/L	
1,1,2-Trichloroethane	0.05000	0.04848	97	70-130	mg/L	
Tetrachloroethylene	0.05000	0.04608	92	70-130	mg/L	
Dibromochloromethane	0.05000	0.04739	95	70-135	mg/L	
Chlorobenzene	0.05000	0.04997	100	65-135	mg/L	
Ethylbenzene	0.05000	0.04983	100	60-140	mg/L	
Bromoform	0.05000	0.04766	95	70-130	mg/L	
1,1,2,2-Tetrachloroethane	0.05000	0.05063	101	60-140	mg/L	
1,3-Dichlorobenzene	0.05000	0.05134	103	70-130	mg/L	
1,4-Dichlorobenzene	0.05000	0.05048	101	65-135	mg/L	
1,2-Dichlorobenzene	0.05000	0.05155	103	65-135	mg/L	

Surrogate	ICV Result	Limits	Units	Flag
Dibromofluoromethane	96	94-108	%	
4-Bromofluorobenzene	101	77-120	%	
Toluene-D8	98	95-104	%	

X = Recovery outside of QC Criteria

PHASE SEPARATION SCIENCE

CHAIN OF CUSTODY FORM

All fields must be completed accurately. Shaded sections for lab use only.

www.phaseonline.com ~ info@phaseonline.com

6630 Baltimore National Pike • Suite 103-A • Baltimore, Maryland 21228 • (410) 747-8770 • (800) 932-9047

①

PSS CLIENT: WSP	OFFICE LOCATION: Herndon, VA
BILL TO (if different):	PHONE #: 703-709-6500
CONTACT: Eric Johnson	EMAIL: eric.johnson@wsp.com
PROJECT NAME: Kop-flex	PROJECT #: 31405608.010/020
SITE LOCATION: Hanover, MD	P.O. #:
SAMPLER(S): Tushar Khaire	DW CERT #:

PSS Work Order #: 2302080 | PAGE 1 OF 1

Matrix Codes: **SW**=Surface Water **DW**=Drinking Water **GW**=Ground Water **WW**=Waste Water **O**=Oil **S**=Soil **SOL**=Solid **A**=Air **WI**=Wipe

②

PSS ID	SAMPLE IDENTIFICATION	DATE SAMPLED	TIME SAMPLED	MATRIX Use Codes	# OF CONTAINERS	SAMPLE TYPE: C=COMPOSITE G=GRAB	Preservatives Use Codes	1.6	3	3	6	6						
							③ Analysis/ Method Required	VOCs (624)	Dissolved metals (200.8)	Total metals + hardness (200.8)	TSS	BOD						
1	Effluent VSP-4	2/8/23	0930	WW	7	G		X	X	X	X	X						

Preservative Codes: 1 - HCL; 2 - H_2SO_4; 3 - HNO_3; 4 - NaOH; 5 - E624KIT; 6 - ICE; 7 - Sodium Thiosulfate; 8 - Ascorbic Acid; 9 - TerraCore Kit

⑤

Relinquished By: (1) Tush	Date 2/8/23	Time 10:11	Received By:
Relinquished By: (2)	Date 2/8	Time 11:30	Received By:
Relinquished By: (3)	Date	Time	Received By:
Relinquished By: (4)	Date	Time	Received By:

④

Requested TAT (One TAT per COC)
☐ 5-Day ☐ 3-Day ☐ 2-Day
☐ Next Day ☐ Emergency ☒ Other

STATE RESULTS REPORTED TO:
☐ MD ☐ DE ☐ PA ☐ VA ☐ WV
☐ OTHER

COMPLIANCE?
☐ DW ☐ WW

EDD FORMAT TYPE

Ice Present: Pres

Custody Seal: Pres / Cooler TB-3.5

Coolers: 1 Temp: 1.8-3.7°C

Shipping Carrier: FE

Special Instructions:
Standard 10-day TAT
Metals = Cu, Pb, Ni, Zn
Dissolved metals field-filtered

This chain of custody is a legal document. The client (PSS Client), by signing, or having client's agent sign, this "Chain of Custody Form", agrees to pay for the above requested services per the latest version of the Service Brochure or PSS-provided quotation including any and all attorney's or other reasonable fees if collection becomes necessary.

PHASE SEPARATION SCIENCE

6630 Baltimore National Pike
Baltimore, MD 21228
410-747-8770
800-932-9047
www.phaseonline.com

Sample Receipt Checklist

Project Name: Kop-Flex
PSS Project No.: 23020806

Client Name WSP USA - Herndon
Disposal Date 03/15/2023

Received By Marissa Vertucci
Date Received 02/08/2023 11:30:00 AM
Delivered By Trans Time Express
Tracking No Not Applicable
Logged In By Marissa Vertucci

Shipping Container(s)
No. of Coolers 1

Custody Seal(s) Intact?	Yes	Ice	Present
Seal(s) Signed / Dated?	Yes	Temp (deg C)	3.7
		Temp Blank Present	Yes

Documentation

COC agrees with sample labels?	Yes	Sampler Name	Tushar Khaire
Chain of Custody	Yes	MD DW Cert. No.	N/A

Sample Container

Appropriate for Specified Analysis?	Yes	Custody Seal(s) Intact?	Not Applicable
Intact?	Yes	Seal(s) Signed / Dated	Not Applicable
Labeled and Labels Legible?	Yes		

Holding Time

All Samples Received Within Holding Time(s)?	Yes	Total No. of Samples Received	1
		Total No. of Containers Received	7

Preservation

Total Metals	(pH<2)	Yes
Dissolved Metals, filtered within 15 minutes of collection	(pH<2)	Yes
Orthophosphorus, filtered within 15 minutes of collection		N/A
Cyanides	(pH>12)	N/A
Sulfide	(pH>9)	N/A
TOC, DOC (field filtered), COD, Phenols	(pH<2)	N/A
TOX, TKN, NH3, Total Phos	(pH<2)	N/A
VOC, BTEX (VOA Vials Rcvd Preserved)	(pH<2)	Yes
Do VOA vials have zero headspace?		Yes
624 VOC (Rcvd at least one unpreserved VOA vial)		Yes
524 VOC (Rcvd with trip blanks)	(pH<2)	N/A

Comments: (Any "No" response must be detailed in the comments section below.)

For any improper preservation conditions, list sample ID, preservative added (reagent ID number) below as well as documentation of any client notification as well as client instructions. Samples for pH, chlorine and dissolved oxygen should be analyzed as soon as possible, preferably in the field at the time of sampling. Samples which require thermal preservation shall be considered acceptable when received at a temperature above freezing to 6°C. Samples that are hand delivered on the day that they are collected may not meet these criteria but shall be considered acceptable if there is evidence that the chilling process has begun such as arrival on ice.

Samples Inspected/Checklist Completed By: Marissa Vertucci Date: 02/08/2023

PM Review and Approval: Amber Confer Date: 02/08/2023

PHASE SEPARATION SCIENCE

6630 Baltimore National Pike
Baltimore, MD 21228
410-747-8770
800-932-9047
www.phaseonline.com

Certificate of Analysis

Project Name: Kop-Flex
PSS Project No.: 23020807

February 22, 2023

Eric Johnson
WSP USA - Herndon
13530 Dulles Technology Dr, Ste 300
Herndon, VA 20171

Reference: PSS Project No: **23020807**
Project Name: Kop-Flex
Project Location: Hanover, MD
Project ID.: 31405608010/02.02

Dear Eric Johnson:

This report includes the analytical results from the analyses performed on the samples received under the project name referenced above and identified with the Phase Separation Science (PSS) Project number(s) **23020807**.

All work reported herein has been performed in accordance with current NELAP standards, referenced methodologies, PSS Standard Operating Procedures and the PSS Quality Assurance Manual unless otherwise noted in the Case Narrative Summary. PSS is limited in liability to the actual cost of the sample analysis done.

PSS reserves the right to return any unused samples, extracts or related solutions. Otherwise, the samples are scheduled for disposal, without any further notice, on March 15, 2023, with the exception of air canisters which are cleaned immediately following analysis. This includes any samples that were received with a request to be held but lacked a specific hold period. It is your responsibility to provide a written request defining a specific disposal date if additional storage is required. Upon receipt, the request will be acknowledged by PSS, thus extending the storage period.

This report shall not be reproduced except in full, without the written approval of an authorized PSS representative. A copy of this report will be retained by PSS for at least 5 years, after which time it will be disposed of without further notice, unless prior arrangements have been made.

We thank you for selecting Phase Separation Science, Inc. to serve your analytical needs. If you have any questions concerning this report, do not hesitate to contact us at 410-747-8770 or info@phaseonline.com.

Sincerely,

Dan Prucnal
Laboratory Manager

PHASE SEPARATION SCIENCE

6630 Baltimore National Pike
Baltimore, MD 21228
410-747-8770
800-932-9047
www.phaseonline.com

Explanation of Qualifiers

Project Name: Kop-Flex
PSS Project No.: 23020807

Project ID: 31405608010/02.02

The following samples were received under chain of custody by Phase Separation Science (PSS) on 02/08/2023 at 11:30 am

PSS Sample ID	Sample ID	Matrix	Date/Time Collected
23020807-001	Effluent VSP-4	WASTE WATER	02/08/23 09:30
23020807-002	TB-020823	WATER	02/08/23 00:00

Please reference the Chain of Custody and Sample Receipt Checklist for specific container counts and preservatives. Any sample conditions not in compliance with sample acceptance criteria are described in Case Narrative Summary.

Notes:

1. The presence of a common laboratory contaminant such as methylene chloride may be considered a possible laboratory artifact. Where observed, appropriate consideration of data should be taken.
2. Unless otherwise noted in the case narrative, results are reported on a dry weight basis with the exception of pH, flashpoint, moisture, and paint filter test.
3. Drinking water samples collected for the purpose of compliance with SDWA may not be suitable for their intended use unless collected by a certified sampler [COMAR 26.08.05.07.C.2].
4. The analyses of 1,2-dibromo-3-chloropropane (DBCP) and 1,2-dibromoethane (EDB) by EPA 524.2 and calcium, magnesium, sodium and iron by EPA 200.8 are not currently promulgated for use in testing to meet the Safe Drinking Water Act and as such cannot be used for compliance purposes. The listings of the current promulgated methods for testing in compliance with the Safe Drinking Water Act can be found in the 40 CFR part 141.1, for the primary drinking water contaminates, and part 141.3, for the secondary drinking water contaminates.
5. Sample prepared under EPA 3550C with concentrations greater than 20 mg/Kg should employ the microtip extraction procedure if required to meet data quality objectives.
6. The analysis of acrolein by EPA 624 must be analyzed within three days of sampling unless pH is adjusted to 4-5 units [40 CFR part 136.3(e)].
7. Method 180.1, The Determination of Turbidity by Nephelometry, recommends samples over 40 NTU be diluted until the turbidity falls below 40 units. Routine samples over 40 NTU may not be diluted as long as the data quality objectives are not affected.
8. Alkalinity results analyzed by EPA 310.2 that are reported by dilution are estimated and are not in compliance with method requirements.

Standard Flags/Abbreviations:

B	A target analyte or common laboratory contaminant was identified in the method blank. Its presence indicates possible field or laboratory contamination.
C	Results Pending Final Confirmation.
E	The data exceeds the upper calibration limit; therefore, the concentration is reported as estimated.
Fail	The result exceeds the regulatory level for Toxicity Characteristic (TCLP) as cited in 40 CFR 261.24 Table 1.
J	The target analyte was positively identified below the reporting limit but greater than the MDL.
MDL	This is the Laboratory Method Detection Limit which is equivalent to the Limit of Detection (LOD). The LOD is the minimum result, which can be reliably discriminated from a blank with a predetermined confidence level. This value will remain constant across multiple similar instrumentation and among different analysts. An LOD is analyte and matrix specific. instrumentation and among different analysts. An LOD is analyte and matrix specific.
ND	Not Detected at or above the reporting limit.
RL	PSS Reporting Limit.
U	Not detected.

Certifications:

NELAP Certifications: PA 68-03330, VA 460156
State Certifications: MD 179, WV 303
Regulated Soil Permit: P330-12-00268
NSWC USCG Accepted Laboratory
LDBE MWAA LD1997-0041-2015

PHASE SEPARATION SCIENCE

6630 Baltimore National Pike
Baltimore, MD 21228
410-747-8770
800-932-9047
www.phaseonline.com

Certificate of Analysis

Project Name: Kop-Flex
PSS Project No.: 23020807

Sample ID: Effluent VSP-4 **Date/Time Sampled: 02/08/2023 09:30** **PSS Sample ID: 23020807-001**
Matrix: WASTE WATER **Date/Time Received: 02/08/2023 11:30**

1,4-Dioxane by GC/MS - SIM Analytical Method: SW-846 8260 D-SIM Preparation Method: SW5030B

	Result	Units	RL	Flag	Dil	Prepared	Analyzed	Analyst
1,4-Dioxane (P-Dioxane)	**2.1**	ug/L	1.0		1	02/09/23	02/09/23 12:40	1011
Surrogate(s)	***Recovery***		***Limits***					
Toluene-D8	*108*	*%*	*80-120*		*1*	*02/09/23*	*02/09/23 12:40*	*1011*

PHASE SEPARATION SCIENCE

6630 Baltimore National Pike
Baltimore, MD 21228
410-747-8770
800-932-9047
www.phaseonline.com

Certificate of Analysis

Project Name: Kop-Flex
PSS Project No.: 23020807

Sample ID: TB-020823 **Date/Time Sampled: 02/08/2023 00:00** **PSS Sample ID: 23020807-002**
Matrix: WATER **Date/Time Received: 02/08/2023 11:30**

VOC (Full List) Analytical Method: EPA 624 .1 Preparation Method: E624.1

pH=2

	Result	Units	RL	Flag	Dil	Prepared	Analyzed	Analyst
Acrolein	ND	ug/L	5.0		1	02/08/23	02/08/23 14:09	1011
Acrylonitrile	ND	ug/L	5.0		1	02/08/23	02/08/23 14:09	1011
Dichlorodifluoromethane	ND	ug/L	1.0		1	02/08/23	02/08/23 14:09	1011
Chloromethane	ND	ug/L	1.0		1	02/08/23	02/08/23 14:09	1011
Vinyl Chloride	ND	ug/L	1.0		1	02/08/23	02/08/23 14:09	1011
Bromomethane	ND	ug/L	1.0		1	02/08/23	02/08/23 14:09	1011
Chloroethane	ND	ug/L	1.0		1	02/08/23	02/08/23 14:09	1011
Trichlorofluoromethane	ND	ug/L	1.0		1	02/08/23	02/08/23 14:09	1011
2-Chloroethyl Vinyl Ether	ND	ug/L	1.0		1	02/08/23	02/08/23 14:09	1011
1,1-Dichloroethene	ND	ug/L	1.0		1	02/08/23	02/08/23 14:09	1011
Methylene Chloride	ND	ug/L	1.0		1	02/08/23	02/08/23 14:09	1011
trans-1,2-dichloroethene	ND	ug/L	1.0		1	02/08/23	02/08/23 14:09	1011
1,1-Dichloroethane	ND	ug/L	1.0		1	02/08/23	02/08/23 14:09	1011
Chloroform	ND	ug/L	1.0		1	02/08/23	02/08/23 14:09	1011
1,1,1-Trichloroethane	ND	ug/L	1.0		1	02/08/23	02/08/23 14:09	1011
Carbon Tetrachloride	ND	ug/L	1.0		1	02/08/23	02/08/23 14:09	1011
Benzene	ND	ug/L	1.0		1	02/08/23	02/08/23 14:09	1011
1,2-Dichloroethane	ND	ug/L	1.0		1	02/08/23	02/08/23 14:09	1011
Trichloroethene	ND	ug/L	1.0		1	02/08/23	02/08/23 14:09	1011
1,2-Dichloropropane	ND	ug/L	1.0		1	02/08/23	02/08/23 14:09	1011
Bromodichloromethane	ND	ug/L	1.0		1	02/08/23	02/08/23 14:09	1011
cis-1,3-Dichloropropene	ND	ug/L	1.0		1	02/08/23	02/08/23 14:09	1011
Toluene	ND	ug/L	1.0		1	02/08/23	02/08/23 14:09	1011
trans-1,3-dichloropropene	ND	ug/L	1.0		1	02/08/23	02/08/23 14:09	1011
1,1,2-Trichloroethane	ND	ug/L	1.0		1	02/08/23	02/08/23 14:09	1011
Tetrachloroethylene	ND	ug/L	1.0		1	02/08/23	02/08/23 14:09	1011
Dibromochloromethane	ND	ug/L	1.0		1	02/08/23	02/08/23 14:09	1011
Chlorobenzene	ND	ug/L	1.0		1	02/08/23	02/08/23 14:09	1011
Ethylbenzene	ND	ug/L	1.0		1	02/08/23	02/08/23 14:09	1011
Bromoform	ND	ug/L	1.0		1	02/08/23	02/08/23 14:09	1011
1,1,2,2-Tetrachloroethane	ND	ug/L	1.0		1	02/08/23	02/08/23 14:09	1011
1,3-Dichlorobenzene	ND	ug/L	1.0		1	02/08/23	02/08/23 14:09	1011
1,4-Dichlorobenzene	ND	ug/L	1.0		1	02/08/23	02/08/23 14:09	1011
1,2-Dichlorobenzene	ND	ug/L	1.0		1	02/08/23	02/08/23 14:09	1011

PHASE SEPARATION SCIENCE

6630 Baltimore National Pike
Baltimore, MD 21228
410-747-8770
800-932-9047
www.phaseonline.com

Certificate of Analysis

Project Name: Kop-Flex
PSS Project No.: 23020807

Sample ID: TB-020823 **Date/Time Sampled: 02/08/2023 00:00** **PSS Sample ID: 23020807-002**
Matrix: WATER **Date/Time Received: 02/08/2023 11:30**

VOC (Full List) Analytical Method: EPA 624 .1 Preparation Method: E624.1

pH=2

Surrogate(s)	*Recovery*		*Limits*				
Dibromofluoromethane	*95*	*%*	*94-108*	*1*	*02/08/23*	*02/08/23 14:09*	*1011*
4-Bromofluorobenzene	*99*	*%*	*77-120*	*1*	*02/08/23*	*02/08/23 14:09*	*1011*
Toluene-D8	*99*	*%*	*95-104*	*1*	*02/08/23*	*02/08/23 14:09*	*1011*

1,4-Dioxane by GC/MS - SIM Analytical Method: SW-846 8260 D-SIM Preparation Method: SW5030B

	Result	Units	RL	Flag	Dil	Prepared	Analyzed	Analyst
1,4-Dioxane (P-Dioxane)	ND	ug/L	1.0		1	02/09/23	02/09/23 13:02	1011

Surrogate(s)	*Recovery*		*Limits*				
Toluene-D8	*108*	*%*	*80-120*	*1*	*02/09/23*	*02/09/23 13:02*	*1011*

6630 Baltimore National Pike
Baltimore, MD 21228
410-747-8770
800-932-9047
www.phaseonline.com

Project Name: Kop-Flex

PSS Project No.: 23020807

Any holding time exceedances, deviations from the method specifications, regulatory requirements or variations to the procedures outlined in the PSS Quality Assurance Manual are outlined below.

Matrix spike and matrix spike duplicate analyses may not be performed due to insufficient sample quantity. In these instances, a laboratory control sample and laboratory control sample duplicate are analyzed unless otherwise noted or specified in the method.

Sample Receipt:

All sample receipt conditions were acceptable.

NELAP accreditation was held for all analyses performed unless noted below. See www.phaseonline.com for complete PSS scope of accreditation.

SW-846 8260 D-SIM: 1,4-Dioxane

PHASE SEPARATION SCIENCE

6630 Baltimore National Pike
Baltimore, MD 21228
410-747-8770
800-932-9047
www.phaseonline.com

Lab Chronology

Project Name: Kop-Flex
PSS Project No.: 23020807

Method	Client Sample ID	Analysis Type	PSS Sample ID	Mtx	Prep Batch	Analytical Batch	Prepared	Analyzed
EPA 624 .1	TB-020823	Initial	23020807-002	W	94211	201018	02/08/2023 09:40	02/08/2023 14:09
	94211-1-BKS	BKS	94211-1-BKS	W	94211	201018	02/08/2023 09:40	02/08/2023 10:36
	94211-1-BLK	BLK	94211-1-BLK	W	94211	201018	02/08/2023 09:40	02/08/2023 11:54
	1015 Discharge 020323 S	MS	23020317-001 S	W	94211	201018	02/08/2023 09:40	02/08/2023 15:17
	1015 Discharge 020323 SD	MSD	23020317-001 S	W	94211	201018	02/08/2023 09:40	02/08/2023 15:40
SW-846 8260 D-SIM	Effluent VSP-4	Initial	23020807-001	W	94224	201048	02/09/2023 10:27	02/09/2023 12:40
	TB-020823	Initial	23020807-002	W	94224	201048	02/09/2023 10:27	02/09/2023 13:02
	94224-1-BKS	BKS	94224-1-BKS	W	94224	201048	02/09/2023 10:27	02/09/2023 11:01
	94224-1-BLK	BLK	94224-1-BLK	W	94224	201048	02/09/2023 10:27	02/09/2023 12:18
	94224-1-BSD	BSD	94224-1-BSD	W	94224	201048	02/09/2023 10:27	02/09/2023 11:23

PHASE SEPARATION SCIENCE

6630 Baltimore National Pike
Baltimore, MD 21228
410-747-8770
800-932-9047
www.phaseonline.com

QC Summary

Project Name Kop-Flex
PSS Project No.: 23020807

Analytical Method: EPA 624 .1
Prep Method: E624PREP
Seq Number: 201018
Matrix: Water
Date Prep: 02/08/23
MB Sample Id: 94211-1-BLK
LCS Sample Id: 94211-1-BKS

Parameter	MB Result	Spike Amount	LCS Result	LCS %Rec	Limits	Units	Flag
Acrolein	<0.005000	50.00	36.70	73	60-140	ug/L	
Acrylonitrile	<0.005000	50.00	39.54	79	60-140	ug/L	
Dichlorodifluoromethane	0.03000	50.00	43.16	86	51-128	ug/L	
Chloromethane	<0.001000	50.00	41.27	83	1-205	ug/L	
Vinyl Chloride	<0.001000	50.00	34.05	68	5-195	ug/L	
Bromomethane	<0.001000	50.00	47.99	96	15-185	ug/L	
Chloroethane	<0.001000	50.00	40.38	81	40-160	ug/L	
Trichlorofluoromethane	<0.001000	50.00	38.80	78	50-150	ug/L	
2-Chloroethyl Vinyl Ether	<0.001000	50.00	30.88	62	1-225	ug/L	
1,1-Dichloroethene	<0.001000	50.00	46.65	93	50-150	ug/L	
Methylene Chloride	<0.001000	50.00	45.25	91	60-140	ug/L	
trans-1,2-dichloroethene	<0.001000	50.00	46.19	92	70-130	ug/L	
1,1-Dichloroethane	<0.001000	50.00	42.93	86	70-130	ug/L	
Chloroform	0.01000	50.00	42.36	85	70-135	ug/L	
1,1,1-Trichloroethane	<0.001000	50.00	41.87	84	70-130	ug/L	
Carbon Tetrachloride	<0.001000	50.00	40.61	81	70-130	ug/L	
Benzene	<0.001000	50.00	45.55	91	65-135	ug/L	
1,2-Dichloroethane	<0.001000	50.00	40.66	81	70-130	ug/L	
Trichloroethene	<0.001000	50.00	45.88	92	65-135	ug/L	
1,2-Dichloropropane	<0.001000	50.00	44.35	89	35-165	ug/L	
Bromodichloromethane	<0.001000	50.00	41.79	84	65-135	ug/L	
cis-1,3-Dichloropropene	<0.001000	50.00	44.19	88	25-175	ug/L	
Toluene	<0.001000	50.00	47.17	94	70-130	ug/L	
trans-1,3-dichloropropene	<0.001000	50.00	43.25	87	50-150	ug/L	
1,1,2-Trichloroethane	<0.001000	50.00	45.05	90	70-130	ug/L	
Tetrachloroethylene	<0.001000	50.00	47.49	95	70-130	ug/L	
Dibromochloromethane	<0.001000	50.00	42.45	85	70-135	ug/L	
Chlorobenzene	<0.001000	50.00	46.43	93	65-135	ug/L	
Ethylbenzene	0.05000	50.00	45.86	92	60-140	ug/L	
Bromoform	<0.001000	50.00	41.77	84	70-130	ug/L	
1,1,2,2-Tetrachloroethane	<0.001000	50.00	39.17	78	60-140	ug/L	
1,3-Dichlorobenzene	0.1600	50.00	47.64	95	70-130	ug/L	
1,4-Dichlorobenzene	<0.001000	50.00	47.21	94	65-135	ug/L	
1,2-Dichlorobenzene	0.09000	50.00	46.38	93	65-135	ug/L	

Surrogate	MB %Rec	MB Flag	LCS Result	LCS Flag	Limits	Units
Dibromofluoromethane	94		97		94-108	%
4-Bromofluorobenzene	100		92		77-120	%
Toluene-D8	101		101		95-104	%

PHASE SEPARATION SCIENCE

6630 Baltimore National Pike
Baltimore, MD 21228
410-747-8770
800-932-9047
www.phaseonline.com

QC Summary

Project Name Kop-Flex
PSS Project No.: 23020807

Analytical Method: SW-846 8260 D-SIM Prep Method: SW5030B
Seq Number: 201048 Matrix: Water Date Prep: 02/09/23
MB Sample Id: 94224-1-BLK LCS Sample Id: 94224-1-BKS LCSD Sample Id: 94224-1-BSD

Parameter	MB Result	Spike Amount	LCS Result	LCS %Rec	LCSD Result	LCSD %Rec	Limits	RPD	RPD Limit	Units	Flag
1,4-Dioxane (P-Dioxane)	<1.000	30.00	26.74	89	28.42	95	50-150	6	20	ug/L	

Surrogate	MB %Rec	MB Flag	LCS Result	LCS Flag	LCSD Result	LCSD Flag	Limits	Units
Toluene-D8	108		109		109		80-120	%

F = RPD exceeded the laboratory control limits
X = Recovery of MS, MSD or both outside of QC Criteria
H= Recovery of BS,BSD or both exceeded the laboratory control limits
L = Recovery of BS,BSD or both below the laboratory control limits

PHASE SEPARATION SCIENCE

6630 Baltimore National Pike
Baltimore, MD 21228
410-747-8770
800-932-9047
www.phaseonline.com

QC Summary

Project Name Kop-Flex
PSS Project No.: 23020807

Analytical Method: EPA 624 .1

Seq Number: 200941 Matrix: Water
Parent Sample Id: ICV-01 ICV Sample Id: ICV-01 Analyzed Date: 02/06/23 17:55

Parameter	Spike Amount	ICV Result	ICV %Rec	Limits	Units	Flag
Acrolein	0.05000	0.04643	93	60-140	mg/L	
Acrylonitrile	0.05000	0.05075	102	60-140	mg/L	
Dichlorodifluoromethane	0.05000	0.04698	94	51-128	mg/L	
Chloromethane	0.05000	0.04957	99	1-205	mg/L	
Vinyl Chloride	0.05000	0.04006	80	5-195	mg/L	
Bromomethane	0.05000	0.04615	92	15-185	mg/L	
Chloroethane	0.05000	0.04648	93	40-160	mg/L	
Trichlorofluoromethane	0.05000	0.04248	85	50-150	mg/L	
2-Chloroethyl Vinyl Ether	0.05000	0.04683	94	1-225	mg/L	
1,1-Dichloroethene	0.05000	0.04787	96	50-150	mg/L	
Methylene Chloride	0.05000	0.04941	99	60-140	mg/L	
trans-1,2-dichloroethene	0.05000	0.04978	100	70-130	mg/L	
1,1-Dichloroethane	0.05000	0.04864	97	70-130	mg/L	
Chloroform	0.05000	0.04640	93	70-135	mg/L	
1,1,1-Trichloroethane	0.05000	0.04600	92	70-130	mg/L	
Carbon Tetrachloride	0.05000	0.04446	89	70-130	mg/L	
Benzene	0.05000	0.04996	100	65-135	mg/L	
1,2-Dichloroethane	0.05000	0.04536	91	70-130	mg/L	
Trichloroethene	0.05000	0.04825	97	65-135	mg/L	
1,2-Dichloropropane	0.05000	0.05011	100	35-165	mg/L	
Bromodichloromethane	0.05000	0.04619	92	65-135	mg/L	
cis-1,3-Dichloropropene	0.05000	0.04808	96	25-175	mg/L	
Toluene	0.05000	0.04886	98	70-130	mg/L	
trans-1,3-dichloropropene	0.05000	0.04796	96	50-150	mg/L	
1,1,2-Trichloroethane	0.05000	0.04848	97	70-130	mg/L	
Tetrachloroethylene	0.05000	0.04608	92	70-130	mg/L	
Dibromochloromethane	0.05000	0.04739	95	70-135	mg/L	
Chlorobenzene	0.05000	0.04997	100	65-135	mg/L	
Ethylbenzene	0.05000	0.04983	100	60-140	mg/L	
Bromoform	0.05000	0.04766	95	70-130	mg/L	
1,1,2,2-Tetrachloroethane	0.05000	0.05063	101	60-140	mg/L	
1,3-Dichlorobenzene	0.05000	0.05134	103	70-130	mg/L	
1,4-Dichlorobenzene	0.05000	0.05048	101	65-135	mg/L	
1,2-Dichlorobenzene	0.05000	0.05155	103	65-135	mg/L	

Surrogate	ICV Result	Limits	Units	Flag
Dibromofluoromethane	96	94-108	%	
4-Bromofluorobenzene	101	77-120	%	
Toluene-D8	98	95-104	%	

Analytical Method: SW-846 8260 D-SIM
Seq Number: 200975 Matrix: Water
CCV Sample Id: CCV-01 Analyzed Date: 02/07/23 19:14

Parameter	Spike Amount	CCV Result	CCV %Rec	Limits	Units	Flag
1,4-Dioxane (P-Dioxane)	30.00	31.58	105	80-120	ug/L	

Surrogate	CCV Result	Limits	Units	Flag
Toluene-D8	106	80-120	%	

Analytical Method: SW-846 8260 D-SIM
Seq Number: 201048 Matrix: Water
CCV Sample Id: CCV-01 Analyzed Date: 02/09/23 10:27

Parameter	Spike Amount	CCV Result	CCV %Rec	Limits	Units	Flag
1,4-Dioxane (P-Dioxane)	30.00	29.18	97	80-120	ug/L	

Surrogate	CCV Result	Limits	Units	Flag
Toluene-D8	108	80-120	%	

Analytical Method: SW-846 8260 D-SIM
Seq Number: 200975 Matrix: Water
Parent Sample Id: ICV-01 ICV Sample Id: ICV-01 Analyzed Date: 02/07/23 18:52

Parameter	Spike Amount	ICV Result	ICV %Rec	Limits	Units	Flag
1,4-Dioxane (P-Dioxane)	30.00	30.86	103	70-130	ug/L	

Surrogate	ICV Result	Limits	Units	Flag
Toluene-D8	96	80-120	%	

X = Recovery outside of QC Criteria

PHASE SEPARATION SCIENCE

CHAIN OF CUSTODY FORM

All fields must be completed accurately. Shaded sections for lab use only.

www.phaseonline.com ~ info@phaseonline.com

6630 Baltimore National Pike • Suite 103-A • Baltimore, Maryland 21228 • (410) 747-8770 • (800) 932-9047

WSP

① PSS CLIENT: ~~Effluent VSP-4~~ OFFICE LOCATION: Herndon, VA

BILL TO (if different): PHONE #: 703-709-6500

CONTACT: Eric Johnson EMAIL: eric.johnson@wsp.com

PROJECT NAME: Kop-Flex PROJECT #: 31405608.010/02.02

SITE LOCATION: Hanover, MD P.O. #:

SAMPLER(S): Tushar Khaire DW CERT #:

PSS Work Order #: 23020807 PAGE 1 OF 1

Matrix Codes: SW=Surface Water DW=Drinking Water GW=Ground Water WW=Waste Water O=Oil S=Soil SOL=Solid A=Air WI=Wipe

② Preservatives Use Codes: 1 | 1

Analysis/Method Required ③: 1,4-dioxane (8260 SIM) | VOCs (624)

Preservative Codes: 1 - HCL; 2 - H_2SO_4; 3 - HNO_3; 4 - NaOH; 5 - E624KIT; 6 - ICE; 7 - Sodium Thiosulfate; 8 - Ascorbic Acid; 9 - TerraCore Kit

PSS ID	SAMPLE IDENTIFICATION	DATE SAMPLED	TIME SAMPLED	MATRIX Use Codes	# OF CONTAINERS	SAMPLE TYPE: C=COMPOSITE G=GRAB	1,4-dioxane (8260 SIM)	VOCs (624)
1	Effluent VSP-4	2/8/23	0930	WW	3	G	X	
2	TB-020823	—	—	TB	4	—	X	X

⑤

Relinquished By:	Date	Time	Received By:
(1) Tush	2/8/23	10:11	2567
(2)	2/8	10:50	
(3)			
(4)			

④

Requested TAT (One TAT per COC): ☐ 5-Day ☐ 3-Day ☐ 2-Day ☐ Next Day ☐ Emergency ☒ Other

STATE RESULTS REPORTED TO: ☐ MD ☐ DE ☐ PA ☐ VA ☐ WV ☐ OTHER

COMPLIANCE? ☐ DW ☐ WW

EDD FORMAT TYPE

Ice Present: Pres

Custody Seal: Pres / Cooler TB-3.5°C

Coolers: 1 Temp: 1.8-3.7°C

Shipping Carrier: ~~FE~~

Special Instructions: Standard 10-day TAT

This chain of custody is a legal document. The client (PSS Client), by signing, or having client's agent sign, this "Chain of Custody Form", agrees to pay for the above requested services per the latest version of the Service Brochure or PSS-provided quotation including any and all attorney's or other reasonable fees if collection becomes necessary.

PHASE SEPARATION SCIENCE

6630 Baltimore National Pike
Baltimore, MD 21228
410-747-8770
800-932-9047
www.phaseonline.com

Sample Receipt Checklist

Project Name: Kop-Flex
PSS Project No.: 23020807

Client Name WSP USA - Herndon
Disposal Date 03/15/2023

Received By Marissa Vertucci
Date Received 02/08/2023 11:30:00 AM
Delivered By Trans Time Express
Tracking No Not Applicable
Logged In By Marissa Vertucci

Shipping Container(s)
No. of Coolers 1

Custody Seal(s) Intact?	Yes	Ice	Present
Seal(s) Signed / Dated?	Yes	Temp (deg C)	3.7
		Temp Blank Present	Yes

Documentation

COC agrees with sample labels?	Yes	Sampler Name	Tushar Khaire
Chain of Custody	Yes	MD DW Cert. No.	N/A

Sample Container

Appropriate for Specified Analysis?	Yes	Custody Seal(s) Intact?	Not Applicable
Intact?	Yes	Seal(s) Signed / Dated	Not Applicable
Labeled and Labels Legible?	Yes		

Holding Time

All Samples Received Within Holding Time(s)?	Yes	Total No. of Samples Received	2
		Total No. of Containers Received	7

Preservation

Total Metals	(pH<2)	N/A
Dissolved Metals, filtered within 15 minutes of collection	(pH<2)	N/A
Orthophosphorus, filtered within 15 minutes of collection		N/A
Cyanides	(pH>12)	N/A
Sulfide	(pH>9)	N/A
TOC, DOC (field filtered), COD, Phenols	(pH<2)	N/A
TOX, TKN, NH3, Total Phos	(pH<2)	N/A
VOC, BTEX (VOA Vials Rcvd Preserved)	(pH<2)	Yes
Do VOA vials have zero headspace?		Yes
624 VOC (Rcvd at least one unpreserved VOA vial)		N/A
524 VOC (Rcvd with trip blanks)	(pH<2)	N/A

Comments: (Any "No" response must be detailed in the comments section below.)

For any improper preservation conditions, list sample ID, preservative added (reagent ID number) below as well as documentation of any client notification as well as client instructions. Samples for pH, chlorine and dissolved oxygen should be analyzed as soon as possible, preferably in the field at the time of sampling. Samples which require thermal preservation shall be considered acceptable when received at a temperature above freezing to 6°C. Samples that are hand delivered on the day that they are collected may not meet these criteria but shall be considered acceptable if there is evidence that the chilling process has begun such as arrival on ice.

Samples Inspected/Checklist Completed By: Marissa Vertucci Date: 02/08/2023

PM Review and Approval: Amber Confer Date: 02/08/2023

PHASE SEPARATION SCIENCE

6630 Baltimore National Pike
Baltimore, MD 21228
410-747-8770
800-932-9047
www.phaseonline.com

Certificate of Analysis

Project Name: Kop-Flex
PSS Project No.: 23030816

March 22, 2023

Eric Johnson
WSP USA - Herndon
13530 Dulles Technology Dr, Ste 300
Herndon, VA 20171

Reference: PSS Project No: **23030816**
Project Name: Kop-Flex
Project Location: Hanover, MD
Project ID.: 31405608.010/0202

Dear Eric Johnson:

This report includes the analytical results from the analyses performed on the samples received under the project name referenced above and identified with the Phase Separation Science (PSS) Project number(s) **23030816**.

All work reported herein has been performed in accordance with current NELAP standards, referenced methodologies, PSS Standard Operating Procedures and the PSS Quality Assurance Manual unless otherwise noted in the Case Narrative Summary. PSS is limited in liability to the actual cost of the sample analysis done.

PSS reserves the right to return any unused samples, extracts or related solutions. Otherwise, the samples are scheduled for disposal, without any further notice, on April 12, 2023, with the exception of air canisters which are cleaned immediately following analysis. This includes any samples that were received with a request to be held but lacked a specific hold period. It is your responsibility to provide a written request defining a specific disposal date if additional storage is required. Upon receipt, the request will be acknowledged by PSS, thus extending the storage period.

This report shall not be reproduced except in full, without the written approval of an authorized PSS representative. A copy of this report will be retained by PSS for at least 5 years, after which time it will be disposed of without further notice, unless prior arrangements have been made.

We thank you for selecting Phase Separation Science, Inc. to serve your analytical needs. If you have any questions concerning this report, do not hesitate to contact us at 410-747-8770 or info@phaseonline.com.

Sincerely,

Dan Prucnal
Laboratory Manager

PHASE SEPARATION SCIENCE

6630 Baltimore National Pike
Baltimore, MD 21228
410-747-8770
800-932-9047
www.phaseonline.com

Explanation of Qualifiers

Project Name: Kop-Flex
PSS Project No.: 23030816

Project ID: 31405608.010/0202

The following samples were received under chain of custody by Phase Separation Science (PSS) on 03/08/2023 at 01:40 pm

PSS Sample ID	Sample ID	Matrix	Date/Time Collected
23030816-001	Effluent VSP-4	WASTE WATER	03/08/23 10:40

Please reference the Chain of Custody and Sample Receipt Checklist for specific container counts and preservatives. Any sample conditions not in compliance with sample acceptance criteria are described in Case Narrative Summary.

Notes:

1. The presence of a common laboratory contaminant such as methylene chloride may be considered a possible laboratory artifact. Where observed, appropriate consideration of data should be taken.
2. Unless otherwise noted in the case narrative, results are reported on a dry weight basis with the exception of pH, flashpoint, moisture, and paint filter test.
3. Drinking water samples collected for the purpose of compliance with SDWA may not be suitable for their intended use unless collected by a certified sampler [COMAR 26.08.05.07.C.2].
4. The analyses of 1,2-dibromo-3-chloropropane (DBCP) and 1,2-dibromoethane (EDB) by EPA 524.2 and calcium, magnesium, sodium and iron by EPA 200.8 are not currently promulgated for use in testing to meet the Safe Drinking Water Act and as such cannot be used for compliance purposes. The listings of the current promulgated methods for testing in compliance with the Safe Drinking Water Act can be found in the 40 CFR part 141.1, for the primary drinking water contaminates, and part 141.3, for the secondary drinking water contaminates.
5. Sample prepared under EPA 3550C with concentrations greater than 20 mg/Kg should employ the microtip extraction procedure if required to meet data quality objectives.
6. The analysis of acrolein by EPA 624 must be analyzed within three days of sampling unless pH is adjusted to 4-5 units [40 CFR part 136.3(e)].
7. Method 180.1, The Determination of Turbidity by Nephelometry, recommends samples over 40 NTU be diluted until the turbidity falls below 40 units. Routine samples over 40 NTU may not be diluted as long as the data quality objectives are not affected.
8. Alkalinity results analyzed by EPA 310.2 that are reported by dilution are estimated and are not in compliance with method requirements.

Standard Flags/Abbreviations:

B	A target analyte or common laboratory contaminant was identified in the method blank. Its presence indicates possible field or laboratory contamination.
C	Results Pending Final Confirmation.
E	The data exceeds the upper calibration limit; therefore, the concentration is reported as estimated.
Fail	The result exceeds the regulatory level for Toxicity Characteristic (TCLP) as cited in 40 CFR 261.24 Table 1.
J	The target analyte was positively identified below the reporting limit but greater than the MDL.
MDL	This is the Laboratory Method Detection Limit which is equivalent to the Limit of Detection (LOD). The LOD is the minimum result, which can be reliably discriminated from a blank with a predetermined confidence level. This value will remain constant across multiple similar instrumentation and among different analysts. An LOD is analyte and matrix specific. instrumentation and among different analysts. An LOD is analyte and matrix specific.
ND	Not Detected at or above the reporting limit.
RL	PSS Reporting Limit.
U	Not detected.

Certifications:

NELAP Certifications: PA 68-03330, VA 460156
State Certifications: MD 179, WV 303
Regulated Soil Permit: P330-12-00268
NSWC USCG Accepted Laboratory
LDBE MWAA LD1997-0041-2015

PHASE SEPARATION SCIENCE

6630 Baltimore National Pike
Baltimore, MD 21228
410-747-8770
800-932-9047
www.phaseonline.com

Certificate of Analysis

Project Name: Kop-Flex
PSS Project No.: 23030816

Sample ID: Effluent VSP-4 **Date/Time Sampled: 03/08/2023 10:40** **PSS Sample ID: 23030816-001**
Matrix: WASTE WATER **Date/Time Received: 03/08/2023 13:40**

Total Metals — Analytical Method: EPA 200.8 — Preparation Method: E200.8

	Result	Units	RL	Flag	Dil	Prepared	Analyzed	Analyst
Copper	**6.6**	ug/L	1.0		1	03/09/23	03/09/23 21:42	1059
Lead	ND	ug/L	1.0		1	03/09/23	03/09/23 21:42	1059
Nickel	**18.2**	ug/L	1.00		1	03/09/23	03/09/23 21:42	1059
Zinc	**34.5**	ug/L	20.0		1	03/09/23	03/15/23 11:45	1059

Dissolved Metals — Analytical Method: EPA 200.8 Dissolved — Preparation Method: E200.8

	Result	Units	RL	Flag	Dil	Prepared	Analyzed	Analyst
Copper	**4.3**	ug/L	1.0		1	03/13/23	03/13/23 22:13	1064
Lead	ND	ug/L	1.0		1	03/13/23	03/13/23 22:13	1064
Nickel	**17.7**	ug/L	1.00		1	03/13/23	03/13/23 22:13	1064
Zinc	**22.1**	ug/L	20.0		1	03/13/23	03/13/23 22:13	1064

VOC (Full List) — Analytical Method: EPA 624 .1 — Preparation Method: E624.1

Qualifier(s): See Batch 201852 on Case Narrative.
pH=7

	Result	Units	RL	Flag	Dil	Prepared	Analyzed	Analyst
Acrolein	ND	ug/L	5.0		1	03/10/23	03/10/23 11:32	1011
Dichlorodifluoromethane	ND	ug/L	1.0		1	03/10/23	03/10/23 11:32	1011
Acrylonitrile	ND	ug/L	5.0		1	03/10/23	03/10/23 11:32	1011
Chloromethane	ND	ug/L	1.0		1	03/10/23	03/10/23 11:32	1011
Vinyl Chloride	ND	ug/L	1.0		1	03/10/23	03/10/23 11:32	1011
Bromomethane	ND	ug/L	1.0		1	03/10/23	03/10/23 11:32	1011
Chloroethane	ND	ug/L	1.0		1	03/10/23	03/10/23 11:32	1011
Trichlorofluoromethane	ND	ug/L	1.0		1	03/10/23	03/10/23 11:32	1011
2-Chloroethyl Vinyl Ether	ND	ug/L	1.0		1	03/10/23	03/10/23 11:32	1011
1,1-Dichloroethene	ND	ug/L	1.0		1	03/10/23	03/10/23 11:32	1011
Methylene Chloride	ND	ug/L	1.0		1	03/10/23	03/10/23 11:32	1011
trans-1,2-dichloroethene	ND	ug/L	1.0		1	03/10/23	03/10/23 11:32	1011
1,1-Dichloroethane	ND	ug/L	1.0		1	03/10/23	03/10/23 11:32	1011
Chloroform	ND	ug/L	1.0		1	03/10/23	03/10/23 11:32	1011
1,1,1-Trichloroethane	ND	ug/L	1.0		1	03/10/23	03/10/23 11:32	1011
Carbon Tetrachloride	ND	ug/L	1.0		1	03/10/23	03/10/23 11:32	1011
Benzene	ND	ug/L	1.0		1	03/10/23	03/10/23 11:32	1011
1,2-Dichloroethane	ND	ug/L	1.0		1	03/10/23	03/10/23 11:32	1011

PHASE SEPARATION SCIENCE

6630 Baltimore National Pike
Baltimore, MD 21228
410-747-8770
800-932-9047
www.phaseonline.com

Certificate of Analysis

Project Name: Kop-Flex
PSS Project No.: 23030816

Sample ID: Effluent VSP-4 **Date/Time Sampled: 03/08/2023 10:40** **PSS Sample ID: 23030816-001**
Matrix: WASTE WATER **Date/Time Received: 03/08/2023 13:40**

VOC (Full List) Analytical Method: EPA 624 .1 Preparation Method: E624.1

Qualifier(s): See Batch 201852 on Case Narrative.

pH=7

	Result	Units	RL	Flag	Dil	Prepared	Analyzed	Analyst
Trichloroethene	ND	ug/L	1.0		1	03/10/23	03/10/23 11:32	1011
1,2-Dichloropropane	ND	ug/L	1.0		1	03/10/23	03/10/23 11:32	1011
Bromodichloromethane	ND	ug/L	1.0		1	03/10/23	03/10/23 11:32	1011
cis-1,3-Dichloropropene	ND	ug/L	1.0		1	03/10/23	03/10/23 11:32	1011
Toluene	ND	ug/L	1.0		1	03/10/23	03/10/23 11:32	1011
trans-1,3-dichloropropene	ND	ug/L	1.0		1	03/10/23	03/10/23 11:32	1011
1,1,2-Trichloroethane	ND	ug/L	1.0		1	03/10/23	03/10/23 11:32	1011
Tetrachloroethylene	ND	ug/L	1.0		1	03/10/23	03/10/23 11:32	1011
Dibromochloromethane	ND	ug/L	1.0		1	03/10/23	03/10/23 11:32	1011
Chlorobenzene	ND	ug/L	1.0		1	03/10/23	03/10/23 11:32	1011
Ethylbenzene	ND	ug/L	1.0		1	03/10/23	03/10/23 11:32	1011
Bromoform	ND	ug/L	1.0		1	03/10/23	03/10/23 11:32	1011
1,1,2,2-Tetrachloroethane	ND	ug/L	1.0		1	03/10/23	03/10/23 11:32	1011
1,3-Dichlorobenzene	ND	ug/L	1.0		1	03/10/23	03/10/23 11:32	1011
1,4-Dichlorobenzene	ND	ug/L	1.0		1	03/10/23	03/10/23 11:32	1011
1,2-Dichlorobenzene	ND	ug/L	1.0		1	03/10/23	03/10/23 11:32	1011

Surrogate(s)	*Recovery*		*Limits*				
Dibromofluoromethane	*96*	*%*	*94-108*		*1*	*03/10/23*	*03/10/23 11:32*	*1011*
4-Bromofluorobenzene	*113*	*%*	*77-120*		*1*	*03/10/23*	*03/10/23 11:32*	*1011*
Toluene-D8	*101*	*%*	*95-104*		*1*	*03/10/23*	*03/10/23 11:32*	*1011*

Hardness, Total by Calculation Analytical Method: SM 2340B Preparation Method: E200.8

	Result	Units	RL	Flag	Dil	Prepared	Analyzed	Analyst
Hardness (Ca & Mg)	**23**	mg/L	0.66		1	03/09/23	03/09/23 21:42	1059

PHASE SEPARATION SCIENCE

6630 Baltimore National Pike
Baltimore, MD 21228
410-747-8770
800-932-9047
www.phaseonline.com

Certificate of Analysis

Project Name: Kop-Flex
PSS Project No.: 23030816

Sample ID: Effluent VSP-4 **Date/Time Sampled: 03/08/2023 10:40** **PSS Sample ID: 23030816-001**
Matrix: WASTE WATER **Date/Time Received: 03/08/2023 13:40**

Total Suspended Solids — Analytical Method: SM 2540D -2015

	Result	Units	RL	Flag	Dil	Prepared	Analyzed	Analyst
Suspended Solids	ND	mg/L	1.0		1	03/11/23	03/11/23 14:05	1073

Biochemical Oxygen Demand — Analytical Method: SM5210B-16

	Result	Units	RL	Flag	Prepared	Analyzed	Analyst
Biochemical Oxygen Demand, 5 day	ND	mg/L	2		03/09/23	03/09/23 15:28	4009

6630 Baltimore National Pike
Baltimore, MD 21228
410-747-8770
800-932-9047
www.phaseonline.com

Project Name: Kop-Flex

PSS Project No.: 23030816

Any holding time exceedances, deviations from the method specifications, regulatory requirements or variations to the procedures outlined in the PSS Quality Assurance Manual are outlined below.

Matrix spike and matrix spike duplicate analyses may not be performed due to insufficient sample quantity. In these instances, a laboratory control sample and laboratory control sample duplicate are analyzed unless otherwise noted or specified in the method.

Sample Receipt:

All sample receipt conditions were acceptable.

23030816: Analyses associated with analyst code 4009 were performed by
Martel Laboratories, Inc., 1025 Cromwell Bridge Road, Towson, MD 21204

Analytical:

Total Metals

Batch: 201947
Method exceedance: Laboratory control sample (LCS) exceedances identified; see QC summary.

Analytical:

Volatile Organics Compounds

Batch: 201852
Method exceedance: Quality control sample surrogate exceedances identified, see QC summary.

NELAP accreditation was held for all analyses performed unless noted below. See www.phaseonline.com for complete PSS scope of accreditation.

PHASE SEPARATION SCIENCE

6630 Baltimore National Pike
Baltimore, MD 21228
410-747-8770
800-932-9047
www.phaseonline.com

Lab Chronology

Project Name: Kop-Flex
PSS Project No.: 23030816

Method	Client Sample ID	Analysis Type	PSS Sample ID	Mtx	Prep Batch	Analytical Batch	Prepared	Analyzed
EPA 200.8	Effluent VSP-4	Initial	23030816-001	W	94591	201927	03/09/2023 08:50	03/09/2023 21:42
	94591-1-BKS	BKS	94591-1-BKS	W	94591	201927	03/09/2023 08:50	03/09/2023 20:50
	94591-1-BLK	BLK	94591-1-BLK	W	94591	201927	03/09/2023 08:50	03/09/2023 20:45
	V-100-00945 S	MS	23030801-001 S	W	94591	201927	03/09/2023 08:50	03/09/2023 21:00
	V-100-00945 SD	MSD	23030801-001 S	W	94591	201927	03/09/2023 08:50	03/09/2023 21:21
	94591-1-BKS	Reanalysis	94591-1-BKS	W	94591	201947	03/09/2023 08:50	03/15/2023 11:37
	Effluent VSP-4	Reanalysis	23030816-001	W	94591	201947	03/09/2023 08:50	03/15/2023 11:45
EPA 200.8 Dissolved	Effluent VSP-4	Initial	23030816-001	W	94644	201899	03/13/2023 15:09	03/13/2023 22:13
	94644-1-BKS	BKS	94644-1-BKS	W	94644	201899	03/13/2023 15:09	03/13/2023 21:52
	94644-1-BLK	BLK	94644-1-BLK	W	94644	201899	03/13/2023 15:09	03/13/2023 21:47
	Effluent VSP-4 S	MS	23030816-001 S	W	94644	201899	03/13/2023 15:09	03/13/2023 22:18
	Effluent VSP-4 SD	MSD	23030816-001 S	W	94644	201899	03/13/2023 15:09	03/13/2023 22:24
EPA 624 .1	Effluent VSP-4	Initial	23030816-001	W	94632	201852	03/10/2023 08:26	03/10/2023 11:32
	94632-1-BKS	BKS	94632-1-BKS	W	94632	201852	03/10/2023 08:26	03/10/2023 08:58
	94632-1-BLK	BLK	94632-1-BLK	W	94632	201852	03/10/2023 08:26	03/10/2023 10:41
	Effluent VSP-4 S	MS	23030816-001 S	W	94632	201852	03/10/2023 08:26	03/10/2023 12:49
	Effluent VSP-4 SD	MSD	23030816-001 S	W	94632	201852	03/10/2023 08:26	03/10/2023 13:12
SM 2340B	Effluent VSP-4	Initial	23030816-001	W	94591	201927	03/09/2023 08:50	03/09/2023 21:42
SM 2540D -2015	Effluent VSP-4	Initial	23030816-001	W	201841	201841	03/11/2023 14:05	03/11/2023 14:05
	201841-1-BKS	BKS	201841-1-BKS	W	201841	201841	03/11/2023 14:05	03/11/2023 14:05
	201841-1-BLK	BLK	201841-1-BLK	W	201841	201841	03/11/2023 14:05	03/11/2023 14:05
	633-03072023-01 D	MD	23030703-001 D	W	201841	201841	03/11/2023 14:05	03/11/2023 14:05
	1015 Discharge-030923 D	MD	23031007-001 D	W	201841	201841	03/11/2023 14:05	03/11/2023 14:05
SM5210B-16	Effluent VSP-4	Initial	23030816-001	W	202086	202086	03/09/2023 15:28	03/09/2023 15:28

Analytical Method: SM 2540D -2015
Seq Number: 201841 Matrix: Water
MB Sample Id: 201841-1-BLK LCS Sample Id: 201841-1-BKS

Parameter	MB Result	Spike Amount	LCS Result	LCS %Rec	Limits	Units	Flag
Suspended Solids	<1.000	100.6	96.90	96	86-110	mg/L	

Analytical Method: EPA 200.8 Prep Method: E200.8_PREP
Seq Number: 201927 Matrix: Water Date Prep: 03/09/23
MB Sample Id: 94591-1-BLK LCS Sample Id: 94591-1-BKS

Parameter	MB Result	Spike Amount	LCS Result	LCS %Rec	Limits	Units	Flag
Copper	<1.000	50.00	52.45	105	85-115	ug/L	
Lead	<1.000	50.00	55.22	110	85-115	ug/L	
Nickel	<1.000	50.00	51.33	103	85-115	ug/L	

Analytical Method: EPA 200.8 Prep Method: E200.8_PREP
Seq Number: 201947 Matrix: Water Date Prep: 03/09/23
MB Sample Id: 94591-1-BLK LCS Sample Id: 94591-1-BKS

Parameter	MB Result	Spike Amount	LCS Result	LCS %Rec	Limits	Units	Flag
Zinc	<20.00	100	115.8	116	85-115	ug/L	

Analytical Method: EPA 200.8 Dissolved Prep Method: E200.8_PREP
Seq Number: 201899 Matrix: Water Date Prep: 03/13/23
MB Sample Id: 94644-1-BLK LCS Sample Id: 94644-1-BKS

Parameter	MB Result	Spike Amount	LCS Result	LCS %Rec	Limits	Units	Flag
Copper	<1.000	50.00	48.39	97	85-115	ug/L	
Lead	<1.000	50.00	53.99	108	85-115	ug/L	
Nickel	<1.000	50.00	50.01	100	85-115	ug/L	
Zinc	<20.00	100	105.5	106	85-115	ug/L	

Analytical Method: EPA 200.8 Dissolved Prep Method: E200.8_PREP
Seq Number: 201899 Matrix: Waste Water Date Prep: 03/13/23
Parent Sample Id: 23030816-001 MS Sample Id: 23030816-001 S MSD Sample Id: 23030816-001 SD

Parameter	Parent Result	Spike Amount	MS Result	MS %Rec	MSD Result	MSD %Rec	Limits	RPD	RPD Limit	Units	Flag
Copper	4.348	50.00	50.96	93	51.12	94	70-130	0	25	ug/L	
Lead	<1.000	50.00	53.12	106	53.65	107	70-130	1	25	ug/L	
Nickel	17.74	50.00	66.64	98	66.99	99	70-130	1	25	ug/L	
Zinc	22.06	100	123.8	102	125.2	103	70-130	1	25	ug/L	

PHASE SEPARATION SCIENCE

6630 Baltimore National Pike
Baltimore, MD 21228
410-747-8770
800-932-9047
www.phaseonline.com

QC Summary

Project Name Kop-Flex
PSS Project No.: 23030816

Analytical Method: EPA 624 .1
Seq Number: 201852
MB Sample Id: 94632-1-BLK

Matrix: Water
LCS Sample Id: 94632-1-BKS

Prep Method: E624PREP
Date Prep: 03/10/23

Parameter	MB Result	Spike Amount	LCS Result	LCS %Rec	Limits	Units	Flag
Acrolein	<0.005000	50.00	46.09	92	60-140	ug/L	
Acrylonitrile	<0.005000	50.00	48.50	97	60-140	ug/L	
Dichlorodifluoromethane	<0.001000	50.00	42.31	85	51-128	ug/L	
Chloromethane	<0.001000	50.00	46.56	93	1-205	ug/L	
Vinyl Chloride	<0.001000	50.00	40.99	82	5-195	ug/L	
Bromomethane	<0.001000	50.00	38.17	76	15-185	ug/L	
Chloroethane	<0.001000	50.00	47.96	96	40-160	ug/L	
Trichlorofluoromethane	<0.001000	50.00	41.40	83	50-150	ug/L	
2-Chloroethyl Vinyl Ether	<0.001000	50.00	14.65	29	1-225	ug/L	
1,1-Dichloroethene	<0.001000	50.00	48.97	98	50-150	ug/L	
Methylene Chloride	<0.001000	50.00	46.20	92	60-140	ug/L	
trans-1,2-dichloroethene	<0.001000	50.00	44.66	89	70-130	ug/L	
1,1-Dichloroethane	<0.001000	50.00	46.73	93	70-130	ug/L	
Chloroform	<0.001000	50.00	43.96	88	70-135	ug/L	
1,1,1-Trichloroethane	<0.001000	50.00	41.60	83	70-130	ug/L	
Carbon Tetrachloride	<0.001000	50.00	39.42	79	70-130	ug/L	
Benzene	<0.001000	50.00	46.76	94	65-135	ug/L	
1,2-Dichloroethane	<0.001000	50.00	43.28	87	70-130	ug/L	
Trichloroethene	<0.001000	50.00	44.64	89	65-135	ug/L	
1,2-Dichloropropane	<0.001000	50.00	48.31	97	35-165	ug/L	
Bromodichloromethane	<0.001000	50.00	42.93	86	65-135	ug/L	
cis-1,3-Dichloropropene	<0.001000	50.00	45.48	91	25-175	ug/L	
Toluene	<0.001000	50.00	45.41	91	70-130	ug/L	
trans-1,3-dichloropropene	<0.001000	50.00	44.20	88	50-150	ug/L	
1,1,2-Trichloroethane	<0.001000	50.00	46.21	92	70-130	ug/L	
Tetrachloroethylene	0.06000	50.00	41.22	82	70-130	ug/L	
Dibromochloromethane	<0.001000	50.00	42.90	86	70-135	ug/L	
Chlorobenzene	<0.001000	50.00	46.08	92	65-135	ug/L	
Ethylbenzene	0.02000	50.00	47.25	95	60-140	ug/L	
Bromoform	<0.001000	50.00	40.46	81	70-130	ug/L	
1,1,2,2-Tetrachloroethane	<0.001000	50.00	48.26	97	60-140	ug/L	
1,3-Dichlorobenzene	0.08000	50.00	46.85	94	70-130	ug/L	
1,4-Dichlorobenzene	<0.001000	50.00	46.53	93	65-135	ug/L	
1,2-Dichlorobenzene	<0.001000	50.00	45.85	92	65-135	ug/L	

Surrogate	MB %Rec	MB Flag	LCS Result	LCS Flag	Limits	Units
Dibromofluoromethane	95		93	*	94-108	%
4-Bromofluorobenzene	115		103		77-120	%
Toluene-D8	99		99		95-104	%

PHASE SEPARATION SCIENCE

6630 Baltimore National Pike
Baltimore, MD 21228
410-747-8770
800-932-9047
www.phaseonline.com

QC Summary

Project Name Kop-Flex
PSS Project No.: 23030816

Analytical Method: EPA 624 .1 Prep Method: E624PREP
Seq Number: 201852 Matrix: Waste Water Date Prep: 03/10/23
Parent Sample Id: 23030816-001 MS Sample Id: 23030816-001 S MSD Sample Id: 23030816-001 SD

Parameter	Parent Result	Spike Amount	MS Result	MS %Rec	MSD Result	MSD %Rec	Limits	RPD	RPD Limit	Units	Flag
Acrolein	<5.000	50.00	46.96	94	47.74	95	40-160	2	60	ug/L	
Acrylonitrile	<5.000	50.00	47.84	96	48.16	96	40-160	1	60	ug/L	
Dichlorodifluoromethane	<1.000	50.00	44.97	90	46.68	93	49-132	4	14	ug/L	
Chloromethane	<1.000	50.00	47.90	96	51.77	104	1-273	8	60	ug/L	
Vinyl Chloride	<1.000	50.00	44.75	90	44.10	88	1-251	1	66	ug/L	
Bromomethane	<1.000	50.00	41.16	82	45.08	90	1-242	9	61	ug/L	
Chloroethane	<1.000	50.00	48.27	97	48.73	97	14-230	1	78	ug/L	
Trichlorofluoromethane	<1.000	50.00	43.95	88	41.26	83	17-181	6	84	ug/L	
2-Chloroethyl Vinyl Ether	<1.000	50.00	15.79	32	14.50	29	1-305	9	71	ug/L	
1,1-Dichloroethene	<1.000	50.00	50.37	101	46.16	92	1-234	9	32	ug/L	
Methylene Chloride	<1.000	50.00	46.49	93	45.97	92	1-221	1	28	ug/L	
trans-1,2-dichloroethene	<1.000	50.00	45.35	91	43.93	88	54-156	3	45	ug/L	
1,1-Dichloroethane	<1.000	50.00	47.69	95	45.88	92	59-155	4	40	ug/L	
Chloroform	<1.000	50.00	45.56	91	43.73	87	51-138	4	54	ug/L	
1,1,1-Trichloroethane	<1.000	50.00	43.79	88	41.42	83	52-162	6	36	ug/L	
Carbon Tetrachloride	<1.000	50.00	41.90	84	38.90	78	70-140	7	41	ug/L	
Benzene	<1.000	50.00	47.92	96	45.61	91	37-151	5	61	ug/L	
1,2-Dichloroethane	<1.000	50.00	45.78	92	44.17	88	49-155	4	49	ug/L	
Trichloroethene	<1.000	50.00	46.75	94	43.64	87	70-157	7	48	ug/L	
1,2-Dichloropropane	<1.000	50.00	48.94	98	47.19	94	1-210	4	55	ug/L	
Bromodichloromethane	<1.000	50.00	43.48	87	42.22	84	35-155	3	56	ug/L	
cis-1,3-Dichloropropene	<1.000	50.00	44.77	90	43.81	88	1-227	2	58	ug/L	
Toluene	<1.000	50.00	47.03	94	45.42	91	47-150	3	41	ug/L	
trans-1,3-dichloropropene	<1.000	50.00	43.58	87	43.15	86	17-183	1	86	ug/L	
1,1,2-Trichloroethane	<1.000	50.00	46.45	93	45.32	91	52-150	2	45	ug/L	
Tetrachloroethylene	<1.000	50.00	43.34	87	40.90	82	64-148	6	39	ug/L	
Dibromochloromethane	<1.000	50.00	41.59	83	41.00	82	53-149	1	50	ug/L	
Chlorobenzene	<1.000	50.00	45.79	92	45.20	90	37-160	1	53	ug/L	
Ethylbenzene	<1.000	50.00	47.56	95	46.68	93	37-162	2	63	ug/L	
Bromoform	<1.000	50.00	39.12	78	38.52	77	45-169	2	42	ug/L	
1,1,2,2-Tetrachloroethane	<1.000	50.00	46.90	94	48.33	97	46-157	3	61	ug/L	
1,3-Dichlorobenzene	<1.000	50.00	45.90	92	47.21	94	59-156	3	43	ug/L	
1,4-Dichlorobenzene	<1.000	50.00	45.22	90	46.01	92	18-190	2	57	ug/L	
1,2-Dichlorobenzene	<1.000	50.00	45.33	91	45.70	91	18-190	1	57	ug/L	

Surrogate	MS Result	MS Flag	MSD Result	MSD Flag	Limits	Units
Dibromofluoromethane	99		96		94-108	%
4-Bromofluorobenzene	101		103		77-120	%
Toluene-D8	101		101		95-104	%

F = RPD exceeded the laboratory control limits
X = Recovery of MS, MSD or both outside of QC Criteria
H= Recovery of BS,BSD or both exceeded the laboratory control limits
L = Recovery of BS,BSD or both below the laboratory control limits

Analytical Method: EPA 200.8
Seq Number: 201927 Matrix: Water
CCV Sample Id: CCV 4 Analyzed Date: 03/09/23 20:03

Parameter	Spike Amount	CCV Result	CCV %Rec	Limits	Units	Flag
Copper	100	101.8	102	85-115	ug/L	
Lead	100	105.6	106	85-115	ug/L	
Nickel	100	99.81	100	85-115	ug/L	

Analytical Method: EPA 200.8
Seq Number: 201927 Matrix: Water
CCV Sample Id: CCV 5 Analyzed Date: 03/09/23 21:11

Parameter	Spike Amount	CCV Result	CCV %Rec	Limits	Units	Flag
Copper	100	101.1	101	85-115	ug/L	
Lead	100	107.8	108	85-115	ug/L	
Nickel	100	99.39	99	85-115	ug/L	

Analytical Method: EPA 200.8
Seq Number: 201927 Matrix: Water
CCV Sample Id: CCV 6 Analyzed Date: 03/09/23 22:19

Parameter	Spike Amount	CCV Result	CCV %Rec	Limits	Units	Flag
Copper	100	102.5	103	85-115	ug/L	
Lead	100	107.2	107	85-115	ug/L	
Nickel	100	100.3	100	85-115	ug/L	

Analytical Method: EPA 200.8
Seq Number: 201947 Matrix: Water
CCV Sample Id: CCV 1 Analyzed Date: 03/15/23 12:23

Parameter	Spike Amount	CCV Result	CCV %Rec	Limits	Units	Flag
Zinc	200	184.7	92	85-115	ug/L	

Analytical Method: EPA 200.8
Seq Number: 201927 Matrix: Water
Parent Sample Id: ICV 1 ICV Sample Id: ICV 1 Analyzed Date: 03/09/23 15:15

Parameter	Spike Amount	ICV Result	ICV %Rec	Limits	Units	Flag
Copper	50.00	50.26	101	90-110	ug/L	
Lead	50.00	51.87	104	90-110	ug/L	
Nickel	50.00	49.53	99	90-110	ug/L	

Analytical Method: EPA 200.8

Seq Number: 201947 Matrix: Water

Parent Sample Id: ICV 1 ICV Sample Id: ICV 1 Analyzed Date: 03/15/23 10:56

Parameter	Spike Amount	ICV Result	ICV %Rec	Limits	Units	Flag
Zinc	100	102	102	90-110	ug/L	

Analytical Method: EPA 200.8 Dissolved

Seq Number: 201899 Matrix: Water

CCV Sample Id: CCV 2 Analyzed Date: 03/13/23 20:55

Parameter	Spike Amount	CCV Result	CCV %Rec	Limits	Units	Flag
Copper	100	96.14	96	85-115	ug/L	
Lead	100	102.8	103	85-115	ug/L	
Nickel	100	99.25	99	85-115	ug/L	
Zinc	200	203.1	102	85-115	ug/L	

Analytical Method: EPA 200.8 Dissolved

Seq Number: 201899 Matrix: Water

CCV Sample Id: CCV 3 Analyzed Date: 03/13/23 22:03

Parameter	Spike Amount	CCV Result	CCV %Rec	Limits	Units	Flag
Copper	100	95.47	95	85-115	ug/L	
Lead	100	103.6	104	85-115	ug/L	
Nickel	100	98.56	99	85-115	ug/L	
Zinc	200	201.6	101	85-115	ug/L	

Analytical Method: EPA 200.8 Dissolved

Seq Number: 201899 Matrix: Water

CCV Sample Id: CCV 4 Analyzed Date: 03/13/23 23:11

Parameter	Spike Amount	CCV Result	CCV %Rec	Limits	Units	Flag
Copper	100	92.34	92	85-115	ug/L	
Lead	100	106.7	107	85-115	ug/L	
Nickel	100	97.53	98	85-115	ug/L	
Zinc	200	199.7	100	85-115	ug/L	

PHASE SEPARATION SCIENCE

6630 Baltimore National Pike
Baltimore, MD 21228
410-747-8770
800-932-9047
www.phaseonline.com

QC Summary

Project Name Kop-Flex
PSS Project No.: 23030816

Analytical Method: EPA 200.8 Dissolved

Seq Number: 201899 Matrix: Water
Parent Sample Id: ICV 1 ICV Sample Id: ICV 1 Analyzed Date: 03/13/23 18:23

Parameter	Spike Amount	ICV Result	ICV %Rec	Limits	Units	Flag
Copper	50.00	50.03	100	90-110	ug/L	
Lead	50.00	54.19	108	90-110	ug/L	
Nickel	50.00	50.55	101	90-110	ug/L	
Zinc	100	102.2	102	90-110	ug/L	

PHASE SEPARATION SCIENCE

6630 Baltimore National Pike
Baltimore, MD 21228
410-747-8770
800-932-9047
www.phaseonline.com

QC Summary

Project Name Kop-Flex
PSS Project No.: 23030816

Analytical Method: EPA 624 .1

Seq Number: 200941 Matrix: Water
Parent Sample Id: ICV-01 ICV Sample Id: ICV-01 Analyzed Date: 02/06/23 17:55

Parameter	Spike Amount	ICV Result	ICV %Rec	Limits	Units	Flag
Acrolein	0.05000	0.04643	93	60-140	mg/L	
Acrylonitrile	0.05000	0.05075	102	60-140	mg/L	
Dichlorodifluoromethane	0.05000	0.04698	94	51-128	mg/L	
Chloromethane	0.05000	0.04957	99	1-205	mg/L	
Vinyl Chloride	0.05000	0.04006	80	5-195	mg/L	
Bromomethane	0.05000	0.04615	92	15-185	mg/L	
Chloroethane	0.05000	0.04648	93	40-160	mg/L	
Trichlorofluoromethane	0.05000	0.04248	85	50-150	mg/L	
2-Chloroethyl Vinyl Ether	0.05000	0.04683	94	1-225	mg/L	
1,1-Dichloroethene	0.05000	0.04787	96	50-150	mg/L	
Methylene Chloride	0.05000	0.04941	99	60-140	mg/L	
trans-1,2-dichloroethene	0.05000	0.04978	100	70-130	mg/L	
1,1-Dichloroethane	0.05000	0.04864	97	70-130	mg/L	
Chloroform	0.05000	0.04640	93	70-135	mg/L	
1,1,1-Trichloroethane	0.05000	0.04600	92	70-130	mg/L	
Carbon Tetrachloride	0.05000	0.04446	89	70-130	mg/L	
Benzene	0.05000	0.04996	100	65-135	mg/L	
1,2-Dichloroethane	0.05000	0.04536	91	70-130	mg/L	
Trichloroethene	0.05000	0.04825	97	65-135	mg/L	
1,2-Dichloropropane	0.05000	0.05011	100	35-165	mg/L	
Bromodichloromethane	0.05000	0.04619	92	65-135	mg/L	
cis-1,3-Dichloropropene	0.05000	0.04808	96	25-175	mg/L	
Toluene	0.05000	0.04886	98	70-130	mg/L	
trans-1,3-dichloropropene	0.05000	0.04796	96	50-150	mg/L	
1,1,2-Trichloroethane	0.05000	0.04848	97	70-130	mg/L	
Tetrachloroethylene	0.05000	0.04608	92	70-130	mg/L	
Dibromochloromethane	0.05000	0.04739	95	70-135	mg/L	
Chlorobenzene	0.05000	0.04997	100	65-135	mg/L	
Ethylbenzene	0.05000	0.04983	100	60-140	mg/L	
Bromoform	0.05000	0.04766	95	70-130	mg/L	
1,1,2,2-Tetrachloroethane	0.05000	0.05063	101	60-140	mg/L	
1,3-Dichlorobenzene	0.05000	0.05134	103	70-130	mg/L	
1,4-Dichlorobenzene	0.05000	0.05048	101	65-135	mg/L	
1,2-Dichlorobenzene	0.05000	0.05155	103	65-135	mg/L	

Surrogate	ICV Result	Limits	Units	Flag
Dibromofluoromethane	96	94-108	%	
4-Bromofluorobenzene	101	77-120	%	
Toluene-D8	98	95-104	%	

X = Recovery outside of QC Criteria

PHASE SEPARATION SCIENCE

CHAIN OF CUSTODY FORM

All fields must be completed accurately. Shaded sections for lab use only.

www.phaseonline.com ~ info@phaseonline.com

6630 Baltimore National Pike • Suite 103-A • Baltimore, Maryland 21228 • (410) 747-8770 • (800) 932-9047

① PSS CLIENT: WSP | OFFICE LOCATION: Herndon, VA | PSS Work Order #: 23030814 | PAGE 1 OF 1

BILL TO (if different): | PHONE #: 703-709-6500

CONTACT: ERIC JOHNSON | EMAIL: eric.johnson@wsp.com

PROJECT NAME: Kop-flex | PROJECT #: 31405608.010/020

SITE LOCATION: Hanover, MD | P.O. #:

SAMPLER(S): TUSHAR KHAIRE | DW CERT #:

Matrix Codes: **SW**=Surface Water **DW**=Drinking Water **GW**=Ground Water **WW**=Waste Water **O**=Oil **S**=Soil **SOL**=Solid **A**=Air **WI**=Wipe

② ③

PSS ID	SAMPLE IDENTIFICATION	DATE SAMPLED	TIME SAMPLED	MATRIX Use Codes	# OF CONTAINERS	SAMPLE TYPE: C=COMPOSITE G=GRAB	VOCs (8624)	Dissolved metals (200.8)	Total metals + hardness (200.8)	TSS	BOD							
Preservatives Use Codes							1,6	3	3	6	6							
1	Effluent WSP-4	3/8/23	10:40	WW	7	G	X	X	X	X	X							

Preservative Codes: 1 - HCL; 2 - H_2SO_4; 3 - HNO_3; 4 - NaOH; 5 - E624KIT; 6 - ICE; 7 - Sodium Thiosulfate; 8 - Ascorbic Acid; 9 - TerraCore Kit

⑤

Relinquished By: (1)	Date	Time	Received By:
TUSHAR KHAIRE	3/8/23	1340	
Relinquished By: (2)	Date	Time	Received By:
Relinquished By: (3)	Date	Time	Received By:
Relinquished By: (4)	Date	Time	Received By:

④

Requested TAT (One TAT per COC)
☐ 5-Day ☐ 3-Day ☐ 2-Day
☐ Next Day ☐ Emergency ☒ Other

STATE RESULTS REPORTED TO:
☐ MD ☐ DE ☐ PA ☐ VA ☐ WV
☐ OTHER

COMPLIANCE?
☐ DW ☐ WW

EDD FORMAT TYPE

Ice Present: Pres

Custody Seal: Pres/Cooler intact

Coolers: 1 Temp: 3.9 - 4.5°C

Shipping Carrier: Client TB 3.6°C

Special Instructions:
standard 10-day TAT
metals = Cu, Pb, Ni, Zn
Dissolved metals field-filtered

This chain of custody is a legal document. The client (PSS Client), by signing, or having client's agent sign, this "Chain of Custody Form", agrees to pay for the above requested services per the latest version of the Service Brochure or PSS-provided quotation including any and all attorney's or other reasonable fees if collection becomes necessary.

PHASE SEPARATION SCIENCE

6630 Baltimore National Pike
Baltimore, MD 21228
410-747-8770
800-932-9047
www.phaseonline.com

Sample Receipt Checklist

Project Name: Kop-Flex
PSS Project No.: 23030816

Client Name WSP USA - Herndon
Disposal Date 04/12/2023

Received By Marissa Vertucci
Date Received 03/08/2023 01:40:00 PM
Delivered By Client
Tracking No Not Applicable
Logged In By Marissa Vertucci

Shipping Container(s)
No. of Coolers 1

		Ice	Present
Custody Seal(s) Intact?	Yes	Temp (deg C)	4.5
Seal(s) Signed / Dated?	Yes	Temp Blank Present	Yes

Documentation

		Sampler Name	Tushar Khaire
COC agrees with sample labels?	Yes	MD DW Cert. No.	N/A
Chain of Custody	Yes		

Sample Container

		Custody Seal(s) Intact?	Not Applicable
Appropriate for Specified Analysis?	Yes	Seal(s) Signed / Dated	Not Applicable
Intact?	Yes		
Labeled and Labels Legible?	Yes		

Holding Time

		Total No. of Samples Received	1
All Samples Received Within Holding Time(s)?	Yes	Total No. of Containers Received	7

Preservation

Total Metals	(pH<2)	Yes
Dissolved Metals, filtered within 15 minutes of collection	(pH<2)	Yes
Orthophosphorus, filtered within 15 minutes of collection		N/A
Cyanides	(pH>12)	N/A
Sulfide	(pH>9)	N/A
TOC, DOC (field filtered), COD, Phenols	(pH<2)	N/A
TOX, TKN, NH3, Total Phos	(pH<2)	N/A
VOC, BTEX (VOA Vials Rcvd Preserved)	(pH<2)	Yes
Do VOA vials have zero headspace?		Yes
624 VOC (Rcvd at least one unpreserved VOA vial)		Yes
524 VOC (Rcvd with trip blanks)	(pH<2)	N/A

Comments: (Any "No" response must be detailed in the comments section below.)

For any improper preservation conditions, list sample ID, preservative added (reagent ID number) below as well as documentation of any client notification as well as client instructions. Samples for pH, chlorine and dissolved oxygen should be analyzed as soon as possible, preferably in the field at the time of sampling. Samples which require thermal preservation shall be considered acceptable when received at a temperature above freezing to 6°C. Samples that are hand delivered on the day that they are collected may not meet these criteria but shall be considered acceptable if there is evidence that the chilling process has begun such as arrival on ice.

Samples Inspected/Checklist Completed By: Marissa Vertucci Date: 03/08/2023

PM Review and Approval: Amber Confer Date: 03/09/2023

PHASE SEPARATION SCIENCE

6630 Baltimore National Pike
Baltimore, MD 21228
410-747-8770
800-932-9047
www.phaseonline.com

Certificate of Analysis

Project Name: Kop-Flex
PSS Project No.: 23030817

March 22, 2023

Eric Johnson
WSP USA - Herndon
13530 Dulles Technology Dr, Ste 300
Herndon, VA 20171

Reference: PSS Project No: **23030817**
Project Name: Kop-Flex
Project Location: Hanover, MD
Project ID.: 31405608.010/02.02

Dear Eric Johnson:

This report includes the analytical results from the analyses performed on the samples received under the project name referenced above and identified with the Phase Separation Science (PSS) Project number(s) **23030817**.

All work reported herein has been performed in accordance with current NELAP standards, referenced methodologies, PSS Standard Operating Procedures and the PSS Quality Assurance Manual unless otherwise noted in the Case Narrative Summary. PSS is limited in liability to the actual cost of the sample analysis done.

PSS reserves the right to return any unused samples, extracts or related solutions. Otherwise, the samples are scheduled for disposal, without any further notice, on April 12, 2023, with the exception of air canisters which are cleaned immediately following analysis. This includes any samples that were received with a request to be held but lacked a specific hold period. It is your responsibility to provide a written request defining a specific disposal date if additional storage is required. Upon receipt, the request will be acknowledged by PSS, thus extending the storage period.

This report shall not be reproduced except in full, without the written approval of an authorized PSS representative. A copy of this report will be retained by PSS for at least 5 years, after which time it will be disposed of without further notice, unless prior arrangements have been made.

We thank you for selecting Phase Separation Science, Inc. to serve your analytical needs. If you have any questions concerning this report, do not hesitate to contact us at 410-747-8770 or info@phaseonline.com.

Sincerely,

Dan Prucnal
Laboratory Manager

PHASE SEPARATION SCIENCE

6630 Baltimore National Pike
Baltimore, MD 21228
410-747-8770
800-932-9047
www.phaseonline.com

Explanation of Qualifiers

Project Name: Kop-Flex
PSS Project No.: 23030817

Project ID: 31405608.010/02.02

The following samples were received under chain of custody by Phase Separation Science (PSS) on 03/08/2023 at 01:40 pm

PSS Sample ID	Sample ID	Matrix	Date/Time Collected
23030817-001	Effluent VSP-4	WASTE WATER	03/08/23 10:40
23030817-002	TB-030823	WASTE WATER	03/08/23 00:00

Please reference the Chain of Custody and Sample Receipt Checklist for specific container counts and preservatives. Any sample conditions not in compliance with sample acceptance criteria are described in Case Narrative Summary.

Notes:

1. The presence of a common laboratory contaminant such as methylene chloride may be considered a possible laboratory artifact. Where observed, appropriate consideration of data should be taken.
2. Unless otherwise noted in the case narrative, results are reported on a dry weight basis with the exception of pH, flashpoint, moisture, and paint filter test.
3. Drinking water samples collected for the purpose of compliance with SDWA may not be suitable for their intended use unless collected by a certified sampler [COMAR 26.08.05.07.C.2].
4. The analyses of 1,2-dibromo-3-chloropropane (DBCP) and 1,2-dibromoethane (EDB) by EPA 524.2 and calcium, magnesium, sodium and iron by EPA 200.8 are not currently promulgated for use in testing to meet the Safe Drinking Water Act and as such cannot be used for compliance purposes. The listings of the current promulgated methods for testing in compliance with the Safe Drinking Water Act can be found in the 40 CFR part 141.1, for the primary drinking water contaminates, and part 141.3, for the secondary drinking water contaminates.
5. Sample prepared under EPA 3550C with concentrations greater than 20 mg/Kg should employ the microtip extraction procedure if required to meet data quality objectives.
6. The analysis of acrolein by EPA 624 must be analyzed within three days of sampling unless pH is adjusted to 4-5 units [40 CFR part 136.3(e)].
7. Method 180.1, The Determination of Turbidity by Nephelometry, recommends samples over 40 NTU be diluted until the turbidity falls below 40 units. Routine samples over 40 NTU may not be diluted as long as the data quality objectives are not affected.
8. Alkalinity results analyzed by EPA 310.2 that are reported by dilution are estimated and are not in compliance with method requirements.

Standard Flags/Abbreviations:

B	A target analyte or common laboratory contaminant was identified in the method blank. Its presence indicates possible field or laboratory contamination.
C	Results Pending Final Confirmation.
E	The data exceeds the upper calibration limit; therefore, the concentration is reported as estimated.
Fail	The result exceeds the regulatory level for Toxicity Characteristic (TCLP) as cited in 40 CFR 261.24 Table 1.
J	The target analyte was positively identified below the reporting limit but greater than the MDL.
MDL	This is the Laboratory Method Detection Limit which is equivalent to the Limit of Detection (LOD). The LOD is the minimum result, which can be reliably discriminated from a blank with a predetermined confidence level. This value will remain constant across multiple similar instrumentation and among different analysts. An LOD is analyte and matrix specific. instrumentation and among different analysts. An LOD is analyte and matrix specific.
ND	Not Detected at or above the reporting limit.
RL	PSS Reporting Limit.
U	Not detected.

Certifications:

NELAP Certifications: PA 68-03330, VA 460156
State Certifications: MD 179, WV 303
Regulated Soil Permit: P330-12-00268
NSWC USCG Accepted Laboratory
LDBE MWAA LD1997-0041-2015

PHASE SEPARATION SCIENCE

6630 Baltimore National Pike
Baltimore, MD 21228
410-747-8770
800-932-9047
www.phaseonline.com

Certificate of Analysis

Project Name: Kop-Flex
PSS Project No.: 23030817

Sample ID: Effluent VSP-4 **Date/Time Sampled: 03/08/2023 10:40** **PSS Sample ID: 23030817-001**
Matrix: WASTE WATER **Date/Time Received: 03/08/2023 13:40**

1,4-Dioxane by GC/MS - SIM Analytical Method: SW-846 8260 D-SIM Preparation Method: SW5030B

	Result	Units	RL	Flag	Dil	Prepared	Analyzed	Analyst
1,4-Dioxane (P-Dioxane)	ND	ug/L	1.0		1	03/20/23	03/20/23 15:20	1011
Surrogate(s)	***Recovery***		***Limits***					
Toluene-D8	*131*	*%*	*80-120*	*	*1*	*03/20/23*	*03/20/23 15:20*	*1011*

PHASE SEPARATION SCIENCE

6630 Baltimore National Pike
Baltimore, MD 21228
410-747-8770
800-932-9047
www.phaseonline.com

Certificate of Analysis

Project Name: Kop-Flex
PSS Project No.: 23030817

Sample ID: TB-030823 **Date/Time Sampled: 03/08/2023 00:00** **PSS Sample ID: 23030817-002**
Matrix: WASTE WATER **Date/Time Received: 03/08/2023 13:40**

VOC (Full List) Analytical Method: EPA 624 .1 Preparation Method: E624.1

Qualifier(s): See Batch 201852 on Case Narrative.

pH=2

	Result	Units	RL	Flag	Dil	Prepared	Analyzed	Analyst
Acrolein	ND	ug/L	5.0		1	03/10/23	03/10/23 11:09	1011
Acrylonitrile	ND	ug/L	5.0		1	03/10/23	03/10/23 11:09	1011
Dichlorodifluoromethane	ND	ug/L	1.0		1	03/10/23	03/10/23 11:09	1011
Chloromethane	ND	ug/L	1.0		1	03/10/23	03/10/23 11:09	1011
Vinyl Chloride	ND	ug/L	1.0		1	03/10/23	03/10/23 11:09	1011
Bromomethane	ND	ug/L	1.0		1	03/10/23	03/10/23 11:09	1011
Chloroethane	ND	ug/L	1.0		1	03/10/23	03/10/23 11:09	1011
Trichlorofluoromethane	ND	ug/L	1.0		1	03/10/23	03/10/23 11:09	1011
2-Chloroethyl Vinyl Ether	ND	ug/L	1.0		1	03/10/23	03/10/23 11:09	1011
1,1-Dichloroethene	ND	ug/L	1.0		1	03/10/23	03/10/23 11:09	1011
Methylene Chloride	**2.6**	ug/L	1.0		1	03/10/23	03/10/23 11:09	1011
trans-1,2-dichloroethene	ND	ug/L	1.0		1	03/10/23	03/10/23 11:09	1011
1,1-Dichloroethane	ND	ug/L	1.0		1	03/10/23	03/10/23 11:09	1011
Chloroform	ND	ug/L	1.0		1	03/10/23	03/10/23 11:09	1011
1,1,1-Trichloroethane	ND	ug/L	1.0		1	03/10/23	03/10/23 11:09	1011
Carbon Tetrachloride	ND	ug/L	1.0		1	03/10/23	03/10/23 11:09	1011
Benzene	ND	ug/L	1.0		1	03/10/23	03/10/23 11:09	1011
1,2-Dichloroethane	ND	ug/L	1.0		1	03/10/23	03/10/23 11:09	1011
Trichloroethene	ND	ug/L	1.0		1	03/10/23	03/10/23 11:09	1011
1,2-Dichloropropane	ND	ug/L	1.0		1	03/10/23	03/10/23 11:09	1011
Bromodichloromethane	ND	ug/L	1.0		1	03/10/23	03/10/23 11:09	1011
cis-1,3-Dichloropropene	ND	ug/L	1.0		1	03/10/23	03/10/23 11:09	1011
Toluene	ND	ug/L	1.0		1	03/10/23	03/10/23 11:09	1011
trans-1,3-dichloropropene	ND	ug/L	1.0		1	03/10/23	03/10/23 11:09	1011
1,1,2-Trichloroethane	ND	ug/L	1.0		1	03/10/23	03/10/23 11:09	1011
Tetrachloroethylene	ND	ug/L	1.0		1	03/10/23	03/10/23 11:09	1011
Dibromochloromethane	ND	ug/L	1.0		1	03/10/23	03/10/23 11:09	1011
Chlorobenzene	ND	ug/L	1.0		1	03/10/23	03/10/23 11:09	1011
Ethylbenzene	ND	ug/L	1.0		1	03/10/23	03/10/23 11:09	1011
Bromoform	ND	ug/L	1.0		1	03/10/23	03/10/23 11:09	1011
1,1,2,2-Tetrachloroethane	ND	ug/L	1.0		1	03/10/23	03/10/23 11:09	1011
1,3-Dichlorobenzene	ND	ug/L	1.0		1	03/10/23	03/10/23 11:09	1011
1,4-Dichlorobenzene	ND	ug/L	1.0		1	03/10/23	03/10/23 11:09	1011
1,2-Dichlorobenzene	ND	ug/L	1.0		1	03/10/23	03/10/23 11:09	1011

PHASE SEPARATION SCIENCE

6630 Baltimore National Pike
Baltimore, MD 21228
410-747-8770
800-932-9047
www.phaseonline.com

Certificate of Analysis

Project Name: Kop-Flex
PSS Project No.: 23030817

Sample ID: TB-030823 **Date/Time Sampled: 03/08/2023 00:00** **PSS Sample ID: 23030817-002**
Matrix: WASTE WATER **Date/Time Received: 03/08/2023 13:40**

VOC (Full List) Analytical Method: EPA 624 .1 Preparation Method: E624.1

Qualifier(s): See Batch 201852 on Case Narrative.

pH=2

Surrogate(s)	*Recovery*		*Limits*				
Dibromofluoromethane	*94*	*%*	*94-108*	*1*	*03/10/23*	*03/10/23 11:09*	*1011*
4-Bromofluorobenzene	*114*	*%*	*77-120*	*1*	*03/10/23*	*03/10/23 11:09*	*1011*
Toluene-D8	*99*	*%*	*95-104*	*1*	*03/10/23*	*03/10/23 11:09*	*1011*

1,4-Dioxane by GC/MS - SIM Analytical Method: SW-846 8260 D-SIM Preparation Method: SW5030B

	Result	Units	RL	Flag	Dil	Prepared	Analyzed	Analyst
1,4-Dioxane (P-Dioxane)	ND	ug/L	1.0		1	03/20/23	03/20/23 15:42	1011

Surrogate(s)	*Recovery*		*Limits*				
Toluene-D8	*110*	*%*	*80-120*	*1*	*03/20/23*	*03/20/23 15:42*	*1011*

6630 Baltimore National Pike
Baltimore, MD 21228
410-747-8770
800-932-9047
www.phaseonline.com

Project Name: Kop-Flex

PSS Project No.: 23030817

Any holding time exceedances, deviations from the method specifications, regulatory requirements or variations to the procedures outlined in the PSS Quality Assurance Manual are outlined below.

Matrix spike and matrix spike duplicate analyses may not be performed due to insufficient sample quantity. In these instances, a laboratory control sample and laboratory control sample duplicate are analyzed unless otherwise noted or specified in the method.

Sample Receipt:

All sample receipt conditions were acceptable.

Analytical:

Volatile Organics Compounds

Batch: 201852

Method exceedance: Quality control sample surrogate exceedances identified, see QC summary.

NELAP accreditation was held for all analyses performed unless noted below. See www.phaseonline.com for complete PSS scope of accreditation.

SW-846 8260 D-SIM: 1,4-Dioxane

PHASE SEPARATION SCIENCE

6630 Baltimore National Pike
Baltimore, MD 21228
410-747-8770
800-932-9047
www.phaseonline.com

Lab Chronology

Project Name: Kop-Flex
PSS Project No.: 23030817

Method	Client Sample ID	Analysis Type	PSS Sample ID	Mtx	Prep Batch	Analytical Batch	Prepared	Analyzed
EPA 624 .1	TB-030823	Initial	23030817-002	W	94632	201852	03/10/2023 08:26	03/10/2023 11:09
	94632-1-BKS	BKS	94632-1-BKS	W	94632	201852	03/10/2023 08:26	03/10/2023 08:58
	94632-1-BLK	BLK	94632-1-BLK	W	94632	201852	03/10/2023 08:26	03/10/2023 10:41
	Effluent VSP-4 S	MS	23030816-001 S	W	94632	201852	03/10/2023 08:26	03/10/2023 12:49
	Effluent VSP-4 SD	MSD	23030816-001 S	W	94632	201852	03/10/2023 08:26	03/10/2023 13:12
SW-846 8260 D-SIM	Effluent VSP-4	Initial	23030817-001	W	94748	202076	03/20/2023 08:27	03/20/2023 15:20
	TB-030823	Initial	23030817-002	W	94748	202076	03/20/2023 08:27	03/20/2023 15:42
	94748-1-BKS	BKS	94748-1-BKS	W	94748	202076	03/20/2023 08:27	03/20/2023 13:15
	94748-1-BLK	BLK	94748-1-BLK	W	94748	202076	03/20/2023 08:27	03/20/2023 14:58
	94748-1-BSD	BSD	94748-1-BSD	W	94748	202076	03/20/2023 08:27	03/20/2023 14:04

PHASE SEPARATION SCIENCE

6630 Baltimore National Pike
Baltimore, MD 21228
410-747-8770
800-932-9047
www.phaseonline.com

QC Summary

Project Name Kop-Flex
PSS Project No.: 23030817

Analytical Method: EPA 624 .1
Seq Number: 201852
MB Sample Id: 94632-1-BLK

Matrix: Water
LCS Sample Id: 94632-1-BKS

Prep Method: E624PREP
Date Prep: 03/10/23

Parameter	MB Result	Spike Amount	LCS Result	LCS %Rec	Limits	Units	Flag
Acrolein	<0.005000	50.00	46.09	92	60-140	ug/L	
Acrylonitrile	<0.005000	50.00	48.50	97	60-140	ug/L	
Dichlorodifluoromethane	<0.001000	50.00	42.31	85	51-128	ug/L	
Chloromethane	<0.001000	50.00	46.56	93	1-205	ug/L	
Vinyl Chloride	<0.001000	50.00	40.99	82	5-195	ug/L	
Bromomethane	<0.001000	50.00	38.17	76	15-185	ug/L	
Chloroethane	<0.001000	50.00	47.96	96	40-160	ug/L	
Trichlorofluoromethane	<0.001000	50.00	41.40	83	50-150	ug/L	
2-Chloroethyl Vinyl Ether	<0.001000	50.00	14.65	29	1-225	ug/L	
1,1-Dichloroethene	<0.001000	50.00	48.97	98	50-150	ug/L	
Methylene Chloride	<0.001000	50.00	46.20	92	60-140	ug/L	
trans-1,2-dichloroethene	<0.001000	50.00	44.66	89	70-130	ug/L	
1,1-Dichloroethane	<0.001000	50.00	46.73	93	70-130	ug/L	
Chloroform	<0.001000	50.00	43.96	88	70-135	ug/L	
1,1,1-Trichloroethane	<0.001000	50.00	41.60	83	70-130	ug/L	
Carbon Tetrachloride	<0.001000	50.00	39.42	79	70-130	ug/L	
Benzene	<0.001000	50.00	46.76	94	65-135	ug/L	
1,2-Dichloroethane	<0.001000	50.00	43.28	87	70-130	ug/L	
Trichloroethene	<0.001000	50.00	44.64	89	65-135	ug/L	
1,2-Dichloropropane	<0.001000	50.00	48.31	97	35-165	ug/L	
Bromodichloromethane	<0.001000	50.00	42.93	86	65-135	ug/L	
cis-1,3-Dichloropropene	<0.001000	50.00	45.48	91	25-175	ug/L	
Toluene	<0.001000	50.00	45.41	91	70-130	ug/L	
trans-1,3-dichloropropene	<0.001000	50.00	44.20	88	50-150	ug/L	
1,1,2-Trichloroethane	<0.001000	50.00	46.21	92	70-130	ug/L	
Tetrachloroethylene	0.06000	50.00	41.22	82	70-130	ug/L	
Dibromochloromethane	<0.001000	50.00	42.90	86	70-135	ug/L	
Chlorobenzene	<0.001000	50.00	46.08	92	65-135	ug/L	
Ethylbenzene	0.02000	50.00	47.25	95	60-140	ug/L	
Bromoform	<0.001000	50.00	40.46	81	70-130	ug/L	
1,1,2,2-Tetrachloroethane	<0.001000	50.00	48.26	97	60-140	ug/L	
1,3-Dichlorobenzene	0.08000	50.00	46.85	94	70-130	ug/L	
1,4-Dichlorobenzene	<0.001000	50.00	46.53	93	65-135	ug/L	
1,2-Dichlorobenzene	<0.001000	50.00	45.85	92	65-135	ug/L	

Surrogate	MB %Rec	MB Flag	LCS Result	LCS Flag	Limits	Units
Dibromofluoromethane	95		93	*	94-108	%
4-Bromofluorobenzene	115		103		77-120	%
Toluene-D8	99		99		95-104	%

PHASE SEPARATION SCIENCE

6630 Baltimore National Pike
Baltimore, MD 21228
410-747-8770
800-932-9047
www.phaseonline.com

QC Summary

Project Name Kop-Flex
PSS Project No.: 23030817

Analytical Method: SW-846 8260 D-SIM Prep Method: SW5030B
Seq Number: 202076 Matrix: Water Date Prep: 03/20/23
MB Sample Id: 94748-1-BLK LCS Sample Id: 94748-1-BKS LCSD Sample Id: 94748-1-BSD

Parameter	MB Result	Spike Amount	LCS Result	LCS %Rec	LCSD Result	LCSD %Rec	Limits	RPD	RPD Limit	Units	Flag
1,4-Dioxane (P-Dioxane)	<1.000	30.00	28.99	97	31.05	104	50-150	7	20	ug/L	

Surrogate	MB %Rec	MB Flag	LCS Result	LCS Flag	LCSD Result	LCSD Flag	Limits	Units
Toluene-D8	106		103		105		80-120	%

F = RPD exceeded the laboratory control limits
X = Recovery of MS, MSD or both outside of QC Criteria
H= Recovery of BS,BSD or both exceeded the laboratory control limits
L = Recovery of BS,BSD or both below the laboratory control limits

PHASE SEPARATION SCIENCE

6630 Baltimore National Pike
Baltimore, MD 21228
410-747-8770
800-932-9047
www.phaseonline.com

QC Summary

Project Name Kop-Flex
PSS Project No.: 23030817

Analytical Method: EPA 624 .1

Seq Number: 200941 Matrix: Water
Parent Sample Id: ICV-01 ICV Sample Id: ICV-01 Analyzed Date: 02/06/23 17:55

Parameter	Spike Amount	ICV Result	ICV %Rec	Limits	Units	Flag
Acrolein	0.05000	0.04643	93	60-140	mg/L	
Acrylonitrile	0.05000	0.05075	102	60-140	mg/L	
Dichlorodifluoromethane	0.05000	0.04698	94	51-128	mg/L	
Chloromethane	0.05000	0.04957	99	1-205	mg/L	
Vinyl Chloride	0.05000	0.04006	80	5-195	mg/L	
Bromomethane	0.05000	0.04615	92	15-185	mg/L	
Chloroethane	0.05000	0.04648	93	40-160	mg/L	
Trichlorofluoromethane	0.05000	0.04248	85	50-150	mg/L	
2-Chloroethyl Vinyl Ether	0.05000	0.04683	94	1-225	mg/L	
1,1-Dichloroethene	0.05000	0.04787	96	50-150	mg/L	
Methylene Chloride	0.05000	0.04941	99	60-140	mg/L	
trans-1,2-dichloroethene	0.05000	0.04978	100	70-130	mg/L	
1,1-Dichloroethane	0.05000	0.04864	97	70-130	mg/L	
Chloroform	0.05000	0.04640	93	70-135	mg/L	
1,1,1-Trichloroethane	0.05000	0.04600	92	70-130	mg/L	
Carbon Tetrachloride	0.05000	0.04446	89	70-130	mg/L	
Benzene	0.05000	0.04996	100	65-135	mg/L	
1,2-Dichloroethane	0.05000	0.04536	91	70-130	mg/L	
Trichloroethene	0.05000	0.04825	97	65-135	mg/L	
1,2-Dichloropropane	0.05000	0.05011	100	35-165	mg/L	
Bromodichloromethane	0.05000	0.04619	92	65-135	mg/L	
cis-1,3-Dichloropropene	0.05000	0.04808	96	25-175	mg/L	
Toluene	0.05000	0.04886	98	70-130	mg/L	
trans-1,3-dichloropropene	0.05000	0.04796	96	50-150	mg/L	
1,1,2-Trichloroethane	0.05000	0.04848	97	70-130	mg/L	
Tetrachloroethylene	0.05000	0.04608	92	70-130	mg/L	
Dibromochloromethane	0.05000	0.04739	95	70-135	mg/L	
Chlorobenzene	0.05000	0.04997	100	65-135	mg/L	
Ethylbenzene	0.05000	0.04983	100	60-140	mg/L	
Bromoform	0.05000	0.04766	95	70-130	mg/L	
1,1,2,2-Tetrachloroethane	0.05000	0.05063	101	60-140	mg/L	
1,3-Dichlorobenzene	0.05000	0.05134	103	70-130	mg/L	
1,4-Dichlorobenzene	0.05000	0.05048	101	65-135	mg/L	
1,2-Dichlorobenzene	0.05000	0.05155	103	65-135	mg/L	

Surrogate	ICV Result	Limits	Units	Flag
Dibromofluoromethane	96	94-108	%	
4-Bromofluorobenzene	101	77-120	%	
Toluene-D8	98	95-104	%	

PHASE SEPARATION SCIENCE

6630 Baltimore National Pike
Baltimore, MD 21228
410-747-8770
800-932-9047
www.phaseonline.com

QC Summary

Project Name Kop-Flex
PSS Project No.: 23030817

Analytical Method: SW-846 8260 D-SIM
Seq Number: 202076 Matrix: Water
CCV Sample Id: CCV-01 Analyzed Date: 03/20/23 12:24

Parameter	Spike Amount	CCV Result	CCV %Rec	Limits	Units	Flag
1,4-Dioxane (P-Dioxane)	30.00	24.98	83	80-120	ug/L	

Surrogate	CCV Result	Limits	Units	Flag
Toluene-D8	104	80-120	%	

Analytical Method: SW-846 8260 D-SIM
Seq Number: 202076 Matrix: Water
Parent Sample Id: ICV-01 ICV Sample Id: ICV-01 Analyzed Date: 03/20/23 11:52

Parameter	Spike Amount	ICV Result	ICV %Rec	Limits	Units	Flag
1,4-Dioxane (P-Dioxane)	30.00	31.76	106	70-130	ug/L	

Surrogate	ICV Result	Limits	Units	Flag
Toluene-D8	102	80-120	%	

X = Recovery outside of QC Criteria

PHASE SEPARATION SCIENCE

CHAIN OF CUSTODY FORM

All fields must be completed accurately. Shaded sections for lab use only.

www.phaseonline.com ~ info@phaseonline.com

6630 Baltimore National Pike • Suite 103-A • Baltimore, Maryland 21228 • (410) 747-8770 • (800) 932-9047

① PSS CLIENT: WSP | OFFICE LOCATION: Herndon, VA | PSS Work Order #: 2303081 7 | PAGE 1 OF 1

BILL TO (if different): | PHONE #: 703-709-6500

CONTACT: Eric Johnson | EMAIL: eric.johnson@wsp.com

PROJECT NAME: KOP-flex | PROJECT #: 31405608.010/0202

SITE LOCATION: Hanover, MD | P.O. #:

SAMPLER(S): TUSHAR KHAIRE | DW CERT #:

Matrix Codes: **SW**=Surface Water **DW**=Drinking Water **GW**=Ground Water **WW**=Waste Water **O**=Oil **S**=Soil **SOL**=Solid **A**=Air **WI**=Wipe

② Preservatives Use Codes: 1 | 1

Analysis/Method Required ③: 1,4, dioxane (8260 SIM) | VOCs (624)

Preservative Codes: 1 - HCL; 2 - H_2SO_4; 3 - HNO_3; 4 - NaOH; 5 - E624KIT; 6 - ICE; 7 - Sodium Thiosulfate; 8 - Ascorbic Acid; 9 - TerraCore Kit

PSS ID	SAMPLE IDENTIFICATION	DATE SAMPLED	TIME SAMPLED	MATRIX Use Codes	# OF CONTAINERS	SAMPLE TYPE: C=COMPOSITE G=GRAB	1,4, dioxane (8260 SIM)	VOCs (624)
1	Effluent VSP-4	3/8/23	10:40	WW	3	G	X	
2	TB-030823	—	—	TB	4	—	X	X

⑤

Relinquished By: (1)	Date	Time	Received By:
TUSHAR KHAIRE	3/8/23	13:40	
Relinquished By: (2)	Date	Time	Received By:
Relinquished By: (3)	Date	Time	Received By:
Relinquished By: (4)	Date	Time	Received By:

④

Requested TAT (One TAT per COC)
☐ 5-Day ☐ 3-Day ☐ 2-Day
☐ Next Day ☐ Emergency ☒ Other

STATE RESULTS REPORTED TO:
☐ MD ☐ DE ☐ PA ☐ VA ☐ WV
☐ OTHER

COMPLIANCE?
☐ DW ☐ WW

EDD FORMAT TYPE

Ice Present: Pres

Custody Seal: Pres / Cooler / Intact

Coolers: 1 Temp: 3.9-4.5°C

Shipping Carrier: Client TB 3.6°C

Special Instructions:
Standard 10-day TAT

This chain of custody is a legal document. The client (PSS Client), by signing, or having client's agent sign, this "Chain of Custody Form", agrees to pay for the above requested services per the latest version of the Service Brochure or PSS-provided quotation including any and all attorney's or other reasonable fees if collection becomes necessary.

PHASE SEPARATION SCIENCE

6630 Baltimore National Pike
Baltimore, MD 21228
410-747-8770
800-932-9047
www.phaseonline.com

Sample Receipt Checklist

Project Name: Kop-Flex
PSS Project No.: 23030817

Client Name WSP USA - Herndon
Disposal Date 04/12/2023

Received By Marissa Vertucci
Date Received 03/08/2023 01:40:00 PM
Delivered By Client
Tracking No Not Applicable
Logged In By Marissa Vertucci

Shipping Container(s)
No. of Coolers 1

Custody Seal(s) Intact?	Yes	Ice	Present
Seal(s) Signed / Dated?	Yes	Temp (deg C)	4.5
		Temp Blank Present	Yes

Documentation

COC agrees with sample labels?	Yes	Sampler Name	Tushar Khaire
Chain of Custody	Yes	MD DW Cert. No.	N/A

Sample Container

Appropriate for Specified Analysis?	Yes	Custody Seal(s) Intact?	Not Applicable
Intact?	Yes	Seal(s) Signed / Dated	Not Applicable
Labeled and Labels Legible?	Yes		

Holding Time

All Samples Received Within Holding Time(s)?	Yes	Total No. of Samples Received	2
		Total No. of Containers Received	7

Preservation

Total Metals	(pH<2)	N/A
Dissolved Metals, filtered within 15 minutes of collection	(pH<2)	N/A
Orthophosphorus, filtered within 15 minutes of collection		N/A
Cyanides	(pH>12)	N/A
Sulfide	(pH>9)	N/A
TOC, DOC (field filtered), COD, Phenols	(pH<2)	N/A
TOX, TKN, NH3, Total Phos	(pH<2)	N/A
VOC, BTEX (VOA Vials Rcvd Preserved)	(pH<2)	Yes
Do VOA vials have zero headspace?		Yes
624 VOC (Rcvd at least one unpreserved VOA vial)		N/A
524 VOC (Rcvd with trip blanks)	(pH<2)	N/A

Comments: (Any "No" response must be detailed in the comments section below.)

For any improper preservation conditions, list sample ID, preservative added (reagent ID number) below as well as documentation of any client notification as well as client instructions. Samples for pH, chlorine and dissolved oxygen should be analyzed as soon as possible, preferably in the field at the time of sampling. Samples which require thermal preservation shall be considered acceptable when received at a temperature above freezing to 6°C. Samples that are hand delivered on the day that they are collected may not meet these criteria but shall be considered acceptable if there is evidence that the chilling process has begun such as arrival on ice.

Samples Inspected/Checklist Completed By: Marissa Vertucci Date: 03/08/2023

PM Review and Approval: Amber Confer Date: 03/09/2023

PHASE SEPARATION SCIENCE

6630 Baltimore National Pike
Baltimore, MD 21228
410-747-8770
800-932-9047
www.phaseonline.com

Certificate of Analysis

Project Name: Kop-Flex
PSS Project No.: 23083015

September 14, 2023

Eric Johnson
WSP USA - Herndon
13530 Dulles Technology Dr, Ste 300
Herndon, VA 20171

Reference: PSS Project No: **23083015**
Project Name: Kop-Flex
Project Location: Hanover, MD
Project ID.: 31405608.010/02.02

Dear Eric Johnson:

This report includes the analytical results from the analyses performed on the samples received under the project name referenced above and identified with the Phase Separation Science (PSS) Project number(s) **23083015**.

All work reported herein has been performed in accordance with current NELAP standards, referenced methodologies, PSS Standard Operating Procedures and the PSS Quality Assurance Manual unless otherwise noted in the Case Narrative Summary. PSS is limited in liability to the actual cost of the sample analysis done.

PSS reserves the right to return any unused samples, extracts or related solutions. Otherwise, the samples are scheduled for disposal, without any further notice, on October 4, 2023, with the exception of air canisters which are cleaned immediately following analysis. This includes any samples that were received with a request to be held but lacked a specific hold period. It is your responsibility to provide a written request defining a specific disposal date if additional storage is required. Upon receipt, the request will be acknowledged by PSS, thus extending the storage period.

This report shall not be reproduced except in full, without the written approval of an authorized PSS representative. A copy of this report will be retained by PSS for at least 5 years, after which time it will be disposed of without further notice, unless prior arrangements have been made.

We thank you for selecting Phase Separation Science, Inc. to serve your analytical needs. If you have any questions concerning this report, do not hesitate to contact us at 410-747-8770 or info@phaseonline.com.

Sincerely,

Cathy Thompson
QA Officer

PHASE SEPARATION SCIENCE

6630 Baltimore National Pike
Baltimore, MD 21228
410-747-8770
800-932-9047
www.phaseonline.com

Explanation of Qualifiers

Project Name: Kop-Flex
PSS Project No.: 23083015

Project ID: 31405608.010/02.02

The following samples were received under chain of custody by Phase Separation Science (PSS) on 08/30/2023 at 01:40 pm

PSS Sample ID	Sample ID	Matrix	Date/Time Collected
23083015-001	Effluent VSP-4	WASTE WATER	08/30/23 11:55

Please reference the Chain of Custody and Sample Receipt Checklist for specific container counts and preservatives. Any sample conditions not in compliance with sample acceptance criteria are described in Case Narrative Summary.

Notes:

1. The presence of a common laboratory contaminant such as methylene chloride may be considered a possible laboratory artifact. Where observed, appropriate consideration of data should be taken.
2. Unless otherwise noted in the case narrative, results are reported on a dry weight basis with the exception of pH, flashpoint, moisture, and paint filter test.
3. Drinking water samples collected for the purpose of compliance with SDWA may not be suitable for their intended use unless collected by a certified sampler [COMAR 26.08.05.07.C.2].
4. The analyses of 1,2-dibromo-3-chloropropane (DBCP) and 1,2-dibromoethane (EDB) by EPA 524.2 and calcium, magnesium, sodium and iron by EPA 200.8 are not currently promulgated for use in testing to meet the Safe Drinking Water Act and as such cannot be used for compliance purposes. The listings of the current promulgated methods for testing in compliance with the Safe Drinking Water Act can be found in the 40 CFR part 141.1, for the primary drinking water contaminates, and part 141.3, for the secondary drinking water contaminates.
5. Sample prepared under EPA 3550C with concentrations greater than 20 mg/Kg should employ the microtip extraction procedure if required to meet data quality objectives.
6. The analysis of acrolein by EPA 624 must be analyzed within three days of sampling unless pH is adjusted to 4-5 units [40 CFR part 136.3(e)].
7. Method 180.1, The Determination of Turbidity by Nephelometry, recommends samples over 40 NTU be diluted until the turbidity falls below 40 units. Routine samples over 40 NTU may not be diluted as long as the data quality objectives are not affected.
8. Alkalinity results analyzed by EPA 310.2 that are reported by dilution are estimated and are not in compliance with method requirements.

Standard Flags/Abbreviations:

B	A target analyte or common laboratory contaminant was identified in the method blank. Its presence indicates possible field or laboratory contamination.
C	Results Pending Final Confirmation.
E	The data exceeds the upper calibration limit; therefore, the concentration is reported as estimated.
Fail	The result exceeds the regulatory level for Toxicity Characteristic (TCLP) as cited in 40 CFR 261.24 Table 1.
J	The target analyte was positively identified below the reporting limit but greater than the MDL.
MDL	This is the Laboratory Method Detection Limit which is equivalent to the Limit of Detection (LOD). The LOD is the minimum result, which can be reliably discriminated from a blank with a predetermined confidence level. This value will remain constant across multiple similar instrumentation and among different analysts. An LOD is analyte and matrix specific. instrumentation and among different analysts. An LOD is analyte and matrix specific.
ND	Not Detected at or above the reporting limit.
RL	PSS Reporting Limit.
U	Not detected.

Certifications:

NELAP Certifications: PA 68-03330, VA 460156
State Certifications: MD 179, WV 303
Regulated Soil Permit: P330-12-00268
NSWC USCG Accepted Laboratory
LDBE MWAA LD1997-0041-2015

PHASE SEPARATION SCIENCE

6630 Baltimore National Pike
Baltimore, MD 21228
410-747-8770
800-932-9047
www.phaseonline.com

Certificate of Analysis

Project Name: Kop-Flex
PSS Project No.: 23083015

Sample ID: Effluent VSP-4 **Date/Time Sampled: 08/30/2023 11:55** **PSS Sample ID: 23083015-001**
Matrix: WASTE WATER **Date/Time Received: 08/30/2023 13:40**

Total Metals — Analytical Method: EPA 200.8 — Preparation Method: E200.8

	Result	Units	RL	Flag	Dil	Prepared	Analyzed	Analyst
Copper	**4.5**	ug/L	1.0		1	09/01/23	09/02/23 00:16	1064
Lead	ND	ug/L	1.0		1	09/01/23	09/02/23 00:16	1064
Nickel	**16.5**	ug/L	1.00		1	09/01/23	09/02/23 00:16	1064
Zinc	**30.4**	ug/L	20.0		1	09/01/23	09/02/23 00:16	1064

Dissolved Metals — Analytical Method: EPA 200.8 Dissolved — Preparation Method: E200.8

	Result	Units	RL	Flag	Dil	Prepared	Analyzed	Analyst
Copper	**2.1**	ug/L	1.0		1	09/05/23	09/05/23 22:33	1064
Lead	ND	ug/L	1.0		1	09/05/23	09/14/23 13:01	1064
Nickel	**14.5**	ug/L	1.00		1	09/05/23	09/14/23 13:01	1064
Zinc	**25.9**	ug/L	20.0		1	09/05/23	09/05/23 22:33	1064

VOC (Full List) — Analytical Method: EPA 624 .1 — Preparation Method: E624.1

Qualifier(s): See Batch 206339 on Case Narrative.
pH=7

	Result	Units	RL	Flag	Dil	Prepared	Analyzed	Analyst
Acrolein	ND	ug/L	5.0		1	09/01/23	09/01/23 13:52	1011
Acrylonitrile	ND	ug/L	5.0		1	09/01/23	09/01/23 13:52	1011
Dichlorodifluoromethane	ND	ug/L	1.0		1	09/01/23	09/01/23 13:52	1011
Chloromethane	ND	ug/L	1.0		1	09/01/23	09/01/23 13:52	1011
Vinyl Chloride	ND	ug/L	1.0		1	09/01/23	09/01/23 13:52	1011
Bromomethane	ND	ug/L	1.0		1	09/01/23	09/01/23 13:52	1011
Chloroethane	ND	ug/L	1.0		1	09/01/23	09/01/23 13:52	1011
Trichlorofluoromethane	ND	ug/L	1.0		1	09/01/23	09/01/23 13:52	1011
2-Chloroethyl Vinyl Ether	ND	ug/L	1.0		1	09/01/23	09/01/23 13:52	1011
1,1-Dichloroethene	ND	ug/L	1.0		1	09/01/23	09/01/23 13:52	1011
Methylene Chloride	ND	ug/L	1.0		1	09/01/23	09/01/23 13:52	1011
trans-1,2-dichloroethene	ND	ug/L	1.0		1	09/01/23	09/01/23 13:52	1011
1,1-Dichloroethane	ND	ug/L	1.0		1	09/01/23	09/01/23 13:52	1011
Chloroform	ND	ug/L	1.0		1	09/01/23	09/01/23 13:52	1011
1,1,1-Trichloroethane	ND	ug/L	1.0		1	09/01/23	09/01/23 13:52	1011
Carbon Tetrachloride	ND	ug/L	1.0		1	09/01/23	09/01/23 13:52	1011
Benzene	ND	ug/L	1.0		1	09/01/23	09/01/23 13:52	1011
1,2-Dichloroethane	ND	ug/L	1.0		1	09/01/23	09/01/23 13:52	1011

PHASE SEPARATION SCIENCE

6630 Baltimore National Pike
Baltimore, MD 21228
410-747-8770
800-932-9047
www.phaseonline.com

Certificate of Analysis

Project Name: Kop-Flex
PSS Project No.: 23083015

Sample ID: Effluent VSP-4 **Date/Time Sampled: 08/30/2023 11:55** **PSS Sample ID: 23083015-001**
Matrix: WASTE WATER **Date/Time Received: 08/30/2023 13:40**

VOC (Full List) Analytical Method: EPA 624 .1 Preparation Method: E624.1

Qualifier(s): See Batch 206339 on Case Narrative.

pH=7

	Result	Units	RL	Flag	Dil	Prepared	Analyzed	Analyst
Trichloroethene	ND	ug/L	1.0		1	09/01/23	09/01/23 13:52	1011
1,2-Dichloropropane	ND	ug/L	1.0		1	09/01/23	09/01/23 13:52	1011
Bromodichloromethane	ND	ug/L	1.0		1	09/01/23	09/01/23 13:52	1011
cis-1,3-Dichloropropene	ND	ug/L	1.0		1	09/01/23	09/01/23 13:52	1011
Toluene	ND	ug/L	1.0		1	09/01/23	09/01/23 13:52	1011
trans-1,3-dichloropropene	ND	ug/L	1.0		1	09/01/23	09/01/23 13:52	1011
1,1,2-Trichloroethane	ND	ug/L	1.0		1	09/01/23	09/01/23 13:52	1011
Tetrachloroethylene	ND	ug/L	1.0		1	09/01/23	09/01/23 13:52	1011
Dibromochloromethane	ND	ug/L	1.0		1	09/01/23	09/01/23 13:52	1011
Chlorobenzene	ND	ug/L	1.0		1	09/01/23	09/01/23 13:52	1011
Ethylbenzene	ND	ug/L	1.0		1	09/01/23	09/01/23 13:52	1011
Bromoform	ND	ug/L	1.0		1	09/01/23	09/01/23 13:52	1011
1,1,2,2-Tetrachloroethane	ND	ug/L	1.0		1	09/01/23	09/01/23 13:52	1011
1,3-Dichlorobenzene	ND	ug/L	1.0		1	09/01/23	09/01/23 13:52	1011
1,4-Dichlorobenzene	ND	ug/L	1.0		1	09/01/23	09/01/23 13:52	1011
1,2-Dichlorobenzene	ND	ug/L	1.0		1	09/01/23	09/01/23 13:52	1011

Surrogate(s)	*Recovery*		*Limits*				
Dibromofluoromethane	*101*	*%*	*94-108*		*1*	*09/01/23*	*09/01/23 13:52*	*1011*
4-Bromofluorobenzene	*103*	*%*	*77-120*		*1*	*09/01/23*	*09/01/23 13:52*	*1011*
Toluene-D8	*100*	*%*	*95-104*		*1*	*09/01/23*	*09/01/23 13:52*	*1011*

Hardness, Total by Calculation Analytical Method: SM 2340B Preparation Method: E200.8

	Result	Units	RL	Flag	Dil	Prepared	Analyzed	Analyst
Hardness (Ca & Mg)	**26**	mg/L	0.66		1	09/01/23	09/02/23 00:16	1064

PHASE SEPARATION SCIENCE

6630 Baltimore National Pike
Baltimore, MD 21228
410-747-8770
800-932-9047
www.phaseonline.com

Certificate of Analysis

Project Name: Kop-Flex
PSS Project No.: 23083015

Sample ID: Effluent VSP-4 **Date/Time Sampled: 08/30/2023 11:55** **PSS Sample ID: 23083015-001**
Matrix: WASTE WATER **Date/Time Received: 08/30/2023 13:40**

Total Suspended Solids — Analytical Method: SM 2540D -2015

	Result	Units	RL	Flag	Dil	Prepared	Analyzed	Analyst
Total Suspended Solids	**1.9**	mg/L	1.0		1	08/30/23	08/30/23 18:40	1073

Biochemical Oxygen Demand — Analytical Method: SM 5210B -2016

	Result	Units	RL	Flag	Prepared	Analyzed	Analyst
Biochemical Oxygen Demand, 5 day	ND	mg/L	2		08/31/23	08/31/23 11:06	4009

6630 Baltimore National Pike
Baltimore, MD 21228
410-747-8770
800-932-9047
www.phaseonline.com

Project Name: Kop-Flex

PSS Project No.: 23083015

Any holding time exceedances, deviations from the method specifications, regulatory requirements or variations to the procedures outlined in the PSS Quality Assurance Manual are outlined below.

Matrix spike and matrix spike duplicate analyses may not be performed due to insufficient sample quantity. In these instances, a laboratory control sample and laboratory control sample duplicate are analyzed unless otherwise noted or specified in the method.

Sample Receipt:

All sample receipt conditions were acceptable.

23083015: Analyses associated with analyst code 4009 were performed by
Martel Laboratories, Inc., 1025 Cromwell Bridge Road, Towson, MD 21204

Analytical:

Volatile Organics Compounds

Batch: 206339

A target analyte was detected in the method blank; see QC summary. The samples were not detected and/or the concentration was greater than 10x the amount in the method blank. 1,3-dichlorobenzene was 0.26 ppb (MDL - 0.23 ppb).

NELAP accreditation was held for all analyses performed unless noted below. See www.phaseonline.com for complete PSS scope of accreditation.

Analytical Method(s): SM 5210B -2016

PHASE SEPARATION SCIENCE

6630 Baltimore National Pike
Baltimore, MD 21228
410-747-8770
800-932-9047
www.phaseonline.com

Lab Chronology

Project Name: Kop-Flex
PSS Project No.: 23083015

Method	Client Sample ID	Analysis Type	PSS Sample ID	Mtx	Prep Batch	Analytical Batch	Prepared	Analyzed
EPA 200.8	Effluent VSP-4	Initial	23083015-001	W	96868	206357	09/01/2023 08:30	09/02/2023 00:16
	96868-1-BKS	Reanalysis	96868-1-BKS	W	96868	206357	09/01/2023 08:30	09/06/2023 18:22
	96868-1-BLK	Reanalysis	96868-1-BLK	W	96868	206357	09/01/2023 08:30	09/06/2023 18:02
	96868-1-BKS	BKS	96868-1-BKS	W	96868	206357	09/01/2023 08:30	09/02/2023 00:11
	96868-1-BLK	BLK	96868-1-BLK	W	96868	206357	09/01/2023 08:30	09/02/2023 00:06
	Effluent VSP-4 S	MS	23083015-001 S	W	96868	206357	09/01/2023 08:30	09/02/2023 00:21
	RW-5 S	MS	23083109-013 S	W	96868	206357	09/01/2023 08:30	09/02/2023 02:27
	Effluent VSP-4 SD	MSD	23083015-001 S	W	96868	206357	09/01/2023 08:30	09/02/2023 00:26
EPA 200.8 Dissolved	Effluent VSP-4	Initial	23083015-001	W	96898	206387	09/05/2023 17:53	09/05/2023 22:33
	96898-1-BKS	BKS	96898-1-BKS	W	96898	206387	09/05/2023 17:53	09/05/2023 21:52
	96898-1-BLK	BLK	96898-1-BLK	W	96898	206387	09/05/2023 17:53	09/05/2023 21:47
	AQ 02 P S	MS	23083004-002 S	W	96898	206387	09/05/2023 17:53	09/05/2023 22:18
	20230901-004 S	MS	23090116-002 S	W	96898	206387	09/05/2023 17:53	09/05/2023 23:29
	AQ 02 P SD	MSD	23083004-002 S	W	96898	206387	09/05/2023 17:53	09/05/2023 22:23
	96898-1-BKS	Reanalysis	96898-1-BKS	W	96898	206602	09/05/2023 17:53	09/14/2023 12:56
	96898-1-BLK	Reanalysis	96898-1-BLK	W	96898	206602	09/05/2023 17:53	09/14/2023 12:51
	Effluent VSP-4	Reanalysis	23083015-001	W	96898	206602	09/05/2023 17:53	09/14/2023 13:01
EPA 624 .1	Effluent VSP-4	Initial	23083015-001	W	96885	206339	09/01/2023 10:56	09/01/2023 13:52
	96885-1-BKS	BKS	96885-1-BKS	W	96885	206339	09/01/2023 10:56	09/01/2023 11:17
	96885-1-BLK	BLK	96885-1-BLK	W	96885	206339	09/01/2023 10:56	09/01/2023 12:50
	Effluent VSP-4 S	MS	23083015-001 S	W	96885	206339	09/01/2023 10:56	09/01/2023 15:34
	Effluent VSP-4 SD	MSD	23083015-001 S	W	96885	206339	09/01/2023 10:56	09/01/2023 15:54
SM 2340B	Effluent VSP-4	Initial	23083015-001	W	96868	206357	09/01/2023 08:30	09/02/2023 00:16
SM 2540D -2015	Effluent VSP-4	Initial	23083015-001	W	206286	206286	08/30/2023 18:40	08/30/2023 18:40
	206286-1-BKS	BKS	206286-1-BKS	W	206286	206286	08/30/2023 18:40	08/30/2023 18:40
	206286-1-BLK	BLK	206286-1-BLK	W	206286	206286	08/30/2023 18:40	08/30/2023 18:40
	601 D	MD	23082801-002 D	W	206286	206286	08/30/2023 18:40	08/30/2023 18:40
SM 5210B -2016	Effluent VSP-4	Initial	23083015-001	W	206565	206565	08/31/2023 11:06	08/31/2023 11:06

Analytical Method: SM 2540D -2015
Seq Number: 206286 Matrix: Water
MB Sample Id: 206286-1-BLK LCS Sample Id: 206286-1-BKS

Parameter	MB Result	Spike Amount	LCS Result	LCS %Rec	Limits	Units	Flag
Total Suspended Solids	<1.000	103.2	99.70	97	86-110	mg/L	

Analytical Method: EPA 200.8 Prep Method: E200.8_PREP
Seq Number: 206357 Matrix: Water Date Prep: 09/01/23
MB Sample Id: 96868-1-BLK LCS Sample Id: 96868-1-BKS

Parameter	MB Result	Spike Amount	LCS Result	LCS %Rec	Limits	Units	Flag
Copper	<1.000	50.00	51.33	103	85-115	ug/L	
Lead	<1.000	50.00	50.01	100	85-115	ug/L	
Nickel	<1.000	50.00	50.86	102	85-115	ug/L	
Zinc	<20.00	100	101.7	102	85-115	ug/L	

Analytical Method: EPA 200.8 Prep Method: E200.8_PREP
Seq Number: 206357 Matrix: Waste Water Date Prep: 09/01/23
Parent Sample Id: 23083015-001 MS Sample Id: 23083015-001 S MSD Sample Id: 23083015-001 SD

Parameter	Parent Result	Spike Amount	MS Result	MS %Rec	MSD Result	MSD %Rec	Limits	RPD	RPD Limit	Units	Flag
Copper	4.495	50.00	57.89	107	56.31	104	70-130	3	25	ug/L	
Lead	<1.000	50.00	50.62	101	49.64	99	70-130	2	25	ug/L	
Nickel	16.47	50.00	68.29	104	66.48	100	70-130	3	25	ug/L	
Zinc	30.38	100	136.5	106	133.2	103	70-130	2	25	ug/L	

Analytical Method: EPA 200.8 Dissolved Prep Method: E200.8_PREP
Seq Number: 206387 Matrix: Water Date Prep: 09/05/23
MB Sample Id: 96898-1-BLK LCS Sample Id: 96898-1-BKS

Parameter	MB Result	Spike Amount	LCS Result	LCS %Rec	Limits	Units	Flag
Copper	<1.000	50.00	48.81	98	85-115	ug/L	
Lead	<1.000	50.00	44.22	88	85-115	ug/L	
Zinc	<20.00	100	96.52	97	85-115	ug/L	

Analytical Method: EPA 200.8 Dissolved Prep Method: E200.8_PREP
Seq Number: 206602 Matrix: Water Date Prep: 09/05/23
MB Sample Id: 96898-1-BLK LCS Sample Id: 96898-1-BKS

Parameter	MB Result	Spike Amount	LCS Result	LCS %Rec	Limits	Units	Flag
Nickel	<1.000	50.00	46.62	93	85-115	ug/L	

PHASE SEPARATION SCIENCE

6630 Baltimore National Pike
Baltimore, MD 21228
410-747-8770
800-932-9047
www.phaseonline.com

QC Summary

Project Name Kop-Flex
PSS Project No.: 23083015

Analytical Method: EPA 624 .1
Prep Method: E624PREP
Seq Number: 206339
Matrix: Water
Date Prep: 09/01/23
MB Sample Id: 96885-1-BLK
LCS Sample Id: 96885-1-BKS

Parameter	MB Result	Spike Amount	LCS Result	LCS %Rec	Limits	Units	Flag
Acrolein	<0.005000	50.00	46.86	94	60-140	ug/L	
Acrylonitrile	<0.005000	50.00	48.58	97	60-140	ug/L	
Dichlorodifluoromethane	0.09000	50.00	50.82	102	51-128	ug/L	
Chloromethane	<0.001000	50.00	52.55	105	1-205	ug/L	
Vinyl Chloride	<0.001000	50.00	57.93	116	5-195	ug/L	
Bromomethane	0.1100	50.00	51.79	104	15-185	ug/L	
Chloroethane	<0.001000	50.00	49.92	100	40-160	ug/L	
Trichlorofluoromethane	0.08000	50.00	49.31	99	50-150	ug/L	
2-Chloroethyl Vinyl Ether	<0.001000	50.00	49.56	99	1-225	ug/L	
1,1-Dichloroethene	0.06000	50.00	51.47	103	50-150	ug/L	
Methylene Chloride	0.08000	50.00	50.19	100	60-140	ug/L	
trans-1,2-dichloroethene	0.1800	50.00	51.42	103	70-130	ug/L	
1,1-Dichloroethane	<0.001000	50.00	49.88	100	70-130	ug/L	
Chloroform	0.06000	50.00	49.32	99	70-135	ug/L	
1,1,1-Trichloroethane	0.03000	50.00	51.43	103	70-130	ug/L	
Carbon Tetrachloride	0.05000	50.00	51.65	103	70-130	ug/L	
Benzene	0.05000	50.00	50.75	102	65-135	ug/L	
1,2-Dichloroethane	<0.001000	50.00	48.79	98	70-130	ug/L	
Trichloroethene	0.1400	50.00	50.83	102	65-135	ug/L	
1,2-Dichloropropane	<0.001000	50.00	50.15	100	35-165	ug/L	
Bromodichloromethane	<0.001000	50.00	51.16	102	65-135	ug/L	
cis-1,3-Dichloropropene	<0.001000	50.00	55.90	112	25-175	ug/L	
Toluene	0.08000	50.00	50.48	101	70-130	ug/L	
trans-1,3-dichloropropene	<0.001000	50.00	50.31	101	50-150	ug/L	
1,1,2-Trichloroethane	<0.001000	50.00	48.82	98	70-130	ug/L	
Tetrachloroethylene	0.1600	50.00	51.24	102	70-130	ug/L	
Dibromochloromethane	0.03000	50.00	52.81	106	70-135	ug/L	
Chlorobenzene	<0.001000	50.00	50.41	101	65-135	ug/L	
Ethylbenzene	0.1000	50.00	53.86	108	60-140	ug/L	
Bromoform	0.04000	50.00	51.66	103	70-130	ug/L	
1,1,2,2-Tetrachloroethane	<0.001000	50.00	46.35	93	60-140	ug/L	
1,3-Dichlorobenzene	0.2600	50.00	51.04	102	70-130	ug/L	
1,4-Dichlorobenzene	<0.001000	50.00	50.48	101	65-135	ug/L	
1,2-Dichlorobenzene	0.1700	50.00	50.54	101	65-135	ug/L	

Surrogate	MB %Rec	MB Flag	LCS Result	LCS Flag	Limits	Units
Dibromofluoromethane	101		100		94-108	%
4-Bromofluorobenzene	105		98		77-120	%
Toluene-D8	99		101		95-104	%

PHASE SEPARATION SCIENCE

6630 Baltimore National Pike
Baltimore, MD 21228
410-747-8770
800-932-9047
www.phaseonline.com

QC Summary

Project Name Kop-Flex
PSS Project No.: 23083015

Analytical Method: EPA 624 .1 Prep Method: E624PREP
Seq Number: 206339 Matrix: Waste Water Date Prep: 09/01/23
Parent Sample Id: 23083015-001 MS Sample Id: 23083015-001 S MSD Sample Id: 23083015-001 SD

Parameter	Parent Result	Spike Amount	MS Result	MS %Rec	MSD Result	MSD %Rec	Limits	RPD	RPD Limit	Units	Flag
Acrolein	<5.000	50.00	41.58	83	45.48	91	40-160	9	60	ug/L	
Acrylonitrile	<5.000	50.00	42.64	85	45.67	91	40-160	7	60	ug/L	
Dichlorodifluoromethane	<1.000	50.00	48.19	96	49.37	99	49-132	2	14	ug/L	
Chloromethane	<1.000	50.00	49.16	98	49.75	100	1-273	1	60	ug/L	
Vinyl Chloride	<1.000	50.00	49.32	99	49.76	100	1-251	1	66	ug/L	
Bromomethane	<1.000	50.00	48.52	97	49.84	100	1-242	3	61	ug/L	
Chloroethane	<1.000	50.00	47.66	95	48.40	97	14-230	2	78	ug/L	
Trichlorofluoromethane	<1.000	50.00	47.26	95	48.40	97	17-181	2	84	ug/L	
2-Chloroethyl Vinyl Ether	<1.000	50.00	40.19	80	43.16	86	1-305	7	71	ug/L	
1,1-Dichloroethene	<1.000	50.00	48.04	96	49.68	99	1-234	3	32	ug/L	
Methylene Chloride	<1.000	50.00	46.30	93	48.59	97	1-221	5	28	ug/L	
trans-1,2-dichloroethene	<1.000	50.00	47.93	96	49.90	100	54-156	4	45	ug/L	
1,1-Dichloroethane	<1.000	50.00	46.96	94	48.44	97	59-155	3	40	ug/L	
Chloroform	<1.000	50.00	46.48	93	47.92	96	51-138	3	54	ug/L	
1,1,1-Trichloroethane	<1.000	50.00	48.29	97	50.15	100	52-162	4	36	ug/L	
Carbon Tetrachloride	<1.000	50.00	48.34	97	50.00	100	70-140	3	41	ug/L	
Benzene	<1.000	50.00	47.98	96	49.37	99	37-151	3	61	ug/L	
1,2-Dichloroethane	<1.000	50.00	45.03	90	46.80	94	49-155	4	49	ug/L	
Trichloroethene	<1.000	50.00	47.70	95	49.41	99	70-157	4	48	ug/L	
1,2-Dichloropropane	<1.000	50.00	46.55	93	48.29	97	1-210	4	55	ug/L	
Bromodichloromethane	<1.000	50.00	47.58	95	49.46	99	35-155	4	56	ug/L	
cis-1,3-Dichloropropene	<1.000	50.00	50.18	100	52.72	105	1-227	5	58	ug/L	
Toluene	<1.000	50.00	47.88	96	49.79	100	47-150	4	41	ug/L	
trans-1,3-dichloropropene	<1.000	50.00	44.00	88	47.15	94	17-183	7	86	ug/L	
1,1,2-Trichloroethane	<1.000	50.00	44.51	89	47.25	95	52-150	6	45	ug/L	
Tetrachloroethylene	<1.000	50.00	49.81	100	50.33	101	64-148	1	39	ug/L	
Dibromochloromethane	<1.000	50.00	47.51	95	49.58	99	53-149	4	50	ug/L	
Chlorobenzene	<1.000	50.00	47.33	95	48.86	98	37-160	3	53	ug/L	
Ethylbenzene	<1.000	50.00	51.07	102	52.44	105	37-162	3	63	ug/L	
Bromoform	<1.000	50.00	46.43	93	48.91	98	45-169	5	42	ug/L	
1,1,2,2-Tetrachloroethane	<1.000	50.00	41.89	84	44.19	88	46-157	5	61	ug/L	
1,3-Dichlorobenzene	<1.000	50.00	46.72	93	48.98	98	59-156	5	43	ug/L	
1,4-Dichlorobenzene	<1.000	50.00	45.92	92	48.10	96	18-190	5	57	ug/L	
1,2-Dichlorobenzene	<1.000	50.00	46.33	93	48.48	97	18-190	5	57	ug/L	

Surrogate	MS Result	MS Flag	MSD Result	MSD Flag	Limits	Units
Dibromofluoromethane	100		99		94-108	%
4-Bromofluorobenzene	97		98		77-120	%
Toluene-D8	100		101		95-104	%

F = RPD exceeded the laboratory control limits
X = Recovery of MS, MSD or both outside of QC Criteria
H= Recovery of BS,BSD or both exceeded the laboratory control limits
L = Recovery of BS,BSD or both below the laboratory control limits

Analytical Method: EPA 200.8
Seq Number: 206357 Matrix: Water
CCV Sample Id: CCV 2 Analyzed Date: 09/01/23 23:45

Parameter	Spike Amount	CCV Result	CCV %Rec	Limits	Units	Flag
Copper	100	102	102	85-115	ug/L	
Lead	100	99.18	99	85-115	ug/L	
Nickel	100	101.5	102	85-115	ug/L	
Zinc	200	204.5	102	85-115	ug/L	

Analytical Method: EPA 200.8
Seq Number: 206357 Matrix: Water
CCV Sample Id: CCV 3 Analyzed Date: 09/02/23 00:53

Parameter	Spike Amount	CCV Result	CCV %Rec	Limits	Units	Flag
Copper	100	100.9	101	85-115	ug/L	
Lead	100	100.5	101	85-115	ug/L	
Nickel	100	100.8	101	85-115	ug/L	
Zinc	200	201.2	101	85-115	ug/L	

Analytical Method: EPA 200.8
Seq Number: 206357 Matrix: Water
CCV Sample Id: CCV 4 Analyzed Date: 09/02/23 02:01

Parameter	Spike Amount	CCV Result	CCV %Rec	Limits	Units	Flag
Copper	100	101.6	102	85-115	ug/L	
Lead	100	99.26	99	85-115	ug/L	
Nickel	100	100.9	101	85-115	ug/L	
Zinc	200	201.6	101	85-115	ug/L	

Analytical Method: EPA 200.8
Seq Number: 206357 Matrix: Water
CCV Sample Id: CCV 5 Analyzed Date: 09/02/23 02:38

Parameter	Spike Amount	CCV Result	CCV %Rec	Limits	Units	Flag
Copper	100	101.9	102	85-115	ug/L	
Lead	100	98.49	98	85-115	ug/L	
Nickel	100	101.8	102	85-115	ug/L	
Zinc	200	202.1	101	85-115	ug/L	

Analytical Method: EPA 200.8
Seq Number: 206357 Matrix: Water
Parent Sample Id: ICV 1 ICV Sample Id: ICV 1 Analyzed Date: 09/01/23 21:14

Parameter	Spike Amount	ICV Result	ICV %Rec	Limits	Units	Flag
Copper	50.00	50.23	100	90-110	ug/L	
Lead	50.00	50.45	101	90-110	ug/L	
Nickel	50.00	49.46	99	90-110	ug/L	
Zinc	100	99.98	100	90-110	ug/L	

Analytical Method: EPA 200.8 Dissolved
Seq Number: 206387 Matrix: Water
CCV Sample Id: CCV 2 Analyzed Date: 09/05/23 21:01

Parameter	Spike Amount	CCV Result	CCV %Rec	Limits	Units	Flag
Copper	100	98.39	98	85-115	ug/L	
Zinc	200	190.1	95	85-115	ug/L	

Analytical Method: EPA 200.8 Dissolved
Seq Number: 206387 Matrix: Water
CCV Sample Id: CCV 3 Analyzed Date: 09/05/23 22:08

Parameter	Spike Amount	CCV Result	CCV %Rec	Limits	Units	Flag
Copper	100	97.98	98	85-115	ug/L	
Zinc	200	191.9	96	85-115	ug/L	

Analytical Method: EPA 200.8 Dissolved
Seq Number: 206387 Matrix: Water
CCV Sample Id: CCV 4 Analyzed Date: 09/05/23 23:14

Parameter	Spike Amount	CCV Result	CCV %Rec	Limits	Units	Flag
Copper	100	98.11	98	85-115	ug/L	
Zinc	200	192.8	96	85-115	ug/L	

Analytical Method: EPA 200.8 Dissolved
Seq Number: 206387 Matrix: Water
CCV Sample Id: CCV 5 Analyzed Date: 09/06/23 00:11

Parameter	Spike Amount	CCV Result	CCV %Rec	Limits	Units	Flag
Copper	100	97.92	98	85-115	ug/L	
Zinc	200	192.5	96	85-115	ug/L	

Analytical Method: EPA 200.8 Dissolved
Seq Number: 206602 Matrix: Water
CCV Sample Id: CCV 1 Analyzed Date: 09/14/23 13:26

Parameter	Spike Amount	CCV Result	CCV %Rec	Limits	Units	Flag
Lead	100	102.8	103	85-115	ug/L	
Nickel	100	99.04	99	85-115	ug/L	

Analytical Method: EPA 200.8 Dissolved
Seq Number: 206387 Matrix: Water
Parent Sample Id: ICV 1 ICV Sample Id: ICV 1 Analyzed Date: 09/05/23 18:27

Parameter	Spike Amount	ICV Result	ICV %Rec	Limits	Units	Flag
Copper	50.00	53.83	108	90-110	ug/L	
Zinc	100	100.7	101	90-110	ug/L	

Analytical Method: EPA 200.8 Dissolved
Seq Number: 206602 Matrix: Water
Parent Sample Id: ICV 1 ICV Sample Id: ICV 1 Analyzed Date: 09/14/23 12:23

Parameter	Spike Amount	ICV Result	ICV %Rec	Limits	Units	Flag
Lead	50.00	51.57	103	90-110	ug/L	
Nickel	50.00	50.28	101	90-110	ug/L	

PHASE SEPARATION SCIENCE

6630 Baltimore National Pike
Baltimore, MD 21228
410-747-8770
800-932-9047
www.phaseonline.com

QC Summary

Project Name Kop-Flex
PSS Project No.: 23083015

Analytical Method: EPA 624 .1

Seq Number: 206316 Matrix: Water
Parent Sample Id: ICV-01 ICV Sample Id: ICV-01 Analyzed Date: 09/01/23 11:17

Parameter	Spike Amount	ICV Result	ICV %Rec	Limits	Units	Flag
Acrolein	0.05000	0.04686	94	60-140	mg/L	
Acrylonitrile	0.05000	0.04858	97	60-140	mg/L	
Dichlorodifluoromethane	0.05000	0.05082	102	51-128	mg/L	
Chloromethane	0.05000	0.05255	105	1-205	mg/L	
Vinyl Chloride	0.05000	0.05793	116	5-195	mg/L	
Bromomethane	0.05000	0.05179	104	15-185	mg/L	
Chloroethane	0.05000	0.04992	100	40-160	mg/L	
Trichlorofluoromethane	0.05000	0.04931	99	50-150	mg/L	
2-Chloroethyl Vinyl Ether	0.05000	0.04956	99	1-225	mg/L	
1,1-Dichloroethene	0.05000	0.05147	103	50-150	mg/L	
Methylene Chloride	0.05000	0.05019	100	60-140	mg/L	
trans-1,2-dichloroethene	0.05000	0.05142	103	70-130	mg/L	
1,1-Dichloroethane	0.05000	0.04988	100	70-130	mg/L	
Chloroform	0.05000	0.04932	99	70-135	mg/L	
1,1,1-Trichloroethane	0.05000	0.05143	103	70-130	mg/L	
Carbon Tetrachloride	0.05000	0.05165	103	70-130	mg/L	
Benzene	0.05000	0.05075	102	65-135	mg/L	
1,2-Dichloroethane	0.05000	0.04879	98	70-130	mg/L	
Trichloroethene	0.05000	0.05083	102	65-135	mg/L	
1,2-Dichloropropane	0.05000	0.05015	100	35-165	mg/L	
Bromodichloromethane	0.05000	0.05116	102	65-135	mg/L	
cis-1,3-Dichloropropene	0.05000	0.05590	112	25-175	mg/L	
Toluene	0.05000	0.05048	101	70-130	mg/L	
trans-1,3-dichloropropene	0.05000	0.05031	101	50-150	mg/L	
1,1,2-Trichloroethane	0.05000	0.04882	98	70-130	mg/L	
Tetrachloroethylene	0.05000	0.05124	102	70-130	mg/L	
Dibromochloromethane	0.05000	0.05281	106	70-135	mg/L	
Chlorobenzene	0.05000	0.05041	101	65-135	mg/L	
Ethylbenzene	0.05000	0.05386	108	60-140	mg/L	
Bromoform	0.05000	0.05166	103	70-130	mg/L	
1,1,2,2-Tetrachloroethane	0.05000	0.04635	93	60-140	mg/L	
1,3-Dichlorobenzene	0.05000	0.05104	102	70-130	mg/L	
1,4-Dichlorobenzene	0.05000	0.05048	101	65-135	mg/L	
1,2-Dichlorobenzene	0.05000	0.05054	101	65-135	mg/L	

Surrogate	ICV Result	Limits	Units	Flag
Dibromofluoromethane	100	94-108	%	
4-Bromofluorobenzene	98	77-120	%	
Toluene-D8	101	95-104	%	

X = Recovery outside of QC Criteria

CHAIN OF CUSTODY FORM

PHASE SEPARATION SCIENCE

All fields must be completed accurately. Shaded sections for lab use only.

www.phaseonline.com ~ info@phaseonline.com

6630 Baltimore National Pike • Suite 103-A • Baltimore, Maryland 21228 • (410) 747-8770 • (800) 932-9047

① PSS CLIENT: WSP | OFFICE LOCATION: Herndon, VA | PSS Work Order #: 23083015 | PAGE 1 OF 1

BILL TO (if different): | PHONE #: 703-709-6500

CONTACT: ERIC JOHNSON | EMAIL: eric.johnson@wsp.com

PROJECT NAME: Kop-flex | PROJECT #: 31405608.010/0202

SITE LOCATION: Hanover, MD | P.O. #:

SAMPLER(S): ~~JUSTAR KHAIRE~~ Shannan Burke | DW CERT #:

Matrix Codes: **SW**=Surface Water **DW**=Drinking Water **GW**=Ground Water **WW**=Waste Water **O**=Oil **S**=Soil **SOL**=Solid **A**=Air **WI**=Wipe

② Preservatives Use Codes: 1, 6 | 3 | 3 | 6 | 6

Analysis/Method Required ③: VOCs (624) | Dissolved metals (200.8) | Total metals + hardness (200.8) | TSS | BOD

Preservative Codes: 1 - HCL; 2 - H_2SO_4; 3 - HNO_3; 4 - NaOH; 5 - E624KIT; 6 - ICE; 7 - Sodium Thiosulfate; 8 - Ascorbic Acid; 9 - TerraCore Kit

PSS ID	SAMPLE IDENTIFICATION	DATE SAMPLED	TIME SAMPLED	MATRIX Use Codes	# OF CONTAINERS	SAMPLE TYPE: C=COMPOSITE G=GRAB	VOCs (624)	Dissolved metals (200.8)	Total metals + hardness (200.8)	TSS	BOD
1	Effluent WSP-4	~~8/30~~/23	1155	WW	7	G	X	X	X	X	X

⑤

Relinquished By:	Date	Time	Received By:
(1)	8/30/23	1340	
(2)			
(3)			
(4)			

④

Requested TAT (One TAT per COC): ☐ 5-Day ☐ 3-Day ☐ 2-Day ☐ Next Day ☐ Emergency ☒ Other

STATE RESULTS REPORTED TO: ☐ MD ☐ DE ☐ PA ☐ VA ☐ WV ☐ OTHER

COMPLIANCE? ☐ DW ☐ WW

EDD FORMAT TYPE

Ice Present: Yes

Custody Seal: Cooler/Intact

Coolers: 1 Temp: 2.2-4.7°C

Shipping Carrier: Client

Temp Blank 2.4°C

Special Instructions:

Standard 10 day TAT.

Dissolved metals field filtered (Cu, Pb, Ni, Zn)

This chain of custody is a legal document. The client (PSS Client), by signing, or having client's agent sign, this "Chain of Custody Form", agrees to pay for the above requested services per the latest version of the Service Brochure or PSS-provided quotation including any and all attorney's or other reasonable fees if collection becomes necessary.

PHASE SEPARATION SCIENCE

6630 Baltimore National Pike
Baltimore, MD 21228
410-747-8770
800-932-9047
www.phaseonline.com

Sample Receipt Checklist

Project Name: Kop-Flex
PSS Project No.: 23083015

Client Name WSP USA - Herndon
Disposal Date 10/04/2023

Received By Tyler Enwright
Date Received 08/30/2023 01:40:00 PM
Delivered By Client
Tracking No Not Applicable
Logged In By Tyler Enwright

Shipping Container(s)
No. of Coolers 1

		Ice	Present
Custody Seal(s) Intact?	N/A	Temp (deg C)	4.7
Seal(s) Signed / Dated?	N/A	Temp Blank Present	No

Documentation

		Sampler Name	Shannon Burke
COC agrees with sample labels?	Yes	MD DW Cert. No.	N/A
Chain of Custody	Yes		

Sample Container

		Custody Seal(s) Intact?	Not Applicable
Appropriate for Specified Analysis?	Yes	Seal(s) Signed / Dated	Not Applicable
Intact?	Yes		
Labeled and Labels Legible?	Yes		

Holding Time

		Total No. of Samples Received	1
All Samples Received Within Holding Time(s)?	Yes	Total No. of Containers Received	7

Preservation

Total Metals	(pH<2)	Yes
Dissolved Metals, filtered within 15 minutes of collection	(pH<2)	Yes
Orthophosphorus, filtered within 15 minutes of collection		N/A
Cyanides	(pH>12)	N/A
Sulfide	(pH>9)	N/A
TOC, DOC (field filtered), COD, Phenols	(pH<2)	N/A
TOX, TKN, NH3, Total Phos	(pH<2)	N/A
VOC, BTEX (VOA Vials Rcvd Preserved)	(pH<2)	Yes
Do VOA vials have zero headspace?		Yes
624 VOC (Rcvd at least one unpreserved VOA vial)		Yes
524 VOC (Rcvd with trip blanks)	(pH<2)	N/A

Comments: (Any "No" response must be detailed in the comments section below.)

For any improper preservation conditions, list sample ID, preservative added (reagent ID number) below as well as documentation of any client notification as well as client instructions. Samples for pH, chlorine and dissolved oxygen should be analyzed as soon as possible, preferably in the field at the time of sampling. Samples which require thermal preservation shall be considered acceptable when received at a temperature above freezing to 6°C. Samples that are hand delivered on the day that they are collected may not meet these criteria but shall be considered acceptable if there is evidence that the chilling process has begun such as arrival on ice.

Samples Inspected/Checklist Completed By: Tyler Enwright — Date: 08/30/2023

PM Review and Approval: Amber Confer — Date: 08/30/2023

PHASE SEPARATION SCIENCE

6630 Baltimore National Pike
Baltimore, MD 21228
410-747-8770
800-932-9047
www.phaseonline.com

Certificate of Analysis

Project Name: Kop-Flex
PSS Project No.: 23083016

September 15, 2023

Eric Johnson
WSP USA - Herndon
13530 Dulles Technology Dr, Ste 300
Herndon, VA 20171

Reference: PSS Project No: **23083016**
Project Name: Kop-Flex
Project Location: Hanover, MD
Project ID.: 31405608.010/02.02

Dear Eric Johnson:

This report includes the analytical results from the analyses performed on the samples received under the project name referenced above and identified with the Phase Separation Science (PSS) Project number(s) **23083016**.

All work reported herein has been performed in accordance with current NELAP standards, referenced methodologies, PSS Standard Operating Procedures and the PSS Quality Assurance Manual unless otherwise noted in the Case Narrative Summary. PSS is limited in liability to the actual cost of the sample analysis done.

PSS reserves the right to return any unused samples, extracts or related solutions. Otherwise, the samples are scheduled for disposal, without any further notice, on October 4, 2023, with the exception of air canisters which are cleaned immediately following analysis. This includes any samples that were received with a request to be held but lacked a specific hold period. It is your responsibility to provide a written request defining a specific disposal date if additional storage is required. Upon receipt, the request will be acknowledged by PSS, thus extending the storage period.

This report shall not be reproduced except in full, without the written approval of an authorized PSS representative. A copy of this report will be retained by PSS for at least 5 years, after which time it will be disposed of without further notice, unless prior arrangements have been made.

We thank you for selecting Phase Separation Science, Inc. to serve your analytical needs. If you have any questions concerning this report, do not hesitate to contact us at 410-747-8770 or info@phaseonline.com.

Sincerely,

Dan Prucnal
Laboratory Manager

PHASE SEPARATION SCIENCE

6630 Baltimore National Pike
Baltimore, MD 21228
410-747-8770
800-932-9047
www.phaseonline.com

Explanation of Qualifiers

Project Name: Kop-Flex
PSS Project No.: 23083016

Project ID: 31405608.010/02.02

The following samples were received under chain of custody by Phase Separation Science (PSS) on 08/30/2023 at 01:40 pm

PSS Sample ID	Sample ID	Matrix	Date/Time Collected
23083016-001	Effluent VSP-4	WASTE WATER	08/30/23 11:55
23083016-002	Influent VSP-1	GROUND WATER	08/30/23 12:45
23083016-003	TB-083023	WATER	08/30/23 00:00

Please reference the Chain of Custody and Sample Receipt Checklist for specific container counts and preservatives. Any sample conditions not in compliance with sample acceptance criteria are described in Case Narrative Summary.

Notes:

1. The presence of a common laboratory contaminant such as methylene chloride may be considered a possible laboratory artifact. Where observed, appropriate consideration of data should be taken.
2. Unless otherwise noted in the case narrative, results are reported on a dry weight basis with the exception of pH, flashpoint, moisture, and paint filter test.
3. Drinking water samples collected for the purpose of compliance with SDWA may not be suitable for their intended use unless collected by a certified sampler [COMAR 26.08.05.07.C.2].
4. The analyses of 1,2-dibromo-3-chloropropane (DBCP) and 1,2-dibromoethane (EDB) by EPA 524.2 and calcium, magnesium, sodium and iron by EPA 200.8 are not currently promulgated for use in testing to meet the Safe Drinking Water Act and as such cannot be used for compliance purposes. The listings of the current promulgated methods for testing in compliance with the Safe Drinking Water Act can be found in the 40 CFR part 141.1, for the primary drinking water contaminates, and part 141.3, for the secondary drinking water contaminates.
5. Sample prepared under EPA 3550C with concentrations greater than 20 mg/Kg should employ the microtip extraction procedure if required to meet data quality objectives.
6. The analysis of acrolein by EPA 624 must be analyzed within three days of sampling unless pH is adjusted to 4-5 units [40 CFR part 136.3(e)].
7. Method 180.1, The Determination of Turbidity by Nephelometry, recommends samples over 40 NTU be diluted until the turbidity falls below 40 units. Routine samples over 40 NTU may not be diluted as long as the data quality objectives are not affected.
8. Alkalinity results analyzed by EPA 310.2 that are reported by dilution are estimated and are not in compliance with method requirements.

Standard Flags/Abbreviations:

B	A target analyte or common laboratory contaminant was identified in the method blank. Its presence indicates possible field or laboratory contamination.
C	Results Pending Final Confirmation.
E	The data exceeds the upper calibration limit; therefore, the concentration is reported as estimated.
Fail	The result exceeds the regulatory level for Toxicity Characteristic (TCLP) as cited in 40 CFR 261.24 Table 1.
J	The target analyte was positively identified below the reporting limit but greater than the MDL.
MDL	This is the Laboratory Method Detection Limit which is equivalent to the Limit of Detection (LOD). The LOD is the minimum result, which can be reliably discriminated from a blank with a predetermined confidence level. This value will remain constant across multiple similar instrumentation and among different analysts. An LOD is analyte and matrix specific. instrumentation and among different analysts. An LOD is analyte and matrix specific.
ND	Not Detected at or above the reporting limit.
RL	PSS Reporting Limit.
U	Not detected.

Certifications:

NELAP Certifications: PA 68-03330, VA 460156
State Certifications: MD 179, WV 303
Regulated Soil Permit: P330-12-00268
NSWC USCG Accepted Laboratory
LDBE MWAA LD1997-0041-2015

PHASE SEPARATION SCIENCE

6630 Baltimore National Pike
Baltimore, MD 21228
410-747-8770
800-932-9047
www.phaseonline.com

Certificate of Analysis

Project Name: Kop-Flex
PSS Project No.: 23083016

Sample ID: Effluent VSP-4 **Date/Time Sampled: 08/30/2023 11:55** **PSS Sample ID: 23083016-001**
Matrix: WASTE WATER **Date/Time Received: 08/30/2023 13:40**

1,4-Dioxane by GC/MS - SIM — Analytical Method: SW-846 8260 D-SIM — Preparation Method: SW5030B

	Result	Units	RL	Flag	Dil	Prepared	Analyzed	Analyst
1,4-Dioxane (P-Dioxane)	**6.0**	ug/L	1.0		1	09/13/23	09/13/23 14:35	1011
Surrogate(s)	***Recovery***		***Limits***					
Toluene-D8	*99*	*%*	*80-120*		*1*	*09/13/23*	*09/13/23 14:35*	*1011*

PHASE SEPARATION SCIENCE

6630 Baltimore National Pike
Baltimore, MD 21228
410-747-8770
800-932-9047
www.phaseonline.com

Certificate of Analysis

Project Name: Kop-Flex
PSS Project No.: 23083016

Sample ID: Influent VSP-1 **Date/Time Sampled: 08/30/2023 12:45** **PSS Sample ID: 23083016-002**
Matrix: GROUND WATER **Date/Time Received: 08/30/2023 13:40**

TCL Volatile Organic Compounds Analytical Method: SW-846 8260 D Preparation Method: SW5030B

Qualifier(s): See Batch 206493 on Case Narrative.

	Result	Units	RL	Flag	Dil	Prepared	Analyzed	Analyst
Acetone	ND	ug/L	5.0		1	09/07/23	09/07/23 13:25	1011
Benzene	ND	ug/L	1.0		1	09/07/23	09/07/23 13:25	1011
Bromochloromethane	ND	ug/L	1.0		1	09/07/23	09/07/23 13:25	1011
Bromodichloromethane	ND	ug/L	1.0		1	09/07/23	09/07/23 13:25	1011
Bromoform	ND	ug/L	1.0		1	09/07/23	09/07/23 13:25	1011
Bromomethane	ND	ug/L	1.0		1	09/07/23	09/07/23 13:25	1011
2-Butanone (MEK)	ND	ug/L	5.0		1	09/07/23	09/07/23 13:25	1011
Carbon Disulfide	ND	ug/L	1.0		1	09/07/23	09/07/23 13:25	1011
Carbon tetrachloride	ND	ug/L	1.0		1	09/07/23	09/07/23 13:25	1011
Chlorobenzene	ND	ug/L	1.0		1	09/07/23	09/07/23 13:25	1011
Chloroethane	**4.3**	ug/L	1.0		1	09/07/23	09/07/23 13:25	1011
Chloroform	ND	ug/L	1.0		1	09/07/23	09/07/23 13:25	1011
Chloromethane	ND	ug/L	1.0		1	09/07/23	09/07/23 13:25	1011
Cyclohexane	ND	ug/L	1.0		1	09/07/23	09/07/23 13:25	1011
1,2-Dibromo-3-chloropropane	ND	ug/L	1.0		1	09/07/23	09/07/23 13:25	1011
Dibromochloromethane	ND	ug/L	1.0		1	09/07/23	09/07/23 13:25	1011
1,2-Dibromoethane	ND	ug/L	1.0		1	09/07/23	09/07/23 13:25	1011
1,2-Dichlorobenzene	ND	ug/L	1.0		1	09/07/23	09/07/23 13:25	1011
1,3-Dichlorobenzene	ND	ug/L	1.0		1	09/07/23	09/07/23 13:25	1011
Dichlorodifluoromethane	ND	ug/L	1.0		1	09/07/23	09/07/23 13:25	1011
1,4-Dichlorobenzene	ND	ug/L	1.0		1	09/07/23	09/07/23 13:25	1011
1,1-Dichloroethane	**46**	ug/L	1.0		1	09/07/23	09/07/23 13:25	1011
1,2-Dichloroethane	**1.4**	ug/L	1.0		1	09/07/23	09/07/23 13:25	1011
cis-1,2-Dichloroethene	**1.5**	ug/L	1.0		1	09/07/23	09/07/23 13:25	1011
1,1-Dichloroethene	**220**	ug/L	1.0		1	09/07/23	09/07/23 13:25	1011
1,2-Dichloropropane	ND	ug/L	1.0		1	09/07/23	09/07/23 13:25	1011
cis-1,3-Dichloropropene	ND	ug/L	1.0		1	09/07/23	09/07/23 13:25	1011
trans-1,3-Dichloropropene	ND	ug/L	1.0		1	09/07/23	09/07/23 13:25	1011
trans-1,2-Dichloroethene	ND	ug/L	1.0		1	09/07/23	09/07/23 13:25	1011
Ethylbenzene	ND	ug/L	1.0		1	09/07/23	09/07/23 13:25	1011
2-Hexanone (MBK)	ND	ug/L	5.0		1	09/07/23	09/07/23 13:25	1011
Isopropylbenzene	ND	ug/L	1.0		1	09/07/23	09/07/23 13:25	1011
Methyl Acetate	ND	ug/L	1.0		1	09/07/23	09/07/23 13:25	1011
Methylcyclohexane	ND	ug/L	1.0		1	09/07/23	09/07/23 13:25	1011
Methylene chloride	ND	ug/L	1.0		1	09/07/23	09/07/23 13:25	1011

PHASE SEPARATION SCIENCE

6630 Baltimore National Pike
Baltimore, MD 21228
410-747-8770
800-932-9047
www.phaseonline.com

Certificate of Analysis

Project Name: Kop-Flex
PSS Project No.: 23083016

Sample ID: Influent VSP-1 **Date/Time Sampled: 08/30/2023 12:45** **PSS Sample ID: 23083016-002**
Matrix: GROUND WATER **Date/Time Received: 08/30/2023 13:40**

TCL Volatile Organic Compounds — Analytical Method: SW-846 8260 D — Preparation Method: SW5030B

Qualifier(s): See Batch 206493 on Case Narrative.

	Result	Units	RL	Flag	Dil	Prepared	Analyzed	Analyst
4-Methyl-2-Pentanone (MIBK)	ND	ug/L	5.0		1	09/07/23	09/07/23 13:25	1011
Methyl-t-Butyl Ether	ND	ug/L	1.0		1	09/07/23	09/07/23 13:25	1011
Naphthalene	ND	ug/L	1.0		1	09/07/23	09/07/23 13:25	1011
Styrene	ND	ug/L	1.0		1	09/07/23	09/07/23 13:25	1011
1,1,2,2-Tetrachloroethane	ND	ug/L	1.0		1	09/07/23	09/07/23 13:25	1011
Tetrachloroethene	ND	ug/L	1.0		1	09/07/23	09/07/23 13:25	1011
Toluene	ND	ug/L	1.0		1	09/07/23	09/07/23 13:25	1011
1,2,3-Trichlorobenzene	ND	ug/L	1.0		1	09/07/23	09/07/23 13:25	1011
1,2,4-Trichlorobenzene	ND	ug/L	1.0		1	09/07/23	09/07/23 13:25	1011
1,1,1-Trichloroethane	**16**	ug/L	1.0		1	09/07/23	09/07/23 13:25	1011
Trichloroethene	**1.1**	ug/L	1.0		1	09/07/23	09/07/23 13:25	1011
1,1,2-Trichloroethane	ND	ug/L	1.0		1	09/07/23	09/07/23 13:25	1011
Trichlorofluoromethane	ND	ug/L	1.0		1	09/07/23	09/07/23 13:25	1011
1,1,2-Trichlorotrifluoroethane	ND	ug/L	1.0		1	09/07/23	09/07/23 13:25	1011
Vinyl chloride	ND	ug/L	1.0		1	09/07/23	09/07/23 13:25	1011
m&p-Xylene	ND	ug/L	2.0		1	09/07/23	09/07/23 13:25	1011
o-Xylene	ND	ug/L	1.0		1	09/07/23	09/07/23 13:25	1011

Surrogate(s)	*Recovery*		*Limits*				
4-Bromofluorobenzene	*100*	*%*	*88-120*		*1*	*09/07/23*	*09/07/23 13:25*	*1011*
Dibromofluoromethane	*100*	*%*	*92-107*		*1*	*09/07/23*	*09/07/23 13:25*	*1011*
Toluene-D8	*101*	*%*	*95-106*		*1*	*09/07/23*	*09/07/23 13:25*	*1011*

1,4-Dioxane by GC/MS - SIM — Analytical Method: SW-846 8260 D-SIM — Preparation Method: SW5030B

	Result	Units	RL	Flag	Dil	Prepared	Analyzed	Analyst
1,4-Dioxane (P-Dioxane)	**120**	ug/L	10		10	09/13/23	09/13/23 14:57	1011

Surrogate(s)	*Recovery*		*Limits*				
Toluene-D8	*99*	*%*	*80-120*		*10*	*09/13/23*	*09/13/23 14:57*	*1011*

PHASE SEPARATION SCIENCE

6630 Baltimore National Pike
Baltimore, MD 21228
410-747-8770
800-932-9047
www.phaseonline.com

Certificate of Analysis

Project Name: Kop-Flex
PSS Project No.: 23083016

Sample ID: TB-083023 **Date/Time Sampled: 08/30/2023 00:00** **PSS Sample ID: 23083016-003**
Matrix: WATER **Date/Time Received: 08/30/2023 13:40**

VOC (Full List) Analytical Method: EPA 624 .1 Preparation Method: E624.1

Qualifier(s): See Batch 206339 on Case Narrative.

pH=2

	Result	Units	RL	Flag	Dil	Prepared	Analyzed	Analyst
Acrolein	ND	ug/L	5.0		1	09/01/23	09/01/23 14:12	1011
Dichlorodifluoromethane	ND	ug/L	1.0		1	09/01/23	09/01/23 14:12	1011
Acrylonitrile	ND	ug/L	5.0		1	09/01/23	09/01/23 14:12	1011
Chloromethane	ND	ug/L	1.0		1	09/01/23	09/01/23 14:12	1011
Vinyl Chloride	ND	ug/L	1.0		1	09/01/23	09/01/23 14:12	1011
Bromomethane	ND	ug/L	1.0		1	09/01/23	09/01/23 14:12	1011
Chloroethane	ND	ug/L	1.0		1	09/01/23	09/01/23 14:12	1011
Trichlorofluoromethane	ND	ug/L	1.0		1	09/01/23	09/01/23 14:12	1011
2-Chloroethyl Vinyl Ether	ND	ug/L	1.0		1	09/01/23	09/01/23 14:12	1011
1,1-Dichloroethene	ND	ug/L	1.0		1	09/01/23	09/01/23 14:12	1011
Methylene Chloride	ND	ug/L	1.0		1	09/01/23	09/01/23 14:12	1011
trans-1,2-dichloroethene	ND	ug/L	1.0		1	09/01/23	09/01/23 14:12	1011
1,1-Dichloroethane	ND	ug/L	1.0		1	09/01/23	09/01/23 14:12	1011
Chloroform	ND	ug/L	1.0		1	09/01/23	09/01/23 14:12	1011
1,1,1-Trichloroethane	ND	ug/L	1.0		1	09/01/23	09/01/23 14:12	1011
Carbon Tetrachloride	ND	ug/L	1.0		1	09/01/23	09/01/23 14:12	1011
Benzene	ND	ug/L	1.0		1	09/01/23	09/01/23 14:12	1011
1,2-Dichloroethane	ND	ug/L	1.0		1	09/01/23	09/01/23 14:12	1011
Trichloroethene	ND	ug/L	1.0		1	09/01/23	09/01/23 14:12	1011
1,2-Dichloropropane	ND	ug/L	1.0		1	09/01/23	09/01/23 14:12	1011
Bromodichloromethane	ND	ug/L	1.0		1	09/01/23	09/01/23 14:12	1011
cis-1,3-Dichloropropene	ND	ug/L	1.0		1	09/01/23	09/01/23 14:12	1011
Toluene	ND	ug/L	1.0		1	09/01/23	09/01/23 14:12	1011
trans-1,3-dichloropropene	ND	ug/L	1.0		1	09/01/23	09/01/23 14:12	1011
1,1,2-Trichloroethane	ND	ug/L	1.0		1	09/01/23	09/01/23 14:12	1011
Tetrachloroethylene	ND	ug/L	1.0		1	09/01/23	09/01/23 14:12	1011
Dibromochloromethane	ND	ug/L	1.0		1	09/01/23	09/01/23 14:12	1011
Chlorobenzene	ND	ug/L	1.0		1	09/01/23	09/01/23 14:12	1011
Ethylbenzene	ND	ug/L	1.0		1	09/01/23	09/01/23 14:12	1011
Bromoform	ND	ug/L	1.0		1	09/01/23	09/01/23 14:12	1011
1,1,2,2-Tetrachloroethane	ND	ug/L	1.0		1	09/01/23	09/01/23 14:12	1011
1,3-Dichlorobenzene	ND	ug/L	1.0		1	09/01/23	09/01/23 14:12	1011
1,4-Dichlorobenzene	ND	ug/L	1.0		1	09/01/23	09/01/23 14:12	1011
1,2-Dichlorobenzene	ND	ug/L	1.0		1	09/01/23	09/01/23 14:12	1011

PHASE SEPARATION SCIENCE

6630 Baltimore National Pike
Baltimore, MD 21228
410-747-8770
800-932-9047
www.phaseonline.com

Certificate of Analysis

Project Name: Kop-Flex
PSS Project No.: 23083016

Sample ID: TB-083023 **Date/Time Sampled: 08/30/2023 00:00** **PSS Sample ID: 23083016-003**
Matrix: WATER **Date/Time Received: 08/30/2023 13:40**

VOC (Full List) Analytical Method: EPA 624 .1 Preparation Method: E624.1

Qualifier(s): See Batch 206339 on Case Narrative.

pH=2

Surrogate(s)	*Recovery*		*Limits*				
Dibromofluoromethane	*101*	*%*	*94-108*	*1*	*09/01/23*	*09/01/23 14:12*	*1011*
4-Bromofluorobenzene	*105*	*%*	*77-120*	*1*	*09/01/23*	*09/01/23 14:12*	*1011*
Toluene-D8	*99*	*%*	*95-104*	*1*	*09/01/23*	*09/01/23 14:12*	*1011*

1,4-Dioxane by GC/MS - SIM Analytical Method: SW-846 8260 D-SIM Preparation Method: SW5030B

	Result	Units	RL	Flag	Dil	Prepared	Analyzed	Analyst
1,4-Dioxane (P-Dioxane)	ND	ug/L	1.0		1	09/15/23	09/15/23 10:39	1011

Surrogate(s)	*Recovery*		*Limits*				
Toluene-D8	*100*	*%*	*80-120*	*1*	*09/15/23*	*09/15/23 10:39*	*1011*

6630 Baltimore National Pike
Baltimore, MD 21228
410-747-8770
800-932-9047
www.phaseonline.com

Project Name: Kop-Flex

PSS Project No.: 23083016

Any holding time exceedances, deviations from the method specifications, regulatory requirements or variations to the procedures outlined in the PSS Quality Assurance Manual are outlined below.

Matrix spike and matrix spike duplicate analyses may not be performed due to insufficient sample quantity. In these instances, a laboratory control sample and laboratory control sample duplicate are analyzed unless otherwise noted or specified in the method.

Sample Receipt:

All sample receipt conditions were acceptable.

Analytical:

Volatile Organics Compounds

Batch: 206339

A target analyte was detected in the method blank; see QC summary. The samples were not detected and/or the concentration was greater than 10x the amount in the method blank. 1,3-dichlorobenzene was 0.26 ppb (MDL - 0.23 ppb).

Analytical:

TCL Volatile Organic Compounds

Batch: 206493

Continuing calibration verification standard (CCV) meets method criteria in that more than 80% of analytes are within acceptance limits, see QC summary.

NELAP accreditation was held for all analyses performed unless noted below. See www.phaseonline.com for complete PSS scope of accreditation.

SW-846 8260 D-SIM: 1,4-Dioxane

PHASE SEPARATION SCIENCE

6630 Baltimore National Pike
Baltimore, MD 21228
410-747-8770
800-932-9047
www.phaseonline.com

Lab Chronology

Project Name: Kop-Flex
PSS Project No.: 23083016

Method	Client Sample ID	Analysis Type	PSS Sample ID	Mtx	Prep Batch	Analytical Batch	Prepared	Analyzed
EPA 624 .1	TB-083023	Initial	23083016-003	W	96885	206339	09/01/2023 10:56	09/01/2023 14:12
	96885-1-BKS	BKS	96885-1-BKS	W	96885	206339	09/01/2023 10:56	09/01/2023 11:17
	96885-1-BLK	BLK	96885-1-BLK	W	96885	206339	09/01/2023 10:56	09/01/2023 12:50
	Effluent VSP-4 S	MS	23083015-001 S	W	96885	206339	09/01/2023 10:56	09/01/2023 15:34
	Effluent VSP-4 SD	MSD	23083015-001 S	W	96885	206339	09/01/2023 10:56	09/01/2023 15:54
SW-846 8260 D	Influent VSP-1	Initial	23083016-002	W	96950	206493	09/07/2023 11:01	09/07/2023 13:25
	96950-1-BKS	BKS	96950-1-BKS	W	96950	206493	09/07/2023 11:01	09/07/2023 11:01
	96950-1-BLK	BLK	96950-1-BLK	W	96950	206493	09/07/2023 11:01	09/07/2023 12:14
	IDW-Water S	MS	23090104-001 S	W	96950	206493	09/07/2023 11:01	09/07/2023 14:06
	IDW-Water SD	MSD	23090104-001 S	W	96950	206493	09/07/2023 11:01	09/07/2023 14:27
SW-846 8260 D-SIM	Effluent VSP-4	Initial	23083016-001	W	97011	206577	09/13/2023 08:02	09/13/2023 14:35
	Influent VSP-1	Initial	23083016-002	W	97011	206577	09/13/2023 08:02	09/13/2023 14:57
	97011-1-BKS	BKS	97011-1-BKS	W	97011	206577	09/13/2023 08:02	09/13/2023 13:07
	97011-1-BLK	BLK	97011-1-BLK	W	97011	206577	09/13/2023 08:02	09/13/2023 14:13
	97011-1-BSD	BSD	97011-1-BSD	W	97011	206577	09/13/2023 08:02	09/13/2023 13:29
	TB-083023	Initial	23083016-003	W	97042	206633	09/15/2023 08:38	09/15/2023 10:39
	97042-1-BKS	BKS	97042-1-BKS	W	97042	206633	09/15/2023 08:38	09/15/2023 09:10
	97042-1-BLK	BLK	97042-1-BLK	W	97042	206633	09/15/2023 08:38	09/15/2023 10:17
	97042-1-BSD	BSD	97042-1-BSD	W	97042	206633	09/15/2023 08:38	09/15/2023 09:33

PHASE SEPARATION SCIENCE

6630 Baltimore National Pike
Baltimore, MD 21228
410-747-8770
800-932-9047
www.phaseonline.com

QC Summary

Project Name Kop-Flex
PSS Project No.: 23083016

Analytical Method: EPA 624 .1
Prep Method: E624PREP
Seq Number: 206339
Matrix: Water
Date Prep: 09/01/23
MB Sample Id: 96885-1-BLK
LCS Sample Id: 96885-1-BKS

Parameter	MB Result	Spike Amount	LCS Result	LCS %Rec	Limits	Units	Flag
Acrolein	<0.005000	50.00	46.86	94	60-140	ug/L	
Acrylonitrile	<0.005000	50.00	48.58	97	60-140	ug/L	
Dichlorodifluoromethane	0.09000	50.00	50.82	102	51-128	ug/L	
Chloromethane	<0.001000	50.00	52.55	105	1-205	ug/L	
Vinyl Chloride	<0.001000	50.00	57.93	116	5-195	ug/L	
Bromomethane	0.1100	50.00	51.79	104	15-185	ug/L	
Chloroethane	<0.001000	50.00	49.92	100	40-160	ug/L	
Trichlorofluoromethane	0.08000	50.00	49.31	99	50-150	ug/L	
2-Chloroethyl Vinyl Ether	<0.001000	50.00	49.56	99	1-225	ug/L	
1,1-Dichloroethene	0.06000	50.00	51.47	103	50-150	ug/L	
Methylene Chloride	0.08000	50.00	50.19	100	60-140	ug/L	
trans-1,2-dichloroethene	0.1800	50.00	51.42	103	70-130	ug/L	
1,1-Dichloroethane	<0.001000	50.00	49.88	100	70-130	ug/L	
Chloroform	0.06000	50.00	49.32	99	70-135	ug/L	
1,1,1-Trichloroethane	0.03000	50.00	51.43	103	70-130	ug/L	
Carbon Tetrachloride	0.05000	50.00	51.65	103	70-130	ug/L	
Benzene	0.05000	50.00	50.75	102	65-135	ug/L	
1,2-Dichloroethane	<0.001000	50.00	48.79	98	70-130	ug/L	
Trichloroethene	0.1400	50.00	50.83	102	65-135	ug/L	
1,2-Dichloropropane	<0.001000	50.00	50.15	100	35-165	ug/L	
Bromodichloromethane	<0.001000	50.00	51.16	102	65-135	ug/L	
cis-1,3-Dichloropropene	<0.001000	50.00	55.90	112	25-175	ug/L	
Toluene	0.08000	50.00	50.48	101	70-130	ug/L	
trans-1,3-dichloropropene	<0.001000	50.00	50.31	101	50-150	ug/L	
1,1,2-Trichloroethane	<0.001000	50.00	48.82	98	70-130	ug/L	
Tetrachloroethylene	0.1600	50.00	51.24	102	70-130	ug/L	
Dibromochloromethane	0.03000	50.00	52.81	106	70-135	ug/L	
Chlorobenzene	<0.001000	50.00	50.41	101	65-135	ug/L	
Ethylbenzene	0.1000	50.00	53.86	108	60-140	ug/L	
Bromoform	0.04000	50.00	51.66	103	70-130	ug/L	
1,1,2,2-Tetrachloroethane	<0.001000	50.00	46.35	93	60-140	ug/L	
1,3-Dichlorobenzene	0.2600	50.00	51.04	102	70-130	ug/L	
1,4-Dichlorobenzene	<0.001000	50.00	50.48	101	65-135	ug/L	
1,2-Dichlorobenzene	0.1700	50.00	50.54	101	65-135	ug/L	

Surrogate	MB %Rec	MB Flag	LCS Result	LCS Flag	Limits	Units
Dibromofluoromethane	101		100		94-108	%
4-Bromofluorobenzene	105		98		77-120	%
Toluene-D8	99		101		95-104	%

PHASE SEPARATION SCIENCE

6630 Baltimore National Pike
Baltimore, MD 21228
410-747-8770
800-932-9047
www.phaseonline.com

QC Summary

Project Name Kop-Flex
PSS Project No.: 23083016

Analytical Method: SW-846 8260 D Prep Method: SW5030B
Seq Number: 206493 Matrix: Water Date Prep: 09/07/23
MB Sample Id: 96950-1-BLK LCS Sample Id: 96950-1-BKS

Parameter	MB Result	Spike Amount	LCS Result	LCS %Rec	Limits	Units	Flag
Acetone	<5.000	50.00	45.19	90	49-154	ug/L	
Benzene	<1.000	50.00	51.14	102	76-112	ug/L	
Bromochloromethane	<1.000	50.00	54.44	109	74-119	ug/L	
Bromodichloromethane	<1.000	50.00	51.28	103	78-117	ug/L	
Bromoform	<1.000	50.00	59.92	120	69-123	ug/L	
Bromomethane	<1.000	50.00	45.08	90	42-118	ug/L	
2-Butanone (MEK)	<5.000	50.00	52.18	104	55-136	ug/L	
Carbon Disulfide	<1.000	50.00	52.25	105	80-124	ug/L	
Carbon tetrachloride	<1.000	50.00	52.26	105	77-119	ug/L	
Chlorobenzene	<1.000	50.00	53.04	106	76-114	ug/L	
Chloroethane	<1.000	50.00	46.83	94	61-113	ug/L	
Chloroform	<1.000	50.00	48.63	97	75-113	ug/L	
Chloromethane	<1.000	50.00	37.22	74	41-148	ug/L	
Cyclohexane	<1.000	50.00	49.59	99	76-135	ug/L	
1,2-Dibromo-3-chloropropane	<1.000	50.00	58.89	118	52-131	ug/L	
Dibromochloromethane	<1.000	50.00	56.19	112	79-121	ug/L	
1,2-Dibromoethane	<1.000	50.00	53.96	108	77-119	ug/L	
1,2-Dichlorobenzene	<1.000	50.00	56.00	112	75-121	ug/L	
1,3-Dichlorobenzene	<1.000	50.00	55.12	110	77-120	ug/L	
Dichlorodifluoromethane	<1.000	50.00	51.09	102	49-122	ug/L	
1,4-Dichlorobenzene	<1.000	50.00	54.15	108	76-118	ug/L	
1,1-Dichloroethane	<1.000	50.00	47.17	94	75-118	ug/L	
1,2-Dichloroethane	<1.000	50.00	47.26	95	72-115	ug/L	
cis-1,2-Dichloroethene	<1.000	50.00	52.05	104	75-119	ug/L	
1,1-Dichloroethene	<1.000	50.00	51.89	104	74-119	ug/L	
1,2-Dichloropropane	<1.000	50.00	49.62	99	76-115	ug/L	
cis-1,3-Dichloropropene	<1.000	50.00	56.11	112	83-122	ug/L	
trans-1,3-Dichloropropene	<1.000	50.00	50.53	101	76-118	ug/L	
trans-1,2-Dichloroethene	<1.000	50.00	52.08	104	73-121	ug/L	
Ethylbenzene	<1.000	50.00	53.67	107	78-118	ug/L	
2-Hexanone (MBK)	<5.000	50.00	47.06	94	55-136	ug/L	
Isopropylbenzene	<1.000	50.00	55.02	110	76-126	ug/L	
Methyl Acetate	<1.000	50.00	52.63	105	61-117	ug/L	
Methylcyclohexane	<1.000	50.00	52.49	105	82-126	ug/L	
Methylene chloride	<1.000	50.00	56.20	112	75-113	ug/L	
4-Methyl-2-Pentanone (MIBK)	<5.000	50.00	56.00	112	57-127	ug/L	
Methyl-t-Butyl Ether	<1.000	50.00	53.12	106	71-114	ug/L	
Naphthalene	<1.000	50.00	53.55	107	60-122	ug/L	
Styrene	<1.000	50.00	56.77	114	81-124	ug/L	
1,1,2,2-Tetrachloroethane	<1.000	50.00	53.55	107	66-123	ug/L	
Tetrachloroethene	<1.000	50.00	54.52	109	76-123	ug/L	
Toluene	<1.000	50.00	51.76	104	77-112	ug/L	
1,2,3-Trichlorobenzene	<1.000	50.00	59.83	120	73-129	ug/L	
1,2,4-Trichlorobenzene	<1.000	50.00	59.22	118	73-130	ug/L	
1,1,1-Trichloroethane	<1.000	50.00	49.45	99	79-118	ug/L	
Trichloroethene	<1.000	50.00	52.74	105	77-112	ug/L	
1,1,2-Trichloroethane	<1.000	50.00	52.73	105	75-115	ug/L	
Trichlorofluoromethane	<1.000	50.00	48.18	96	74-125	ug/L	
1,1,2-Trichlorotrifluoroethane	<1.000	50.00	50.33	101	77-123	ug/L	
Vinyl chloride	<1.000	50.00	43.54	87	53-151	ug/L	
m&p-Xylene	<2.000	100	106.7	107	79-121	ug/L	

Analytical Method: SW-846 8260 D Prep Method: SW5030B
Seq Number: 206493 Matrix: Water Date Prep: 09/07/23
MB Sample Id: 96950-1-BLK LCS Sample Id: 96950-1-BKS

Parameter	MB Result	Spike Amount	LCS Result	LCS %Rec	Limits	Units	Flag
o-Xylene	<1.000	50.00	52.38	105	78-122	ug/L	

Surrogate	MB %Rec	MB Flag	LCS Result	LCS Flag	Limits	Units
4-Bromofluorobenzene	101		94		88-120	%
Dibromofluoromethane	100		99		92-107	%
Toluene-D8	99		100		95-106	%

Analytical Method: SW-846 8260 D-SIM Prep Method: SW5030B
Seq Number: 206577 Matrix: Water Date Prep: 09/13/23
MB Sample Id: 97011-1-BLK LCS Sample Id: 97011-1-BKS LCSD Sample Id: 97011-1-BSD

Parameter	MB Result	Spike Amount	LCS Result	LCS %Rec	LCSD Result	LCSD %Rec	Limits	RPD	RPD Limit	Units	Flag
1,4-Dioxane (P-Dioxane)	<1.000	30.00	28.78	96	31.72	106	50-150	10	20	ug/L	

Surrogate	MB %Rec	MB Flag	LCS Result	LCS Flag	LCSD Result	LCSD Flag	Limits	Units
Toluene-D8	100		100		99		80-120	%

Analytical Method: SW-846 8260 D-SIM Prep Method: SW5030B
Seq Number: 206633 Matrix: Water Date Prep: 09/15/23
MB Sample Id: 97042-1-BLK LCS Sample Id: 97042-1-BKS LCSD Sample Id: 97042-1-BSD

Parameter	MB Result	Spike Amount	LCS Result	LCS %Rec	LCSD Result	LCSD %Rec	Limits	RPD	RPD Limit	Units	Flag
1,4-Dioxane (P-Dioxane)	<1.000	30.00	30.11	100	30.22	101	50-150	0	20	ug/L	

Surrogate	MB %Rec	MB Flag	LCS Result	LCS Flag	LCSD Result	LCSD Flag	Limits	Units
Toluene-D8	97		100		99		80-120	%

F = RPD exceeded the laboratory control limits
X = Recovery of MS, MSD or both outside of QC Criteria
H= Recovery of BS,BSD or both exceeded the laboratory control limits
L = Recovery of BS,BSD or both below the laboratory control limits

PHASE SEPARATION SCIENCE

6630 Baltimore National Pike
Baltimore, MD 21228
410-747-8770
800-932-9047
www.phaseonline.com

QC Summary

Project Name Kop-Flex
PSS Project No.: 23083016

Analytical Method: EPA 624 .1

Seq Number: 206316 Matrix: Water
Parent Sample Id: ICV-01 ICV Sample Id: ICV-01 Analyzed Date: 09/01/23 11:17

Parameter	Spike Amount	ICV Result	ICV %Rec	Limits	Units	Flag
Acrolein	0.05000	0.04686	94	60-140	mg/L	
Acrylonitrile	0.05000	0.04858	97	60-140	mg/L	
Dichlorodifluoromethane	0.05000	0.05082	102	51-128	mg/L	
Chloromethane	0.05000	0.05255	105	1-205	mg/L	
Vinyl Chloride	0.05000	0.05793	116	5-195	mg/L	
Bromomethane	0.05000	0.05179	104	15-185	mg/L	
Chloroethane	0.05000	0.04992	100	40-160	mg/L	
Trichlorofluoromethane	0.05000	0.04931	99	50-150	mg/L	
2-Chloroethyl Vinyl Ether	0.05000	0.04956	99	1-225	mg/L	
1,1-Dichloroethene	0.05000	0.05147	103	50-150	mg/L	
Methylene Chloride	0.05000	0.05019	100	60-140	mg/L	
trans-1,2-dichloroethene	0.05000	0.05142	103	70-130	mg/L	
1,1-Dichloroethane	0.05000	0.04988	100	70-130	mg/L	
Chloroform	0.05000	0.04932	99	70-135	mg/L	
1,1,1-Trichloroethane	0.05000	0.05143	103	70-130	mg/L	
Carbon Tetrachloride	0.05000	0.05165	103	70-130	mg/L	
Benzene	0.05000	0.05075	102	65-135	mg/L	
1,2-Dichloroethane	0.05000	0.04879	98	70-130	mg/L	
Trichloroethene	0.05000	0.05083	102	65-135	mg/L	
1,2-Dichloropropane	0.05000	0.05015	100	35-165	mg/L	
Bromodichloromethane	0.05000	0.05116	102	65-135	mg/L	
cis-1,3-Dichloropropene	0.05000	0.05590	112	25-175	mg/L	
Toluene	0.05000	0.05048	101	70-130	mg/L	
trans-1,3-dichloropropene	0.05000	0.05031	101	50-150	mg/L	
1,1,2-Trichloroethane	0.05000	0.04882	98	70-130	mg/L	
Tetrachloroethylene	0.05000	0.05124	102	70-130	mg/L	
Dibromochloromethane	0.05000	0.05281	106	70-135	mg/L	
Chlorobenzene	0.05000	0.05041	101	65-135	mg/L	
Ethylbenzene	0.05000	0.05386	108	60-140	mg/L	
Bromoform	0.05000	0.05166	103	70-130	mg/L	
1,1,2,2-Tetrachloroethane	0.05000	0.04635	93	60-140	mg/L	
1,3-Dichlorobenzene	0.05000	0.05104	102	70-130	mg/L	
1,4-Dichlorobenzene	0.05000	0.05048	101	65-135	mg/L	
1,2-Dichlorobenzene	0.05000	0.05054	101	65-135	mg/L	

Surrogate	ICV Result	Limits	Units	Flag
Dibromofluoromethane	100	94-108	%	
4-Bromofluorobenzene	98	77-120	%	
Toluene-D8	101	95-104	%	

Analytical Method: SW-846 8260 D

Seq Number: 206493 Matrix: Water

CCV Sample Id: CCV-01 Analyzed Date: 09/07/23 11:01

Parameter	Spike Amount	CCV Result	CCV %Rec	Limits	Units	Flag
Acetone	50.00	45.19	90	80-120	ug/L	
Benzene	50.00	51.14	102	80-120	ug/L	
Bromochloromethane	50.00	54.44	109	80-120	ug/L	
Bromodichloromethane	50.00	51.28	103	80-120	ug/L	
Bromoform	50.00	59.92	120	80-120	ug/L	
Bromomethane	50.00	45.08	90	80-120	ug/L	
2-Butanone (MEK)	50.00	52.18	104	80-120	ug/L	
Carbon Disulfide	50.00	52.25	105	80-120	ug/L	
Carbon tetrachloride	50.00	52.26	105	80-120	ug/L	
Chlorobenzene	50.00	53.04	106	80-120	ug/L	
Chloroethane	50.00	46.83	94	80-120	ug/L	
Chloroform	50.00	48.63	97	80-120	ug/L	
Chloromethane	50.00	37.22	74	80-120	ug/L	X
Cyclohexane	50.00	49.59	99	80-120	ug/L	
1,2-Dibromo-3-chloropropane	50.00	58.89	118	80-120	ug/L	
Dibromochloromethane	50.00	56.19	112	80-120	ug/L	
1,2-Dibromoethane	50.00	53.96	108	80-120	ug/L	
1,2-Dichlorobenzene	50.00	56.00	112	80-120	ug/L	
1,3-Dichlorobenzene	50.00	55.12	110	80-120	ug/L	
Dichlorodifluoromethane	50.00	51.09	102	80-120	ug/L	
1,4-Dichlorobenzene	50.00	54.15	108	80-120	ug/L	
1,1-Dichloroethane	50.00	47.17	94	80-120	ug/L	
1,2-Dichloroethane	50.00	47.26	95	80-120	ug/L	
cis-1,2-Dichloroethene	50.00	52.05	104	80-120	ug/L	
1,1-Dichloroethene	50.00	51.89	104	80-120	ug/L	
1,2-Dichloropropane	50.00	49.62	99	80-120	ug/L	
cis-1,3-Dichloropropene	50.00	56.11	112	80-120	ug/L	
trans-1,3-Dichloropropene	50.00	50.53	101	80-120	ug/L	
trans-1,2-Dichloroethene	50.00	52.08	104	80-120	ug/L	
Ethylbenzene	50.00	53.67	107	80-120	ug/L	
2-Hexanone (MBK)	50.00	47.06	94	80-120	ug/L	
Isopropylbenzene	50.00	55.02	110	80-120	ug/L	
Methyl Acetate	50.00	52.63	105	80-120	ug/L	
Methylcyclohexane	50.00	52.49	105	80-120	ug/L	
Methylene chloride	50.00	56.20	112	80-120	ug/L	
4-Methyl-2-Pentanone (MIBK)	50.00	56.00	112	80-120	ug/L	
Methyl-t-Butyl Ether	50.00	53.12	106	80-120	ug/L	
Naphthalene	50.00	53.55	107	80-120	ug/L	
Styrene	50.00	56.77	114	80-120	ug/L	
1,1,2,2-Tetrachloroethane	50.00	53.55	107	80-120	ug/L	
Tetrachloroethene	50.00	54.52	109	80-120	ug/L	
Toluene	50.00	51.76	104	80-120	ug/L	
1,2,3-Trichlorobenzene	50.00	59.83	120	80-120	ug/L	
1,2,4-Trichlorobenzene	50.00	59.22	118	80-120	ug/L	
1,1,1-Trichloroethane	50.00	49.45	99	80-120	ug/L	
Trichloroethene	50.00	52.74	105	80-120	ug/L	
1,1,2-Trichloroethane	50.00	52.73	105	80-120	ug/L	
Trichlorofluoromethane	50.00	48.18	96	80-120	ug/L	
1,1,2-Trichlorotrifluoroethane	50.00	50.33	101	80-120	ug/L	
Vinyl chloride	50.00	43.54	87	80-120	ug/L	
m&p-Xylene	100	106.7	107	80-120	ug/L	

PHASE SEPARATION SCIENCE

6630 Baltimore National Pike
Baltimore, MD 21228
410-747-8770
800-932-9047
www.phaseonline.com

QC Summary

Project Name Kop-Flex
PSS Project No.: 23083016

Analytical Method: SW-846 8260 D

Seq Number: 206493 Matrix: Water

CCV Sample Id: CCV-01 Analyzed Date: 09/07/23 11:01

Parameter	Spike Amount	CCV Result	CCV %Rec	Limits	Units	Flag
o-Xylene	50.00	52.38	105	80-120	ug/L	

Surrogate	CCV Result	Limits	Units	Flag
4-Bromofluorobenzene	94	80-120	%	
Dibromofluoromethane	99	80-120	%	
Toluene-D8	100	80-120	%	

PHASE SEPARATION SCIENCE

6630 Baltimore National Pike
Baltimore, MD 21228
410-747-8770
800-932-9047
www.phaseonline.com

QC Summary

Project Name Kop-Flex
PSS Project No.: 23083016

Analytical Method: SW-846 8260 D

Seq Number: 206314 Matrix: Water
Parent Sample Id: ICV-01 ICV Sample Id: ICV-01 Analyzed Date: 09/01/23 11:17

Parameter	Spike Amount	ICV Result	ICV %Rec	Limits	Units	Flag
Acetone	50.00	53.59	107	70-130	ug/L	
Benzene	50.00	50.75	102	70-130	ug/L	
Bromochloromethane	50.00	50.44	101	70-130	ug/L	
Bromodichloromethane	50.00	51.16	102	70-130	ug/L	
Bromoform	50.00	51.66	103	70-130	ug/L	
Bromomethane	50.00	51.79	104	70-130	ug/L	
2-Butanone (MEK)	50.00	53.90	108	70-130	ug/L	
Carbon Disulfide	50.00	54.65	109	70-130	ug/L	
Carbon tetrachloride	50.00	51.65	103	70-130	ug/L	
Chlorobenzene	50.00	50.41	101	70-130	ug/L	
Chloroethane	50.00	49.92	100	70-130	ug/L	
Chloroform	50.00	49.32	99	70-130	ug/L	
Chloromethane	50.00	52.55	105	70-130	ug/L	
Cyclohexane	50.00	51.14	102	70-130	ug/L	
1,2-Dibromo-3-chloropropane	50.00	49.23	98	70-130	ug/L	
Dibromochloromethane	50.00	52.81	106	70-130	ug/L	
1,2-Dibromoethane	50.00	50.54	101	70-130	ug/L	
1,2-Dichlorobenzene	50.00	50.54	101	70-130	ug/L	
1,3-Dichlorobenzene	50.00	51.04	102	70-130	ug/L	
Dichlorodifluoromethane	50.00	50.82	102	70-130	ug/L	
1,4-Dichlorobenzene	50.00	50.48	101	70-130	ug/L	
1,1-Dichloroethane	50.00	49.88	100	70-130	ug/L	
1,2-Dichloroethane	50.00	48.79	98	70-130	ug/L	
cis-1,2-Dichloroethene	50.00	51.14	102	70-130	ug/L	
1,1-Dichloroethene	50.00	51.47	103	70-130	ug/L	
1,2-Dichloropropane	50.00	50.15	100	70-130	ug/L	
cis-1,3-Dichloropropene	50.00	55.90	112	70-130	ug/L	
trans-1,3-Dichloropropene	50.00	50.31	101	70-130	ug/L	
trans-1,2-Dichloroethene	50.00	51.42	103	70-130	ug/L	
Ethylbenzene	50.00	53.86	108	70-130	ug/L	
2-Hexanone (MBK)	50.00	50.98	102	70-130	ug/L	
Isopropylbenzene	50.00	53.91	108	70-130	ug/L	
Methyl Acetate	50.00	45.92	92	70-130	ug/L	
Methylcyclohexane	50.00	51.91	104	70-130	ug/L	
Methylene chloride	50.00	50.19	100	70-130	ug/L	
4-Methyl-2-Pentanone (MIBK)	50.00	51.69	103	70-130	ug/L	
Methyl-t-Butyl Ether	50.00	52.98	106	70-130	ug/L	
Naphthalene	50.00	47.43	95	70-130	ug/L	
Styrene	50.00	55.18	110	70-130	ug/L	
1,1,2,2-Tetrachloroethane	50.00	46.35	93	70-130	ug/L	
Tetrachloroethene	50.00	51.24	102	70-130	ug/L	
Toluene	50.00	50.48	101	70-130	ug/L	
1,2,3-Trichlorobenzene	50.00	53.31	107	70-130	ug/L	
1,2,4-Trichlorobenzene	50.00	54.91	110	70-130	ug/L	
1,1,1-Trichloroethane	50.00	51.43	103	70-130	ug/L	
Trichloroethene	50.00	50.83	102	70-130	ug/L	
1,1,2-Trichloroethane	50.00	48.82	98	70-130	ug/L	
Trichlorofluoromethane	50.00	49.31	99	70-130	ug/L	
1,1,2-Trichlorotrifluoroethane	50.00	50.53	101	70-130	ug/L	
Vinyl chloride	50.00	57.93	116	70-130	ug/L	
m&p-Xylene	100	105.6	106	70-130	ug/L	

Analytical Method: SW-846 8260 D

Seq Number: 206314 Matrix: Water
Parent Sample Id: ICV-01 ICV Sample Id: ICV-01 Analyzed Date: 09/01/23 11:17

Parameter	Spike Amount	ICV Result	ICV %Rec	Limits	Units	Flag
o-Xylene	50.00	51.26	103	70-130	ug/L	

Surrogate	ICV Result	Limits	Units	Flag
4-Bromofluorobenzene	98	70-130	%	
Dibromofluoromethane	100	70-130	%	
Toluene-D8	101	70-130	%	

Analytical Method: SW-846 8260 D-SIM

Seq Number: 206577 Matrix: Water
CCV Sample Id: CCV-01 Analyzed Date: 09/13/23 12:45

Parameter	Spike Amount	CCV Result	CCV %Rec	Limits	Units	Flag
1,4-Dioxane (P-Dioxane)	30.00	29.24	97	80-120	ug/L	

Surrogate	CCV Result	Limits	Units	Flag
Toluene-D8	101	80-120	%	

Analytical Method: SW-846 8260 D-SIM

Seq Number: 206633 Matrix: Water
CCV Sample Id: CCV-01 Analyzed Date: 09/15/23 08:38

Parameter	Spike Amount	CCV Result	CCV %Rec	Limits	Units	Flag
1,4-Dioxane (P-Dioxane)	30.00	30.93	103	80-120	ug/L	

Surrogate	CCV Result	Limits	Units	Flag
Toluene-D8	101	80-120	%	

Analytical Method: SW-846 8260 D-SIM

Seq Number: 206577 Matrix: Water
Parent Sample Id: ICV-01 ICV Sample Id: ICV-01 Analyzed Date: 09/13/23 12:23

Parameter	Spike Amount	ICV Result	ICV %Rec	Limits	Units	Flag
1,4-Dioxane (P-Dioxane)	30.00	30.36	101	70-130	ug/L	

Surrogate	ICV Result	Limits	Units	Flag
Toluene-D8	100	80-120	%	

X = Recovery outside of QC Criteria

PHASE SEPARATION SCIENCE

CHAIN OF CUSTODY FORM

All fields must be completed accurately. Shaded sections for lab use only.

www.phaseonline.com ~ info@phaseonline.com

6630 Baltimore National Pike • Suite 103-A • Baltimore, Maryland 21228 • (410) 747-8770 • (800) 932-9047

① PSS CLIENT: WSP | OFFICE LOCATION: Herndon, VA | PSS Work Order #: 23083016 | PAGE 1 OF 1

BILL TO (if different): | PHONE #: 703-709-6500

CONTACT: Eric Johnson | EMAIL: eric.johnson@WSP.com

PROJECT NAME: Kop-Flex | PROJECT #: 31405608.000202.02

SITE LOCATION: Hanover, MD | P.O. #:

SAMPLER(S): ~~Tushar Khaire~~ Shannon Burke | DW CERT #:

Matrix Codes: SW=Surface Water, DW=Drinking Water, GW=Ground Water, WW=Waste Water, O=Oil, S=Soil, SOL=Solid, A=Air, WI=Wipe

② ③

PSS ID	SAMPLE IDENTIFICATION	DATE SAMPLED	TIME SAMPLED	MATRIX Use Codes	# OF CONTAINERS	SAMPLE TYPE: C=COMPOSITE G=GRAB	Preservatives Use Codes	1,4-dioxane (8260-DSIM)	VOCs (624)	VOCs (8260)
							1	1	1	
1	Effluent VSP-4	8/30/23	1155	WW	3	G	X			
2	Influent VSP-1	8/30/23	1245	GW	6	G	X		X	
3	TB-083023	—	—	TB	4	—	X	X		

Preservative Codes: 1 - HCL; 2 - H_2SO_4; 3 - HNO_3; 4 - NaOH; 5 - E624KIT; 6 - ICE; 7 - Sodium Thiosulfate; 8 - Ascorbic Acid; 9 - TerraCore Kit

⑤

Relinquished By:	Date	Time	Received By:
(1)	8/30/23	1340	
(2)			
(3)			
(4)			

④

Requested TAT (One TAT per COC): ☐ 5-Day ☐ 3-Day ☐ 2-Day ☐ Next Day ☐ Emergency ☒ Other

STATE RESULTS REPORTED TO: ☐ MD ☐ DE ☐ PA ☐ VA ☐ WV ☐ OTHER

COMPLIANCE? ☐ DW ☐ WW

EDD FORMAT TYPE

Ice Present: Yes

Custody Seal: Cooler Intact

Coolers: 1 Temp: 1.9-4.6°C

Shipping Carrier: Client

Special Instructions: Standard 10 day TAT. Trip Blank 2.4°C

This chain of custody is a legal document. The client (PSS Client), by signing, or having client's agent sign, this "Chain of Custody Form", agrees to pay for the above requested services per the latest version of the Service Brochure or PSS-provided quotation including any and all attorney's or other reasonable fees if collection becomes necessary.

PHASE SEPARATION SCIENCE

6630 Baltimore National Pike
Baltimore, MD 21228
410-747-8770
800-932-9047
www.phaseonline.com

Sample Receipt Checklist

Project Name: Kop-Flex
PSS Project No.: 23083016

Client Name WSP USA - Herndon
Disposal Date 10/04/2023

Received By Tyler Enwright
Date Received 08/30/2023 01:40:00 PM
Delivered By Client
Tracking No Not Applicable
Logged In By Tyler Enwright

Shipping Container(s)
No. of Coolers 1

		Ice	Present
Custody Seal(s) Intact?	N/A	Temp (deg C)	4.6
Seal(s) Signed / Dated?	N/A	Temp Blank Present	Yes

Documentation

		Sampler Name	Shannon Burke
COC agrees with sample labels?	Yes	MD DW Cert. No.	N/A
Chain of Custody	Yes		

Sample Container

		Custody Seal(s) Intact?	Not Applicable
Appropriate for Specified Analysis?	Yes	Seal(s) Signed / Dated	Not Applicable
Intact?	Yes		
Labeled and Labels Legible?	Yes		

Holding Time

		Total No. of Samples Received	3
All Samples Received Within Holding Time(s)?	Yes	Total No. of Containers Received	13

Preservation

Total Metals	(pH<2)	N/A
Dissolved Metals, filtered within 15 minutes of collection	(pH<2)	N/A
Orthophosphorus, filtered within 15 minutes of collection		N/A
Cyanides	(pH>12)	N/A
Sulfide	(pH>9)	N/A
TOC, DOC (field filtered), COD, Phenols	(pH<2)	N/A
TOX, TKN, NH3, Total Phos	(pH<2)	N/A
VOC, BTEX (VOA Vials Rcvd Preserved)	(pH<2)	Yes
Do VOA vials have zero headspace?		Yes
624 VOC (Rcvd at least one unpreserved VOA vial)		N/A
524 VOC (Rcvd with trip blanks)	(pH<2)	N/A

Comments: (Any "No" response must be detailed in the comments section below.)

For any improper preservation conditions, list sample ID, preservative added (reagent ID number) below as well as documentation of any client notification as well as client instructions. Samples for pH, chlorine and dissolved oxygen should be analyzed as soon as possible, preferably in the field at the time of sampling. Samples which require thermal preservation shall be considered acceptable when received at a temperature above freezing to 6°C. Samples that are hand delivered on the day that they are collected may not meet these criteria but shall be considered acceptable if there is evidence that the chilling process has begun such as arrival on ice.

Samples Inspected/Checklist Completed By: Tyler Enwright — Date: 08/30/2023

PM Review and Approval: Amber Confer — Date: 09/14/2023

PHASE SEPARATION SCIENCE

6630 Baltimore National Pike
Baltimore, MD 21228
410-747-8770
800-932-9047
www.phaseonline.com

Certificate of Analysis

Project Name: Kop-Flex
PSS Project No.: 23092806

October 12, 2023

Eric Johnson
WSP USA - Herndon
13530 Dulles Technology Dr, Ste 300
Herndon, VA 20171

Reference: PSS Project No: **23092806**
Project Name: Kop-Flex
Project Location: Hanover, MD
Project ID.: 31405608.010/02.02

Dear Eric Johnson:

This report includes the analytical results from the analyses performed on the samples received under the project name referenced above and identified with the Phase Separation Science (PSS) Project number(s) **23092806**.

All work reported herein has been performed in accordance with current NELAP standards, referenced methodologies, PSS Standard Operating Procedures and the PSS Quality Assurance Manual unless otherwise noted in the Case Narrative Summary. PSS is limited in liability to the actual cost of the sample analysis done.

PSS reserves the right to return any unused samples, extracts or related solutions. Otherwise, the samples are scheduled for disposal, without any further notice, on November 2, 2023, with the exception of air canisters which are cleaned immediately following analysis. This includes any samples that were received with a request to be held but lacked a specific hold period. It is your responsibility to provide a written request defining a specific disposal date if additional storage is required. Upon receipt, the request will be acknowledged by PSS, thus extending the storage period.

This report shall not be reproduced except in full, without the written approval of an authorized PSS representative. A copy of this report will be retained by PSS for at least 5 years, after which time it will be disposed of without further notice, unless prior arrangements have been made.

We thank you for selecting Phase Separation Science, Inc. to serve your analytical needs. If you have any questions concerning this report, do not hesitate to contact us at 410-747-8770 or info@phaseonline.com.

Sincerely,

Dan Prucnal
Laboratory Manager

PHASE SEPARATION SCIENCE

6630 Baltimore National Pike
Baltimore, MD 21228
410-747-8770
800-932-9047
www.phaseonline.com

Explanation of Qualifiers

Project Name: Kop-Flex
PSS Project No.: 23092806

Project ID: 31405608.010/02.02

The following samples were received under chain of custody by Phase Separation Science (PSS) on 09/28/2023 at 01:10 pm

PSS Sample ID	Sample ID	Matrix	Date/Time Collected
23092806-001	Effluent VSP-4	WASTE WATER	09/28/23 12:10

Please reference the Chain of Custody and Sample Receipt Checklist for specific container counts and preservatives. Any sample conditions not in compliance with sample acceptance criteria are described in Case Narrative Summary.

Notes:

1. The presence of a common laboratory contaminant such as methylene chloride may be considered a possible laboratory artifact. Where observed, appropriate consideration of data should be taken.
2. Unless otherwise noted in the case narrative, results are reported on a dry weight basis with the exception of pH, flashpoint, moisture, and paint filter test.
3. Drinking water samples collected for the purpose of compliance with SDWA may not be suitable for their intended use unless collected by a certified sampler [COMAR 26.08.05.07.C.2].
4. The analyses of 1,2-dibromo-3-chloropropane (DBCP) and 1,2-dibromoethane (EDB) by EPA 524.2 and calcium, magnesium, sodium and iron by EPA 200.8 are not currently promulgated for use in testing to meet the Safe Drinking Water Act and as such cannot be used for compliance purposes. The listings of the current promulgated methods for testing in compliance with the Safe Drinking Water Act can be found in the 40 CFR part 141.1, for the primary drinking water contaminates, and part 141.3, for the secondary drinking water contaminates.
5. Sample prepared under EPA 3550C with concentrations greater than 20 mg/Kg should employ the microtip extraction procedure if required to meet data quality objectives.
6. The analysis of acrolein by EPA 624 must be analyzed within three days of sampling unless pH is adjusted to 4-5 units [40 CFR part 136.3(e)].
7. Method 180.1, The Determination of Turbidity by Nephelometry, recommends samples over 40 NTU be diluted until the turbidity falls below 40 units. Routine samples over 40 NTU may not be diluted as long as the data quality objectives are not affected.
8. Alkalinity results analyzed by EPA 310.2 that are reported by dilution are estimated and are not in compliance with method requirements.

Standard Flags/Abbreviations:

B	A target analyte or common laboratory contaminant was identified in the method blank. Its presence indicates possible field or laboratory contamination.
C	Results Pending Final Confirmation.
E	The data exceeds the upper calibration limit; therefore, the concentration is reported as estimated.
Fail	The result exceeds the regulatory level for Toxicity Characteristic (TCLP) as cited in 40 CFR 261.24 Table 1.
J	The target analyte was positively identified below the reporting limit but greater than the MDL.
MDL	This is the Laboratory Method Detection Limit which is equivalent to the Limit of Detection (LOD). The LOD is the minimum result, which can be reliably discriminated from a blank with a predetermined confidence level. This value will remain constant across multiple similar instrumentation and among different analysts. An LOD is analyte and matrix specific. instrumentation and among different analysts. An LOD is analyte and matrix specific.
ND	Not Detected at or above the reporting limit.
RL	PSS Reporting Limit.
U	Not detected.

Certifications:

NELAP Certifications: PA 68-03330, VA 460156
State Certifications: MD 179, WV 303
Regulated Soil Permit: P330-12-00268
NSWC USCG Accepted Laboratory
LDBE MWAA LD1997-0041-2015

PHASE SEPARATION SCIENCE

6630 Baltimore National Pike
Baltimore, MD 21228
410-747-8770
800-932-9047
www.phaseonline.com

Certificate of Analysis

Project Name: Kop-Flex
PSS Project No.: 23092806

Sample ID: Effluent VSP-4 **Date/Time Sampled: 09/28/2023 12:10** **PSS Sample ID: 23092806-001**
Matrix: WASTE WATER **Date/Time Received: 09/28/2023 13:10**

Total Metals — Analytical Method: EPA 200.8 — Preparation Method: E200.8

	Result	Units	RL	Flag	Dil	Prepared	Analyzed	Analyst
Copper	**6.8**	ug/L	1.0		1	10/03/23	10/04/23 13:46	1064
Lead	**5.0**	ug/L	1.0		1	10/03/23	10/04/23 13:46	1064
Nickel	**4.3**	ug/L	1.0		1	10/03/23	10/04/23 13:46	1064
Zinc	**32.1**	ug/L	20.0		1	10/03/23	10/04/23 13:46	1064

Dissolved Metals — Analytical Method: EPA 200.8 Dissolved — Preparation Method: E200.8

	Result	Units	RL	Flag	Dil	Prepared	Analyzed	Analyst
Copper	**2.2**	ug/L	1.0		1	09/28/23	09/28/23 18:08	1064
Lead	ND	ug/L	1.0		1	09/28/23	09/28/23 18:08	1064
Nickel	**1.5**	ug/L	1.0		1	09/28/23	09/28/23 18:08	1064
Zinc	ND	ug/L	20		1	09/28/23	09/28/23 18:08	1064

VOC (Full List) — Analytical Method: EPA 624 .1 — Preparation Method: E624.1

pH=6

	Result	Units	RL	Flag	Dil	Prepared	Analyzed	Analyst
Acrolein	ND	ug/L	5.0		1	09/29/23	09/29/23 13:06	1011
Acrylonitrile	ND	ug/L	5.0		1	09/29/23	09/29/23 13:06	1011
Dichlorodifluoromethane	ND	ug/L	1.0		1	09/29/23	09/29/23 13:06	1011
Chloromethane	ND	ug/L	1.0		1	09/29/23	09/29/23 13:06	1011
Vinyl Chloride	ND	ug/L	1.0		1	09/29/23	09/29/23 13:06	1011
Bromomethane	ND	ug/L	1.0		1	09/29/23	09/29/23 13:06	1011
Chloroethane	ND	ug/L	1.0		1	09/29/23	09/29/23 13:06	1011
Trichlorofluoromethane	ND	ug/L	1.0		1	09/29/23	09/29/23 13:06	1011
2-Chloroethyl Vinyl Ether	ND	ug/L	1.0		1	09/29/23	09/29/23 13:06	1011
1,1-Dichloroethene	ND	ug/L	1.0		1	09/29/23	09/29/23 13:06	1011
Methylene Chloride	ND	ug/L	1.0		1	09/29/23	09/29/23 13:06	1011
trans-1,2-dichloroethene	ND	ug/L	1.0		1	09/29/23	09/29/23 13:06	1011
1,1-Dichloroethane	ND	ug/L	1.0		1	09/29/23	09/29/23 13:06	1011
Chloroform	ND	ug/L	1.0		1	09/29/23	09/29/23 13:06	1011
1,1,1-Trichloroethane	ND	ug/L	1.0		1	09/29/23	09/29/23 13:06	1011
Carbon Tetrachloride	ND	ug/L	1.0		1	09/29/23	09/29/23 13:06	1011
Benzene	ND	ug/L	1.0		1	09/29/23	09/29/23 13:06	1011
1,2-Dichloroethane	ND	ug/L	1.0		1	09/29/23	09/29/23 13:06	1011

PHASE SEPARATION SCIENCE

6630 Baltimore National Pike
Baltimore, MD 21228
410-747-8770
800-932-9047
www.phaseonline.com

Certificate of Analysis

Project Name: Kop-Flex
PSS Project No.: 23092806

Sample ID: Effluent VSP-4 **Date/Time Sampled: 09/28/2023 12:10** **PSS Sample ID: 23092806-001**
Matrix: WASTE WATER **Date/Time Received: 09/28/2023 13:10**

VOC (Full List) Analytical Method: EPA 624 .1 Preparation Method: E624.1

pH=6

	Result	Units	RL	Flag	Dil	Prepared	Analyzed	Analyst
Trichloroethene	ND	ug/L	1.0		1	09/29/23	09/29/23 13:06	1011
1,2-Dichloropropane	ND	ug/L	1.0		1	09/29/23	09/29/23 13:06	1011
Bromodichloromethane	ND	ug/L	1.0		1	09/29/23	09/29/23 13:06	1011
cis-1,3-Dichloropropene	ND	ug/L	1.0		1	09/29/23	09/29/23 13:06	1011
Toluene	ND	ug/L	1.0		1	09/29/23	09/29/23 13:06	1011
trans-1,3-dichloropropene	ND	ug/L	1.0		1	09/29/23	09/29/23 13:06	1011
1,1,2-Trichloroethane	ND	ug/L	1.0		1	09/29/23	09/29/23 13:06	1011
Tetrachloroethylene	ND	ug/L	1.0		1	09/29/23	09/29/23 13:06	1011
Dibromochloromethane	ND	ug/L	1.0		1	09/29/23	09/29/23 13:06	1011
Chlorobenzene	ND	ug/L	1.0		1	09/29/23	09/29/23 13:06	1011
Ethylbenzene	ND	ug/L	1.0		1	09/29/23	09/29/23 13:06	1011
Bromoform	ND	ug/L	1.0		1	09/29/23	09/29/23 13:06	1011
1,1,2,2-Tetrachloroethane	ND	ug/L	1.0		1	09/29/23	09/29/23 13:06	1011
1,3-Dichlorobenzene	ND	ug/L	1.0		1	09/29/23	09/29/23 13:06	1011
1,4-Dichlorobenzene	ND	ug/L	1.0		1	09/29/23	09/29/23 13:06	1011
1,2-Dichlorobenzene	ND	ug/L	1.0		1	09/29/23	09/29/23 13:06	1011

Surrogate(s)	***Recovery***		***Limits***				
Dibromofluoromethane	*100*	*%*	*94-108*		*1*	*09/29/23*	*09/29/23 13:06*	*1011*
4-Bromofluorobenzene	*107*	*%*	*77-120*		*1*	*09/29/23*	*09/29/23 13:06*	*1011*
Toluene-D8	*99*	*%*	*95-104*		*1*	*09/29/23*	*09/29/23 13:06*	*1011*

Hardness, Total by Calculation Analytical Method: SM 2340B Preparation Method: E200.8

	Result	Units	RL	Flag	Dil	Prepared	Analyzed	Analyst
Hardness (Ca & Mg)	**26**	mg/L	0.66		1	10/03/23	10/04/23 13:46	1064

PHASE SEPARATION SCIENCE

6630 Baltimore National Pike
Baltimore, MD 21228
410-747-8770
800-932-9047
www.phaseonline.com

Certificate of Analysis

Project Name: Kop-Flex
PSS Project No.: 23092806

Sample ID: Effluent VSP-4 **Date/Time Sampled: 09/28/2023 12:10** **PSS Sample ID: 23092806-001**
Matrix: WASTE WATER **Date/Time Received: 09/28/2023 13:10**

Total Suspended Solids — Analytical Method: SM 2540D -2015

	Result	Units	RL	Flag	Dil	Prepared	Analyzed	Analyst
Total Suspended Solids	ND	mg/L	2.1		1	10/05/23	10/05/23 18:15	1073

Biochemical Oxygen Demand — Analytical Method: SM 5210B -2016

Qualifier(s): See NELAP accreditation section on Case Narrative.

	Result	Units	RL	Flag	Prepared	Analyzed	Analyst
Biochemical Oxygen Demand, 5 day	ND	mg/L	2		09/29/23	09/29/23 12:26	4009

6630 Baltimore National Pike
Baltimore, MD 21228
410-747-8770
800-932-9047
www.phaseonline.com

Project Name: Kop-Flex

PSS Project No.: 23092806

Any holding time exceedances, deviations from the method specifications, regulatory requirements or variations to the procedures outlined in the PSS Quality Assurance Manual are outlined below.

Matrix spike and matrix spike duplicate analyses may not be performed due to insufficient sample quantity. In these instances, a laboratory control sample and laboratory control sample duplicate are analyzed unless otherwise noted or specified in the method.

Sample Receipt:

All sample receipt conditions were acceptable.

23092806: Analyses associated with analyst code 4009 were performed by
Martel Laboratories, Inc., 1025 Cromwell Bridge Road, Towson, MD 21204

NELAP accreditation was held for all analyses performed unless noted below. See www.phaseonline.com for complete PSS scope of accreditation.
Analytical Method(s): SM 5210B -2016

PHASE SEPARATION SCIENCE

6630 Baltimore National Pike
Baltimore, MD 21228
410-747-8770
800-932-9047
www.phaseonline.com

Lab Chronology

Project Name: Kop-Flex
PSS Project No.: 23092806

Method	Client Sample ID	Analysis Type	PSS Sample ID	Mtx	Prep Batch	Analytical Batch	Prepared	Analyzed
EPA 200.8	Effluent VSP-4	Initial	23092806-001	W	97250	207158	10/03/2023 08:55	10/04/2023 13:46
	97250-1-BKS	BKS	97250-1-BKS	W	97250	207158	10/03/2023 08:55	10/04/2023 13:41
	97250-1-BLK	BLK	97250-1-BLK	W	97250	207158	10/03/2023 08:55	10/04/2023 13:36
	Effluent VSP-4 S	MS	23092806-001 S	W	97250	207158	10/03/2023 08:55	10/04/2023 13:50
	Effluent VSP-4 SD	MSD	23092806-001 S	W	97250	207158	10/03/2023 08:55	10/04/2023 13:55
	97250-1-BKS	Reanalysis	97250-1-BKS	W	97250	207204	10/03/2023 08:55	10/05/2023 18:48
	97250-1-BLK	Reanalysis	97250-1-BLK	W	97250	207204	10/03/2023 08:55	10/05/2023 18:43
EPA 200.8 Dissolved	Effluent VSP-4	Initial	23092806-001	W	97210	207013	09/28/2023 13:35	09/28/2023 18:08
	97210-1-BKS	BKS	97210-1-BKS	W	97210	207013	09/28/2023 13:35	09/28/2023 17:19
	97210-1-BLK	BLK	97210-1-BLK	W	97210	207013	09/28/2023 13:35	09/28/2023 17:14
	Millville 001 S	MS	23092213-001 S	W	97210	207013	09/28/2023 13:35	09/28/2023 17:43
	Millville 001 SD	MSD	23092213-001 S	W	97210	207013	09/28/2023 13:35	09/28/2023 17:48
EPA 624 .1	Effluent VSP-4	Initial	23092806-001	W	97236	207053	09/29/2023 08:38	09/29/2023 13:06
	97236-1-BKS	BKS	97236-1-BKS	W	97236	207053	09/29/2023 08:38	09/29/2023 09:33
	97236-1-BLK	BLK	97236-1-BLK	W	97236	207053	09/29/2023 08:38	09/29/2023 11:43
	97236-1-BSD	BSD	97236-1-BSD	W	97236	207053	09/29/2023 08:38	09/29/2023 10:05
	Effluent VSP-4 S	MS	23092806-001 S	W	97236	207053	09/29/2023 08:38	09/29/2023 14:29
	Effluent VSP-4 SD	MSD	23092806-001 S	W	97236	207053	09/29/2023 08:38	09/29/2023 14:49
SM 2340B	Effluent VSP-4	Initial	23092806-001	W	97250	207158	10/03/2023 08:55	10/04/2023 13:46
SM 2540D -2015	Effluent VSP-4	Initial	23092806-001	W	207215	207215	10/05/2023 18:15	10/05/2023 18:15
	207215-1-BKS	BKS	207215-1-BKS	W	207215	207215	10/05/2023 18:15	10/05/2023 18:15
	207215-1-BLK	BLK	207215-1-BLK	W	207215	207215	10/05/2023 18:15	10/05/2023 18:15
	Effluent VSP-4 D	MD	23092806-001 D	W	207215	207215	10/05/2023 18:15	10/05/2023 18:15
SM 5210B -2016	Effluent VSP-4	Initial	23092806-001	W	207353	207353	09/29/2023 12:26	09/29/2023 12:26

Analytical Method: SM 2540D -2015
Seq Number: 207215 Matrix: Water
MB Sample Id: 207215-1-BLK LCS Sample Id: 207215-1-BKS

Parameter	MB Result	Spike Amount	LCS Result	LCS %Rec	Limits	Units	Flag
Total Suspended Solids	<1.000	103.2	97.40	94	86-110	mg/L	

Analytical Method: SM 2540D -2015
Seq Number: 207215 Matrix: Waste Water
Parent Sample Id: 23092806-001 MD Sample Id: 23092806-001 D

Parameter	Parent Result	MD Result	RPD	RPD Limit	Units	Flag
Total Suspended Solids	<2.105	<2.105	NC	19	mg/L	

Analytical Method: EPA 200.8 Prep Method: E200.8_PREP
Seq Number: 207158 Matrix: Water Date Prep: 10/03/23
MB Sample Id: 97250-1-BLK LCS Sample Id: 97250-1-BKS

Parameter	MB Result	Spike Amount	LCS Result	LCS %Rec	Limits	Units	Flag
Copper	<1.000	50.00	50.39	101	85-115	ug/L	
Lead	<1.000	50.00	51.67	103	85-115	ug/L	
Nickel	<1.000	50.00	48.30	97	85-115	ug/L	
Zinc	<20.00	100	98.74	99	85-115	ug/L	

Analytical Method: EPA 200.8 Prep Method: E200.8_PREP
Seq Number: 207158 Matrix: Waste Water Date Prep: 10/03/23
Parent Sample Id: 23092806-001 MS Sample Id: 23092806-001 S MSD Sample Id: 23092806-001 SD

Parameter	Parent Result	Spike Amount	MS Result	MS %Rec	MSD Result	MSD %Rec	Limits	RPD	RPD Limit	Units	Flag
Copper	6.778	50.00	54.02	94	54.59	96	70-130	1	25	ug/L	
Lead	5.018	50.00	50.47	91	50.71	91	70-130	0	25	ug/L	
Nickel	4.281	50.00	51.00	93	52.35	96	70-130	3	25	ug/L	
Zinc	32.12	100	117.3	85	118.6	86	70-130	1	25	ug/L	

Analytical Method: EPA 200.8 Prep Method: E200.8_PREP
Seq Number: 207204 Matrix: Water Date Prep: 10/03/23
REBLK Sample Id: 97250-1-BLK LCS Sample Id: 97250-1-BKS

Parameter	REBLK Result	Spike Amount	LCS Result	LCS %Rec	Limits	Units	Flag
Copper	<1.000	50.00	51.15	102	85-115	ug/L	
Lead	<1.000	50.00	50.92	102	85-115	ug/L	
Nickel	<1.000	50.00	50.50	101	85-115	ug/L	
Zinc	<20.00	100	99.68	100	85-115	ug/L	

PHASE SEPARATION SCIENCE

6630 Baltimore National Pike
Baltimore, MD 21228
410-747-8770
800-932-9047
www.phaseonline.com

QC Summary

Project Name Kop-Flex
PSS Project No.: 23092806

Analytical Method: EPA 200.8 Dissolved Prep Method: E200.8_PREP
Seq Number: 207013 Matrix: Water Date Prep: 09/28/23
MB Sample Id: 97210-1-BLK LCS Sample Id: 97210-1-BKS

Parameter	MB Result	Spike Amount	LCS Result	LCS %Rec	Limits	Units	Flag
Copper	<1.000	50.00	47.95	96	85-115	ug/L	
Lead	<1.000	50.00	47.92	96	85-115	ug/L	
Nickel	<1.000	50.00	46.69	93	85-115	ug/L	
Zinc	<20.00	100	101	101	85-115	ug/L	

PHASE SEPARATION SCIENCE

6630 Baltimore National Pike
Baltimore, MD 21228
410-747-8770
800-932-9047
www.phaseonline.com

QC Summary

Project Name Kop-Flex
PSS Project No.: 23092806

Analytical Method: EPA 624 .1 Prep Method: E624PREP
Seq Number: 207053 Matrix: Water Date Prep: 09/29/23
MB Sample Id: 97236-1-BLK LCS Sample Id: 97236-1-BKS LCSD Sample Id: 97236-1-BSD

Parameter	MB Result	Spike Amount	LCS Result	LCS %Rec	LCSD Result	LCSD %Rec	Limits	RPD	RPD Limit	Units	Flag
Acrolein	<0.005000	50.00	53.29	107	56.35	113	60-140	6	20	ug/L	
Acrylonitrile	<0.005000	50.00	55.89	112	58.61	117	60-140	5	20	ug/L	
Dichlorodifluoromethane	<0.001000	50.00	50.43	101	50.14	100	51-128	1	20	ug/L	
Chloromethane	0.1200	50.00	42.19	84	42.46	85	1-205	1	20	ug/L	
Vinyl Chloride	<0.001000	50.00	46.62	93	48.78	98	5-195	5	20	ug/L	
Bromomethane	0.09000	50.00	40.22	80	40.91	82	15-185	2	20	ug/L	
Chloroethane	<0.001000	50.00	47.52	95	48.50	97	40-160	2	20	ug/L	
Trichlorofluoromethane	<0.001000	50.00	51.66	103	51.92	104	50-150	1	20	ug/L	
2-Chloroethyl Vinyl Ether	<0.001000	50.00	31.53	63	32.00	64	1-225	1	20	ug/L	
1,1-Dichloroethene	<0.001000	50.00	48.86	98	48.76	98	50-150	0	20	ug/L	
Methylene Chloride	<0.001000	50.00	39.35	79	40.71	81	60-140	3	20	ug/L	
trans-1,2-dichloroethene	<0.001000	50.00	47.71	95	47.89	96	70-130	0	20	ug/L	
1,1-Dichloroethane	<0.001000	50.00	46.58	93	47.29	95	70-130	2	20	ug/L	
Chloroform	0.05000	50.00	47.31	95	48.21	96	70-135	2	20	ug/L	
1,1,1-Trichloroethane	<0.001000	50.00	47.24	94	47.16	94	70-130	0	20	ug/L	
Carbon Tetrachloride	<0.001000	50.00	48.12	96	48.42	97	70-130	1	20	ug/L	
Benzene	0.03000	50.00	48.02	96	48.79	98	65-135	2	20	ug/L	
1,2-Dichloroethane	<0.001000	50.00	49.29	99	50.71	101	70-130	3	20	ug/L	
Trichloroethene	<0.001000	50.00	48.58	97	49.38	99	65-135	2	20	ug/L	
1,2-Dichloropropane	<0.001000	50.00	47.92	96	49.30	99	35-165	3	20	ug/L	
Bromodichloromethane	<0.001000	50.00	48.32	97	49.74	99	65-135	3	20	ug/L	
cis-1,3-Dichloropropene	<0.001000	50.00	52.34	105	53.69	107	25-175	3	20	ug/L	
Toluene	0.05000	50.00	47.51	95	48.35	97	70-130	2	20	ug/L	
trans-1,3-dichloropropene	<0.001000	50.00	47.98	96	49.85	100	50-150	4	20	ug/L	
1,1,2-Trichloroethane	<0.001000	50.00	51.74	103	54.01	108	70-130	4	20	ug/L	
Tetrachloroethylene	0.1000	50.00	47.72	95	48.31	97	70-130	1	20	ug/L	
Dibromochloromethane	<0.001000	50.00	52.23	104	54.16	108	70-135	4	20	ug/L	
Chlorobenzene	<0.001000	50.00	50.00	100	50.74	101	65-135	1	20	ug/L	
Ethylbenzene	0.07000	50.00	49.50	99	50.18	100	60-140	1	20	ug/L	
Bromoform	<0.001000	50.00	54.99	110	56.89	114	70-130	3	20	ug/L	
1,1,2,2-Tetrachloroethane	<0.001000	50.00	60.09	120	61.21	122	60-140	2	20	ug/L	
1,3-Dichlorobenzene	0.1300	50.00	52.83	106	53.25	107	70-130	1	20	ug/L	
1,4-Dichlorobenzene	<0.001000	50.00	52.56	105	52.63	105	65-135	0	20	ug/L	
1,2-Dichlorobenzene	0.1000	50.00	53.92	108	54.51	109	65-135	1	20	ug/L	

Surrogate	MB %Rec	MB Flag	LCS Result	LCS Flag	LCSD Result	LCSD Flag	Limits	Units
Dibromofluoromethane	101		102		101		94-108	%
4-Bromofluorobenzene	105		100		100		77-120	%
Toluene-D8	98		99		99		95-104	%

PHASE SEPARATION SCIENCE

6630 Baltimore National Pike
Baltimore, MD 21228
410-747-8770
800-932-9047
www.phaseonline.com

QC Summary

Project Name Kop-Flex
PSS Project No.: 23092806

Analytical Method: EPA 624 .1 Prep Method: E624PREP
Seq Number: 207053 Matrix: Waste Water Date Prep: 09/29/23
Parent Sample Id: 23092806-001 MS Sample Id: 23092806-001 S MSD Sample Id: 23092806-001 SD

Parameter	Parent Result	Spike Amount	MS Result	MS %Rec	MSD Result	MSD %Rec	Limits	RPD	RPD Limit	Units	Flag
Acrolein	<5.000	50.00	52.75	106	49.43	99	40-160	6	60	ug/L	
Acrylonitrile	<5.000	50.00	56.19	112	52.40	105	40-160	7	60	ug/L	
Dichlorodifluoromethane	<1.000	50.00	54.22	108	48.66	97	49-132	11	14	ug/L	
Chloromethane	<1.000	50.00	45.71	91	41.79	84	1-273	9	60	ug/L	
Vinyl Chloride	<1.000	50.00	49.73	99	45.03	90	1-251	10	66	ug/L	
Bromomethane	<1.000	50.00	41.29	83	40.71	81	1-242	1	61	ug/L	
Chloroethane	<1.000	50.00	51.98	104	46.23	92	14-230	12	78	ug/L	
Trichlorofluoromethane	<1.000	50.00	54.61	109	49.91	100	17-181	9	84	ug/L	
2-Chloroethyl Vinyl Ether	<1.000	50.00	25.46	51	26.24	52	1-305	3	71	ug/L	
1,1-Dichloroethene	<1.000	50.00	51.24	102	46.64	93	1-234	9	32	ug/L	
Methylene Chloride	<1.000	50.00	41.15	82	36.84	74	1-221	11	28	ug/L	
trans-1,2-dichloroethene	<1.000	50.00	49.39	99	45.28	91	54-156	9	45	ug/L	
1,1-Dichloroethane	<1.000	50.00	48.37	97	44.08	88	59-155	9	40	ug/L	
Chloroform	<1.000	50.00	48.57	97	44.56	89	51-138	9	54	ug/L	
1,1,1-Trichloroethane	<1.000	50.00	48.45	97	44.69	89	52-162	8	36	ug/L	
Carbon Tetrachloride	<1.000	50.00	49.69	99	45.62	91	70-140	9	41	ug/L	
Benzene	<1.000	50.00	49.96	100	45.52	91	37-151	9	61	ug/L	
1,2-Dichloroethane	<1.000	50.00	50.21	100	46.47	93	49-155	8	49	ug/L	
Trichloroethene	<1.000	50.00	50.20	100	46.07	92	70-157	9	48	ug/L	
1,2-Dichloropropane	<1.000	50.00	49.08	98	45.31	91	1-210	8	55	ug/L	
Bromodichloromethane	<1.000	50.00	48.76	98	45.06	90	35-155	8	56	ug/L	
cis-1,3-Dichloropropene	<1.000	50.00	50.69	101	47.67	95	1-227	6	58	ug/L	
Toluene	<1.000	50.00	48.99	98	44.89	90	47-150	9	41	ug/L	
trans-1,3-dichloropropene	<1.000	50.00	45.75	92	43.35	87	17-183	5	86	ug/L	
1,1,2-Trichloroethane	<1.000	50.00	51.85	104	48.37	97	52-150	7	45	ug/L	
Tetrachloroethylene	<1.000	50.00	48.98	98	44.86	90	64-148	9	39	ug/L	
Dibromochloromethane	<1.000	50.00	51.14	102	47.59	95	53-149	7	50	ug/L	
Chlorobenzene	<1.000	50.00	50.36	101	46.34	93	37-160	8	53	ug/L	
Ethylbenzene	<1.000	50.00	50.72	101	46.11	92	37-162	10	63	ug/L	
Bromoform	<1.000	50.00	52.64	105	49.49	99	45-169	6	42	ug/L	
1,1,2,2-Tetrachloroethane	<1.000	50.00	57.46	115	53.33	107	46-157	7	61	ug/L	
1,3-Dichlorobenzene	<1.000	50.00	50.47	101	46.87	94	59-156	7	43	ug/L	
1,4-Dichlorobenzene	<1.000	50.00	49.74	99	46.04	92	18-190	8	57	ug/L	
1,2-Dichlorobenzene	<1.000	50.00	51.70	103	47.82	96	18-190	8	57	ug/L	

Surrogate	MS Result	MS Flag	MSD Result	MSD Flag	Limits	Units
Dibromofluoromethane	101		101		94-108	%
4-Bromofluorobenzene	98		98		77-120	%
Toluene-D8	99		99		95-104	%

F = RPD exceeded the laboratory control limits
X = Recovery of MS, MSD or both outside of QC Criteria
H= Recovery of BS,BSD or both exceeded the laboratory control limits
L = Recovery of BS,BSD or both below the laboratory control limits

Analytical Method: EPA 200.8
Seq Number: 207158 Matrix: Water
CCV Sample Id: CCV 1 Analyzed Date: 10/04/23 14:10

Parameter	Spike Amount	CCV Result	CCV %Rec	Limits	Units	Flag
Copper	100	105.3	105	85-115	ug/L	
Lead	100	107.9	108	85-115	ug/L	
Nickel	100	102	102	85-115	ug/L	
Zinc	200	206.8	103	85-115	ug/L	

Analytical Method: EPA 200.8
Seq Number: 207158 Matrix: Water
CCV Sample Id: CCV 2 Analyzed Date: 10/04/23 15:20

Parameter	Spike Amount	CCV Result	CCV %Rec	Limits	Units	Flag
Copper	100	106.7	107	85-115	ug/L	
Lead	100	106.2	106	85-115	ug/L	
Nickel	100	103.6	104	85-115	ug/L	
Zinc	200	206.9	103	85-115	ug/L	

Analytical Method: EPA 200.8
Seq Number: 207204 Matrix: Water
CCV Sample Id: CCV 1 Analyzed Date: 10/05/23 18:33

Parameter	Spike Amount	CCV Result	CCV %Rec	Limits	Units	Flag
Copper	100	104.4	104	85-115	ug/L	
Lead	100	107	107	85-115	ug/L	
Nickel	100	103.3	103	85-115	ug/L	
Zinc	200	204.9	102	85-115	ug/L	

Analytical Method: EPA 200.8
Seq Number: 207204 Matrix: Water
CCV Sample Id: CCV 2 Analyzed Date: 10/05/23 19:39

Parameter	Spike Amount	CCV Result	CCV %Rec	Limits	Units	Flag
Copper	100	103.6	104	85-115	ug/L	
Lead	100	105.3	105	85-115	ug/L	
Nickel	100	101.8	102	85-115	ug/L	
Zinc	200	201.3	101	85-115	ug/L	

Analytical Method: EPA 200.8
Seq Number: 207158 Matrix: Water
Parent Sample Id: ICV 1 ICV Sample Id: ICV 1 Analyzed Date: 10/04/23 12:54

Parameter	Spike Amount	ICV Result	ICV %Rec	Limits	Units	Flag
Copper	50.00	51.84	104	90-110	ug/L	
Lead	50.00	51.42	103	90-110	ug/L	
Nickel	50.00	50.38	101	90-110	ug/L	
Zinc	100	102	102	90-110	ug/L	

Analytical Method: EPA 200.8
Seq Number: 207204 Matrix: Water
Parent Sample Id: ICV 1 ICV Sample Id: ICV 1 Analyzed Date: 10/05/23 17:10

Parameter	Spike Amount	ICV Result	ICV %Rec	Limits	Units	Flag
Copper	50.00	52.23	104	90-110	ug/L	
Lead	50.00	52.18	104	90-110	ug/L	
Nickel	50.00	51.39	103	90-110	ug/L	
Zinc	100	102.1	102	90-110	ug/L	

Analytical Method: EPA 200.8 Dissolved
Seq Number: 207013 Matrix: Water
CCV Sample Id: CCV 1 Analyzed Date: 09/28/23 17:34

Parameter	Spike Amount	CCV Result	CCV %Rec	Limits	Units	Flag
Copper	100	96.57	97	85-115	ug/L	
Lead	100	103.2	103	85-115	ug/L	
Nickel	100	94.19	94	85-115	ug/L	
Zinc	200	187	94	85-115	ug/L	

Analytical Method: EPA 200.8 Dissolved
Seq Number: 207013 Matrix: Water
CCV Sample Id: CCV 2 Analyzed Date: 09/28/23 18:37

Parameter	Spike Amount	CCV Result	CCV %Rec	Limits	Units	Flag
Copper	100	97.03	97	85-115	ug/L	
Lead	100	94.17	94	85-115	ug/L	
Nickel	100	94.07	94	85-115	ug/L	
Zinc	200	188.3	94	85-115	ug/L	

PHASE SEPARATION SCIENCE

6630 Baltimore National Pike
Baltimore, MD 21228
410-747-8770
800-932-9047
www.phaseonline.com

QC Summary

Project Name Kop-Flex
PSS Project No.: 23092806

Analytical Method: EPA 200.8 Dissolved

Seq Number: 207013 Matrix: Water
Parent Sample Id: ICV 1 ICV Sample Id: ICV 1 Analyzed Date: 09/28/23 15:07

Parameter	Spike Amount	ICV Result	ICV %Rec	Limits	Units	Flag
Copper	50.00	52.73	105	90-110	ug/L	
Lead	50.00	51.34	103	90-110	ug/L	
Nickel	50.00	51.14	102	90-110	ug/L	
Zinc	100	102.6	103	90-110	ug/L	

PHASE SEPARATION SCIENCE

6630 Baltimore National Pike
Baltimore, MD 21228
410-747-8770
800-932-9047
www.phaseonline.com

QC Summary

Project Name Kop-Flex
PSS Project No.: 23092806

Analytical Method: EPA 624 .1

Seq Number: 206663 Matrix: Water
Parent Sample Id: ICV-01 ICV Sample Id: ICV-01 Analyzed Date: 09/11/23 15:08

Parameter	Spike Amount	ICV Result	ICV %Rec	Limits	Units	Flag
Acrolein	0.05000	0.04687	94	60-140	mg/L	
Acrylonitrile	0.05000	0.05046	101	60-140	mg/L	
Dichlorodifluoromethane	0.05000	0.04987	100	51-128	mg/L	
Chloromethane	0.05000	0.04962	99	1-205	mg/L	
Vinyl Chloride	0.05000	0.04801	96	5-195	mg/L	
Bromomethane	0.05000	0.05210	104	15-185	mg/L	
Chloroethane	0.05000	0.04852	97	40-160	mg/L	
Trichlorofluoromethane	0.05000	0.04989	100	50-150	mg/L	
2-Chloroethyl Vinyl Ether	0.05000	0.05582	112	1-225	mg/L	
1,1-Dichloroethene	0.05000	0.05007	100	50-150	mg/L	
Methylene Chloride	0.05000	0.04669	93	60-140	mg/L	
trans-1,2-dichloroethene	0.05000	0.05035	101	70-130	mg/L	
1,1-Dichloroethane	0.05000	0.04954	99	70-130	mg/L	
Chloroform	0.05000	0.04889	98	70-135	mg/L	
1,1,1-Trichloroethane	0.05000	0.05121	102	70-130	mg/L	
Carbon Tetrachloride	0.05000	0.05071	101	70-130	mg/L	
Benzene	0.05000	0.04949	99	65-135	mg/L	
1,2-Dichloroethane	0.05000	0.04829	97	70-130	mg/L	
Trichloroethene	0.05000	0.05042	101	65-135	mg/L	
1,2-Dichloropropane	0.05000	0.04987	100	35-165	mg/L	
Bromodichloromethane	0.05000	0.05040	101	65-135	mg/L	
cis-1,3-Dichloropropene	0.05000	0.05418	108	25-175	mg/L	
Toluene	0.05000	0.04989	100	70-130	mg/L	
trans-1,3-dichloropropene	0.05000	0.04847	97	50-150	mg/L	
1,1,2-Trichloroethane	0.05000	0.04956	99	70-130	mg/L	
Tetrachloroethylene	0.05000	0.05091	102	70-130	mg/L	
Dibromochloromethane	0.05000	0.05103	102	70-135	mg/L	
Chlorobenzene	0.05000	0.04900	98	65-135	mg/L	
Ethylbenzene	0.05000	0.05047	101	60-140	mg/L	
Bromoform	0.05000	0.05176	104	70-130	mg/L	
1,1,2,2-Tetrachloroethane	0.05000	0.04768	95	60-140	mg/L	
1,3-Dichlorobenzene	0.05000	0.04896	98	70-130	mg/L	
1,4-Dichlorobenzene	0.05000	0.04815	96	65-135	mg/L	
1,2-Dichlorobenzene	0.05000	0.04890	98	65-135	mg/L	

Surrogate	ICV Result	Limits	Units	Flag
Dibromofluoromethane	100	94-108	%	
4-Bromofluorobenzene	95	77-120	%	
Toluene-D8	101	95-104	%	

X = Recovery outside of QC Criteria

PHASE SEPARATION SCIENCE

CHAIN OF CUSTODY FORM

All fields must be completed accurately. Shaded sections for lab use only.

www.phaseonline.com ~ info@phaseonline.com

6630 Baltimore National Pike • Suite 103-A • Baltimore, Maryland 21228 • (410) 747-8770 • (800) 932-9047

① PSS CLIENT: WSP USA | OFFICE LOCATION: Herndon, VA

BILL TO (if different): | PHONE #: 703-709-6500

CONTACT: Eric Johnson | EMAIL: eric.johnson@wsp.com

PROJECT NAME: Kop-Flex | PROJECT #: 31405608.010/02.02

SITE LOCATION: Hanover, MD | P.O. #:

SAMPLER(S): Shannan Burke | DW CERT #:

PSS Work Order #: 2304280C | PAGE 1 OF 1

Matrix Codes: **SW**=Surface Water **DW**=Drinking Water **GW**=Ground Water **WW**=Waste Water **O**=Oil **S**=Soil **SOL**=Solid **A**=Air **WI**=Wipe

② Preservatives Use Codes: 1,6 | 3 | 3 | 6 | 6

Analysis/Method Required ③: VOCs (624) | Dissolved metals (filtered) Total metals + hardness | TSS | BOD

Preservative Codes: 1 - HCL; 2 - H_2SO_4; 3 - HNO_3; 4 - NaOH; 5 - E624KIT; 6 - ICE; 7 - Sodium Thiosulfate; 8 - Ascorbic Acid; 9 - TerraCore Kit

PSS ID	SAMPLE IDENTIFICATION	DATE SAMPLED	TIME SAMPLED	MATRIX Use Codes	# OF CONTAINERS	SAMPLE TYPE: C=COMPOSITE G=GRAB	VOCs (624)	Dissolved metals (filtered) Total metals + hardness	TSS	BOD
1	Effluent VSP-4	9/28/23	1210	WW	7	G	X	X	X	X

⑤

Relinquished By:	Date	Time	Received By:
(1) Shannan Burke	9/28/23	1310	
(2)			
(3)			
(4)			

④ **Requested TAT (One TAT per COC)**
☐ 5-Day ☐ 3-Day ☐ 2-Day
☐ Next Day ☐ Emergency ☒ Other

STATE RESULTS REPORTED TO:
☐ MD ☐ DE ☐ PA ☐ VA ☐ WV
☐ OTHER

COMPLIANCE?
☐ DW ☐ WW

EDD FORMAT TYPE

Ice Present: Yes
Custody Seal: Cooler/Intact
Coolers: 1 Temp: 2.4-5.8°C
Shipping Carrier: Client

Special Instructions:
Standard 10-day TAT Temp Blank -1.9°C
Metals = Cu, Pb, Ni, Zn

This chain of custody is a legal document. The client (PSS Client), by signing, or having client's agent sign, this "Chain of Custody Form", agrees to pay for the above requested services per the latest version of the Service Brochure or PSS-provided quotation including any and all attorney's or other reasonable fees if collection becomes necessary.

PHASE SEPARATION SCIENCE

6630 Baltimore National Pike
Baltimore, MD 21228
410-747-8770
800-932-9047
www.phaseonline.com

Sample Receipt Checklist

Project Name: Kop-Flex
PSS Project No.: 23092806

Client Name WSP USA - Herndon
Disposal Date 11/02/2023

Received By Tyler Enwright
Date Received 09/28/2023 01:10:00 PM
Delivered By Client
Tracking No Not Applicable
Logged In By Tyler Enwright

Shipping Container(s)
No. of Coolers 1

		Ice	Present
Custody Seal(s) Intact?	Yes	Temp (deg C)	5.8
Seal(s) Signed / Dated?	Yes	Temp Blank Present	Yes

Documentation

		Sampler Name	Shannon Burke
COC agrees with sample labels?	Yes	MD DW Cert. No.	N/A
Chain of Custody	Yes		

Sample Container

		Custody Seal(s) Intact?	Not Applicable
Appropriate for Specified Analysis?	Yes	Seal(s) Signed / Dated	Not Applicable
Intact?	Yes		
Labeled and Labels Legible?	Yes		

Holding Time

		Total No. of Samples Received	2
All Samples Received Within Holding Time(s)?	Yes	Total No. of Containers Received	9

Preservation

Total Metals	(pH<2)	Yes
Dissolved Metals, filtered within 15 minutes of collection	(pH<2)	Yes
Orthophosphorus, filtered within 15 minutes of collection		N/A
Cyanides	(pH>12)	N/A
Sulfide	(pH>9)	N/A
TOC, DOC (field filtered), COD, Phenols	(pH<2)	N/A
TOX, TKN, NH3, Total Phos	(pH<2)	N/A
VOC, BTEX (VOA Vials Rcvd Preserved)	(pH<2)	Yes
Do VOA vials have zero headspace?		Yes
624 VOC (Rcvd at least one unpreserved VOA vial)		Yes
524 VOC (Rcvd with trip blanks)	(pH<2)	N/A

Comments: (Any "No" response must be detailed in the comments section below.)

For any improper preservation conditions, list sample ID, preservative added (reagent ID number) below as well as documentation of any client notification as well as client instructions. Samples for pH, chlorine and dissolved oxygen should be analyzed as soon as possible, preferably in the field at the time of sampling. Samples which require thermal preservation shall be considered acceptable when received at a temperature above freezing to 6°C. Samples that are hand delivered on the day that they are collected may not meet these criteria but shall be considered acceptable if there is evidence that the chilling process has begun such as arrival on ice.

Samples Inspected/Checklist Completed By: Tyler Enwright — Date: 09/28/2023

PM Review and Approval: Amber Confer — Date: 09/28/2023

PHASE SEPARATION SCIENCE

6630 Baltimore National Pike
Baltimore, MD 21228
410-747-8770
800-932-9047
www.phaseonline.com

Certificate of Analysis

Project Name: Kop-Flex
PSS Project No.: 23092807

October 12, 2023

Eric Johnson
WSP USA - Herndon
13530 Dulles Technology Dr, Ste 300
Herndon, VA 20171

Reference: PSS Project No: **23092807**
Project Name: Kop-Flex
Project Location: Hanover, MD
Project ID.: 31405608.010/02.02

Dear Eric Johnson:

This report includes the analytical results from the analyses performed on the samples received under the project name referenced above and identified with the Phase Separation Science (PSS) Project number(s) **23092807**.

All work reported herein has been performed in accordance with current NELAP standards, referenced methodologies, PSS Standard Operating Procedures and the PSS Quality Assurance Manual unless otherwise noted in the Case Narrative Summary. PSS is limited in liability to the actual cost of the sample analysis done.

PSS reserves the right to return any unused samples, extracts or related solutions. Otherwise, the samples are scheduled for disposal, without any further notice, on November 2, 2023, with the exception of air canisters which are cleaned immediately following analysis. This includes any samples that were received with a request to be held but lacked a specific hold period. It is your responsibility to provide a written request defining a specific disposal date if additional storage is required. Upon receipt, the request will be acknowledged by PSS, thus extending the storage period.

This report shall not be reproduced except in full, without the written approval of an authorized PSS representative. A copy of this report will be retained by PSS for at least 5 years, after which time it will be disposed of without further notice, unless prior arrangements have been made.

We thank you for selecting Phase Separation Science, Inc. to serve your analytical needs. If you have any questions concerning this report, do not hesitate to contact us at 410-747-8770 or info@phaseonline.com.

Sincerely,

Dan Prucnal
Laboratory Manager

PHASE SEPARATION SCIENCE

6630 Baltimore National Pike
Baltimore, MD 21228
410-747-8770
800-932-9047
www.phaseonline.com

Explanation of Qualifiers

Project Name: Kop-Flex
PSS Project No.: 23092807

Project ID: 31405608.010/02.02

The following samples were received under chain of custody by Phase Separation Science (PSS) on 09/28/2023 at 01:10 pm

PSS Sample ID	Sample ID	Matrix	Date/Time Collected
23092807-001	Effluent VSP-4	WASTE WATER	09/28/23 12:10
23092807-002	TB-092823	WATER	09/28/23 13:10

Please reference the Chain of Custody and Sample Receipt Checklist for specific container counts and preservatives. Any sample conditions not in compliance with sample acceptance criteria are described in Case Narrative Summary.

Notes:

1. The presence of a common laboratory contaminant such as methylene chloride may be considered a possible laboratory artifact. Where observed, appropriate consideration of data should be taken.
2. Unless otherwise noted in the case narrative, results are reported on a dry weight basis with the exception of pH, flashpoint, moisture, and paint filter test.
3. Drinking water samples collected for the purpose of compliance with SDWA may not be suitable for their intended use unless collected by a certified sampler [COMAR 26.08.05.07.C.2].
4. The analyses of 1,2-dibromo-3-chloropropane (DBCP) and 1,2-dibromoethane (EDB) by EPA 524.2 and calcium, magnesium, sodium and iron by EPA 200.8 are not currently promulgated for use in testing to meet the Safe Drinking Water Act and as such cannot be used for compliance purposes. The listings of the current promulgated methods for testing in compliance with the Safe Drinking Water Act can be found in the 40 CFR part 141.1, for the primary drinking water contaminates, and part 141.3, for the secondary drinking water contaminates.
5. Sample prepared under EPA 3550C with concentrations greater than 20 mg/Kg should employ the microtip extraction procedure if required to meet data quality objectives.
6. The analysis of acrolein by EPA 624 must be analyzed within three days of sampling unless pH is adjusted to 4-5 units [40 CFR part 136.3(e)].
7. Method 180.1, The Determination of Turbidity by Nephelometry, recommends samples over 40 NTU be diluted until the turbidity falls below 40 units. Routine samples over 40 NTU may not be diluted as long as the data quality objectives are not affected.
8. Alkalinity results analyzed by EPA 310.2 that are reported by dilution are estimated and are not in compliance with method requirements.

Standard Flags/Abbreviations:

B	A target analyte or common laboratory contaminant was identified in the method blank. Its presence indicates possible field or laboratory contamination.
C	Results Pending Final Confirmation.
E	The data exceeds the upper calibration limit; therefore, the concentration is reported as estimated.
Fail	The result exceeds the regulatory level for Toxicity Characteristic (TCLP) as cited in 40 CFR 261.24 Table 1.
J	The target analyte was positively identified below the reporting limit but greater than the MDL.
MDL	This is the Laboratory Method Detection Limit which is equivalent to the Limit of Detection (LOD). The LOD is the minimum result, which can be reliably discriminated from a blank with a predetermined confidence level. This value will remain constant across multiple similar instrumentation and among different analysts. An LOD is analyte and matrix specific. instrumentation and among different analysts. An LOD is analyte and matrix specific.
ND	Not Detected at or above the reporting limit.
RL	PSS Reporting Limit.
U	Not detected.

Certifications:

NELAP Certifications: PA 68-03330, VA 460156
State Certifications: MD 179, WV 303
Regulated Soil Permit: P330-12-00268
NSWC USCG Accepted Laboratory
LDBE MWAA LD1997-0041-2015

PHASE SEPARATION SCIENCE

6630 Baltimore National Pike
Baltimore, MD 21228
410-747-8770
800-932-9047
www.phaseonline.com

Certificate of Analysis

Project Name: Kop-Flex
PSS Project No.: 23092807

Sample ID: Effluent VSP-4 **Date/Time Sampled: 09/28/2023 12:10** **PSS Sample ID: 23092807-001**
Matrix: WASTE WATER **Date/Time Received: 09/28/2023 13:10**

1,4-Dioxane by GC/MS - SIM Analytical Method: SW-846 8260 D-SIM Preparation Method: SW5030B

Qualifier(s): See NELAP accreditation section on Case Narrative.

	Result	Units	RL	Flag	Dil	Prepared	Analyzed	Analyst
1,4-Dioxane (P-Dioxane)	ND	ug/L	1.0		1	10/11/23	10/11/23 13:25	1011
Surrogate(s)	***Recovery***		***Limits***					
Toluene-D8	*99*	*%*	*80-120*		*1*	*10/11/23*	*10/11/23 13:25*	*1011*

PHASE SEPARATION SCIENCE

6630 Baltimore National Pike
Baltimore, MD 21228
410-747-8770
800-932-9047
www.phaseonline.com

Certificate of Analysis

Project Name: Kop-Flex
PSS Project No.: 23092807

Sample ID: TB-092823 **Date/Time Sampled: 09/28/2023 13:10** **PSS Sample ID: 23092807-002**
Matrix: WATER **Date/Time Received: 09/28/2023 13:10**

VOC (Full List) Analytical Method: EPA 624 .1 Preparation Method: E624.1

pH=2

	Result	Units	RL	Flag	Dil	Prepared	Analyzed	Analyst
Acrolein	ND	ug/L	5.0		1	09/29/23	09/29/23 12:46	1011
Acrylonitrile	ND	ug/L	5.0		1	09/29/23	09/29/23 12:46	1011
Dichlorodifluoromethane	ND	ug/L	1.0		1	09/29/23	09/29/23 12:46	1011
Chloromethane	ND	ug/L	1.0		1	09/29/23	09/29/23 12:46	1011
Vinyl Chloride	ND	ug/L	1.0		1	09/29/23	09/29/23 12:46	1011
Bromomethane	ND	ug/L	1.0		1	09/29/23	09/29/23 12:46	1011
Chloroethane	ND	ug/L	1.0		1	09/29/23	09/29/23 12:46	1011
Trichlorofluoromethane	ND	ug/L	1.0		1	09/29/23	09/29/23 12:46	1011
2-Chloroethyl Vinyl Ether	ND	ug/L	1.0		1	09/29/23	09/29/23 12:46	1011
1,1-Dichloroethene	ND	ug/L	1.0		1	09/29/23	09/29/23 12:46	1011
Methylene Chloride	ND	ug/L	1.0		1	09/29/23	09/29/23 12:46	1011
trans-1,2-dichloroethene	ND	ug/L	1.0		1	09/29/23	09/29/23 12:46	1011
1,1-Dichloroethane	ND	ug/L	1.0		1	09/29/23	09/29/23 12:46	1011
Chloroform	ND	ug/L	1.0		1	09/29/23	09/29/23 12:46	1011
1,1,1-Trichloroethane	ND	ug/L	1.0		1	09/29/23	09/29/23 12:46	1011
Carbon Tetrachloride	ND	ug/L	1.0		1	09/29/23	09/29/23 12:46	1011
Benzene	ND	ug/L	1.0		1	09/29/23	09/29/23 12:46	1011
1,2-Dichloroethane	ND	ug/L	1.0		1	09/29/23	09/29/23 12:46	1011
Trichloroethene	ND	ug/L	1.0		1	09/29/23	09/29/23 12:46	1011
1,2-Dichloropropane	ND	ug/L	1.0		1	09/29/23	09/29/23 12:46	1011
Bromodichloromethane	ND	ug/L	1.0		1	09/29/23	09/29/23 12:46	1011
cis-1,3-Dichloropropene	ND	ug/L	1.0		1	09/29/23	09/29/23 12:46	1011
Toluene	ND	ug/L	1.0		1	09/29/23	09/29/23 12:46	1011
trans-1,3-dichloropropene	ND	ug/L	1.0		1	09/29/23	09/29/23 12:46	1011
1,1,2-Trichloroethane	ND	ug/L	1.0		1	09/29/23	09/29/23 12:46	1011
Tetrachloroethylene	ND	ug/L	1.0		1	09/29/23	09/29/23 12:46	1011
Dibromochloromethane	ND	ug/L	1.0		1	09/29/23	09/29/23 12:46	1011
Chlorobenzene	ND	ug/L	1.0		1	09/29/23	09/29/23 12:46	1011
Ethylbenzene	ND	ug/L	1.0		1	09/29/23	09/29/23 12:46	1011
Bromoform	ND	ug/L	1.0		1	09/29/23	09/29/23 12:46	1011
1,1,2,2-Tetrachloroethane	ND	ug/L	1.0		1	09/29/23	09/29/23 12:46	1011
1,3-Dichlorobenzene	ND	ug/L	1.0		1	09/29/23	09/29/23 12:46	1011
1,4-Dichlorobenzene	ND	ug/L	1.0		1	09/29/23	09/29/23 12:46	1011
1,2-Dichlorobenzene	ND	ug/L	1.0		1	09/29/23	09/29/23 12:46	1011

PHASE SEPARATION SCIENCE

6630 Baltimore National Pike
Baltimore, MD 21228
410-747-8770
800-932-9047
www.phaseonline.com

Certificate of Analysis

Project Name: Kop-Flex
PSS Project No.: 23092807

Sample ID: TB-092823 **Date/Time Sampled: 09/28/2023 13:10** **PSS Sample ID: 23092807-002**
Matrix: WATER **Date/Time Received: 09/28/2023 13:10**

VOC (Full List) Analytical Method: EPA 624 .1 Preparation Method: E624.1

pH=2

Surrogate(s)	*Recovery*		*Limits*				
Dibromofluoromethane	*100*	*%*	*94-108*	*1*	*09/29/23*	*09/29/23 12:46*	*1011*
4-Bromofluorobenzene	*107*	*%*	*77-120*	*1*	*09/29/23*	*09/29/23 12:46*	*1011*
Toluene-D8	*99*	*%*	*95-104*	*1*	*09/29/23*	*09/29/23 12:46*	*1011*

1,4-Dioxane by GC/MS - SIM Analytical Method: SW-846 8260 D-SIM Preparation Method: SW5030B

Qualifier(s): See NELAP accreditation section on Case Narrative.

	Result	Units	RL	Flag	Dil	Prepared	Analyzed	Analyst
1,4-Dioxane (P-Dioxane)	ND	ug/L	1.0		1	10/11/23	10/11/23 13:47	1011

Surrogate(s)	*Recovery*		*Limits*				
Toluene-D8	*100*	*%*	*80-120*	*1*	*10/11/23*	*10/11/23 13:47*	*1011*

6630 Baltimore National Pike
Baltimore, MD 21228
410-747-8770
800-932-9047
www.phaseonline.com

Project Name: Kop-Flex

PSS Project No.: 23092807

Any holding time exceedances, deviations from the method specifications, regulatory requirements or variations to the procedures outlined in the PSS Quality Assurance Manual are outlined below.

Matrix spike and matrix spike duplicate analyses may not be performed due to insufficient sample quantity. In these instances, a laboratory control sample and laboratory control sample duplicate are analyzed unless otherwise noted or specified in the method.

Sample Receipt:

All sample receipt conditions were acceptable.

NELAP accreditation was held for all analyses performed unless noted below. See www.phaseonline.com for complete PSS scope of accreditation.

SW-846 8260 D-SIM: 1,4-Dioxane

PHASE SEPARATION SCIENCE

6630 Baltimore National Pike
Baltimore, MD 21228
410-747-8770
800-932-9047
www.phaseonline.com

Lab Chronology

Project Name: Kop-Flex
PSS Project No.: 23092807

Method	Client Sample ID	Analysis Type	PSS Sample ID	Mtx	Prep Batch	Analytical Batch	Prepared	Analyzed
EPA 624 .1	TB-092823	Initial	23092807-002	W	97236	207053	09/29/2023 08:38	09/29/2023 12:46
	97236-1-BKS	BKS	97236-1-BKS	W	97236	207053	09/29/2023 08:38	09/29/2023 09:33
	97236-1-BLK	BLK	97236-1-BLK	W	97236	207053	09/29/2023 08:38	09/29/2023 11:43
	97236-1-BSD	BSD	97236-1-BSD	W	97236	207053	09/29/2023 08:38	09/29/2023 10:05
	Effluent VSP-4 S	MS	23092806-001 S	W	97236	207053	09/29/2023 08:38	09/29/2023 14:29
	Effluent VSP-4 SD	MSD	23092806-001 S	W	97236	207053	09/29/2023 08:38	09/29/2023 14:49
SW-846 8260 D-SIM	Effluent VSP-4	Initial	23092807-001	W	97384	207355	10/11/2023 07:54	10/11/2023 13:25
	TB-092823	Initial	23092807-002	W	97384	207355	10/11/2023 07:54	10/11/2023 13:47
	97384-1-BKS	BKS	97384-1-BKS	W	97384	207355	10/11/2023 07:54	10/11/2023 11:57
	97384-1-BLK	BLK	97384-1-BLK	W	97384	207355	10/11/2023 07:54	10/11/2023 13:03
	97384-1-BSD	BSD	97384-1-BSD	W	97384	207355	10/11/2023 07:54	10/11/2023 12:19

PHASE SEPARATION SCIENCE

6630 Baltimore National Pike
Baltimore, MD 21228
410-747-8770
800-932-9047
www.phaseonline.com

QC Summary

Project Name Kop-Flex
PSS Project No.: 23092807

Analytical Method: EPA 624 .1 Prep Method: E624PREP
Seq Number: 207053 Matrix: Water Date Prep: 09/29/23
MB Sample Id: 97236-1-BLK LCS Sample Id: 97236-1-BKS LCSD Sample Id: 97236-1-BSD

Parameter	MB Result	Spike Amount	LCS Result	LCS %Rec	LCSD Result	LCSD %Rec	Limits	RPD	RPD Limit	Units	Flag
Acrolein	<0.005000	50.00	53.29	107	56.35	113	60-140	6	20	ug/L	
Acrylonitrile	<0.005000	50.00	55.89	112	58.61	117	60-140	5	20	ug/L	
Dichlorodifluoromethane	<0.001000	50.00	50.43	101	50.14	100	51-128	1	20	ug/L	
Chloromethane	0.1200	50.00	42.19	84	42.46	85	1-205	1	20	ug/L	
Vinyl Chloride	<0.001000	50.00	46.62	93	48.78	98	5-195	5	20	ug/L	
Bromomethane	0.09000	50.00	40.22	80	40.91	82	15-185	2	20	ug/L	
Chloroethane	<0.001000	50.00	47.52	95	48.50	97	40-160	2	20	ug/L	
Trichlorofluoromethane	<0.001000	50.00	51.66	103	51.92	104	50-150	1	20	ug/L	
2-Chloroethyl Vinyl Ether	<0.001000	50.00	31.53	63	32.00	64	1-225	1	20	ug/L	
1,1-Dichloroethene	<0.001000	50.00	48.86	98	48.76	98	50-150	0	20	ug/L	
Methylene Chloride	<0.001000	50.00	39.35	79	40.71	81	60-140	3	20	ug/L	
trans-1,2-dichloroethene	<0.001000	50.00	47.71	95	47.89	96	70-130	0	20	ug/L	
1,1-Dichloroethane	<0.001000	50.00	46.58	93	47.29	95	70-130	2	20	ug/L	
Chloroform	0.05000	50.00	47.31	95	48.21	96	70-135	2	20	ug/L	
1,1,1-Trichloroethane	<0.001000	50.00	47.24	94	47.16	94	70-130	0	20	ug/L	
Carbon Tetrachloride	<0.001000	50.00	48.12	96	48.42	97	70-130	1	20	ug/L	
Benzene	0.03000	50.00	48.02	96	48.79	98	65-135	2	20	ug/L	
1,2-Dichloroethane	<0.001000	50.00	49.29	99	50.71	101	70-130	3	20	ug/L	
Trichloroethene	<0.001000	50.00	48.58	97	49.38	99	65-135	2	20	ug/L	
1,2-Dichloropropane	<0.001000	50.00	47.92	96	49.30	99	35-165	3	20	ug/L	
Bromodichloromethane	<0.001000	50.00	48.32	97	49.74	99	65-135	3	20	ug/L	
cis-1,3-Dichloropropene	<0.001000	50.00	52.34	105	53.69	107	25-175	3	20	ug/L	
Toluene	0.05000	50.00	47.51	95	48.35	97	70-130	2	20	ug/L	
trans-1,3-dichloropropene	<0.001000	50.00	47.98	96	49.85	100	50-150	4	20	ug/L	
1,1,2-Trichloroethane	<0.001000	50.00	51.74	103	54.01	108	70-130	4	20	ug/L	
Tetrachloroethylene	0.1000	50.00	47.72	95	48.31	97	70-130	1	20	ug/L	
Dibromochloromethane	<0.001000	50.00	52.23	104	54.16	108	70-135	4	20	ug/L	
Chlorobenzene	<0.001000	50.00	50.00	100	50.74	101	65-135	1	20	ug/L	
Ethylbenzene	0.07000	50.00	49.50	99	50.18	100	60-140	1	20	ug/L	
Bromoform	<0.001000	50.00	54.99	110	56.89	114	70-130	3	20	ug/L	
1,1,2,2-Tetrachloroethane	<0.001000	50.00	60.09	120	61.21	122	60-140	2	20	ug/L	
1,3-Dichlorobenzene	0.1300	50.00	52.83	106	53.25	107	70-130	1	20	ug/L	
1,4-Dichlorobenzene	<0.001000	50.00	52.56	105	52.63	105	65-135	0	20	ug/L	
1,2-Dichlorobenzene	0.1000	50.00	53.92	108	54.51	109	65-135	1	20	ug/L	

Surrogate	MB %Rec	MB Flag	LCS Result	LCS Flag	LCSD Result	LCSD Flag	Limits	Units
Dibromofluoromethane	101		102		101		94-108	%
4-Bromofluorobenzene	105		100		100		77-120	%
Toluene-D8	98		99		99		95-104	%

PHASE SEPARATION SCIENCE

6630 Baltimore National Pike
Baltimore, MD 21228
410-747-8770
800-932-9047
www.phaseonline.com

QC Summary

Project Name Kop-Flex
PSS Project No.: 23092807

Analytical Method: SW-846 8260 D-SIM Prep Method: SW5030B
Seq Number: 207355 Matrix: Water Date Prep: 10/11/23
MB Sample Id: 97384-1-BLK LCS Sample Id: 97384-1-BKS LCSD Sample Id: 97384-1-BSD

Parameter	MB Result	Spike Amount	LCS Result	LCS %Rec	LCSD Result	LCSD %Rec	Limits	RPD	RPD Limit	Units	Flag
1,4-Dioxane (P-Dioxane)	<1.000	30.00	31.10	104	33.22	111	50-150	7	20	ug/L	

Surrogate	MB %Rec	MB Flag	LCS Result	LCS Flag	LCSD Result	LCSD Flag	Limits	Units
Toluene-D8	98		99		99		80-120	%

F = RPD exceeded the laboratory control limits
X = Recovery of MS, MSD or both outside of QC Criteria
H= Recovery of BS,BSD or both exceeded the laboratory control limits
L = Recovery of BS,BSD or both below the laboratory control limits

PHASE SEPARATION SCIENCE

6630 Baltimore National Pike
Baltimore, MD 21228
410-747-8770
800-932-9047
www.phaseonline.com

QC Summary

Project Name Kop-Flex
PSS Project No.: 23092807

Analytical Method: EPA 624 .1

Seq Number: 206663 Matrix: Water
Parent Sample Id: ICV-01 ICV Sample Id: ICV-01 Analyzed Date: 09/11/23 15:08

Parameter	Spike Amount	ICV Result	ICV %Rec	Limits	Units	Flag
Acrolein	0.05000	0.04687	94	60-140	mg/L	
Acrylonitrile	0.05000	0.05046	101	60-140	mg/L	
Dichlorodifluoromethane	0.05000	0.04987	100	51-128	mg/L	
Chloromethane	0.05000	0.04962	99	1-205	mg/L	
Vinyl Chloride	0.05000	0.04801	96	5-195	mg/L	
Bromomethane	0.05000	0.05210	104	15-185	mg/L	
Chloroethane	0.05000	0.04852	97	40-160	mg/L	
Trichlorofluoromethane	0.05000	0.04989	100	50-150	mg/L	
2-Chloroethyl Vinyl Ether	0.05000	0.05582	112	1-225	mg/L	
1,1-Dichloroethene	0.05000	0.05007	100	50-150	mg/L	
Methylene Chloride	0.05000	0.04669	93	60-140	mg/L	
trans-1,2-dichloroethene	0.05000	0.05035	101	70-130	mg/L	
1,1-Dichloroethane	0.05000	0.04954	99	70-130	mg/L	
Chloroform	0.05000	0.04889	98	70-135	mg/L	
1,1,1-Trichloroethane	0.05000	0.05121	102	70-130	mg/L	
Carbon Tetrachloride	0.05000	0.05071	101	70-130	mg/L	
Benzene	0.05000	0.04949	99	65-135	mg/L	
1,2-Dichloroethane	0.05000	0.04829	97	70-130	mg/L	
Trichloroethene	0.05000	0.05042	101	65-135	mg/L	
1,2-Dichloropropane	0.05000	0.04987	100	35-165	mg/L	
Bromodichloromethane	0.05000	0.05040	101	65-135	mg/L	
cis-1,3-Dichloropropene	0.05000	0.05418	108	25-175	mg/L	
Toluene	0.05000	0.04989	100	70-130	mg/L	
trans-1,3-dichloropropene	0.05000	0.04847	97	50-150	mg/L	
1,1,2-Trichloroethane	0.05000	0.04956	99	70-130	mg/L	
Tetrachloroethylene	0.05000	0.05091	102	70-130	mg/L	
Dibromochloromethane	0.05000	0.05103	102	70-135	mg/L	
Chlorobenzene	0.05000	0.04900	98	65-135	mg/L	
Ethylbenzene	0.05000	0.05047	101	60-140	mg/L	
Bromoform	0.05000	0.05176	104	70-130	mg/L	
1,1,2,2-Tetrachloroethane	0.05000	0.04768	95	60-140	mg/L	
1,3-Dichlorobenzene	0.05000	0.04896	98	70-130	mg/L	
1,4-Dichlorobenzene	0.05000	0.04815	96	65-135	mg/L	
1,2-Dichlorobenzene	0.05000	0.04890	98	65-135	mg/L	

Surrogate	ICV Result	Limits	Units	Flag
Dibromofluoromethane	100	94-108	%	
4-Bromofluorobenzene	95	77-120	%	
Toluene-D8	101	95-104	%	

PHASE SEPARATION SCIENCE

6630 Baltimore National Pike
Baltimore, MD 21228
410-747-8770
800-932-9047
www.phaseonline.com

QC Summary

Project Name Kop-Flex
PSS Project No.: 23092807

Analytical Method: SW-846 8260 D-SIM
Seq Number: 207355 Matrix: Water
CCV Sample Id: CCV-01 Analyzed Date: 10/11/23 11:35

Parameter	Spike Amount	CCV Result	CCV %Rec	Limits	Units	Flag
1,4-Dioxane (P-Dioxane)	30.00	32.15	107	80-120	ug/L	

Surrogate	CCV Result	Limits	Units	Flag
Toluene-D8	99	80-120	%	

Analytical Method: SW-846 8260 D-SIM
Seq Number: 207355 Matrix: Water
Parent Sample Id: ICV-01 ICV Sample Id: ICV-01 Analyzed Date: 10/11/23 11:13

Parameter	Spike Amount	ICV Result	ICV %Rec	Limits	Units	Flag
1,4-Dioxane (P-Dioxane)	30.00	31.13	104	70-130	ug/L	

Surrogate	ICV Result	Limits	Units	Flag
Toluene-D8	100	80-120	%	

X = Recovery outside of QC Criteria

PHASE SEPARATION SCIENCE

CHAIN OF CUSTODY FORM

All fields must be completed accurately. Shaded sections for lab use only.

www.phaseonline.com ~ info@phaseonline.com

6630 Baltimore National Pike • Suite 103-A • Baltimore, Maryland 21228 • (410) 747-8770 • (800) 932-9047

① PSS CLIENT: WSP USA | OFFICE LOCATION: Herndon, VA | PSS Work Order #: 23092807 | PAGE 1 OF 1

BILL TO (if different): | PHONE #: 703-709-6500

CONTACT: Eric Johnson | EMAIL: eric.johnson@wsp.com

PROJECT NAME: Kop-Flex | PROJECT #: 31405605.210/0202

SITE LOCATION: Hanover, MD | P.O. #:

SAMPLER(S): Shannon Burke | DW CERT #:

Matrix Codes: **SW**=Surface Water **DW**=Drinking Water **GW**=Ground Water **WW**=Waste Water **O**=Oil **S**=Soil **SOL**=Solid **A**=Air **WI**=Wipe

Preservatives Use Codes: 1 | 1

Preservative Codes: 1 - HCL; 2 - H_2SO_4; 3 - HNO_3; 4 - NaOH; 5 - E624KIT; 6 - ICE; 7 - Sodium Thiosulfate; 8 - Ascorbic Acid; 9 - TerraCore Kit

② ③

PSS ID	SAMPLE IDENTIFICATION	DATE SAMPLED	TIME SAMPLED	MATRIX Use Codes	# OF CONTAINERS	SAMPLE TYPE: C=COMPOSITE G=GRAB	Analysis/ Method Required: 1,4-dioxane (8260 SIM)	VOCs (624)
1	Effluent VSP-4	9/28/23	1210	WW	3	G	X	
2	TB-092823	—		TB	4 ~~3~~	—	X	X
					~~9/28/23 EC~~ an 9/28/23			

⑤

Relinquished By: (1)	Date	Time	Received By:
[signature]	9/28/23	1310	[signature]
Relinquished By: (2)	Date	Time	Received By:
Relinquished By: (3)	Date	Time	Received By:
Relinquished By: (4)	Date	Time	Received By:

④

Requested TAT (One TAT per COC)
☐ 5-Day ☐ 3-Day ☐ 2-Day
☐ Next Day ☐ Emergency ☒ Other

STATE RESULTS REPORTED TO:
☐ MD ☐ DE ☐ PA ☐ VA ☐ WV
☐ OTHER

COMPLIANCE?
☐ DW ☐ WW

EDD FORMAT TYPE

Ice Present: Pres

Custody Seal: Cooler/container

Coolers: 1 Temp: 0.9-3.9°C

Shipping Carrier: Client

Temp Blank - 1.9°C

Special Instructions: Standard 10-day TAT

This chain of custody is a legal document. The client (PSS Client), by signing, or having client's agent sign, this "Chain of Custody Form", agrees to pay for the above requested services per the latest version of the Service Brochure or PSS-provided quotation, including any and all attorney's or other reasonable fees if collection becomes necessary.

PHASE SEPARATION SCIENCE

6630 Baltimore National Pike
Baltimore, MD 21228
410-747-8770
800-932-9047
www.phaseonline.com

Sample Receipt Checklist

Project Name: Kop-Flex
PSS Project No.: 23092807

Client Name WSP USA - Herndon
Disposal Date 11/02/2023

Received By Tyler Enwright
Date Received 09/28/2023 01:10:00 PM
Delivered By Client
Tracking No Not Applicable
Logged In By Tyler Enwright

Shipping Container(s)
No. of Coolers 1

		Ice	Present
Custody Seal(s) Intact?	Yes	Temp (deg C)	3.9
Seal(s) Signed / Dated?	Yes	Temp Blank Present	Yes

Documentation

		Sampler Name	Shannon Burke
COC agrees with sample labels?	Yes	MD DW Cert. No.	N/A
Chain of Custody	Yes		

Sample Container

		Custody Seal(s) Intact?	Not Applicable
Appropriate for Specified Analysis?	Yes	Seal(s) Signed / Dated	Not Applicable
Intact?	Yes		
Labeled and Labels Legible?	Yes		

Holding Time

		Total No. of Samples Received	2
All Samples Received Within Holding Time(s)?	Yes	Total No. of Containers Received	7

Preservation

Total Metals	(pH<2)	N/A
Dissolved Metals, filtered within 15 minutes of collection	(pH<2)	N/A
Orthophosphorus, filtered within 15 minutes of collection		N/A
Cyanides	(pH>12)	N/A
Sulfide	(pH>9)	N/A
TOC, DOC (field filtered), COD, Phenols	(pH<2)	N/A
TOX, TKN, NH3, Total Phos	(pH<2)	N/A
VOC, BTEX (VOA Vials Rcvd Preserved)	(pH<2)	Yes
Do VOA vials have zero headspace?		Yes
624 VOC (Rcvd at least one unpreserved VOA vial)		N/A
524 VOC (Rcvd with trip blanks)	(pH<2)	N/A

Comments: (Any "No" response must be detailed in the comments section below.)

For any improper preservation conditions, list sample ID, preservative added (reagent ID number) below as well as documentation of any client notification as well as client instructions. Samples for pH, chlorine and dissolved oxygen should be analyzed as soon as possible, preferably in the field at the time of sampling. Samples which require thermal preservation shall be considered acceptable when received at a temperature above freezing to 6°C. Samples that are hand delivered on the day that they are collected may not meet these criteria but shall be considered acceptable if there is evidence that the chilling process has begun such as arrival on ice.

Samples Inspected/Checklist Completed By: Tyler Enwright — Date: 09/28/2023

PM Review and Approval: Amber Confer — Date: 09/28/2023

PHASE SEPARATION SCIENCE

6630 Baltimore National Pike
Baltimore, MD 21228
410-747-8770
800-932-9047
www.phaseonline.com

Certificate of Analysis

Project Name: Kop-Flex
PSS Project No.: 23100502

October 19, 2023

Eric Johnson
WSP USA - Herndon
13530 Dulles Technology Dr, Ste 300
Herndon, VA 20171

Reference: PSS Project No: **23100502**
Project Name: Kop-Flex
Project Location: Hanover, MD
Project ID.: 31405608.010/02.02

Dear Eric Johnson:

This report includes the analytical results from the analyses performed on the samples received under the project name referenced above and identified with the Phase Separation Science (PSS) Project number(s) **23100502**.

All work reported herein has been performed in accordance with current NELAP standards, referenced methodologies, PSS Standard Operating Procedures and the PSS Quality Assurance Manual unless otherwise noted in the Case Narrative Summary. PSS is limited in liability to the actual cost of the sample analysis done.

PSS reserves the right to return any unused samples, extracts or related solutions. Otherwise, the samples are scheduled for disposal, without any further notice, on November 9, 2023, with the exception of air canisters which are cleaned immediately following analysis. This includes any samples that were received with a request to be held but lacked a specific hold period. It is your responsibility to provide a written request defining a specific disposal date if additional storage is required. Upon receipt, the request will be acknowledged by PSS, thus extending the storage period.

This report shall not be reproduced except in full, without the written approval of an authorized PSS representative. A copy of this report will be retained by PSS for at least 5 years, after which time it will be disposed of without further notice, unless prior arrangements have been made.

We thank you for selecting Phase Separation Science, Inc. to serve your analytical needs. If you have any questions concerning this report, do not hesitate to contact us at 410-747-8770 or info@phaseonline.com.

Sincerely,

Dan Prucnal
Laboratory Manager

PHASE SEPARATION SCIENCE

6630 Baltimore National Pike
Baltimore, MD 21228
410-747-8770
800-932-9047
www.phaseonline.com

Explanation of Qualifiers

Project Name: Kop-Flex
PSS Project No.: 23100502

Project ID: 31405608.010/02.02

The following samples were received under chain of custody by Phase Separation Science (PSS) on 10/05/2023 at 11:05 am

PSS Sample ID	Sample ID	Matrix	Date/Time Collected
23100502-001	Effluent VSP-4	WASTE WATER	10/05/23 09:35

Please reference the Chain of Custody and Sample Receipt Checklist for specific container counts and preservatives. Any sample conditions not in compliance with sample acceptance criteria are described in Case Narrative Summary.

Notes:

1. The presence of a common laboratory contaminant such as methylene chloride may be considered a possible laboratory artifact. Where observed, appropriate consideration of data should be taken.
2. Unless otherwise noted in the case narrative, results are reported on a dry weight basis with the exception of pH, flashpoint, moisture, and paint filter test.
3. Drinking water samples collected for the purpose of compliance with SDWA may not be suitable for their intended use unless collected by a certified sampler [COMAR 26.08.05.07.C.2].
4. The analyses of 1,2-dibromo-3-chloropropane (DBCP) and 1,2-dibromoethane (EDB) by EPA 524.2 and calcium, magnesium, sodium and iron by EPA 200.8 are not currently promulgated for use in testing to meet the Safe Drinking Water Act and as such cannot be used for compliance purposes. The listings of the current promulgated methods for testing in compliance with the Safe Drinking Water Act can be found in the 40 CFR part 141.1, for the primary drinking water contaminates, and part 141.3, for the secondary drinking water contaminates.
5. Sample prepared under EPA 3550C with concentrations greater than 20 mg/Kg should employ the microtip extraction procedure if required to meet data quality objectives.
6. The analysis of acrolein by EPA 624 must be analyzed within three days of sampling unless pH is adjusted to 4-5 units [40 CFR part 136.3(e)].
7. Method 180.1, The Determination of Turbidity by Nephelometry, recommends samples over 40 NTU be diluted until the turbidity falls below 40 units. Routine samples over 40 NTU may not be diluted as long as the data quality objectives are not affected.
8. Alkalinity results analyzed by EPA 310.2 that are reported by dilution are estimated and are not in compliance with method requirements.

Standard Flags/Abbreviations:

B	A target analyte or common laboratory contaminant was identified in the method blank. Its presence indicates possible field or laboratory contamination.
C	Results Pending Final Confirmation.
E	The data exceeds the upper calibration limit; therefore, the concentration is reported as estimated.
Fail	The result exceeds the regulatory level for Toxicity Characteristic (TCLP) as cited in 40 CFR 261.24 Table 1.
J	The target analyte was positively identified below the reporting limit but greater than the MDL.
MDL	This is the Laboratory Method Detection Limit which is equivalent to the Limit of Detection (LOD). The LOD is the minimum result, which can be reliably discriminated from a blank with a predetermined confidence level. This value will remain constant across multiple similar instrumentation and among different analysts. An LOD is analyte and matrix specific. instrumentation and among different analysts. An LOD is analyte and matrix specific.
ND	Not Detected at or above the reporting limit.
RL	PSS Reporting Limit.
U	Not detected.

Certifications:

NELAP Certifications: PA 68-03330, VA 460156
State Certifications: MD 179, WV 303
Regulated Soil Permit: P330-12-00268
NSWC USCG Accepted Laboratory
LDBE MWAA LD1997-0041-2015

PHASE SEPARATION SCIENCE

6630 Baltimore National Pike
Baltimore, MD 21228
410-747-8770
800-932-9047
www.phaseonline.com

Certificate of Analysis

Project Name: Kop-Flex
PSS Project No.: 23100502

Sample ID: Effluent VSP-4 **Date/Time Sampled: 10/05/2023 09:35** **PSS Sample ID: 23100502-001**
Matrix: WASTE WATER **Date/Time Received: 10/05/2023 11:05**

Total Metals — Analytical Method: EPA 200.8 — Preparation Method: E200.8

	Result	Units	RL	Flag	Dil	Prepared	Analyzed	Analyst
Copper	**3.0**	ug/L	1.0		1	10/09/23	10/09/23 18:25	1064
Lead	ND	ug/L	1.0		1	10/09/23	10/09/23 18:25	1064
Nickel	**16.7**	ug/L	1.00		1	10/09/23	10/09/23 18:25	1064
Zinc	**26.5**	ug/L	20.0		1	10/09/23	10/09/23 18:25	1064

Dissolved Metals — Analytical Method: EPA 200.8 Dissolved — Preparation Method: E200.8

	Result	Units	RL	Flag	Dil	Prepared	Analyzed	Analyst
Copper	**2.1**	ug/L	1.0		1	10/09/23	10/09/23 14:24	1064
Lead	ND	ug/L	1.0		1	10/09/23	10/09/23 14:24	1064
Nickel	**15.8**	ug/L	1.00		1	10/09/23	10/09/23 14:24	1064
Zinc	**28.2**	ug/L	20.0		1	10/09/23	10/09/23 14:24	1064

VOC (Full List) — Analytical Method: EPA 624 .1 — Preparation Method: E624.1

pH=7

	Result	Units	RL	Flag	Dil	Prepared	Analyzed	Analyst
Acrolein	ND	ug/L	5.0		1	10/07/23	10/07/23 12:08	1011
Acrylonitrile	ND	ug/L	5.0		1	10/07/23	10/07/23 12:08	1011
Dichlorodifluoromethane	ND	ug/L	1.0		1	10/07/23	10/07/23 12:08	1011
Chloromethane	ND	ug/L	1.0		1	10/07/23	10/07/23 12:08	1011
Vinyl Chloride	ND	ug/L	1.0		1	10/07/23	10/07/23 12:08	1011
Bromomethane	ND	ug/L	1.0		1	10/07/23	10/07/23 12:08	1011
Chloroethane	ND	ug/L	1.0		1	10/07/23	10/07/23 12:08	1011
Trichlorofluoromethane	ND	ug/L	1.0		1	10/07/23	10/07/23 12:08	1011
2-Chloroethyl Vinyl Ether	ND	ug/L	1.0		1	10/07/23	10/07/23 12:08	1011
1,1-Dichloroethene	**1.7**	ug/L	1.0		1	10/07/23	10/07/23 12:08	1011
Methylene Chloride	ND	ug/L	1.0		1	10/07/23	10/07/23 12:08	1011
trans-1,2-dichloroethene	ND	ug/L	1.0		1	10/07/23	10/07/23 12:08	1011
1,1-Dichloroethane	ND	ug/L	1.0		1	10/07/23	10/07/23 12:08	1011
Chloroform	ND	ug/L	1.0		1	10/07/23	10/07/23 12:08	1011
1,1,1-Trichloroethane	ND	ug/L	1.0		1	10/07/23	10/07/23 12:08	1011
Carbon Tetrachloride	ND	ug/L	1.0		1	10/07/23	10/07/23 12:08	1011
Benzene	ND	ug/L	1.0		1	10/07/23	10/07/23 12:08	1011
1,2-Dichloroethane	ND	ug/L	1.0		1	10/07/23	10/07/23 12:08	1011

PHASE SEPARATION SCIENCE

6630 Baltimore National Pike
Baltimore, MD 21228
410-747-8770
800-932-9047
www.phaseonline.com

Certificate of Analysis

Project Name: Kop-Flex
PSS Project No.: 23100502

Sample ID: Effluent VSP-4 **Date/Time Sampled: 10/05/2023 09:35** **PSS Sample ID: 23100502-001**
Matrix: WASTE WATER **Date/Time Received: 10/05/2023 11:05**

VOC (Full List) Analytical Method: EPA 624 .1 Preparation Method: E624.1

pH=7

	Result	Units	RL	Flag	Dil	Prepared	Analyzed	Analyst
Trichloroethene	ND	ug/L	1.0		1	10/07/23	10/07/23 12:08	1011
1,2-Dichloropropane	ND	ug/L	1.0		1	10/07/23	10/07/23 12:08	1011
Bromodichloromethane	ND	ug/L	1.0		1	10/07/23	10/07/23 12:08	1011
cis-1,3-Dichloropropene	ND	ug/L	1.0		1	10/07/23	10/07/23 12:08	1011
Toluene	ND	ug/L	1.0		1	10/07/23	10/07/23 12:08	1011
trans-1,3-dichloropropene	ND	ug/L	1.0		1	10/07/23	10/07/23 12:08	1011
1,1,2-Trichloroethane	ND	ug/L	1.0		1	10/07/23	10/07/23 12:08	1011
Tetrachloroethylene	ND	ug/L	1.0		1	10/07/23	10/07/23 12:08	1011
Dibromochloromethane	ND	ug/L	1.0		1	10/07/23	10/07/23 12:08	1011
Chlorobenzene	ND	ug/L	1.0		1	10/07/23	10/07/23 12:08	1011
Ethylbenzene	ND	ug/L	1.0		1	10/07/23	10/07/23 12:08	1011
Bromoform	ND	ug/L	1.0		1	10/07/23	10/07/23 12:08	1011
1,1,2,2-Tetrachloroethane	ND	ug/L	1.0		1	10/07/23	10/07/23 12:08	1011
1,3-Dichlorobenzene	ND	ug/L	1.0		1	10/07/23	10/07/23 12:08	1011
1,4-Dichlorobenzene	ND	ug/L	1.0		1	10/07/23	10/07/23 12:08	1011
1,2-Dichlorobenzene	ND	ug/L	1.0		1	10/07/23	10/07/23 12:08	1011

Surrogate(s)	***Recovery***		***Limits***			
Dibromofluoromethane	*99*	*%*	*94-108*	*1*	*10/07/23*	*10/07/23 12:08*	*1011*
4-Bromofluorobenzene	*104*	*%*	*77-120*	*1*	*10/07/23*	*10/07/23 12:08*	*1011*
Toluene-D8	*99*	*%*	*95-104*	*1*	*10/07/23*	*10/07/23 12:08*	*1011*

Hardness, Total by Calculation Analytical Method: SM 2340B Preparation Method: E200.8

	Result	Units	RL	Flag	Dil	Prepared	Analyzed	Analyst
Hardness (Ca & Mg)	**22**	mg/L	0.66		1	10/09/23	10/09/23 18:25	1064

PHASE SEPARATION SCIENCE

6630 Baltimore National Pike
Baltimore, MD 21228
410-747-8770
800-932-9047
www.phaseonline.com

Certificate of Analysis

Project Name: Kop-Flex
PSS Project No.: 23100502

Sample ID: Effluent VSP-4 **Date/Time Sampled: 10/05/2023 09:35** **PSS Sample ID: 23100502-001**
Matrix: WASTE WATER **Date/Time Received: 10/05/2023 11:05**

Total Suspended Solids — Analytical Method: SM 2540D -2015

	Result	Units	RL	Flag	Dil	Prepared	Analyzed	Analyst
Total Suspended Solids	ND	mg/L	2.1		1	10/12/23	10/12/23 13:20	1073

Biochemical Oxygen Demand — Analytical Method: SM 5210B -2016

Qualifier(s): See NELAP accreditation section on Case Narrative.

	Result	Units	RL	Flag	Prepared	Analyzed	Analyst
Biochemical Oxygen Demand, 5 day	ND	mg/L	2		10/06/23	10/06/23 11:15	4009

6630 Baltimore National Pike
Baltimore, MD 21228
410-747-8770
800-932-9047
www.phaseonline.com

Project Name: Kop-Flex

PSS Project No.: 23100502

Any holding time exceedances, deviations from the method specifications, regulatory requirements or variations to the procedures outlined in the PSS Quality Assurance Manual are outlined below.

Matrix spike and matrix spike duplicate analyses may not be performed due to insufficient sample quantity. In these instances, a laboratory control sample and laboratory control sample duplicate are analyzed unless otherwise noted or specified in the method.

Sample Receipt:

All sample receipt conditions were acceptable.

23100502: Analyses associated with analyst code 4009 were performed by
Martel Laboratories, Inc., 1025 Cromwell Bridge Road, Towson, MD 21204

NELAP accreditation was held for all analyses performed unless noted below. See www.phaseonline.com for complete PSS scope of accreditation.
Analytical Method(s): SM 5210B -2016

PHASE SEPARATION SCIENCE

6630 Baltimore National Pike
Baltimore, MD 21228
410-747-8770
800-932-9047
www.phaseonline.com

Lab Chronology

Project Name: Kop-Flex
PSS Project No.: 23100502

Method	Client Sample ID	Analysis Type	PSS Sample ID	Mtx	Prep Batch	Analytical Batch	Prepared	Analyzed
EPA 200.8	Effluent VSP-4	Initial	23100502-001	W	97326	207277	10/09/2023 10:35	10/09/2023 18:25
	97326-1-BKS	BKS	97326-1-BKS	W	97326	207277	10/09/2023 10:35	10/09/2023 18:21
	97326-1-BLK	BLK	97326-1-BLK	W	97326	207277	10/09/2023 10:35	10/09/2023 18:16
	Effluent VSP-4 S	MS	23100502-001 S	W	97326	207277	10/09/2023 10:35	10/09/2023 18:30
	Effluent VSP-4 SD	MSD	23100502-001 S	W	97326	207277	10/09/2023 10:35	10/09/2023 18:35
EPA 200.8 Dissolved	Effluent VSP-4	Initial	23100502-001	W	97339	207276	10/09/2023 13:25	10/09/2023 14:24
	97339-1-BKS	BKS	97339-1-BKS	W	97339	207276	10/09/2023 13:25	10/09/2023 13:50
	97339-1-BLK	BLK	97339-1-BLK	W	97339	207276	10/09/2023 13:25	10/09/2023 13:45
	20231003-001 S	MS	23100317-001 S	W	97339	207276	10/09/2023 13:25	10/09/2023 14:00
	1015 Discharge - 100623 S	MS	23100606-001 S	W	97339	207276	10/09/2023 13:25	10/09/2023 15:14
	20231003-001 SD	MSD	23100317-001 S	W	97339	207276	10/09/2023 13:25	10/09/2023 14:05
EPA 624 .1	Effluent VSP-4	Initial	23100502-001	W	97324	207239	10/07/2023 09:33	10/07/2023 12:08
	97324-1-BKS	BKS	97324-1-BKS	W	97324	207239	10/07/2023 09:33	10/07/2023 09:53
	97324-1-BLK	BLK	97324-1-BLK	W	97324	207239	10/07/2023 09:33	10/07/2023 11:06
	Effluent VSP-4 S	MS	23100502-001 S	W	97324	207239	10/07/2023 09:33	10/07/2023 15:34
	Effluent VSP-4 SD	MSD	23100502-001 S	W	97324	207239	10/07/2023 09:33	10/07/2023 15:54
SM 2340B	Effluent VSP-4	Initial	23100502-001	W	97326	207277	10/09/2023 10:35	10/09/2023 18:25
SM 2540D -2015	Effluent VSP-4	Initial	23100502-001	W	207348	207348	10/12/2023 13:20	10/12/2023 13:20
	207348-1-BKS	BKS	207348-1-BKS	W	207348	207348	10/12/2023 13:20	10/12/2023 13:20
	207348-1-BLK	BLK	207348-1-BLK	W	207348	207348	10/12/2023 13:20	10/12/2023 13:20
	Effluent VSP-4 D	MD	23100502-001 D	W	207348	207348	10/12/2023 13:20	10/12/2023 13:20
	Millville 002 D	MD	23100511-002 D	W	207348	207348	10/12/2023 13:20	10/12/2023 13:20
SM 5210B -2016	Effluent VSP-4	Initial	23100502-001	W	207390	207390	10/06/2023 11:15	10/06/2023 11:15

Analytical Method: SM 2540D -2015
Seq Number: 207348 Matrix: Water
MB Sample Id: 207348-1-BLK LCS Sample Id: 207348-1-BKS

Parameter	MB Result	Spike Amount	LCS Result	LCS %Rec	Limits	Units	Flag
Total Suspended Solids	<1.000	101	98.00	97	86-110	mg/L	

Analytical Method: SM 2540D -2015
Seq Number: 207348 Matrix: Waste Water
Parent Sample Id: 23100502-001 MD Sample Id: 23100502-001 D

Parameter	Parent Result	MD Result	RPD	RPD Limit	Units	Flag
Total Suspended Solids	<2.105	<2.105	NC	19	mg/L	

Analytical Method: EPA 200.8 Prep Method: E200.8_PREP
Seq Number: 207277 Matrix: Water Date Prep: 10/09/23
MB Sample Id: 97326-1-BLK LCS Sample Id: 97326-1-BKS

Parameter	MB Result	Spike Amount	LCS Result	LCS %Rec	Limits	Units	Flag
Copper	<1.000	50.00	47.48	95	85-115	ug/L	
Lead	<1.000	50.00	48.09	96	85-115	ug/L	
Nickel	<1.000	50.00	46.39	93	85-115	ug/L	
Zinc	<20.00	100	93.12	93	85-115	ug/L	

Analytical Method: EPA 200.8 Prep Method: E200.8_PREP
Seq Number: 207277 Matrix: Waste Water Date Prep: 10/09/23
Parent Sample Id: 23100502-001 MS Sample Id: 23100502-001 S MSD Sample Id: 23100502-001 SD

Parameter	Parent Result	Spike Amount	MS Result	MS %Rec	MSD Result	MSD %Rec	Limits	RPD	RPD Limit	Units	Flag
Copper	2.953	50.00	49.10	92	50.06	94	70-130	2	25	ug/L	
Lead	<1.000	50.00	46.85	94	47.62	95	70-130	2	25	ug/L	
Nickel	16.68	50.00	61.81	90	65.23	97	70-130	5	25	ug/L	
Zinc	26.48	100	118.2	92	120.5	94	70-130	2	25	ug/L	

Analytical Method: EPA 200.8 Dissolved Prep Method: E200.8_PREP
Seq Number: 207276 Matrix: Water Date Prep: 10/09/23
MB Sample Id: 97339-1-BLK LCS Sample Id: 97339-1-BKS

Parameter	MB Result	Spike Amount	LCS Result	LCS %Rec	Limits	Units	Flag
Copper	<1.000	50.00	48.41	97	85-115	ug/L	
Lead	<1.000	50.00	49.31	99	85-115	ug/L	
Nickel	<1.000	50.00	47.18	94	85-115	ug/L	
Zinc	<20.00	100	96.77	97	85-115	ug/L	

PHASE SEPARATION SCIENCE

6630 Baltimore National Pike
Baltimore, MD 21228
410-747-8770
800-932-9047
www.phaseonline.com

QC Summary

Project Name Kop-Flex
PSS Project No.: 23100502

Analytical Method: EPA 624 .1
Prep Method: E624PREP
Seq Number: 207239
Matrix: Water
Date Prep: 10/07/23
MB Sample Id: 97324-1-BLK
LCS Sample Id: 97324-1-BKS

Parameter	MB Result	Spike Amount	LCS Result	LCS %Rec	Limits	Units	Flag
Acrolein	0.2200	50.00	54.27	109	60-140	ug/L	
Acrylonitrile	<0.005000	50.00	49.63	99	60-140	ug/L	
Dichlorodifluoromethane	0.04000	50.00	52.50	105	51-128	ug/L	
Chloromethane	<0.001000	50.00	49.03	98	1-205	ug/L	
Vinyl Chloride	<0.001000	50.00	50.43	101	5-195	ug/L	
Bromomethane	0.2200	50.00	58.47	117	15-185	ug/L	
Chloroethane	<0.001000	50.00	43.36	87	40-160	ug/L	
Trichlorofluoromethane	0.05000	50.00	52.11	104	50-150	ug/L	
2-Chloroethyl Vinyl Ether	<0.001000	50.00	53.78	108	1-225	ug/L	
1,1-Dichloroethene	<0.001000	50.00	52.19	104	50-150	ug/L	
Methylene Chloride	<0.001000	50.00	49.57	99	60-140	ug/L	
trans-1,2-dichloroethene	0.1000	50.00	51.32	103	70-130	ug/L	
1,1-Dichloroethane	<0.001000	50.00	51.70	103	70-130	ug/L	
Chloroform	0.04000	50.00	50.45	101	70-135	ug/L	
1,1,1-Trichloroethane	<0.001000	50.00	53.29	107	70-130	ug/L	
Carbon Tetrachloride	0.02000	50.00	53.53	107	70-130	ug/L	
Benzene	0.05000	50.00	51.22	102	65-135	ug/L	
1,2-Dichloroethane	<0.001000	50.00	50.75	102	70-130	ug/L	
Trichloroethene	0.09000	50.00	51.68	103	65-135	ug/L	
1,2-Dichloropropane	<0.001000	50.00	51.57	103	35-165	ug/L	
Bromodichloromethane	<0.001000	50.00	52.68	105	65-135	ug/L	
cis-1,3-Dichloropropene	<0.001000	50.00	56.14	112	25-175	ug/L	
Toluene	0.06000	50.00	51.62	103	70-130	ug/L	
trans-1,3-dichloropropene	0.04000	50.00	51.04	102	50-150	ug/L	
1,1,2-Trichloroethane	<0.001000	50.00	51.35	103	70-130	ug/L	
Tetrachloroethylene	0.1200	50.00	52.71	105	70-130	ug/L	
Dibromochloromethane	<0.001000	50.00	54.50	109	70-135	ug/L	
Chlorobenzene	<0.001000	50.00	51.28	103	65-135	ug/L	
Ethylbenzene	0.07000	50.00	53.99	108	60-140	ug/L	
Bromoform	<0.001000	50.00	55.70	111	70-130	ug/L	
1,1,2,2-Tetrachloroethane	<0.001000	50.00	50.74	101	60-140	ug/L	
1,3-Dichlorobenzene	0.2200	50.00	51.74	103	70-130	ug/L	
1,4-Dichlorobenzene	<0.001000	50.00	50.74	101	65-135	ug/L	
1,2-Dichlorobenzene	0.1500	50.00	51.63	103	65-135	ug/L	

Surrogate	MB %Rec	MB Flag	LCS Result	LCS Flag	Limits	Units
Dibromofluoromethane	100		101		94-108	%
4-Bromofluorobenzene	104		99		77-120	%
Toluene-D8	98		101		95-104	%

PHASE SEPARATION SCIENCE

6630 Baltimore National Pike
Baltimore, MD 21228
410-747-8770
800-932-9047
www.phaseonline.com

QC Summary

Project Name Kop-Flex
PSS Project No.: 23100502

Analytical Method: EPA 624 .1 Prep Method: E624PREP
Seq Number: 207239 Matrix: Waste Water Date Prep: 10/07/23
Parent Sample Id: 23100502-001 MS Sample Id: 23100502-001 S MSD Sample Id: 23100502-001 SD

Parameter	Parent Result	Spike Amount	MS Result	MS %Rec	MSD Result	MSD %Rec	Limits	RPD	RPD Limit	Units	Flag
Acrolein	<5.000	50.00	68.86	138	64.94	130	40-160	6	60	ug/L	
Acrylonitrile	<5.000	50.00	52.19	104	50.30	101	40-160	4	60	ug/L	
Dichlorodifluoromethane	<1.000	50.00	52.91	106	50.46	101	49-132	5	14	ug/L	
Chloromethane	<1.000	50.00	47.75	96	46.39	93	1-273	3	60	ug/L	
Vinyl Chloride	<1.000	50.00	45.66	91	44.53	89	1-251	3	66	ug/L	
Bromomethane	<1.000	50.00	60.25	121	58.29	117	1-242	3	61	ug/L	
Chloroethane	<1.000	50.00	43.12	86	42.09	84	14-230	2	78	ug/L	
Trichlorofluoromethane	<1.000	50.00	52.78	106	49.81	100	17-181	6	84	ug/L	
2-Chloroethyl Vinyl Ether	<1.000	50.00	52.43	105	51.34	103	1-305	2	71	ug/L	
1,1-Dichloroethene	1.680	50.00	55.06	107	51.97	101	1-234	6	32	ug/L	
Methylene Chloride	<1.000	50.00	50.56	101	49.39	99	1-221	2	28	ug/L	
trans-1,2-dichloroethene	<1.000	50.00	53.51	107	50.32	101	54-156	6	45	ug/L	
1,1-Dichloroethane	<1.000	50.00	53.25	107	50.64	101	59-155	5	40	ug/L	
Chloroform	<1.000	50.00	51.00	102	48.99	98	51-138	4	54	ug/L	
1,1,1-Trichloroethane	<1.000	50.00	54.80	110	51.59	103	52-162	6	36	ug/L	
Carbon Tetrachloride	<1.000	50.00	55.09	110	51.34	103	70-140	7	41	ug/L	
Benzene	<1.000	50.00	52.69	105	49.89	100	37-151	5	61	ug/L	
1,2-Dichloroethane	<1.000	50.00	50.63	101	49.20	98	49-155	3	49	ug/L	
Trichloroethene	<1.000	50.00	53.18	106	50.29	101	70-157	6	48	ug/L	
1,2-Dichloropropane	<1.000	50.00	52.07	104	50.64	101	1-210	3	55	ug/L	
Bromodichloromethane	<1.000	50.00	53.04	106	51.44	103	35-155	3	56	ug/L	
cis-1,3-Dichloropropene	<1.000	50.00	56.21	112	54.18	108	1-227	4	58	ug/L	
Toluene	<1.000	50.00	53.64	107	50.62	101	47-150	6	41	ug/L	
trans-1,3-dichloropropene	<1.000	50.00	51.27	103	49.36	99	17-183	4	86	ug/L	
1,1,2-Trichloroethane	<1.000	50.00	51.45	103	50.10	100	52-150	3	45	ug/L	
Tetrachloroethylene	<1.000	50.00	54.34	109	51.00	102	64-148	6	39	ug/L	
Dibromochloromethane	<1.000	50.00	54.46	109	52.46	105	53-149	4	50	ug/L	
Chlorobenzene	<1.000	50.00	52.81	106	49.71	99	37-160	6	53	ug/L	
Ethylbenzene	<1.000	50.00	55.18	110	51.50	103	37-162	7	63	ug/L	
Bromoform	<1.000	50.00	55.95	112	53.72	107	45-169	4	42	ug/L	
1,1,2,2-Tetrachloroethane	<1.000	50.00	53.60	107	50.39	101	46-157	6	61	ug/L	
1,3-Dichlorobenzene	<1.000	50.00	55.02	110	51.01	102	59-156	8	43	ug/L	
1,4-Dichlorobenzene	<1.000	50.00	53.84	108	50.08	100	18-190	7	57	ug/L	
1,2-Dichlorobenzene	<1.000	50.00	54.43	109	51.02	102	18-190	6	57	ug/L	

Surrogate	MS Result	MS Flag	MSD Result	MSD Flag	Limits	Units
Dibromofluoromethane	99		100		94-108	%
4-Bromofluorobenzene	100		99		77-120	%
Toluene-D8	101		101		95-104	%

F = RPD exceeded the laboratory control limits
X = Recovery of MS, MSD or both outside of QC Criteria
H= Recovery of BS,BSD or both exceeded the laboratory control limits
L = Recovery of BS,BSD or both below the laboratory control limits

Analytical Method: EPA 200.8
Seq Number: 207277 Matrix: Water
CCV Sample Id: CCV 4 Analyzed Date: 10/09/23 18:06

Parameter	Spike Amount	CCV Result	CCV %Rec	Limits	Units	Flag
Copper	100	101.3	101	85-115	ug/L	
Lead	100	105.2	105	85-115	ug/L	
Nickel	100	99.12	99	85-115	ug/L	
Zinc	200	200.8	100	85-115	ug/L	

Analytical Method: EPA 200.8
Seq Number: 207277 Matrix: Water
CCV Sample Id: CCV 5 Analyzed Date: 10/09/23 19:10

Parameter	Spike Amount	CCV Result	CCV %Rec	Limits	Units	Flag
Copper	100	100.7	101	85-115	ug/L	
Lead	100	105.1	105	85-115	ug/L	
Nickel	100	97.73	98	85-115	ug/L	
Zinc	200	200.1	100	85-115	ug/L	

Analytical Method: EPA 200.8
Seq Number: 207277 Matrix: Water
CCV Sample Id: CCV 6 Analyzed Date: 10/09/23 20:13

Parameter	Spike Amount	CCV Result	CCV %Rec	Limits	Units	Flag
Copper	100	101.6	102	85-115	ug/L	
Lead	100	104.2	104	85-115	ug/L	
Nickel	100	98.93	99	85-115	ug/L	
Zinc	200	199.7	100	85-115	ug/L	

Analytical Method: EPA 200.8
Seq Number: 207277 Matrix: Water
Parent Sample Id: ICV 1 ICV Sample Id: ICV 1 Analyzed Date: 10/09/23 12:36

Parameter	Spike Amount	ICV Result	ICV %Rec	Limits	Units	Flag
Copper	50.00	53.20	106	90-110	ug/L	
Lead	50.00	53.02	106	90-110	ug/L	
Nickel	50.00	51.94	104	90-110	ug/L	
Zinc	100	104.5	105	90-110	ug/L	

Analytical Method: EPA 200.8 Dissolved
Seq Number: 207276 Matrix: Water
CCV Sample Id: CCV 1 Analyzed Date: 10/09/23 14:39

Parameter	Spike Amount	CCV Result	CCV %Rec	Limits	Units	Flag
Copper	100	103.3	103	85-115	ug/L	
Lead	100	105.1	105	85-115	ug/L	
Nickel	100	100.9	101	85-115	ug/L	
Zinc	200	202	101	85-115	ug/L	

Analytical Method: EPA 200.8 Dissolved
Seq Number: 207276 Matrix: Water
CCV Sample Id: CCV 2 Analyzed Date: 10/09/23 16:01

Parameter	Spike Amount	CCV Result	CCV %Rec	Limits	Units	Flag
Copper	100	102.9	103	85-115	ug/L	
Lead	100	104.4	104	85-115	ug/L	
Nickel	100	100.6	101	85-115	ug/L	
Zinc	200	203.8	102	85-115	ug/L	

Analytical Method: EPA 200.8 Dissolved
Seq Number: 207276 Matrix: Water
Parent Sample Id: ICV 1 ICV Sample Id: ICV 1 Analyzed Date: 10/09/23 12:36

Parameter	Spike Amount	ICV Result	ICV %Rec	Limits	Units	Flag
Copper	50.00	53.20	106	90-110	ug/L	
Lead	50.00	53.02	106	90-110	ug/L	
Nickel	50.00	51.94	104	90-110	ug/L	
Zinc	100	104.5	105	90-110	ug/L	

Analytical Method: SW-846 7196 A
Seq Number: 207347 Matrix: Solid
Parent Sample Id: MRL-01 MRL Sample Id: MRL-01 Analyzed Date: 10/11/23 14:18

Parameter	Spike Amount	MRL Result	MRL %Rec	Limits	Units	Flag
Chromium, Hexavalent	0.05000	0.05000	100	50-150	mg/kg	

PHASE SEPARATION SCIENCE

6630 Baltimore National Pike
Baltimore, MD 21228
410-747-8770
800-932-9047
www.phaseonline.com

QC Summary

Project Name Kop-Flex
PSS Project No.: 23100502

Analytical Method: EPA 624 .1

Seq Number: 207227 Matrix: Water
Parent Sample Id: ICV-01 ICV Sample Id: ICV-01 Analyzed Date: 10/06/23 19:06

Parameter	Spike Amount	ICV Result	ICV %Rec	Limits	Units	Flag
Acrolein	0.05000	0.04405	88	60-140	mg/L	
Acrylonitrile	0.05000	0.04374	87	60-140	mg/L	
Dichlorodifluoromethane	0.05000	0.04417	88	51-128	mg/L	
Chloromethane	0.05000	0.04323	86	1-205	mg/L	
Vinyl Chloride	0.05000	0.04468	89	5-195	mg/L	
Bromomethane	0.05000	0.05103	102	15-185	mg/L	
Chloroethane	0.05000	0.03685	74	40-160	mg/L	
Trichlorofluoromethane	0.05000	0.04516	90	50-150	mg/L	
2-Chloroethyl Vinyl Ether	0.05000	0.04695	94	1-225	mg/L	
1,1-Dichloroethene	0.05000	0.04566	91	50-150	mg/L	
Methylene Chloride	0.05000	0.04388	88	60-140	mg/L	
trans-1,2-dichloroethene	0.05000	0.04581	92	70-130	mg/L	
1,1-Dichloroethane	0.05000	0.04547	91	70-130	mg/L	
Chloroform	0.05000	0.04426	89	70-135	mg/L	
1,1,1-Trichloroethane	0.05000	0.04657	93	70-130	mg/L	
Carbon Tetrachloride	0.05000	0.04647	93	70-130	mg/L	
Benzene	0.05000	0.04462	89	65-135	mg/L	
1,2-Dichloroethane	0.05000	0.04391	88	70-130	mg/L	
Trichloroethene	0.05000	0.04568	91	65-135	mg/L	
1,2-Dichloropropane	0.05000	0.04512	90	35-165	mg/L	
Bromodichloromethane	0.05000	0.04576	92	65-135	mg/L	
cis-1,3-Dichloropropene	0.05000	0.04854	97	25-175	mg/L	
Toluene	0.05000	0.04532	91	70-130	mg/L	
trans-1,3-dichloropropene	0.05000	0.04413	88	50-150	mg/L	
1,1,2-Trichloroethane	0.05000	0.04445	89	70-130	mg/L	
Tetrachloroethylene	0.05000	0.04626	93	70-130	mg/L	
Dibromochloromethane	0.05000	0.04608	92	70-135	mg/L	
Chlorobenzene	0.05000	0.04438	89	65-135	mg/L	
Ethylbenzene	0.05000	0.04626	93	60-140	mg/L	
Bromoform	0.05000	0.04690	94	70-130	mg/L	
1,1,2,2-Tetrachloroethane	0.05000	0.04339	87	60-140	mg/L	
1,3-Dichlorobenzene	0.05000	0.04536	91	70-130	mg/L	
1,4-Dichlorobenzene	0.05000	0.04424	88	65-135	mg/L	
1,2-Dichlorobenzene	0.05000	0.04485	90	65-135	mg/L	

Surrogate	ICV Result	Limits	Units	Flag
Dibromofluoromethane	101	94-108	%	
4-Bromofluorobenzene	99	77-120	%	
Toluene-D8	101	95-104	%	

X = Recovery outside of QC Criteria

PHASE SEPARATION SCIENCE

CHAIN OF CUSTODY FORM

All fields must be completed accurately. Shaded sections for lab use only.

www.phaseonline.com ~ info@phaseonline.com

6630 Baltimore National Pike • Suite 103-A • Baltimore, Maryland 21228 • (410) 747-8770 • (800) 932-9047

① PSS CLIENT: WSP USA | OFFICE LOCATION: Herndon, VA | PSS Work Order #: 23100502 | PAGE 1 OF 1

BILL TO (if different): | PHONE #: 703-709-6500

CONTACT: Eric Johnson | EMAIL: eric.johnson@wsp.com

PROJECT NAME: Kop-flex | PROJECT #: 31405608.010/02.02

SITE LOCATION: Hanover, MD | P.O. #:

SAMPLER(S): Shannon Burke | DW CERT #:

Matrix Codes: SW=Surface Water | DW=Drinking Water | GW=Ground Water | WW=Waste Water | O=Oil | S=Soil | SOL=Solid | A=Air | WI=Wipe

Preservative Codes: 1 - HCL; 2 - H_2SO_4; 3 - HNO_3; 4 - NaOH; 5 - E624KIT; 6 - ICE; 7 - Sodium Thiosulfate; 8 - Ascorbic Acid; 9 - TerraCore Kit

② ③

PSS ID	SAMPLE IDENTIFICATION	DATE SAMPLED	TIME SAMPLED	MATRIX Use Codes	# OF CONTAINERS	SAMPLE TYPE: C=COMPOSITE G=GRAB	Preservatives Use Codes	VOCs (624)	Total metals + hardness (200.8)	Dissolved metals (200.8)	TSS	BOD							
								1,6	3	3	6	6							
1	Effluent VSP-4	10/5/23	0935	WW	7	G		X	X	X	X	X							Dissolved metals field-filtered

⑤

Relinquished By:	Date	Time	Received By:
(1) Shannon Burke	10/5/23	1005	2462
(2) Akeem 2462	10/5/23	10:22	
(3)	10/5/23	11:25	
(4)			

④

Requested TAT (One TAT per COC)
☐ 5-Day ☐ 3-Day ☐ 2-Day
☐ Next Day ☐ Emergency ☒ Other

STATE RESULTS REPORTED TO:
☐ MD ☐ DE ☐ PA ☐ VA ☐ WV
☐ OTHER

COMPLIANCE?
☐ DW ☐ WW

EDD FORMAT TYPE

Ice Present: Pres

Custody Seal: Cooler/Intact

Coolers: 1 Temp: 0.8 - 3.0 °C

Shipping Carrier: TTE

Special Instructions:
Standard 10-day TAT
Metals = Cu, Pb, Ni, Zn

Temp Blank: 0.5°C

This chain of custody is a legal document. The client (PSS Client), by signing, or having client's agent sign, this "Chain of Custody Form", agrees to pay for the above requested services per the latest version of the Service Brochure or PSS-provided quotation including any and all attorney's or other reasonable fees if collection becomes necessary.

PHASE SEPARATION SCIENCE

6630 Baltimore National Pike
Baltimore, MD 21228
410-747-8770
800-932-9047
www.phaseonline.com

Sample Receipt Checklist

Project Name: Kop-Flex
PSS Project No.: 23100502

Client Name WSP USA - Herndon
Disposal Date 11/09/2023

Received By Tyler Enwright
Date Received 10/05/2023 11:05:00 AM
Delivered By Trans Time Express
Tracking No Not Applicable
Logged In By Tyler Enwright

Shipping Container(s)
No. of Coolers 1

		Ice	Present
Custody Seal(s) Intact?	Yes	Temp (deg C)	3.0
Seal(s) Signed / Dated?	Yes	Temp Blank Present	Yes

Documentation

		Sampler Name	Shannon Burke
COC agrees with sample labels?	Yes	MD DW Cert. No.	N/A
Chain of Custody	Yes		

Sample Container

		Custody Seal(s) Intact?	Not Applicable
Appropriate for Specified Analysis?	Yes	Seal(s) Signed / Dated	Not Applicable
Intact?	Yes		
Labeled and Labels Legible?	Yes		

Holding Time

		Total No. of Samples Received	1
All Samples Received Within Holding Time(s)?	Yes	Total No. of Containers Received	7

Preservation

Total Metals	(pH<2)	Yes
Dissolved Metals, filtered within 15 minutes of collection	(pH<2)	Yes
Orthophosphorus, filtered within 15 minutes of collection		N/A
Cyanides	(pH>12)	N/A
Sulfide	(pH>9)	N/A
TOC, DOC (field filtered), COD, Phenols	(pH<2)	N/A
TOX, TKN, NH3, Total Phos	(pH<2)	N/A
VOC, BTEX (VOA Vials Rcvd Preserved)	(pH<2)	Yes
Do VOA vials have zero headspace?		Yes
624 VOC (Rcvd at least one unpreserved VOA vial)		Yes
524 VOC (Rcvd with trip blanks)	(pH<2)	N/A

Comments: (Any "No" response must be detailed in the comments section below.)

For any improper preservation conditions, list sample ID, preservative added (reagent ID number) below as well as documentation of any client notification as well as client instructions. Samples for pH, chlorine and dissolved oxygen should be analyzed as soon as possible, preferably in the field at the time of sampling. Samples which require thermal preservation shall be considered acceptable when received at a temperature above freezing to 6°C. Samples that are hand delivered on the day that they are collected may not meet these criteria but shall be considered acceptable if there is evidence that the chilling process has begun such as arrival on ice.

Samples Inspected/Checklist Completed By: Tyler Enwright — Date: 10/05/2023

PM Review and Approval: Amber Confer — Date: 10/05/2023

PHASE SEPARATION SCIENCE

6630 Baltimore National Pike
Baltimore, MD 21228
410-747-8770
800-932-9047
www.phaseonline.com

Certificate of Analysis

Project Name: Kop-Flex
PSS Project No.: 23100503

October 19, 2023

Eric Johnson
WSP USA - Herndon
13530 Dulles Technology Dr, Ste 300
Herndon, VA 20171

Reference: PSS Project No: **23100503**
Project Name: Kop-Flex
Project Location: Hanover, MD
Project ID.: 314050608.010/02.02

Dear Eric Johnson:

This report includes the analytical results from the analyses performed on the samples received under the project name referenced above and identified with the Phase Separation Science (PSS) Project number(s) **23100503**.

All work reported herein has been performed in accordance with current NELAP standards, referenced methodologies, PSS Standard Operating Procedures and the PSS Quality Assurance Manual unless otherwise noted in the Case Narrative Summary. PSS is limited in liability to the actual cost of the sample analysis done.

PSS reserves the right to return any unused samples, extracts or related solutions. Otherwise, the samples are scheduled for disposal, without any further notice, on November 9, 2023, with the exception of air canisters which are cleaned immediately following analysis. This includes any samples that were received with a request to be held but lacked a specific hold period. It is your responsibility to provide a written request defining a specific disposal date if additional storage is required. Upon receipt, the request will be acknowledged by PSS, thus extending the storage period.

This report shall not be reproduced except in full, without the written approval of an authorized PSS representative. A copy of this report will be retained by PSS for at least 5 years, after which time it will be disposed of without further notice, unless prior arrangements have been made.

We thank you for selecting Phase Separation Science, Inc. to serve your analytical needs. If you have any questions concerning this report, do not hesitate to contact us at 410-747-8770 or info@phaseonline.com.

Sincerely,

Dan Prucnal
Laboratory Manager

PHASE SEPARATION SCIENCE

6630 Baltimore National Pike
Baltimore, MD 21228
410-747-8770
800-932-9047
www.phaseonline.com

Explanation of Qualifiers

Project Name: Kop-Flex
PSS Project No.: 23100503

Project ID: 314050608.010/02.02

The following samples were received under chain of custody by Phase Separation Science (PSS) on 10/05/2023 at 11:05 am

PSS Sample ID	Sample ID	Matrix	Date/Time Collected
23100503-001	Effluent VSP-4	WASTE WATER	10/05/23 09:35
23100503-002	Influent VSP-1	GROUND WATER	10/05/23 09:45
23100503-003	TB-100523	WATER	10/05/23 00:00

Please reference the Chain of Custody and Sample Receipt Checklist for specific container counts and preservatives. Any sample conditions not in compliance with sample acceptance criteria are described in Case Narrative Summary.

Notes:

1. The presence of a common laboratory contaminant such as methylene chloride may be considered a possible laboratory artifact. Where observed, appropriate consideration of data should be taken.
2. Unless otherwise noted in the case narrative, results are reported on a dry weight basis with the exception of pH, flashpoint, moisture, and paint filter test.
3. Drinking water samples collected for the purpose of compliance with SDWA may not be suitable for their intended use unless collected by a certified sampler [COMAR 26.08.05.07.C.2].
4. The analyses of 1,2-dibromo-3-chloropropane (DBCP) and 1,2-dibromoethane (EDB) by EPA 524.2 and calcium, magnesium, sodium and iron by EPA 200.8 are not currently promulgated for use in testing to meet the Safe Drinking Water Act and as such cannot be used for compliance purposes. The listings of the current promulgated methods for testing in compliance with the Safe Drinking Water Act can be found in the 40 CFR part 141.1, for the primary drinking water contaminates, and part 141.3, for the secondary drinking water contaminates.
5. Sample prepared under EPA 3550C with concentrations greater than 20 mg/Kg should employ the microtip extraction procedure if required to meet data quality objectives.
6. The analysis of acrolein by EPA 624 must be analyzed within three days of sampling unless pH is adjusted to 4-5 units [40 CFR part 136.3(e)].
7. Method 180.1, The Determination of Turbidity by Nephelometry, recommends samples over 40 NTU be diluted until the turbidity falls below 40 units. Routine samples over 40 NTU may not be diluted as long as the data quality objectives are not affected.
8. Alkalinity results analyzed by EPA 310.2 that are reported by dilution are estimated and are not in compliance with method requirements.

Standard Flags/Abbreviations:

B	A target analyte or common laboratory contaminant was identified in the method blank. Its presence indicates possible field or laboratory contamination.
C	Results Pending Final Confirmation.
E	The data exceeds the upper calibration limit; therefore, the concentration is reported as estimated.
Fail	The result exceeds the regulatory level for Toxicity Characteristic (TCLP) as cited in 40 CFR 261.24 Table 1.
J	The target analyte was positively identified below the reporting limit but greater than the MDL.
MDL	This is the Laboratory Method Detection Limit which is equivalent to the Limit of Detection (LOD). The LOD is the minimum result, which can be reliably discriminated from a blank with a predetermined confidence level. This value will remain constant across multiple similar instrumentation and among different analysts. An LOD is analyte and matrix specific. instrumentation and among different analysts. An LOD is analyte and matrix specific.
ND	Not Detected at or above the reporting limit.
RL	PSS Reporting Limit.
U	Not detected.

Certifications:

NELAP Certifications: PA 68-03330, VA 460156
State Certifications: MD 179, WV 303
Regulated Soil Permit: P330-12-00268
NSWC USCG Accepted Laboratory
LDBE MWAA LD1997-0041-2015

PHASE SEPARATION SCIENCE

6630 Baltimore National Pike
Baltimore, MD 21228
410-747-8770
800-932-9047
www.phaseonline.com

Certificate of Analysis

Project Name: Kop-Flex
PSS Project No.: 23100503

Sample ID: Effluent VSP-4 **Date/Time Sampled: 10/05/2023 09:35** **PSS Sample ID: 23100503-001**
Matrix: WASTE WATER **Date/Time Received: 10/05/2023 11:05**

1,4-Dioxane by GC/MS - SIM Analytical Method: SW-846 8260 D-SIM Preparation Method: SW5030B

Qualifier(s): See NELAP accreditation section on Case Narrative.

	Result	Units	RL	Flag	Dil	Prepared	Analyzed	Analyst
1,4-Dioxane (P-Dioxane)	**14**	ug/L	1.0		1	10/11/23	10/11/23 14:09	1011
Surrogate(s)	***Recovery***		***Limits***					
Toluene-D8	*98*	*%*	*80-120*		*1*	*10/11/23*	*10/11/23 14:09*	*1011*

PHASE SEPARATION SCIENCE

6630 Baltimore National Pike
Baltimore, MD 21228
410-747-8770
800-932-9047
www.phaseonline.com

Certificate of Analysis

Project Name: Kop-Flex
PSS Project No.: 23100503

Sample ID: Influent VSP-1 **Date/Time Sampled: 10/05/2023 09:45** **PSS Sample ID: 23100503-002**
Matrix: GROUND WATER **Date/Time Received: 10/05/2023 11:05**

TCL Volatile Organic Compounds Analytical Method: SW-846 8260 D Preparation Method: SW5030B

Qualifier(s): See Batch 207304 on Case Narrative.

	Result	Units	RL	Flag	Dil	Prepared	Analyzed	Analyst
Acetone	ND	ug/L	5.0		1	10/10/23	10/10/23 17:08	1011
Benzene	ND	ug/L	1.0		1	10/10/23	10/10/23 17:08	1011
Bromochloromethane	ND	ug/L	1.0		1	10/10/23	10/10/23 17:08	1011
Bromodichloromethane	ND	ug/L	1.0		1	10/10/23	10/10/23 17:08	1011
Bromoform	ND	ug/L	1.0		1	10/10/23	10/10/23 17:08	1011
Bromomethane	ND	ug/L	1.0		1	10/10/23	10/10/23 17:08	1011
2-Butanone (MEK)	ND	ug/L	5.0		1	10/10/23	10/10/23 17:08	1011
Carbon Disulfide	ND	ug/L	1.0		1	10/10/23	10/10/23 17:08	1011
Carbon tetrachloride	ND	ug/L	1.0		1	10/10/23	10/10/23 17:08	1011
Chlorobenzene	ND	ug/L	1.0		1	10/10/23	10/10/23 17:08	1011
Chloroethane	**4.5**	ug/L	1.0		1	10/10/23	10/10/23 17:08	1011
Chloroform	ND	ug/L	1.0		1	10/10/23	10/10/23 17:08	1011
Chloromethane	ND	ug/L	1.0		1	10/10/23	10/10/23 17:08	1011
Cyclohexane	ND	ug/L	1.0		1	10/10/23	10/10/23 17:08	1011
1,2-Dibromo-3-chloropropane	ND	ug/L	1.0		1	10/10/23	10/10/23 17:08	1011
Dibromochloromethane	ND	ug/L	1.0		1	10/10/23	10/10/23 17:08	1011
1,2-Dibromoethane	ND	ug/L	1.0		1	10/10/23	10/10/23 17:08	1011
1,2-Dichlorobenzene	ND	ug/L	1.0		1	10/10/23	10/10/23 17:08	1011
1,3-Dichlorobenzene	ND	ug/L	1.0		1	10/10/23	10/10/23 17:08	1011
Dichlorodifluoromethane	ND	ug/L	1.0		1	10/10/23	10/10/23 17:08	1011
1,4-Dichlorobenzene	ND	ug/L	1.0		1	10/10/23	10/10/23 17:08	1011
1,1-Dichloroethane	**50**	ug/L	1.0		1	10/10/23	10/10/23 17:08	1011
1,2-Dichloroethane	**1.6**	ug/L	1.0		1	10/10/23	10/10/23 17:08	1011
cis-1,2-Dichloroethene	**1.7**	ug/L	1.0		1	10/10/23	10/10/23 17:08	1011
1,1-Dichloroethene	**240**	ug/L	1.0		1	10/10/23	10/10/23 17:08	1011
1,2-Dichloropropane	ND	ug/L	1.0		1	10/10/23	10/10/23 17:08	1011
cis-1,3-Dichloropropene	ND	ug/L	1.0		1	10/10/23	10/10/23 17:08	1011
trans-1,3-Dichloropropene	ND	ug/L	1.0		1	10/10/23	10/10/23 17:08	1011
trans-1,2-Dichloroethene	ND	ug/L	1.0		1	10/10/23	10/10/23 17:08	1011
Ethylbenzene	ND	ug/L	1.0		1	10/10/23	10/10/23 17:08	1011
2-Hexanone (MBK)	ND	ug/L	5.0		1	10/10/23	10/10/23 17:08	1011
Isopropylbenzene	ND	ug/L	1.0		1	10/10/23	10/10/23 17:08	1011
Methyl Acetate	ND	ug/L	1.0		1	10/10/23	10/10/23 17:08	1011
Methylcyclohexane	ND	ug/L	1.0		1	10/10/23	10/10/23 17:08	1011
Methylene chloride	ND	ug/L	1.0		1	10/10/23	10/10/23 17:08	1011

PHASE SEPARATION SCIENCE

6630 Baltimore National Pike
Baltimore, MD 21228
410-747-8770
800-932-9047
www.phaseonline.com

Certificate of Analysis

Project Name: Kop-Flex
PSS Project No.: 23100503

Sample ID: Influent VSP-1 **Date/Time Sampled: 10/05/2023 09:45** **PSS Sample ID: 23100503-002**
Matrix: GROUND WATER **Date/Time Received: 10/05/2023 11:05**

TCL Volatile Organic Compounds — Analytical Method: SW-846 8260 D — Preparation Method: SW5030B

Qualifier(s): See Batch 207304 on Case Narrative.

	Result	Units	RL	Flag	Dil	Prepared	Analyzed	Analyst
4-Methyl-2-Pentanone (MIBK)	ND	ug/L	5.0		1	10/10/23	10/10/23 17:08	1011
Methyl-t-Butyl Ether	ND	ug/L	1.0		1	10/10/23	10/10/23 17:08	1011
Naphthalene	ND	ug/L	1.0		1	10/10/23	10/10/23 17:08	1011
Styrene	ND	ug/L	1.0		1	10/10/23	10/10/23 17:08	1011
1,1,2,2-Tetrachloroethane	ND	ug/L	1.0		1	10/10/23	10/10/23 17:08	1011
Tetrachloroethene	ND	ug/L	1.0		1	10/10/23	10/10/23 17:08	1011
Toluene	ND	ug/L	1.0		1	10/10/23	10/10/23 17:08	1011
1,2,3-Trichlorobenzene	ND	ug/L	1.0		1	10/10/23	10/10/23 17:08	1011
1,2,4-Trichlorobenzene	ND	ug/L	1.0		1	10/10/23	10/10/23 17:08	1011
1,1,1-Trichloroethane	**18**	ug/L	1.0		1	10/10/23	10/10/23 17:08	1011
Trichloroethene	**1.3**	ug/L	1.0		1	10/10/23	10/10/23 17:08	1011
1,1,2-Trichloroethane	ND	ug/L	1.0		1	10/10/23	10/10/23 17:08	1011
Trichlorofluoromethane	ND	ug/L	1.0		1	10/10/23	10/10/23 17:08	1011
1,1,2-Trichlorotrifluoroethane	ND	ug/L	1.0		1	10/10/23	10/10/23 17:08	1011
Vinyl chloride	ND	ug/L	1.0		1	10/10/23	10/10/23 17:08	1011
m&p-Xylene	ND	ug/L	2.0		1	10/10/23	10/10/23 17:08	1011
o-Xylene	ND	ug/L	1.0		1	10/10/23	10/10/23 17:08	1011

Surrogate(s)	*Recovery*		*Limits*				
4-Bromofluorobenzene	*100*	*%*	*88-120*		*1*	*10/10/23*	*10/10/23 17:08*	*1011*
Dibromofluoromethane	*100*	*%*	*92-107*		*1*	*10/10/23*	*10/10/23 17:08*	*1011*
Toluene-D8	*98*	*%*	*95-106*		*1*	*10/10/23*	*10/10/23 17:08*	*1011*

1,4-Dioxane by GC/MS - SIM — Analytical Method: SW-846 8260 D-SIM — Preparation Method: SW5030B

Qualifier(s): See NELAP accreditation section on Case Narrative.

	Result	Units	RL	Flag	Dil	Prepared	Analyzed	Analyst
1,4-Dioxane (P-Dioxane)	**110**	ug/L	10		10	10/11/23	10/11/23 14:53	1011

Surrogate(s)	*Recovery*		*Limits*				
Toluene-D8	*100*	*%*	*80-120*		*10*	*10/11/23*	*10/11/23 14:53*	*1011*

PHASE SEPARATION SCIENCE

6630 Baltimore National Pike
Baltimore, MD 21228
410-747-8770
800-932-9047
www.phaseonline.com

Certificate of Analysis

Project Name: Kop-Flex
PSS Project No.: 23100503

Sample ID: TB-100523 **Date/Time Sampled: 10/05/2023 00:00** **PSS Sample ID: 23100503-003**
Matrix: WATER **Date/Time Received: 10/05/2023 11:05**

VOC (Full List) Analytical Method: EPA 624 .1 Preparation Method: E624.1

pH=2

	Result	Units	RL	Flag	Dil	Prepared	Analyzed	Analyst
Acrolein	ND	ug/L	5.0		1	10/07/23	10/07/23 12:29	1011
Acrylonitrile	ND	ug/L	5.0		1	10/07/23	10/07/23 12:29	1011
Dichlorodifluoromethane	ND	ug/L	1.0		1	10/07/23	10/07/23 12:29	1011
Chloromethane	ND	ug/L	1.0		1	10/07/23	10/07/23 12:29	1011
Vinyl Chloride	ND	ug/L	1.0		1	10/07/23	10/07/23 12:29	1011
Bromomethane	ND	ug/L	1.0		1	10/07/23	10/07/23 12:29	1011
Chloroethane	ND	ug/L	1.0		1	10/07/23	10/07/23 12:29	1011
Trichlorofluoromethane	ND	ug/L	1.0		1	10/07/23	10/07/23 12:29	1011
2-Chloroethyl Vinyl Ether	ND	ug/L	1.0		1	10/07/23	10/07/23 12:29	1011
1,1-Dichloroethene	ND	ug/L	1.0		1	10/07/23	10/07/23 12:29	1011
Methylene Chloride	ND	ug/L	1.0		1	10/07/23	10/07/23 12:29	1011
trans-1,2-dichloroethene	ND	ug/L	1.0		1	10/07/23	10/07/23 12:29	1011
1,1-Dichloroethane	ND	ug/L	1.0		1	10/07/23	10/07/23 12:29	1011
Chloroform	ND	ug/L	1.0		1	10/07/23	10/07/23 12:29	1011
1,1,1-Trichloroethane	ND	ug/L	1.0		1	10/07/23	10/07/23 12:29	1011
Carbon Tetrachloride	ND	ug/L	1.0		1	10/07/23	10/07/23 12:29	1011
Benzene	ND	ug/L	1.0		1	10/07/23	10/07/23 12:29	1011
1,2-Dichloroethane	ND	ug/L	1.0		1	10/07/23	10/07/23 12:29	1011
Trichloroethene	ND	ug/L	1.0		1	10/07/23	10/07/23 12:29	1011
1,2-Dichloropropane	ND	ug/L	1.0		1	10/07/23	10/07/23 12:29	1011
Bromodichloromethane	ND	ug/L	1.0		1	10/07/23	10/07/23 12:29	1011
cis-1,3-Dichloropropene	ND	ug/L	1.0		1	10/07/23	10/07/23 12:29	1011
Toluene	ND	ug/L	1.0		1	10/07/23	10/07/23 12:29	1011
trans-1,3-dichloropropene	ND	ug/L	1.0		1	10/07/23	10/07/23 12:29	1011
1,1,2-Trichloroethane	ND	ug/L	1.0		1	10/07/23	10/07/23 12:29	1011
Tetrachloroethylene	ND	ug/L	1.0		1	10/07/23	10/07/23 12:29	1011
Dibromochloromethane	ND	ug/L	1.0		1	10/07/23	10/07/23 12:29	1011
Chlorobenzene	ND	ug/L	1.0		1	10/07/23	10/07/23 12:29	1011
Ethylbenzene	ND	ug/L	1.0		1	10/07/23	10/07/23 12:29	1011
Bromoform	ND	ug/L	1.0		1	10/07/23	10/07/23 12:29	1011
1,1,2,2-Tetrachloroethane	ND	ug/L	1.0		1	10/07/23	10/07/23 12:29	1011
1,3-Dichlorobenzene	ND	ug/L	1.0		1	10/07/23	10/07/23 12:29	1011
1,4-Dichlorobenzene	ND	ug/L	1.0		1	10/07/23	10/07/23 12:29	1011
1,2-Dichlorobenzene	ND	ug/L	1.0		1	10/07/23	10/07/23 12:29	1011

PHASE SEPARATION SCIENCE

6630 Baltimore National Pike
Baltimore, MD 21228
410-747-8770
800-932-9047
www.phaseonline.com

Certificate of Analysis

Project Name: Kop-Flex
PSS Project No.: 23100503

Sample ID: TB-100523 **Date/Time Sampled: 10/05/2023 00:00** **PSS Sample ID: 23100503-003**
Matrix: WATER **Date/Time Received: 10/05/2023 11:05**

VOC (Full List) Analytical Method: EPA 624 .1 Preparation Method: E624.1

pH=2

Surrogate(s)	*Recovery*		*Limits*				
Dibromofluoromethane	*100*	*%*	*94-108*	*1*	*10/07/23*	*10/07/23 12:29*	*1011*
4-Bromofluorobenzene	*103*	*%*	*77-120*	*1*	*10/07/23*	*10/07/23 12:29*	*1011*
Toluene-D8	*98*	*%*	*95-104*	*1*	*10/07/23*	*10/07/23 12:29*	*1011*

1,4-Dioxane by GC/MS - SIM Analytical Method: SW-846 8260 D-SIM Preparation Method: SW5030B

Qualifier(s): See NELAP accreditation section on Case Narrative.

	Result	Units	RL	Flag	Dil	Prepared	Analyzed	Analyst
1,4-Dioxane (P-Dioxane)	ND	ug/L	1.0		1	10/11/23	10/11/23 14:31	1011

Surrogate(s)	*Recovery*		*Limits*				
Toluene-D8	*98*	*%*	*80-120*	*1*	*10/11/23*	*10/11/23 14:31*	*1011*

6630 Baltimore National Pike
Baltimore, MD 21228
410-747-8770
800-932-9047
www.phaseonline.com

Project Name: Kop-Flex

PSS Project No.: 23100503

Any holding time exceedances, deviations from the method specifications, regulatory requirements or variations to the procedures outlined in the PSS Quality Assurance Manual are outlined below.

Matrix spike and matrix spike duplicate analyses may not be performed due to insufficient sample quantity. In these instances, a laboratory control sample and laboratory control sample duplicate are analyzed unless otherwise noted or specified in the method.

Sample Receipt:

All sample receipt conditions were acceptable.

Analytical:

TCL Volatile Organic Compounds

Batch: 207304

Continuing calibration verification standard (CCV) meets method criteria in that more than 80% of analytes are within acceptance limits, see QC summary.

NELAP accreditation was held for all analyses performed unless noted below. See www.phaseonline.com for complete PSS scope of accreditation.

SW-846 8260 D-SIM: 1,4-Dioxane

PHASE SEPARATION SCIENCE

6630 Baltimore National Pike
Baltimore, MD 21228
410-747-8770
800-932-9047
www.phaseonline.com

Lab Chronology

Project Name: Kop-Flex
PSS Project No.: 23100503

Method	Client Sample ID	Analysis Type	PSS Sample ID	Mtx	Prep Batch	Analytical Batch	Prepared	Analyzed
EPA 624 .1	TB-100523	Initial	23100503-003	W	97324	207239	10/07/2023 09:33	10/07/2023 12:29
	97324-1-BKS	BKS	97324-1-BKS	W	97324	207239	10/07/2023 09:33	10/07/2023 09:53
	97324-1-BLK	BLK	97324-1-BLK	W	97324	207239	10/07/2023 09:33	10/07/2023 11:06
	Effluent VSP-4 S	MS	23100502-001 S	W	97324	207239	10/07/2023 09:33	10/07/2023 15:34
	Effluent VSP-4 SD	MSD	23100502-001 S	W	97324	207239	10/07/2023 09:33	10/07/2023 15:54
SW-846 8260 D	Influent VSP-1	Initial	23100503-002	W	97356	207304	10/10/2023 09:02	10/10/2023 17:08
	97356-1-BKS	BKS	97356-1-BKS	W	97356	207304	10/10/2023 09:02	10/10/2023 09:02
	97356-1-BLK	BLK	97356-1-BLK	W	97356	207304	10/10/2023 09:02	10/10/2023 10:15
	14044-Eff-10/23 S	MS	23100504-001 S	W	97356	207304	10/10/2023 09:02	10/10/2023 14:03
	14044-Eff-10/23 SD	MSD	23100504-001 S	W	97356	207304	10/10/2023 09:02	10/10/2023 14:24
SW-846 8260 D-SIM	Effluent VSP-4	Initial	23100503-001	W	97384	207355	10/11/2023 07:54	10/11/2023 14:09
	Influent VSP-1	Initial	23100503-002	W	97384	207355	10/11/2023 07:54	10/11/2023 14:53
	TB-100523	Initial	23100503-003	W	97384	207355	10/11/2023 07:54	10/11/2023 14:31
	97384-1-BKS	BKS	97384-1-BKS	W	97384	207355	10/11/2023 07:54	10/11/2023 11:57
	97384-1-BLK	BLK	97384-1-BLK	W	97384	207355	10/11/2023 07:54	10/11/2023 13:03
	97384-1-BSD	BSD	97384-1-BSD	W	97384	207355	10/11/2023 07:54	10/11/2023 12:19

PHASE SEPARATION SCIENCE

6630 Baltimore National Pike
Baltimore, MD 21228
410-747-8770
800-932-9047
www.phaseonline.com

QC Summary

Project Name Kop-Flex
PSS Project No.: 23100503

Analytical Method: EPA 624 .1
Seq Number: 207239
MB Sample Id: 97324-1-BLK

Matrix: Water
LCS Sample Id: 97324-1-BKS

Prep Method: E624PREP
Date Prep: 10/07/23

Parameter	MB Result	Spike Amount	LCS Result	LCS %Rec	Limits	Units	Flag
Acrolein	0.2200	50.00	54.27	109	60-140	ug/L	
Acrylonitrile	<0.005000	50.00	49.63	99	60-140	ug/L	
Dichlorodifluoromethane	0.04000	50.00	52.50	105	51-128	ug/L	
Chloromethane	<0.001000	50.00	49.03	98	1-205	ug/L	
Vinyl Chloride	<0.001000	50.00	50.43	101	5-195	ug/L	
Bromomethane	0.2200	50.00	58.47	117	15-185	ug/L	
Chloroethane	<0.001000	50.00	43.36	87	40-160	ug/L	
Trichlorofluoromethane	0.05000	50.00	52.11	104	50-150	ug/L	
2-Chloroethyl Vinyl Ether	<0.001000	50.00	53.78	108	1-225	ug/L	
1,1-Dichloroethene	<0.001000	50.00	52.19	104	50-150	ug/L	
Methylene Chloride	<0.001000	50.00	49.57	99	60-140	ug/L	
trans-1,2-dichloroethene	0.1000	50.00	51.32	103	70-130	ug/L	
1,1-Dichloroethane	<0.001000	50.00	51.70	103	70-130	ug/L	
Chloroform	0.04000	50.00	50.45	101	70-135	ug/L	
1,1,1-Trichloroethane	<0.001000	50.00	53.29	107	70-130	ug/L	
Carbon Tetrachloride	0.02000	50.00	53.53	107	70-130	ug/L	
Benzene	0.05000	50.00	51.22	102	65-135	ug/L	
1,2-Dichloroethane	<0.001000	50.00	50.75	102	70-130	ug/L	
Trichloroethene	0.09000	50.00	51.68	103	65-135	ug/L	
1,2-Dichloropropane	<0.001000	50.00	51.57	103	35-165	ug/L	
Bromodichloromethane	<0.001000	50.00	52.68	105	65-135	ug/L	
cis-1,3-Dichloropropene	<0.001000	50.00	56.14	112	25-175	ug/L	
Toluene	0.06000	50.00	51.62	103	70-130	ug/L	
trans-1,3-dichloropropene	0.04000	50.00	51.04	102	50-150	ug/L	
1,1,2-Trichloroethane	<0.001000	50.00	51.35	103	70-130	ug/L	
Tetrachloroethylene	0.1200	50.00	52.71	105	70-130	ug/L	
Dibromochloromethane	<0.001000	50.00	54.50	109	70-135	ug/L	
Chlorobenzene	<0.001000	50.00	51.28	103	65-135	ug/L	
Ethylbenzene	0.07000	50.00	53.99	108	60-140	ug/L	
Bromoform	<0.001000	50.00	55.70	111	70-130	ug/L	
1,1,2,2-Tetrachloroethane	<0.001000	50.00	50.74	101	60-140	ug/L	
1,3-Dichlorobenzene	0.2200	50.00	51.74	103	70-130	ug/L	
1,4-Dichlorobenzene	<0.001000	50.00	50.74	101	65-135	ug/L	
1,2-Dichlorobenzene	0.1500	50.00	51.63	103	65-135	ug/L	

Surrogate	MB %Rec	MB Flag	LCS Result	LCS Flag	Limits	Units
Dibromofluoromethane	100		101		94-108	%
4-Bromofluorobenzene	104		99		77-120	%
Toluene-D8	98		101		95-104	%

PHASE SEPARATION SCIENCE

6630 Baltimore National Pike
Baltimore, MD 21228
410-747-8770
800-932-9047
www.phaseonline.com

QC Summary

Project Name Kop-Flex
PSS Project No.: 23100503

Analytical Method: SW-846 8260 D Prep Method: SW5030B
Seq Number: 207304 Matrix: Water Date Prep: 10/10/23
MB Sample Id: 97356-1-BLK LCS Sample Id: 97356-1-BKS

Parameter	MB Result	Spike Amount	LCS Result	LCS %Rec	Limits	Units	Flag
Acetone	<5.000	50.00	50.46	101	49-154	ug/L	
Benzene	<1.000	50.00	49.34	99	76-112	ug/L	
Bromochloromethane	<1.000	50.00	49.55	99	74-119	ug/L	
Bromodichloromethane	<1.000	50.00	51.45	103	78-117	ug/L	
Bromoform	<1.000	50.00	55.17	110	69-123	ug/L	
Bromomethane	<1.000	50.00	50.67	101	42-118	ug/L	
2-Butanone (MEK)	<5.000	50.00	59.72	119	55-136	ug/L	
Carbon Disulfide	<1.000	50.00	53.03	106	80-124	ug/L	
Carbon tetrachloride	<1.000	50.00	51.65	103	77-119	ug/L	
Chlorobenzene	<1.000	50.00	47.97	96	76-114	ug/L	
Chloroethane	<1.000	50.00	38.33	77	61-113	ug/L	
Chloroform	<1.000	50.00	48.35	97	75-113	ug/L	
Chloromethane	<1.000	50.00	38.29	77	41-148	ug/L	
Cyclohexane	<1.000	50.00	50.40	101	76-135	ug/L	
1,2-Dibromo-3-chloropropane	<1.000	50.00	52.82	106	52-131	ug/L	
Dibromochloromethane	<1.000	50.00	52.32	105	79-121	ug/L	
1,2-Dibromoethane	<1.000	50.00	49.09	98	77-119	ug/L	
1,2-Dichlorobenzene	<1.000	50.00	47.71	95	75-121	ug/L	
1,3-Dichlorobenzene	<1.000	50.00	47.79	96	77-120	ug/L	
Dichlorodifluoromethane	<1.000	50.00	46.32	93	49-122	ug/L	
1,4-Dichlorobenzene	<1.000	50.00	46.68	93	76-118	ug/L	
1,1-Dichloroethane	<1.000	50.00	49.12	98	75-118	ug/L	
1,2-Dichloroethane	<1.000	50.00	48.23	96	72-115	ug/L	
cis-1,2-Dichloroethene	<1.000	50.00	49.80	100	75-119	ug/L	
1,1-Dichloroethene	<1.000	50.00	48.79	98	74-119	ug/L	
1,2-Dichloropropane	<1.000	50.00	49.48	99	76-115	ug/L	
cis-1,3-Dichloropropene	<1.000	50.00	54.45	109	83-122	ug/L	
trans-1,3-Dichloropropene	<1.000	50.00	49.51	99	76-118	ug/L	
trans-1,2-Dichloroethene	<1.000	50.00	49.66	99	73-121	ug/L	
Ethylbenzene	<1.000	50.00	49.78	100	78-118	ug/L	
2-Hexanone (MBK)	<5.000	50.00	59.14	118	55-136	ug/L	
Isopropylbenzene	<1.000	50.00	48.65	97	76-126	ug/L	
Methyl Acetate	<1.000	50.00	50.04	100	61-117	ug/L	
Methylcyclohexane	<1.000	50.00	51.17	102	82-126	ug/L	
Methylene chloride	<1.000	50.00	49.11	98	75-113	ug/L	
4-Methyl-2-Pentanone (MIBK)	<5.000	50.00	55.57	111	57-127	ug/L	
Methyl-t-Butyl Ether	<1.000	50.00	50.70	101	71-114	ug/L	
Naphthalene	<1.000	50.00	52.07	104	60-122	ug/L	
Styrene	<1.000	50.00	51.63	103	81-124	ug/L	
1,1,2,2-Tetrachloroethane	<1.000	50.00	47.16	94	66-123	ug/L	
Tetrachloroethene	<1.000	50.00	51.07	102	76-123	ug/L	
Toluene	<1.000	50.00	50.28	101	77-112	ug/L	
1,2,3-Trichlorobenzene	<1.000	50.00	49.16	98	73-129	ug/L	
1,2,4-Trichlorobenzene	<1.000	50.00	49.58	99	73-130	ug/L	
1,1,1-Trichloroethane	<1.000	50.00	50.64	101	79-118	ug/L	
Trichloroethene	<1.000	50.00	49.62	99	77-112	ug/L	
1,1,2-Trichloroethane	<1.000	50.00	49.63	99	75-115	ug/L	
Trichlorofluoromethane	<1.000	50.00	45.09	90	74-125	ug/L	
1,1,2-Trichlorotrifluoroethane	<1.000	50.00	48.67	97	77-123	ug/L	
Vinyl chloride	<1.000	50.00	38.60	77	53-151	ug/L	
m&p-Xylene	<2.000	100	99.46	99	79-121	ug/L	

PHASE SEPARATION SCIENCE

6630 Baltimore National Pike
Baltimore, MD 21228
410-747-8770
800-932-9047
www.phaseonline.com

QC Summary

Project Name Kop-Flex
PSS Project No.: 23100503

Analytical Method: SW-846 8260 D Prep Method: SW5030B
Seq Number: 207304 Matrix: Water Date Prep: 10/10/23
MB Sample Id: 97356-1-BLK LCS Sample Id: 97356-1-BKS

Parameter	MB Result	Spike Amount	LCS Result	LCS %Rec	Limits	Units	Flag
o-Xylene	<1.000	50.00	48.72	97	78-122	ug/L	

Surrogate	MB %Rec	MB Flag	LCS Result	LCS Flag	Limits	Units
4-Bromofluorobenzene	101		97		88-120	%
Dibromofluoromethane	100		101		92-107	%
Toluene-D8	99		102		95-106	%

Analytical Method: SW-846 8260 D-SIM Prep Method: SW5030B
Seq Number: 207355 Matrix: Water Date Prep: 10/11/23
MB Sample Id: 97384-1-BLK LCS Sample Id: 97384-1-BKS LCSD Sample Id: 97384-1-BSD

Parameter	MB Result	Spike Amount	LCS Result	LCS %Rec	LCSD Result	LCSD %Rec	Limits	RPD	RPD Limit	Units	Flag
1,4-Dioxane (P-Dioxane)	<1.000	30.00	31.10	104	33.22	111	50-150	7	20	ug/L	

Surrogate	MB %Rec	MB Flag	LCS Result	LCS Flag	LCSD Result	LCSD Flag	Limits	Units
Toluene-D8	98		99		99		80-120	%

F = RPD exceeded the laboratory control limits
X = Recovery of MS, MSD or both outside of QC Criteria
H= Recovery of BS,BSD or both exceeded the laboratory control limits
L = Recovery of BS,BSD or both below the laboratory control limits

PHASE SEPARATION SCIENCE

6630 Baltimore National Pike
Baltimore, MD 21228
410-747-8770
800-932-9047
www.phaseonline.com

QC Summary

Project Name Kop-Flex
PSS Project No.: 23100503

Analytical Method: EPA 624 .1

Seq Number: 207227 Matrix: Water
Parent Sample Id: ICV-01 ICV Sample Id: ICV-01 Analyzed Date: 10/06/23 19:06

Parameter	Spike Amount	ICV Result	ICV %Rec	Limits	Units	Flag
Acrolein	0.05000	0.04405	88	60-140	mg/L	
Acrylonitrile	0.05000	0.04374	87	60-140	mg/L	
Dichlorodifluoromethane	0.05000	0.04417	88	51-128	mg/L	
Chloromethane	0.05000	0.04323	86	1-205	mg/L	
Vinyl Chloride	0.05000	0.04468	89	5-195	mg/L	
Bromomethane	0.05000	0.05103	102	15-185	mg/L	
Chloroethane	0.05000	0.03685	74	40-160	mg/L	
Trichlorofluoromethane	0.05000	0.04516	90	50-150	mg/L	
2-Chloroethyl Vinyl Ether	0.05000	0.04695	94	1-225	mg/L	
1,1-Dichloroethene	0.05000	0.04566	91	50-150	mg/L	
Methylene Chloride	0.05000	0.04388	88	60-140	mg/L	
trans-1,2-dichloroethene	0.05000	0.04581	92	70-130	mg/L	
1,1-Dichloroethane	0.05000	0.04547	91	70-130	mg/L	
Chloroform	0.05000	0.04426	89	70-135	mg/L	
1,1,1-Trichloroethane	0.05000	0.04657	93	70-130	mg/L	
Carbon Tetrachloride	0.05000	0.04647	93	70-130	mg/L	
Benzene	0.05000	0.04462	89	65-135	mg/L	
1,2-Dichloroethane	0.05000	0.04391	88	70-130	mg/L	
Trichloroethene	0.05000	0.04568	91	65-135	mg/L	
1,2-Dichloropropane	0.05000	0.04512	90	35-165	mg/L	
Bromodichloromethane	0.05000	0.04576	92	65-135	mg/L	
cis-1,3-Dichloropropene	0.05000	0.04854	97	25-175	mg/L	
Toluene	0.05000	0.04532	91	70-130	mg/L	
trans-1,3-dichloropropene	0.05000	0.04413	88	50-150	mg/L	
1,1,2-Trichloroethane	0.05000	0.04445	89	70-130	mg/L	
Tetrachloroethylene	0.05000	0.04626	93	70-130	mg/L	
Dibromochloromethane	0.05000	0.04608	92	70-135	mg/L	
Chlorobenzene	0.05000	0.04438	89	65-135	mg/L	
Ethylbenzene	0.05000	0.04626	93	60-140	mg/L	
Bromoform	0.05000	0.04690	94	70-130	mg/L	
1,1,2,2-Tetrachloroethane	0.05000	0.04339	87	60-140	mg/L	
1,3-Dichlorobenzene	0.05000	0.04536	91	70-130	mg/L	
1,4-Dichlorobenzene	0.05000	0.04424	88	65-135	mg/L	
1,2-Dichlorobenzene	0.05000	0.04485	90	65-135	mg/L	

Surrogate	ICV Result	Limits	Units	Flag
Dibromofluoromethane	101	94-108	%	
4-Bromofluorobenzene	99	77-120	%	
Toluene-D8	101	95-104	%	

PHASE SEPARATION SCIENCE

6630 Baltimore National Pike
Baltimore, MD 21228
410-747-8770
800-932-9047
www.phaseonline.com

QC Summary

Project Name Kop-Flex
PSS Project No.: 23100503

Analytical Method: SW-846 8260 D

Seq Number: 207304 Matrix: Water

CCV Sample Id: CCV-01 Analyzed Date: 10/10/23 09:02

Parameter	Spike Amount	CCV Result	CCV %Rec	Limits	Units	Flag
Acetone	50.00	50.46	101	80-120	ug/L	
Benzene	50.00	49.34	99	80-120	ug/L	
Bromochloromethane	50.00	49.55	99	80-120	ug/L	
Bromodichloromethane	50.00	51.45	103	80-120	ug/L	
Bromoform	50.00	55.17	110	80-120	ug/L	
Bromomethane	50.00	50.67	101	80-120	ug/L	
2-Butanone (MEK)	50.00	59.72	119	80-120	ug/L	
Carbon Disulfide	50.00	53.03	106	80-120	ug/L	
Carbon tetrachloride	50.00	51.65	103	80-120	ug/L	
Chlorobenzene	50.00	47.97	96	80-120	ug/L	
Chloroethane	50.00	38.33	77	80-120	ug/L	X
Chloroform	50.00	48.35	97	80-120	ug/L	
Chloromethane	50.00	38.29	77	80-120	ug/L	X
Cyclohexane	50.00	50.40	101	80-120	ug/L	
1,2-Dibromo-3-chloropropane	50.00	52.82	106	80-120	ug/L	
Dibromochloromethane	50.00	52.32	105	80-120	ug/L	
1,2-Dibromoethane	50.00	49.09	98	80-120	ug/L	
1,2-Dichlorobenzene	50.00	47.71	95	80-120	ug/L	
1,3-Dichlorobenzene	50.00	47.79	96	80-120	ug/L	
Dichlorodifluoromethane	50.00	46.32	93	80-120	ug/L	
1,4-Dichlorobenzene	50.00	46.68	93	80-120	ug/L	
1,1-Dichloroethane	50.00	49.12	98	80-120	ug/L	
1,2-Dichloroethane	50.00	48.23	96	80-120	ug/L	
cis-1,2-Dichloroethene	50.00	49.80	100	80-120	ug/L	
1,1-Dichloroethene	50.00	48.79	98	80-120	ug/L	
1,2-Dichloropropane	50.00	49.48	99	80-120	ug/L	
cis-1,3-Dichloropropene	50.00	54.45	109	80-120	ug/L	
trans-1,3-Dichloropropene	50.00	49.51	99	80-120	ug/L	
trans-1,2-Dichloroethene	50.00	49.66	99	80-120	ug/L	
Ethylbenzene	50.00	49.78	100	80-120	ug/L	
2-Hexanone (MBK)	50.00	59.14	118	80-120	ug/L	
Isopropylbenzene	50.00	48.65	97	80-120	ug/L	
Methyl Acetate	50.00	50.04	100	80-120	ug/L	
Methylcyclohexane	50.00	51.17	102	80-120	ug/L	
Methylene chloride	50.00	49.11	98	80-120	ug/L	
4-Methyl-2-Pentanone (MIBK)	50.00	55.57	111	80-120	ug/L	
Methyl-t-Butyl Ether	50.00	50.70	101	80-120	ug/L	
Naphthalene	50.00	52.07	104	80-120	ug/L	
Styrene	50.00	51.63	103	80-120	ug/L	
1,1,2,2-Tetrachloroethane	50.00	47.16	94	80-120	ug/L	
Tetrachloroethene	50.00	51.07	102	80-120	ug/L	
Toluene	50.00	50.28	101	80-120	ug/L	
1,2,3-Trichlorobenzene	50.00	49.16	98	80-120	ug/L	
1,2,4-Trichlorobenzene	50.00	49.58	99	80-120	ug/L	
1,1,1-Trichloroethane	50.00	50.64	101	80-120	ug/L	
Trichloroethene	50.00	49.62	99	80-120	ug/L	
1,1,2-Trichloroethane	50.00	49.63	99	80-120	ug/L	
Trichlorofluoromethane	50.00	45.09	90	80-120	ug/L	
1,1,2-Trichlorotrifluoroethane	50.00	48.67	97	80-120	ug/L	
Vinyl chloride	50.00	38.60	77	80-120	ug/L	X
m&p-Xylene	100	99.46	99	80-120	ug/L	

PHASE SEPARATION SCIENCE

6630 Baltimore National Pike
Baltimore, MD 21228
410-747-8770
800-932-9047
www.phaseonline.com

QC Summary

Project Name Kop-Flex
PSS Project No.: 23100503

Analytical Method: SW-846 8260 D

Seq Number: 207304 Matrix: Water

CCV Sample Id: CCV-01 Analyzed Date: 10/10/23 09:02

Parameter	Spike Amount	CCV Result	CCV %Rec	Limits	Units	Flag
o-Xylene	50.00	48.72	97	80-120	ug/L	

Surrogate	CCV Result	Limits	Units	Flag
4-Bromofluorobenzene	97	80-120	%	
Dibromofluoromethane	101	80-120	%	
Toluene-D8	102	80-120	%	

PHASE SEPARATION SCIENCE

6630 Baltimore National Pike
Baltimore, MD 21228
410-747-8770
800-932-9047
www.phaseonline.com

QC Summary

Project Name Kop-Flex
PSS Project No.: 23100503

Analytical Method: SW-846 8260 D

Seq Number: 207226 Matrix: Water
Parent Sample Id: ICV-01 ICV Sample Id: ICV-01 Analyzed Date: 10/06/23 19:06

Parameter	Spike Amount	ICV Result	ICV %Rec	Limits	Units	Flag
Acetone	50.00	36.37	73	70-130	ug/L	
Benzene	50.00	44.62	89	70-130	ug/L	
Bromochloromethane	50.00	44.29	89	70-130	ug/L	
Bromodichloromethane	50.00	45.76	92	70-130	ug/L	
Bromoform	50.00	46.90	94	70-130	ug/L	
Bromomethane	50.00	51.03	102	70-130	ug/L	
2-Butanone (MEK)	50.00	38.76	78	70-130	ug/L	
Carbon Disulfide	50.00	49.30	99	70-130	ug/L	
Carbon tetrachloride	50.00	46.47	93	70-130	ug/L	
Chlorobenzene	50.00	44.38	89	70-130	ug/L	
Chloroethane	50.00	36.85	74	70-130	ug/L	
Chloroform	50.00	44.26	89	70-130	ug/L	
Chloromethane	50.00	43.23	86	70-130	ug/L	
Cyclohexane	50.00	47.22	94	70-130	ug/L	
1,2-Dibromo-3-chloropropane	50.00	46.44	93	70-130	ug/L	
Dibromochloromethane	50.00	46.08	92	70-130	ug/L	
1,2-Dibromoethane	50.00	45.44	91	70-130	ug/L	
1,2-Dichlorobenzene	50.00	44.85	90	70-130	ug/L	
1,3-Dichlorobenzene	50.00	45.36	91	70-130	ug/L	
Dichlorodifluoromethane	50.00	44.17	88	70-130	ug/L	
1,4-Dichlorobenzene	50.00	44.24	88	70-130	ug/L	
1,1-Dichloroethane	50.00	45.47	91	70-130	ug/L	
1,2-Dichloroethane	50.00	43.91	88	70-130	ug/L	
cis-1,2-Dichloroethene	50.00	45.74	91	70-130	ug/L	
1,1-Dichloroethene	50.00	45.66	91	70-130	ug/L	
1,2-Dichloropropane	50.00	45.12	90	70-130	ug/L	
cis-1,3-Dichloropropene	50.00	48.54	97	70-130	ug/L	
trans-1,3-Dichloropropene	50.00	44.13	88	70-130	ug/L	
trans-1,2-Dichloroethene	50.00	45.81	92	70-130	ug/L	
Ethylbenzene	50.00	46.26	93	70-130	ug/L	
2-Hexanone (MBK)	50.00	40.73	81	70-130	ug/L	
Isopropylbenzene	50.00	46.91	94	70-130	ug/L	
Methyl Acetate	50.00	45.06	90	70-130	ug/L	
Methylcyclohexane	50.00	47.36	95	70-130	ug/L	
Methylene chloride	50.00	43.88	88	70-130	ug/L	
4-Methyl-2-Pentanone (MIBK)	50.00	45.77	92	70-130	ug/L	
Methyl-t-Butyl Ether	50.00	46.79	94	70-130	ug/L	
Naphthalene	50.00	50.50	101	70-130	ug/L	
Styrene	50.00	47.76	96	70-130	ug/L	
1,1,2,2-Tetrachloroethane	50.00	43.39	87	70-130	ug/L	
Tetrachloroethene	50.00	46.26	93	70-130	ug/L	
Toluene	50.00	45.32	91	70-130	ug/L	
1,2,3-Trichlorobenzene	50.00	48.11	96	70-130	ug/L	
1,2,4-Trichlorobenzene	50.00	48.88	98	70-130	ug/L	
1,1,1-Trichloroethane	50.00	46.57	93	70-130	ug/L	
Trichloroethene	50.00	45.68	91	70-130	ug/L	
1,1,2-Trichloroethane	50.00	44.45	89	70-130	ug/L	
Trichlorofluoromethane	50.00	45.16	90	70-130	ug/L	
1,1,2-Trichlorotrifluoroethane	50.00	45.79	92	70-130	ug/L	
Vinyl chloride	50.00	44.68	89	70-130	ug/L	
m&p-Xylene	100	92.61	93	70-130	ug/L	

Analytical Method: SW-846 8260 D

Seq Number: 207226 Matrix: Water
Parent Sample Id: ICV-01 ICV Sample Id: ICV-01 Analyzed Date: 10/06/23 19:06

Parameter	Spike Amount	ICV Result	ICV %Rec	Limits	Units	Flag
o-Xylene	50.00	45.41	91	70-130	ug/L	

Surrogate	ICV Result	Limits	Units	Flag
4-Bromofluorobenzene	99	70-130	%	
Dibromofluoromethane	101	70-130	%	
Toluene-D8	101	70-130	%	

Analytical Method: SW-846 8260 D-SIM

Seq Number: 207355 Matrix: Water
CCV Sample Id: CCV-01 Analyzed Date: 10/11/23 11:35

Parameter	Spike Amount	CCV Result	CCV %Rec	Limits	Units	Flag
1,4-Dioxane (P-Dioxane)	30.00	32.15	107	80-120	ug/L	

Surrogate	CCV Result	Limits	Units	Flag
Toluene-D8	99	80-120	%	

Analytical Method: SW-846 8260 D-SIM

Seq Number: 207355 Matrix: Water
Parent Sample Id: ICV-01 ICV Sample Id: ICV-01 Analyzed Date: 10/11/23 11:13

Parameter	Spike Amount	ICV Result	ICV %Rec	Limits	Units	Flag
1,4-Dioxane (P-Dioxane)	30.00	31.13	104	70-130	ug/L	

Surrogate	ICV Result	Limits	Units	Flag
Toluene-D8	100	80-120	%	

X = Recovery outside of QC Criteria

PHASE SEPARATION SCIENCE

CHAIN OF CUSTODY FORM

All fields must be completed accurately. Shaded sections for lab use only.

www.phaseonline.com ~ info@phaseonline.com

6630 Baltimore National Pike • Suite 103-A • Baltimore, Maryland 21228 • (410) 747-8770 • (800) 932-9047

① PSS CLIENT: WSP USA | OFFICE LOCATION: Herndon, VA

BILL TO (if different): | PHONE #: 703-709-6500

CONTACT: Eric Johnson | EMAIL: eric.johnson@wsp.com

PROJECT NAME: Kop-flex | PROJECT #: 31405608.010/0202

SITE LOCATION: Hanover, MD | P.O. #:

SAMPLER(S): Shannon Burke | DW CERT #:

PSS Work Order #: 23100503 | PAGE 1 OF 1

Matrix Codes: **SW**=Surface Water **DW**=Drinking Water **GW**=Ground Water **WW**=Waste Water **O**=Oil **S**=Soil **SOL**=Solid **A**=Air **WI**=Wipe

② Preservatives Use Codes: 1 | 1 | 1

Analysis/Method Required ③: 1,4-dioxane (8260 SIM) | VOCs (8260) | VOCs (624)

Preservative Codes: 1 - HCL; 2 - H_2SO_4; 3 - HNO_3; 4 - NaOH; 5 - E624KIT; 6 - ICE; 7 - Sodium Thiosulfate; 8 - Ascorbic Acid; 9 - TerraCore Kit

PSS ID	SAMPLE IDENTIFICATION	DATE SAMPLED	TIME SAMPLED	MATRIX Use Codes	# OF CONTAINERS	SAMPLE TYPE: C=COMPOSITE G=GRAB	1,4-dioxane (8260 SIM)	VOCs (8260)	VOCs (624)
1	Effluent VSP-4	10/5/23	0935	WW	3	G	X		
2	Influent VSP-1	10/5/23	0945	GW	6	G	X	X	
3	TB-100523	—	—	TB	4	—	X		X

⑤

Relinquished By:	Date	Time	Received By:
(1) Shannon Burke	10/5/23	1005	2462
(2) Keen 2462	10/5/23	10:22	
(3)	10/5/23	1125	
(4)			

④

Requested TAT (One TAT per COC): ☐ 5-Day ☐ 3-Day ☐ 2-Day ☐ Next Day ☐ Emergency ☒ Other

STATE RESULTS REPORTED TO: ☐ MD ☐ DE ☐ PA ☐ VA ☐ WV ☐ OTHER

COMPLIANCE? ☐ DW ☐ WW

EDD FORMAT TYPE

Ice Present: Pres

Custody Seal: Cooler/outside

Coolers: 1 Temp: 0.4 - 2.3°C

Shipping Carrier: FTE

Special Instructions: Standard 10-day TAT Temp Blank: 0.5°C

This chain of custody is a legal document. The client (PSS Client), by signing, or having client's agent sign, this "Chain of Custody Form", agrees to pay for the above requested services per the latest version of the Service Brochure or PSS-provided quotation including any and all attorney's or other reasonable fees if collection becomes necessary.

PHASE SEPARATION SCIENCE

6630 Baltimore National Pike
Baltimore, MD 21228
410-747-8770
800-932-9047
www.phaseonline.com

Sample Receipt Checklist

Project Name: Kop-Flex
PSS Project No.: 23100503

Client Name WSP USA - Herndon
Disposal Date 11/09/2023

Received By Tyler Enwright
Date Received 10/05/2023 11:05:00 AM
Delivered By Trans Time Express
Tracking No Not Applicable
Logged In By Tyler Enwright

Shipping Container(s)
No. of Coolers 1

		Ice	Present
Custody Seal(s) Intact?	Yes	Temp (deg C)	2.3
Seal(s) Signed / Dated?	Yes	Temp Blank Present	Yes

Documentation

		Sampler Name	Shannon Burke
COC agrees with sample labels?	Yes	MD DW Cert. No.	N/A
Chain of Custody	Yes		

Sample Container

		Custody Seal(s) Intact?	Not Applicable
Appropriate for Specified Analysis?	Yes	Seal(s) Signed / Dated	Not Applicable
Intact?	Yes		
Labeled and Labels Legible?	Yes		

Holding Time

		Total No. of Samples Received	3
All Samples Received Within Holding Time(s)?	Yes	Total No. of Containers Received	13

Preservation

Total Metals	(pH<2)	N/A
Dissolved Metals, filtered within 15 minutes of collection	(pH<2)	N/A
Orthophosphorus, filtered within 15 minutes of collection		N/A
Cyanides	(pH>12)	N/A
Sulfide	(pH>9)	N/A
TOC, DOC (field filtered), COD, Phenols	(pH<2)	N/A
TOX, TKN, NH3, Total Phos	(pH<2)	N/A
VOC, BTEX (VOA Vials Rcvd Preserved)	(pH<2)	Yes
Do VOA vials have zero headspace?		Yes
624 VOC (Rcvd at least one unpreserved VOA vial)		N/A
524 VOC (Rcvd with trip blanks)	(pH<2)	N/A

Comments: (Any "No" response must be detailed in the comments section below.)

For any improper preservation conditions, list sample ID, preservative added (reagent ID number) below as well as documentation of any client notification as well as client instructions. Samples for pH, chlorine and dissolved oxygen should be analyzed as soon as possible, preferably in the field at the time of sampling. Samples which require thermal preservation shall be considered acceptable when received at a temperature above freezing to 6°C. Samples that are hand delivered on the day that they are collected may not meet these criteria but shall be considered acceptable if there is evidence that the chilling process has begun such as arrival on ice.

Samples Inspected/Checklist Completed By: Tyler Enwright — Date: 10/05/2023

PM Review and Approval: Amber Confer — Date: 10/05/2023

PHASE SEPARATION SCIENCE

6630 Baltimore National Pike
Baltimore, MD 21228
410-747-8770
800-932-9047
www.phaseonline.com

Certificate of Analysis

Project Name: Kop-Flex Onsite
PSS Project No.: 23113016

December 14, 2023

Eric Johnson
WSP USA - Herndon
13530 Dulles Technology Dr, Ste 300
Herndon, VA 20171

Reference: PSS Project No: **23113016**
Project Name: Kop-Flex Onsite
Project Location: Hanover, MD
Project ID.: 31405608.010/02.02

Dear Eric Johnson:

This report includes the analytical results from the analyses performed on the samples received under the project name referenced above and identified with the Phase Separation Science (PSS) Project number(s) **23113016**.

All work reported herein has been performed in accordance with current NELAP standards, referenced methodologies, PSS Standard Operating Procedures and the PSS Quality Assurance Manual unless otherwise noted in the Case Narrative Summary. PSS is limited in liability to the actual cost of the sample analysis done.

PSS reserves the right to return any unused samples, extracts or related solutions. Otherwise, the samples are scheduled for disposal, without any further notice, on January 4, 2024, with the exception of air canisters which are cleaned immediately following analysis. This includes any samples that were received with a request to be held but lacked a specific hold period. It is your responsibility to provide a written request defining a specific disposal date if additional storage is required. Upon receipt, the request will be acknowledged by PSS, thus extending the storage period.

This report shall not be reproduced except in full, without the written approval of an authorized PSS representative. A copy of this report will be retained by PSS for at least 5 years, after which time it will be disposed of without further notice, unless prior arrangements have been made.

We thank you for selecting Phase Separation Science, Inc. to serve your analytical needs. If you have any questions concerning this report, do not hesitate to contact us at 410-747-8770 or info@phaseonline.com.

Sincerely,

Dan Prucnal
Laboratory Manager

PHASE SEPARATION SCIENCE

6630 Baltimore National Pike
Baltimore, MD 21228
410-747-8770
800-932-9047
www.phaseonline.com

Sample Summary

Project Name: Kop-Flex Onsite
PSS Project No.: 23113016

The following samples were received under chain of custody by Phase Separation Science (PSS) on 11/30/2023 at 01:30 pm
Please reference the Chain of Custody and Sample Receipt Checklist for specific container counts and preservatives. Any sample conditions not in compliance with sample acceptance criteria are described in Case Narrative Summary.

PSS Sample ID	Sample ID	Matrix	Date/Time Collected
23113016-001	Effluent VSP-4	WASTE WATER	11/30/23 12:20
23113016-002	Trip Blanks	WATER	11/30/23 00:00

PHASE SEPARATION SCIENCE

6630 Baltimore National Pike
Baltimore, MD 21228
410-747-8770
800-932-9047
www.phaseonline.com

Report Information

Project Name: Kop-Flex Onsite

PSS Project No.: 23113016

Notes:

1. The presence of a common laboratory contaminant such as methylene chloride may be considered a possible laboratory artifact. Where observed, appropriate consideration of data should be taken.
2. Unless otherwise noted in the case narrative, results are reported on a dry weight basis with the exception of pH, flashpoint, moisture, and paint filter test.
3. Drinking water samples collected for the purpose of compliance with SDWA may not be suitable for their intended use unless collected by a certified sampler [COMAR 26.08.05.07.C.2].
4. The analyses of 1,2-dibromo-3-chloropropane (DBCP) and 1,2-dibromoethane (EDB) by EPA 524.2 and calcium, magnesium, sodium and iron by EPA 200.8 are not currently promulgated for use in testing to meet the Safe Drinking Water Act and as such cannot be used for compliance purposes. The listings of the current promulgated methods for testing in compliance with the Safe Drinking Water Act can be found in the 40 CFR part 141.1, for the primary drinking water contaminates, and part 141.3, for the secondary drinking water contaminates.
5. Samples prepared under EPA 3550C with concentrations greater than 20 mg/Kg should employ the microtip extraction procedure if required to meet data quality objectives.
6. The analysis of acrolein by EPA 624 must be analyzed within three days of sampling unless pH is adjusted to 4-5 units [40 CFR part 136.3(e)].
7. Alkalinity results analyzed by EPA 310.2 that are reported by dilution are estimated and are not in compliance with method requirements

Standard Flags/Abbreviations:

B	A target analyte was identified in the method blank. Its presence indicates possible field or laboratory contamination.
C	Results pending final confirmation.
Dil	Dilution Factor is the factor applied to the reported data due to dilution of the sample aliquot.
E	The data exceeds the upper calibration limit; therefore, the concentration is reported as estimated.
F	RPD exceeded the laboratory control limits.
Fail	The result exceeds the regulatory level for Toxicity Characteristic (TCLP) as cited in 40 CFR 261.24 Table 1.
H	Recovery of BKS, BSD or both exceeded the laboratory control limits.
J	The target analyte was positively identified below the reporting limit but greater than the MDL.
L	Recovery of BKS, BSD or both below the laboratory control limits.
MCL	The Maximum Contaminant Level is the highest level of a contaminant that is allowed in drinking water as determined by the EPA.
MDL	This is the Laboratory Method Detection Limit which is equivalent to the Limit of Detection (LOD). The LOD is the minimum result, which can be reliably discriminated from a blank with a predetermined confidence level.
ND	Not Detected at or above the reporting limit.
RL	PSS Reporting Limit.
X	Recovery outside of QC criteria.
%Rec	Percent Recovery

QC Types:

CCV	Continuing Calibration Verification	MD	Sample Duplicate
ICV	Initial Calibration Verification	MRL	Minimum Reporting Level
LCS / BKS	Laboratory Control Sample	MS	Matrix Spike
LCSD / BSD	Laboratory Control Sample Duplicate	MSD	Matrix Spike Duplicate
LLCCV	Low Level Continuing Calibration Verification	PDS	Post Digestion Spike
MB / BLK	Method Blank	RPD	Relative Percent Difference

Certifications:

Authority	Program	Identification Number
Maryland - MDE	State - Certification of Drinking Water Laboratories	179
MWAA	LDBE	LD1997-0041-2015
Pennsylvania - PADEP	NELAP	68-03330
USCG	NSWC	Accepted Laboratory
USDA	Regulated Soil Permit	P330-12-00268
Virginia - VELAP	NELAP	460156
West Virginia - WVDEP	State - Certified Laboratories	303

PHASE SEPARATION SCIENCE

6630 Baltimore National Pike
Baltimore, MD 21228
410-747-8770
800-932-9047
www.phaseonline.com

Certificate of Analysis

Project Name: Kop-Flex Onsite
PSS Project No.: 23113016

Sample ID: Effluent VSP-4 **Date/Time Sampled: 11/30/2023 12:20** **PSS Sample ID: 23113016-001**
Matrix: WASTE WATER **Date/Time Received: 11/30/2023 13:30**

Total Metals — Analytical Method: EPA 200.8 — Preparation Method: E200.8

	Result	Units	RL	Flag	Dil	Prepared	Analyzed	Analyst
Copper	**3.8**	ug/L	1.0		1	12/06/23	12/06/23 21:14	1064
Lead	ND	ug/L	1.0		1	12/06/23	12/06/23 21:14	1064
Nickel	**18.6**	ug/L	1.00		1	12/06/23	12/06/23 21:14	1064
Zinc	**28.8**	ug/L	20.0		1	12/06/23	12/06/23 21:14	1064

1,4- Dioxane — Analytical Method: EPA 624 .1 — Preparation Method: E624.1

Qualifier(s): See NELAP accreditation section on Case Narrative.

pH=2

	Result	Units	RL	Flag	Dil	Prepared	Analyzed	Analyst
1,4-Dioxane	ND	ug/L	1.0		1	12/11/23	12/11/23 14:42	1011
Surrogate(s)	***Recovery***		***Limits***					
Dibromofluoromethane	*102*	*%*	*94-108*		*1*	*12/11/23*	*12/11/23 14:42*	*1011*
4-Bromofluorobenzene	*99*	*%*	*77-120*		*1*	*12/11/23*	*12/11/23 14:42*	*1011*
Toluene-D8	*102*	*%*	*95-104*		*1*	*12/11/23*	*12/11/23 14:42*	*1011*

VOC (Full List) — Analytical Method: EPA 624 .1 — Preparation Method: E624.1

pH=7

	Result	Units	RL	Flag	Dil	Prepared	Analyzed	Analyst
Acrolein	ND	ug/L	5.0		1	12/01/23	12/01/23 17:57	1011
Dichlorodifluoromethane	ND	ug/L	1.0		1	12/01/23	12/01/23 17:57	1011
Acrylonitrile	ND	ug/L	5.0		1	12/01/23	12/01/23 17:57	1011
Chloromethane	ND	ug/L	1.0		1	12/01/23	12/01/23 17:57	1011
Vinyl Chloride	ND	ug/L	1.0		1	12/01/23	12/01/23 17:57	1011
Bromomethane	ND	ug/L	1.0		1	12/01/23	12/01/23 17:57	1011
Chloroethane	ND	ug/L	1.0		1	12/01/23	12/01/23 17:57	1011
Trichlorofluoromethane	ND	ug/L	1.0		1	12/01/23	12/01/23 17:57	1011
2-Chloroethyl Vinyl Ether	ND	ug/L	1.0		1	12/01/23	12/01/23 17:57	1011
1,1-Dichloroethene	ND	ug/L	1.0		1	12/01/23	12/01/23 17:57	1011
Methylene Chloride	ND	ug/L	1.0		1	12/01/23	12/01/23 17:57	1011
trans-1,2-dichloroethene	ND	ug/L	1.0		1	12/01/23	12/01/23 17:57	1011
1,1-Dichloroethane	ND	ug/L	1.0		1	12/01/23	12/01/23 17:57	1011
Chloroform	ND	ug/L	1.0		1	12/01/23	12/01/23 17:57	1011
1,1,1-Trichloroethane	ND	ug/L	1.0		1	12/01/23	12/01/23 17:57	1011
Carbon Tetrachloride	ND	ug/L	1.0		1	12/01/23	12/01/23 17:57	1011
Benzene	ND	ug/L	1.0		1	12/01/23	12/01/23 17:57	1011

PHASE SEPARATION SCIENCE

6630 Baltimore National Pike
Baltimore, MD 21228
410-747-8770
800-932-9047
www.phaseonline.com

Certificate of Analysis

Project Name: Kop-Flex Onsite
PSS Project No.: 23113016

Sample ID: Effluent VSP-4 **Date/Time Sampled: 11/30/2023 12:20** **PSS Sample ID: 23113016-001**
Matrix: WASTE WATER **Date/Time Received: 11/30/2023 13:30**

VOC (Full List) Analytical Method: EPA 624 .1 Preparation Method: E624.1

pH=7

	Result	Units	RL	Flag	Dil	Prepared	Analyzed	Analyst
1,2-Dichloroethane	ND	ug/L	1.0		1	12/01/23	12/01/23 17:57	1011
Trichloroethene	ND	ug/L	1.0		1	12/01/23	12/01/23 17:57	1011
1,2-Dichloropropane	ND	ug/L	1.0		1	12/01/23	12/01/23 17:57	1011
Bromodichloromethane	ND	ug/L	1.0		1	12/01/23	12/01/23 17:57	1011
cis-1,3-Dichloropropene	ND	ug/L	1.0		1	12/01/23	12/01/23 17:57	1011
Toluene	ND	ug/L	1.0		1	12/01/23	12/01/23 17:57	1011
trans-1,3-dichloropropene	ND	ug/L	1.0		1	12/01/23	12/01/23 17:57	1011
1,1,2-Trichloroethane	ND	ug/L	1.0		1	12/01/23	12/01/23 17:57	1011
Tetrachloroethylene	ND	ug/L	1.0		1	12/01/23	12/01/23 17:57	1011
Dibromochloromethane	ND	ug/L	1.0		1	12/01/23	12/01/23 17:57	1011
Chlorobenzene	ND	ug/L	1.0		1	12/01/23	12/01/23 17:57	1011
Ethylbenzene	ND	ug/L	1.0		1	12/01/23	12/01/23 17:57	1011
Bromoform	ND	ug/L	1.0		1	12/01/23	12/01/23 17:57	1011
1,1,2,2-Tetrachloroethane	ND	ug/L	1.0		1	12/01/23	12/01/23 17:57	1011
1,3-Dichlorobenzene	ND	ug/L	1.0		1	12/01/23	12/01/23 17:57	1011
1,4-Dichlorobenzene	ND	ug/L	1.0		1	12/01/23	12/01/23 17:57	1011
1,2-Dichlorobenzene	ND	ug/L	1.0		1	12/01/23	12/01/23 17:57	1011

Surrogate(s)	***Recovery***		***Limits***				
Dibromofluoromethane	*101*	*%*	*94-108*		*1*	*12/01/23*	*12/01/23 17:57*	*1011*
4-Bromofluorobenzene	*107*	*%*	*77-120*		*1*	*12/01/23*	*12/01/23 17:57*	*1011*
Toluene-D8	*99*	*%*	*95-104*		*1*	*12/01/23*	*12/01/23 17:57*	*1011*

Total Suspended Solids Analytical Method: SM 2540D -2015

	Result	Units	RL	Flag	Dil	Prepared	Analyzed	Analyst
Total Suspended Solids	**1.1**	mg/L	1.1		1	12/06/23	12/06/23 17:45	1073

PHASE SEPARATION SCIENCE

6630 Baltimore National Pike
Baltimore, MD 21228
410-747-8770
800-932-9047
www.phaseonline.com

Certificate of Analysis

Project Name: Kop-Flex Onsite
PSS Project No.: 23113016

Sample ID: Effluent VSP-4 **Date/Time Sampled: 11/30/2023 12:20** **PSS Sample ID: 23113016-001**
Matrix: WASTE WATER **Date/Time Received: 11/30/2023 13:30**

Biochemical Oxygen Demand Analytical Method: SM 5210B -2016

Qualifier(s): See NELAP accreditation section on Case Narrative.

	Result	Units	RL	Flag	Prepared	Analyzed	Analyst
Biochemical Oxygen Demand, 5 day	ND	mg/L	2		12/01/23	12/01/23 13:00	4009

PHASE SEPARATION SCIENCE

6630 Baltimore National Pike
Baltimore, MD 21228
410-747-8770
800-932-9047
www.phaseonline.com

Certificate of Analysis

Project Name: Kop-Flex Onsite
PSS Project No.: 23113016

Sample ID: Trip Blanks **Date/Time Sampled: 11/30/2023 00:00** **PSS Sample ID: 23113016-002**
Matrix: WATER **Date/Time Received: 11/30/2023 13:30**

1,4- Dioxane — Analytical Method: EPA 624 .1 — Preparation Method: E624.1

Qualifier(s): See NELAP accreditation section on Case Narrative.

pH=2

	Result	Units	RL	Flag	Dil	Prepared	Analyzed	Analyst
1,4-Dioxane	ND	ug/L	1.0		1	12/11/23	12/11/23 15:05	1011
Surrogate(s)	***Recovery***		***Limits***					
Dibromofluoromethane	*101*	*%*	*94-108*		*1*	*12/11/23*	*12/11/23 15:05*	*1011*
4-Bromofluorobenzene	*103*	*%*	*77-120*		*1*	*12/11/23*	*12/11/23 15:05*	*1011*
Toluene-D8	*101*	*%*	*95-104*		*1*	*12/11/23*	*12/11/23 15:05*	*1011*

VOC (Full List) — Analytical Method: EPA 624 .1 — Preparation Method: E624.1

pH=2

	Result	Units	RL	Flag	Dil	Prepared	Analyzed	Analyst
Acrolein	ND	ug/L	5.0		1	12/01/23	12/01/23 18:18	1011
Dichlorodifluoromethane	ND	ug/L	1.0		1	12/01/23	12/01/23 18:18	1011
Acrylonitrile	ND	ug/L	5.0		1	12/01/23	12/01/23 18:18	1011
Chloromethane	ND	ug/L	1.0		1	12/01/23	12/01/23 18:18	1011
Vinyl Chloride	ND	ug/L	1.0		1	12/01/23	12/01/23 18:18	1011
Bromomethane	ND	ug/L	1.0		1	12/01/23	12/01/23 18:18	1011
Chloroethane	ND	ug/L	1.0		1	12/01/23	12/01/23 18:18	1011
Trichlorofluoromethane	ND	ug/L	1.0		1	12/01/23	12/01/23 18:18	1011
2-Chloroethyl Vinyl Ether	ND	ug/L	1.0		1	12/01/23	12/01/23 18:18	1011
1,1-Dichloroethene	ND	ug/L	1.0		1	12/01/23	12/01/23 18:18	1011
Methylene Chloride	ND	ug/L	1.0		1	12/01/23	12/01/23 18:18	1011
trans-1,2-dichloroethene	ND	ug/L	1.0		1	12/01/23	12/01/23 18:18	1011
1,1-Dichloroethane	ND	ug/L	1.0		1	12/01/23	12/01/23 18:18	1011
Chloroform	ND	ug/L	1.0		1	12/01/23	12/01/23 18:18	1011
1,1,1-Trichloroethane	ND	ug/L	1.0		1	12/01/23	12/01/23 18:18	1011
Carbon Tetrachloride	ND	ug/L	1.0		1	12/01/23	12/01/23 18:18	1011
Benzene	ND	ug/L	1.0		1	12/01/23	12/01/23 18:18	1011
1,2-Dichloroethane	ND	ug/L	1.0		1	12/01/23	12/01/23 18:18	1011
Trichloroethene	ND	ug/L	1.0		1	12/01/23	12/01/23 18:18	1011
1,2-Dichloropropane	ND	ug/L	1.0		1	12/01/23	12/01/23 18:18	1011
Bromodichloromethane	ND	ug/L	1.0		1	12/01/23	12/01/23 18:18	1011
cis-1,3-Dichloropropene	ND	ug/L	1.0		1	12/01/23	12/01/23 18:18	1011
Toluene	ND	ug/L	1.0		1	12/01/23	12/01/23 18:18	1011
trans-1,3-dichloropropene	ND	ug/L	1.0		1	12/01/23	12/01/23 18:18	1011
1,1,2-Trichloroethane	ND	ug/L	1.0		1	12/01/23	12/01/23 18:18	1011

PHASE SEPARATION SCIENCE

6630 Baltimore National Pike
Baltimore, MD 21228
410-747-8770
800-932-9047
www.phaseonline.com

Certificate of Analysis

Project Name: Kop-Flex Onsite
PSS Project No.: 23113016

Sample ID: Trip Blanks **Date/Time Sampled: 11/30/2023 00:00** **PSS Sample ID: 23113016-002**
Matrix: WATER **Date/Time Received: 11/30/2023 13:30**

VOC (Full List) Analytical Method: EPA 624 .1 Preparation Method: E624.1

pH=2

	Result	Units	RL	Flag	Dil	Prepared	Analyzed	Analyst
Tetrachloroethylene	ND	ug/L	1.0		1	12/01/23	12/01/23 18:18	1011
Dibromochloromethane	ND	ug/L	1.0		1	12/01/23	12/01/23 18:18	1011
Chlorobenzene	ND	ug/L	1.0		1	12/01/23	12/01/23 18:18	1011
Ethylbenzene	ND	ug/L	1.0		1	12/01/23	12/01/23 18:18	1011
Bromoform	ND	ug/L	1.0		1	12/01/23	12/01/23 18:18	1011
1,1,2,2-Tetrachloroethane	ND	ug/L	1.0		1	12/01/23	12/01/23 18:18	1011
1,3-Dichlorobenzene	ND	ug/L	1.0		1	12/01/23	12/01/23 18:18	1011
1,4-Dichlorobenzene	ND	ug/L	1.0		1	12/01/23	12/01/23 18:18	1011
1,2-Dichlorobenzene	ND	ug/L	1.0		1	12/01/23	12/01/23 18:18	1011

Surrogate(s)	*Recovery*		*Limits*				
Dibromofluoromethane	*101*	*%*	*94-108*		*1*	*12/01/23*	*12/01/23 18:18*	*1011*
4-Bromofluorobenzene	*103*	*%*	*77-120*		*1*	*12/01/23*	*12/01/23 18:18*	*1011*
Toluene-D8	*102*	*%*	*95-104*		*1*	*12/01/23*	*12/01/23 18:18*	*1011*

6630 Baltimore National Pike
Baltimore, MD 21228
410-747-8770
800-932-9047
www.phaseonline.com

Project Name: Kop-Flex Onsite

PSS Project No.: 23113016

Any holding time exceedances, deviations from the method specifications, regulatory requirements or variations to the procedures outlined in the PSS Quality Assurance Manual are outlined below.

Matrix spike and matrix spike duplicate analyses may not be performed due to insufficient sample quantity. In these instances, a laboratory control sample and laboratory control sample duplicate are analyzed unless otherwise noted or specified in the method.

Sample Receipt:

Received Trip Blanks that were not on the COC. Logged in for 624 and 1,4 dioxane.

23113016: Analyses associated with analyst code 4009 were performed by
Martel Laboratories, Inc., 1025 Cromwell Bridge Road, Towson, MD 21204

NELAP accreditation was held for all analyses performed unless noted below. See www.phaseonline.com for complete PSS scope of accreditation.
Analytical Method(s): SM 5210B -2016

EPA 624 .1: 1,4-Dioxane

PHASE SEPARATION SCIENCE

6630 Baltimore National Pike
Baltimore, MD 21228
410-747-8770
800-932-9047
www.phaseonline.com

Lab Chronology

Project Name: Kop-Flex Onsite
PSS Project No.: 23113016

Method	PSS Sample ID	Container ID	Analysis Type	Mtx	Prep Batch	Analytical Batch	Prepared	Analyzed
EPA 200.8	23113016-001	341	Initial	W	98105	208807	12/06/2023 12:30	12/06/2023 21:14
	98105-1-BKS		BKS	W	98105	208807	12/06/2023 12:30	12/06/2023 21:09
	98105-1-BLK		BLK	W	98105	208807	12/06/2023 12:30	12/06/2023 21:04
	23113016-001 S	341	MS	W	98105	208807	12/06/2023 12:30	12/06/2023 21:19
	23120612-001 S	71	MS	W	98105	208807	12/06/2023 14:10	12/06/2023 22:51
	23113016-001 SD	341	MSD	W	98105	208807	12/06/2023 12:30	12/06/2023 21:39
EPA 624 .1	23113016-001	342	Initial	W	98073	208696	12/01/2023 09:33	12/01/2023 17:57
	23113016-002	348	Initial	W	98073	208696	12/01/2023 09:33	12/01/2023 18:18
	98073-1-BKS		BKS	W	98073	208696	12/01/2023 09:33	12/01/2023 09:54
	98073-1-BLK		BLK	W	98073	208696	12/01/2023 09:33	12/01/2023 11:06
	23113005-001 S	270	MS	W	98073	208696	12/01/2023 09:33	12/01/2023 14:53
	23113005-001 SD	270	MSD	W	98073	208696	12/01/2023 09:33	12/01/2023 15:13
EPA 624 .1	23113016-001	345	Initial	W	98178	208909	12/11/2023 08:43	12/11/2023 14:42
	23113016-002	348	Initial	W	98178	208909	12/11/2023 08:43	12/11/2023 15:05
	98178-1-BKS		BKS	W	98178	208909	12/11/2023 08:43	12/11/2023 09:05
	98178-1-BLK		BLK	W	98178	208909	12/11/2023 08:43	12/11/2023 10:30
	98178-1-BSD		BSD	W	98178	208909	12/11/2023 08:43	12/11/2023 09:40
	23113016-001 S	345	MS	W	98178	208909	12/11/2023 08:43	12/11/2023 15:30
	23113016-001 SD	345	MSD	W	98178	208909	12/11/2023 08:43	12/11/2023 15:53
SM 2540D -2015	23113016-001	340	Initial	W	208811	208811	12/06/2023 17:45	12/06/2023 17:45
	208811-1-BKS		BKS	W	208811	208811	12/06/2023 17:45	12/06/2023 17:45
	208811-1-BLK		BLK	W	208811	208811	12/06/2023 17:45	12/06/2023 17:45
	23113015-001 D	589	MD	W	208811	208811	12/06/2023 17:45	12/06/2023 17:45
SM 5210B -2016	23113016-001	339	Initial	W	208989	208989	12/01/2023 13:00	12/01/2023 13:00

PHASE SEPARATION SCIENCE

6630 Baltimore National Pike
Baltimore, MD 21228
410-747-8770
800-932-9047
www.phaseonline.com

QC Summary

Project Name Kop-Flex Onsite
PSS Project No.: 23113016

Analytical Method: SM 2540D -2015
Seq Number: 208811 Matrix: Water
MB Sample ID: 208811-1-BLK LCS Sample ID: 208811-1-BKS

Parameter	MB Result	Spike Amount	LCS Result	LCS %Rec	Limits	Units	Flag
Total Suspended Solids	<1.000	67.50	65.20	97	86-110	mg/L	

Analytical Method: EPA 200.8 Prep Method: E200.8_PREP
Seq Number: 208807 Matrix: Water Date Prep: 12/06/23
MB Sample ID: 98105-1-BLK LCS Sample ID: 98105-1-BKS

Parameter	MB Result	Spike Amount	LCS Result	LCS %Rec	Limits	Units	Flag
Copper	<1.000	50.00	45.06	90	85-115	ug/L	
Lead	<1.000	50.00	47.27	95	85-115	ug/L	
Nickel	<1.000	50.00	43.42	87	85-115	ug/L	
Zinc	<20.00	100	86.82	87	85-115	ug/L	

Analytical Method: EPA 200.8 Prep Method: E200.8_PREP
Seq Number: 208807 Matrix: Waste Water Date Prep: 12/06/23
Parent Sample ID: 23113016-001 MS Sample ID: 23113016-001 S MSD Sample ID: 23113016-001 SD

Parameter	Parent Result	Spike Amount	MS Result	MS %Rec	MSD Result	MSD %Rec	Limits	RPD	RPD Limit	Units	Flag
Copper	3.792	50.00	50.45	93	50.83	94	70-130	1	25	ug/L	
Lead	<1.000	50.00	47.23	94	48.14	96	70-130	2	25	ug/L	
Nickel	18.57	50.00	62.93	89	63.82	91	70-130	1	25	ug/L	
Zinc	28.80	100	117.4	89	118.9	90	70-130	1	25	ug/L	

Analytical Method: EPA 624 .1 Prep Method: E624PREP
Seq Number: 208909 Matrix: Water Date Prep: 12/11/23
MB Sample ID: 98178-1-BLK LCS Sample ID: 98178-1-BKS LCSD Sample ID: 98178-1-BSD

Parameter	MB Result	Spike Amount	LCS Result	LCS %Rec	LCSD Result	LCSD %Rec	Limits	RPD	RPD Limit	Units	Flag
1,4-Dioxane	<0.001000	30.00	30.57	102	32.56	109	54-145	6	20	ug/L	

Surrogate	MB %Rec	MB Flag	LCS Result	LCS Flag	LCSD Result	LCSD Flag	Limits	Units
Dibromofluoromethane	100		100		100		94-108	%
4-Bromofluorobenzene	98		102		103		77-120	%
Toluene-D8	102		101		101		95-104	%

PHASE SEPARATION SCIENCE

6630 Baltimore National Pike
Baltimore, MD 21228
410-747-8770
800-932-9047
www.phaseonline.com

QC Summary

Project Name Kop-Flex Onsite
PSS Project No.: 23113016

Analytical Method: EPA 624 .1
Prep Method: E624PREP
Seq Number: 208696
Matrix: Water
Date Prep: 12/01/23
MB Sample ID: 98073-1-BLK
LCS Sample ID: 98073-1-BKS

Parameter	MB Result	Spike Amount	LCS Result	LCS %Rec	Limits	Units	Flag
Acrolein	<0.005000	50.00	51.01	102	60-140	ug/L	
Acrylonitrile	<0.005000	50.00	53.00	106	60-140	ug/L	
Dichlorodifluoromethane	<0.001000	50.00	53.95	108	51-128	ug/L	
Chloromethane	<0.001000	50.00	48.63	97	1-205	ug/L	
Vinyl Chloride	<0.001000	50.00	47.41	95	5-195	ug/L	
Bromomethane	<0.001000	50.00	48.86	98	15-185	ug/L	
Chloroethane	<0.001000	50.00	41.32	83	40-160	ug/L	
Trichlorofluoromethane	0.06000	50.00	48.34	97	50-150	ug/L	
2-Chloroethyl Vinyl Ether	<0.001000	50.00	36.68	73	1-225	ug/L	
1,1-Dichloroethene	<0.001000	50.00	50.79	102	50-150	ug/L	
Methylene Chloride	<0.001000	50.00	51.93	104	60-140	ug/L	
trans-1,2-dichloroethene	<0.001000	50.00	51.24	102	70-130	ug/L	
1,1-Dichloroethane	<0.001000	50.00	51.09	102	70-130	ug/L	
Chloroform	0.08000	50.00	51.09	102	70-135	ug/L	
1,1,1-Trichloroethane	<0.001000	50.00	52.13	104	70-130	ug/L	
Carbon Tetrachloride	<0.001000	50.00	54.32	109	70-130	ug/L	
Benzene	<0.001000	50.00	52.29	105	65-135	ug/L	
1,2-Dichloroethane	<0.001000	50.00	53.10	106	70-130	ug/L	
Trichloroethene	0.1000	50.00	52.06	104	65-135	ug/L	
1,2-Dichloropropane	<0.001000	50.00	53.17	106	35-165	ug/L	
Bromodichloromethane	<0.001000	50.00	53.65	107	65-135	ug/L	
cis-1,3-Dichloropropene	<0.001000	50.00	52.15	104	25-175	ug/L	
Toluene	0.04000	50.00	51.66	103	70-130	ug/L	
trans-1,3-dichloropropene	<0.001000	50.00	52.89	106	50-150	ug/L	
1,1,2-Trichloroethane	<0.001000	50.00	53.19	106	70-130	ug/L	
Tetrachloroethylene	0.1000	50.00	50.05	100	70-130	ug/L	
Dibromochloromethane	<0.001000	50.00	54.37	109	70-135	ug/L	
Chlorobenzene	<0.001000	50.00	51.40	103	65-135	ug/L	
Ethylbenzene	0.07000	50.00	52.95	106	60-140	ug/L	
Bromoform	<0.001000	50.00	55.06	110	70-130	ug/L	
1,1,2,2-Tetrachloroethane	<0.001000	50.00	51.42	103	60-140	ug/L	
1,3-Dichlorobenzene	0.2200	50.00	50.08	100	70-130	ug/L	
1,4-Dichlorobenzene	<0.001000	50.00	48.37	97	65-135	ug/L	
1,2-Dichlorobenzene	0.1300	50.00	50.77	102	65-135	ug/L	

Surrogate	MB %Rec	MB Flag	LCS Result	LCS Flag	Limits	Units
Dibromofluoromethane	101		100		94-108	%
4-Bromofluorobenzene	109		99		77-120	%
Toluene-D8	99		101		95-104	%

PHASE SEPARATION SCIENCE

6630 Baltimore National Pike
Baltimore, MD 21228
410-747-8770
800-932-9047
www.phaseonline.com

QC Summary

Project Name Kop-Flex Onsite
PSS Project No.: 23113016

Analytical Method: EPA 624 .1 Prep Method: E624PREP
Seq Number: 208909 Matrix: Waste Water Date Prep: 12/11/23
Parent Sample ID: 23113016-001 MS Sample ID: 23113016-001 S MSD Sample ID: 23113016-001 SD

Parameter	Parent Result	Spike Amount	MS Result	MS %Rec	MSD Result	MSD %Rec	Limits	RPD	RPD Limit	Units	Flag
1,4-Dioxane	<1.000	30.00	30.56	102	34.00	113	59-145	11	18	ug/L	

Surrogate	MS Result	MS Flag	MSD Result	MSD Flag	Limits	Units
Dibromofluoromethane	100		100		94-108	%
4-Bromofluorobenzene	99		100		77-120	%
Toluene-D8	101		102		95-104	%

Analytical Method: EPA 200.8
CCV Sample Id: CCV 4 Seq Number: 208807
Analyzed Date: 12/06/23 20:24

Parameter	CCV %Rec	Limits	Flag
Copper	97	85-115	
Lead	103	85-115	
Nickel	95	85-115	
Zinc	94	85-115	

Analytical Method: EPA 200.8
CCV Sample Id: CCV 5 Seq Number: 208807
Analyzed Date: 12/06/23 21:29

Parameter	CCV %Rec	Limits	Flag
Copper	96	85-115	
Lead	101	85-115	
Nickel	93	85-115	
Zinc	93	85-115	

Analytical Method: EPA 200.8
CCV Sample Id: CCV 6 Seq Number: 208807
Analyzed Date: 12/06/23 22:36

Parameter	CCV %Rec	Limits	Flag
Copper	101	85-115	
Lead	96	85-115	
Nickel	99	85-115	
Zinc	105	85-115	

Analytical Method: EPA 200.8
CCV Sample Id: CCV 7 Seq Number: 208807
Analyzed Date: 12/06/23 23:42

Parameter	CCV %Rec	Limits	Flag
Copper	99	85-115	
Lead	101	85-115	
Nickel	97	85-115	
Zinc	104	85-115	

Analytical Method: EPA 200.8
Parent Sample Id: ICV 1 Seq Number: 208807
Analyzed Date: 12/06/23 15:41

Parameter	ICV %Rec	Limits	Flag
Copper	103	90-110	
Lead	103	90-110	
Nickel	99	90-110	
Zinc	101	90-110	

Analytical Method: EPA 624 .1
Parent Sample Id: ICV-01 Seq Number: 208456
Analyzed Date: 11/20/23 17:46

Parameter	ICV %Rec	Limits	Flag
Acrolein	88	60-140	
Acrylonitrile	90	60-140	
Dichlorodifluoromethane	76	51-128	
Chloromethane	81	1-205	
Vinyl Chloride	87	5-195	
Bromomethane	88	15-185	
Chloroethane	82	40-160	
Trichlorofluoromethane	83	50-150	
2-Chloroethyl Vinyl Ether	84	1-225	
1,1-Dichloroethene	86	50-150	
Methylene Chloride	85	60-140	
trans-1,2-dichloroethene	86	70-130	
1,1-Dichloroethane	87	70-130	

PHASE SEPARATION SCIENCE

6630 Baltimore National Pike
Baltimore, MD 21228
410-747-8770
800-932-9047
www.phaseonline.com

QC Summary

Project Name Kop-Flex Onsite
PSS Project No.: 23113016

Analytical Method: EPA 624 .1
Parent Sample Id: ICV-01 Seq Number: 208456
Analyzed Date: 11/20/23 17:46

Parameter	ICV %Rec	Limits	Flag
Chloroform	86	70-135	
1,1,1-Trichloroethane	87	70-130	
Carbon Tetrachloride	86	70-130	
Benzene	87	65-135	
1,2-Dichloroethane	87	70-130	
Trichloroethene	86	65-135	
1,2-Dichloropropane	89	35-165	
Bromodichloromethane	90	65-135	
cis-1,3-Dichloropropene	87	25-175	
Toluene	88	70-130	
trans-1,3-dichloropropene	87	50-150	
1,1,2-Trichloroethane	88	70-130	
Tetrachloroethylene	84	70-130	
Dibromochloromethane	92	70-135	
Chlorobenzene	86	65-135	
Ethylbenzene	90	60-140	
Bromoform	93	70-130	
1,1,2,2-Tetrachloroethane	88	60-140	
1,3-Dichlorobenzene	87	70-130	
1,4-Dichlorobenzene	84	65-135	
1,2-Dichlorobenzene	89	65-135	

Surrogate	Limits	Flag
Dibromofluoromethane	94-108	
4-Bromofluorobenzene	77-120	
Toluene-D8	95-104	

Analytical Method: EPA 624 .1
Parent Sample Id: ICV-01 Seq Number: 208642
Analyzed Date: 11/30/23 12:26

Parameter	ICV %Rec	Limits	Flag
1,4-Dioxane	4	54-145	X

Surrogate	Limits	Flag
Dibromofluoromethane	94-108	
4-Bromofluorobenzene	77-120	
Toluene-D8	95-104	

CHAIN OF CUSTODY FORM

PHASE SEPARATION SCIENCE

All fields must be completed accurately. Shaded sections for lab use only.

www.phaseonline.com ~ info@phaseonline.com

6630 Baltimore National Pike • Suite 103-A • Baltimore, Maryland 21228 • (410) 747-8770 • (800) 932-9047

① PSS CLIENT: WSP USA | OFFICE LOCATION: Herndon, VA

BILL TO (if different): | PHONE #: 703-709-6500

CONTACT: Eric Johnson | EMAIL: eric.johnson@wsp.com

PROJECT NAME: Kop-flex Onsite | PROJECT #: 31405608.010/02002

SITE LOCATION: Hanover, MD | P.O. #:

SAMPLER(S): Shannan Burke | DW CERT #:

PSS Work Order #: 23113016 | PAGE 1 OF 1

Matrix Codes: SW=Surface Water, DW=Drinking Water, GW=Ground Water, WW=Waste Water, O=Oil, S=Soil, SOL=Solid, A=Air, WI=Wipe

② Preservatives Use Codes: 1,4 | 1 | 3 | 6 | 6

Analysis/Method Required ③: VOCs (624.1) | 1,4-dioxane (624.1) | Total metals (200.8) | BOD | TSS

Preservative Codes: 1 - HCL; 2 - H_2SO_4; 3 - HNO_3; 4 - NaOH; 5 - E624KIT; 6 - ICE; 7 - Sodium Thiosulfate; 8 - Ascorbic Acid; 9 - TerraCore Kit

PSS ID	SAMPLE IDENTIFICATION	DATE SAMPLED	TIME SAMPLED	MATRIX Use Codes	# OF CONTAINERS	SAMPLE TYPE: C=COMPOSITE G=GRAB	VOCs (624.1)	1,4-dioxane (624.1)	Total metals (200.8)	BOD	TSS
1	Effluent VSP-4	11/30/23	1220	WW	9	G	X	X	X	X	X

⑤

Relinquished By:	Date	Time	Received By:
(1) Shannan Burke	11/30/23	1330	
(2)			
(3)			
(4)			

④

Requested TAT (One TAT per COC): ☐ 5-Day ☐ 3-Day ☐ 2-Day ☐ Next Day ☐ Emergency ☒ Other

STATE RESULTS REPORTED TO: ☐ MD ☐ DE ☐ PA ☐ VA ☐ WV ☐ OTHER

COMPLIANCE? ☐ DW ☐ WW

EDD FORMAT TYPE

Ice Present: Pres

Custody Seal: Cooler/Lgbl

Coolers: 1 Temp: 1.9-5.1°c

Shipping Carrier: Client

Special Instructions: Standard 10-day TAT Temp Blank 0.7°c

Metals = Cu, Pb, Ni, Zn

1,4-dioxane by EPA 624.1

This chain of custody is a legal document. The client (PSS Client), by signing, or having client's agent sign, this "Chain of Custody Form", agrees to pay for the above requested services per the latest version of the Service Brochure or PSS-provided quotation including any and all attorney's or other reasonable fees if collection becomes necessary.

PHASE SEPARATION SCIENCE

6630 Baltimore National Pike
Baltimore, MD 21228
410-747-8770
800-932-9047
www.phaseonline.com

Sample Receipt Checklist

Project Name: Kop-Flex Onsite
PSS Project No.: 23113016

Client Name WSP USA - Herndon
Disposal Date 01/04/2024

Received By Tyler Enwright
Date Received 11/30/2023 01:30:00 PM
Delivered By Client
Tracking No Not Applicable
Logged In By Tyler Enwright

Shipping Container(s)
No. of Coolers 1

		Ice	Present
Custody Seal(s) Intact?	Yes	Temp (deg C)	5.1
Seal(s) Signed / Dated?	Yes	Temp Blank Present	Yes

Documentation

		Sampler Name	Shannon Burke
COC agrees with sample labels?	Yes	MD DW Cert. No.	N/A
Chain of Custody	Yes		

Sample Container

		Custody Seal(s) Intact?	Not Applicable
Appropriate for Specified Analysis?	Yes	Seal(s) Signed / Dated	Not Applicable
Intact?	Yes		
Labeled and Labels Legible?	Yes		

Holding Time

		Total No. of Samples Received	2
All Samples Received Within Holding Time(s)?	Yes	Total No. of Containers Received	13

Preservation

Total Metals	(pH<2)	Yes
Dissolved Metals, filtered within 15 minutes of collection	(pH<2)	N/A
Orthophosphorus, filtered within 15 minutes of collection		N/A
Cyanides	(pH>12)	N/A
Sulfide	(pH>9)	N/A
TOC, DOC (field filtered), COD, Phenols	(pH<2)	N/A
TOX, TKN, NH3, Total Phos	(pH<2)	N/A
VOC, BTEX (VOA Vials Rcvd Preserved)	(pH<2)	Yes
Do VOA vials have zero headspace?		Yes
624 VOC (Rcvd at least one unpreserved VOA vial)		Yes
524 VOC (Rcvd with trip blanks)	(pH<2)	N/A

Comments: (Any "No" response must be detailed in the comments section below.)

For any improper preservation conditions, list sample ID, preservative added (reagent ID number) below as well as documentation of any client notification as well as client instructions. Samples for pH, chlorine and dissolved oxygen should be analyzed as soon as possible, preferably in the field at the time of sampling. Samples which require thermal preservation shall be considered acceptable when received at a temperature above freezing to 6°C. Samples that are hand delivered on the day that they are collected may not meet these criteria but shall be considered acceptable if there is evidence that the chilling process has begun such as arrival on ice.

Received Trip Blanks that were not on the COC. Logged in for 624 and 1,4 dioxane.

Samples Inspected/Checklist Completed By: Amber Confer — Date: 11/30/2023

PM Review and Approval: Amber Confer — Date: 11/30/2023

PHASE SEPARATION SCIENCE

6630 Baltimore National Pike
Baltimore, MD 21228
410-747-8770
800-932-9047
www.phaseonline.com

Certificate of Analysis

Project Name: Kop-Flex
PSS Project No.: 23121509

January 2, 2024

Eric Johnson
WSP USA - Herndon
13530 Dulles Technology Dr, Ste 300
Herndon, VA 20171

Reference: PSS Project No: **23121509**
Project Name: Kop-Flex
Project Location: Hanover, MD
Project ID.: 31405608.010/0202

Dear Eric Johnson:

This report includes the analytical results from the analyses performed on the samples received under the project name referenced above and identified with the Phase Separation Science (PSS) Project number(s) **23121509**.

All work reported herein has been performed in accordance with current NELAP standards, referenced methodologies, PSS Standard Operating Procedures and the PSS Quality Assurance Manual unless otherwise noted in the Case Narrative Summary. PSS is limited in liability to the actual cost of the sample analysis done.

PSS reserves the right to return any unused samples, extracts or related solutions. Otherwise, the samples are scheduled for disposal, without any further notice, on January 19, 2024, with the exception of air canisters which are cleaned immediately following analysis. This includes any samples that were received with a request to be held but lacked a specific hold period. It is your responsibility to provide a written request defining a specific disposal date if additional storage is required. Upon receipt, the request will be acknowledged by PSS, thus extending the storage period.

This report shall not be reproduced except in full, without the written approval of an authorized PSS representative. A copy of this report will be retained by PSS for at least 5 years, after which time it will be disposed of without further notice, unless prior arrangements have been made.

We thank you for selecting Phase Separation Science, Inc. to serve your analytical needs. If you have any questions concerning this report, do not hesitate to contact us at 410-747-8770 or info@phaseonline.com.

Sincerely,

Dan Prucnal
Laboratory Manager

PHASE SEPARATION SCIENCE

6630 Baltimore National Pike
Baltimore, MD 21228
410-747-8770
800-932-9047
www.phaseonline.com

Sample Summary

Project Name: Kop-Flex
PSS Project No.: 23121509

The following samples were received under chain of custody by Phase Separation Science (PSS) on 12/15/2023 at 02:45 pm
Please reference the Chain of Custody and Sample Receipt Checklist for specific container counts and preservatives. Any sample conditions not in compliance with sample acceptance criteria are described in Case Narrative Summary.

PSS Sample ID	Sample ID	Matrix	Date/Time Collected
23121509-001	Effluent VSP-4	WASTE WATER	12/15/23 12:15
23121509-002	TB-121523	WATER	12/15/23 00:00

PHASE SEPARATION SCIENCE

6630 Baltimore National Pike
Baltimore, MD 21228
410-747-8770
800-932-9047
www.phaseonline.com

Report Information

Project Name: Kop-Flex

PSS Project No.: 23121509

Notes:

1. The presence of a common laboratory contaminant such as methylene chloride may be considered a possible laboratory artifact. Where observed, appropriate consideration of data should be taken.
2. Unless otherwise noted in the case narrative, results are reported on a dry weight basis with the exception of pH, flashpoint, moisture, and paint filter test.
3. Drinking water samples collected for the purpose of compliance with SDWA may not be suitable for their intended use unless collected by a certified sampler [COMAR 26.08.05.07.C.2].
4. The analyses of 1,2-dibromo-3-chloropropane (DBCP) and 1,2-dibromoethane (EDB) by EPA 524.2 and calcium, magnesium, sodium and iron by EPA 200.8 are not currently promulgated for use in testing to meet the Safe Drinking Water Act and as such cannot be used for compliance purposes. The listings of the current promulgated methods for testing in compliance with the Safe Drinking Water Act can be found in the 40 CFR part 141.1, for the primary drinking water contaminates, and part 141.3, for the secondary drinking water contaminates.
5. Samples prepared under EPA 3550C with concentrations greater than 20 mg/Kg should employ the microtip extraction procedure if required to meet data quality objectives.
6. The analysis of acrolein by EPA 624 must be analyzed within three days of sampling unless pH is adjusted to 4-5 units [40 CFR part 136.3(e)].
7. Alkalinity results analyzed by EPA 310.2 that are reported by dilution are estimated and are not in compliance with method requirements

Standard Flags/Abbreviations:

B	A target analyte was identified in the method blank. Its presence indicates possible field or laboratory contamination.
C	Results pending final confirmation.
Dil	Dilution Factor is the factor applied to the reported data due to dilution of the sample aliquot.
E	The data exceeds the upper calibration limit; therefore, the concentration is reported as estimated.
F	RPD exceeded the laboratory control limits.
Fail	The result exceeds the regulatory level for Toxicity Characteristic (TCLP) as cited in 40 CFR 261.24 Table 1.
H	Recovery of BKS, BSD or both exceeded the laboratory control limits.
J	The target analyte was positively identified below the reporting limit but greater than the MDL.
L	Recovery of BKS, BSD or both below the laboratory control limits.
MCL	The Maximum Contaminant Level is the highest level of a contaminant that is allowed in drinking water as determined by the EPA.
MDL	This is the Laboratory Method Detection Limit which is equivalent to the Limit of Detection (LOD). The LOD is the minimum result, which can be reliably discriminated from a blank with a predetermined confidence level.
ND	Not Detected at or above the reporting limit.
RL	PSS Reporting Limit.
X	Recovery outside of QC criteria.
%Rec	Percent Recovery

QC Types:

CCV	Continuing Calibration Verification	MD	Sample Duplicate
ICV	Initial Calibration Verification	MRL	Minimum Reporting Level
LCS / BKS	Laboratory Control Sample	MS	Matrix Spike
LCSD / BSD	Laboratory Control Sample Duplicate	MSD	Matrix Spike Duplicate
LLCCV	Low Level Continuing Calibration Verification	PDS	Post Digestion Spike
MB / BLK	Method Blank	RPD	Relative Percent Difference

Certifications:

Authority	Program	Identification Number
Maryland - MDE	State - Certification of Drinking Water Laboratories	179
MWAA	LDBE	LD1997-0041-2015
Pennsylvania - PADEP	NELAP	68-03330
USCG	NSWC	Accepted Laboratory
USDA	Regulated Soil Permit	P330-12-00268
Virginia - VELAP	NELAP	460156
West Virginia - WVDEP	State - Certified Laboratories	303

PHASE SEPARATION SCIENCE

6630 Baltimore National Pike
Baltimore, MD 21228
410-747-8770
800-932-9047
www.phaseonline.com

Certificate of Analysis

Project Name: Kop-Flex
PSS Project No.: 23121509

Sample ID: Effluent VSP-4 **Date/Time Sampled: 12/15/2023 12:15** **PSS Sample ID: 23121509-001**
Matrix: WASTE WATER **Date/Time Received: 12/15/2023 14:45**

Total Metals — Analytical Method: EPA 200.8 — Preparation Method: E200.8

	Result	Units	RL	Flag	Dil	Prepared	Analyzed	Analyst
Copper	**4.0**	ug/L	1.0		1	12/21/23	12/21/23 21:53	1064
Lead	ND	ug/L	1.0		1	12/21/23	12/21/23 21:53	1064
Nickel	**19.2**	ug/L	1.00		1	12/21/23	12/27/23 13:07	1064
Zinc	**29.9**	ug/L	20.0		1	12/21/23	12/27/23 13:07	1064

1,4- Dioxane — Analytical Method: EPA 624 .1 — Preparation Method: E624.1

Qualifier(s): See NELAP accreditation section on Case Narrative.

	Result	Units	RL	Flag	Dil	Prepared	Analyzed	Analyst
1,4-Dioxane	ND	ug/L	1.0		1	12/28/23	12/28/23 12:29	1011
Surrogate(s)	***Recovery***		***Limits***					
Dibromofluoromethane	*99*	*%*	*94-108*		*1*	*12/28/23*	*12/28/23 12:29*	*1011*
4-Bromofluorobenzene	*91*	*%*	*77-120*		*1*	*12/28/23*	*12/28/23 12:29*	*1011*
Toluene-D8	*102*	*%*	*95-104*		*1*	*12/28/23*	*12/28/23 12:29*	*1011*

VOC (Full List) — Analytical Method: EPA 624 .1 — Preparation Method: E624.1

pH=7

	Result	Units	RL	Flag	Dil	Prepared	Analyzed	Analyst
Acrolein	ND	ug/L	5.0		1	12/15/23	12/15/23 17:29	1011
Dichlorodifluoromethane	ND	ug/L	1.0		1	12/15/23	12/15/23 17:29	1011
Acrylonitrile	ND	ug/L	5.0		1	12/15/23	12/15/23 17:29	1011
Chloromethane	ND	ug/L	1.0		1	12/15/23	12/15/23 17:29	1011
Vinyl Chloride	ND	ug/L	1.0		1	12/15/23	12/15/23 17:29	1011
Bromomethane	ND	ug/L	1.0		1	12/15/23	12/15/23 17:29	1011
Chloroethane	ND	ug/L	1.0		1	12/15/23	12/15/23 17:29	1011
Trichlorofluoromethane	ND	ug/L	1.0		1	12/15/23	12/15/23 17:29	1011
2-Chloroethyl Vinyl Ether	ND	ug/L	1.0		1	12/15/23	12/15/23 17:29	1011
1,1-Dichloroethene	ND	ug/L	1.0		1	12/15/23	12/15/23 17:29	1011
Methylene Chloride	ND	ug/L	1.0		1	12/15/23	12/15/23 17:29	1011
trans-1,2-dichloroethene	ND	ug/L	1.0		1	12/15/23	12/15/23 17:29	1011
1,1-Dichloroethane	ND	ug/L	1.0		1	12/15/23	12/15/23 17:29	1011
Chloroform	ND	ug/L	1.0		1	12/15/23	12/15/23 17:29	1011
1,1,1-Trichloroethane	ND	ug/L	1.0		1	12/15/23	12/15/23 17:29	1011
Carbon Tetrachloride	ND	ug/L	1.0		1	12/15/23	12/15/23 17:29	1011
Benzene	ND	ug/L	1.0		1	12/15/23	12/15/23 17:29	1011

PHASE SEPARATION SCIENCE

6630 Baltimore National Pike
Baltimore, MD 21228
410-747-8770
800-932-9047
www.phaseonline.com

Certificate of Analysis

Project Name: Kop-Flex
PSS Project No.: 23121509

Sample ID: Effluent VSP-4 **Date/Time Sampled: 12/15/2023 12:15** **PSS Sample ID: 23121509-001**
Matrix: WASTE WATER **Date/Time Received: 12/15/2023 14:45**

VOC (Full List) Analytical Method: EPA 624 .1 Preparation Method: E624.1

pH=7

	Result	Units	RL	Flag	Dil	Prepared	Analyzed	Analyst
1,2-Dichloroethane	ND	ug/L	1.0		1	12/15/23	12/15/23 17:29	1011
Trichloroethene	ND	ug/L	1.0		1	12/15/23	12/15/23 17:29	1011
1,2-Dichloropropane	ND	ug/L	1.0		1	12/15/23	12/15/23 17:29	1011
Bromodichloromethane	ND	ug/L	1.0		1	12/15/23	12/15/23 17:29	1011
cis-1,3-Dichloropropene	ND	ug/L	1.0		1	12/15/23	12/15/23 17:29	1011
Toluene	ND	ug/L	1.0		1	12/15/23	12/15/23 17:29	1011
trans-1,3-dichloropropene	ND	ug/L	1.0		1	12/15/23	12/15/23 17:29	1011
1,1,2-Trichloroethane	ND	ug/L	1.0		1	12/15/23	12/15/23 17:29	1011
Tetrachloroethylene	ND	ug/L	1.0		1	12/15/23	12/15/23 17:29	1011
Dibromochloromethane	ND	ug/L	1.0		1	12/15/23	12/15/23 17:29	1011
Chlorobenzene	ND	ug/L	1.0		1	12/15/23	12/15/23 17:29	1011
Ethylbenzene	ND	ug/L	1.0		1	12/15/23	12/15/23 17:29	1011
Bromoform	ND	ug/L	1.0		1	12/15/23	12/15/23 17:29	1011
1,1,2,2-Tetrachloroethane	ND	ug/L	1.0		1	12/15/23	12/15/23 17:29	1011
1,3-Dichlorobenzene	ND	ug/L	1.0		1	12/15/23	12/15/23 17:29	1011
1,4-Dichlorobenzene	ND	ug/L	1.0		1	12/15/23	12/15/23 17:29	1011
1,2-Dichlorobenzene	ND	ug/L	1.0		1	12/15/23	12/15/23 17:29	1011

Surrogate(s)	***Recovery***		***Limits***				
Dibromofluoromethane	*100*	*%*	*94-108*		*1*	*12/15/23*	*12/15/23 17:29*	*1011*
4-Bromofluorobenzene	*94*	*%*	*77-120*		*1*	*12/15/23*	*12/15/23 17:29*	*1011*
Toluene-D8	*101*	*%*	*95-104*		*1*	*12/15/23*	*12/15/23 17:29*	*1011*

Total Suspended Solids Analytical Method: SM 2540D -2015

	Result	Units	RL	Flag	Dil	Prepared	Analyzed	Analyst
Total Suspended Solids	**2.0**	mg/L	1.1		1	12/20/23	12/20/23 18:40	1073

PHASE SEPARATION SCIENCE

6630 Baltimore National Pike
Baltimore, MD 21228
410-747-8770
800-932-9047
www.phaseonline.com

Certificate of Analysis

Project Name: Kop-Flex
PSS Project No.: 23121509

Sample ID: TB-121523 **Date/Time Sampled: 12/15/2023 00:00** **PSS Sample ID: 23121509-002**
Matrix: WATER **Date/Time Received: 12/15/2023 14:45**

1,4- Dioxane — Analytical Method: EPA 624 .1 — Preparation Method: E624.1

Qualifier(s): See NELAP accreditation section on Case Narrative.

	Result	Units	RL	Flag	Dil	Prepared	Analyzed	Analyst
1,4-Dioxane	ND	ug/L	1.0		1	12/28/23	12/28/23 12:56	1011
Surrogate(s)	***Recovery***		***Limits***					
Dibromofluoromethane	*100*	*%*	*94-108*		*1*	*12/28/23*	*12/28/23 12:56*	*1011*
4-Bromofluorobenzene	*91*	*%*	*77-120*		*1*	*12/28/23*	*12/28/23 12:56*	*1011*
Toluene-D8	*101*	*%*	*95-104*		*1*	*12/28/23*	*12/28/23 12:56*	*1011*

VOC (Full List) — Analytical Method: EPA 624 .1 — Preparation Method: E624.1

pH=2

	Result	Units	RL	Flag	Dil	Prepared	Analyzed	Analyst
Acrolein	ND	ug/L	5.0		1	12/15/23	12/15/23 17:49	1011
Dichlorodifluoromethane	ND	ug/L	1.0		1	12/15/23	12/15/23 17:49	1011
Acrylonitrile	ND	ug/L	5.0		1	12/15/23	12/15/23 17:49	1011
Chloromethane	ND	ug/L	1.0		1	12/15/23	12/15/23 17:49	1011
Vinyl Chloride	ND	ug/L	1.0		1	12/15/23	12/15/23 17:49	1011
Bromomethane	ND	ug/L	1.0		1	12/15/23	12/15/23 17:49	1011
Chloroethane	ND	ug/L	1.0		1	12/15/23	12/15/23 17:49	1011
Trichlorofluoromethane	ND	ug/L	1.0		1	12/15/23	12/15/23 17:49	1011
2-Chloroethyl Vinyl Ether	ND	ug/L	1.0		1	12/15/23	12/15/23 17:49	1011
1,1-Dichloroethene	ND	ug/L	1.0		1	12/15/23	12/15/23 17:49	1011
Methylene Chloride	ND	ug/L	1.0		1	12/15/23	12/15/23 17:49	1011
trans-1,2-dichloroethene	ND	ug/L	1.0		1	12/15/23	12/15/23 17:49	1011
1,1-Dichloroethane	ND	ug/L	1.0		1	12/15/23	12/15/23 17:49	1011
Chloroform	ND	ug/L	1.0		1	12/15/23	12/15/23 17:49	1011
1,1,1-Trichloroethane	ND	ug/L	1.0		1	12/15/23	12/15/23 17:49	1011
Carbon Tetrachloride	ND	ug/L	1.0		1	12/15/23	12/15/23 17:49	1011
Benzene	ND	ug/L	1.0		1	12/15/23	12/15/23 17:49	1011
1,2-Dichloroethane	ND	ug/L	1.0		1	12/15/23	12/15/23 17:49	1011
Trichloroethene	ND	ug/L	1.0		1	12/15/23	12/15/23 17:49	1011
1,2-Dichloropropane	ND	ug/L	1.0		1	12/15/23	12/15/23 17:49	1011
Bromodichloromethane	ND	ug/L	1.0		1	12/15/23	12/15/23 17:49	1011
cis-1,3-Dichloropropene	ND	ug/L	1.0		1	12/15/23	12/15/23 17:49	1011
Toluene	ND	ug/L	1.0		1	12/15/23	12/15/23 17:49	1011
trans-1,3-dichloropropene	ND	ug/L	1.0		1	12/15/23	12/15/23 17:49	1011
1,1,2-Trichloroethane	ND	ug/L	1.0		1	12/15/23	12/15/23 17:49	1011

PHASE SEPARATION SCIENCE

6630 Baltimore National Pike
Baltimore, MD 21228
410-747-8770
800-932-9047
www.phaseonline.com

Certificate of Analysis

Project Name: Kop-Flex
PSS Project No.: 23121509

Sample ID: TB-121523 **Date/Time Sampled: 12/15/2023 00:00** **PSS Sample ID: 23121509-002**
Matrix: WATER **Date/Time Received: 12/15/2023 14:45**

VOC (Full List) Analytical Method: EPA 624 .1 Preparation Method: E624.1

pH=2

	Result	Units	RL	Flag	Dil	Prepared	Analyzed	Analyst
Tetrachloroethylene	ND	ug/L	1.0		1	12/15/23	12/15/23 17:49	1011
Dibromochloromethane	ND	ug/L	1.0		1	12/15/23	12/15/23 17:49	1011
Chlorobenzene	ND	ug/L	1.0		1	12/15/23	12/15/23 17:49	1011
Ethylbenzene	ND	ug/L	1.0		1	12/15/23	12/15/23 17:49	1011
Bromoform	ND	ug/L	1.0		1	12/15/23	12/15/23 17:49	1011
1,1,2,2-Tetrachloroethane	ND	ug/L	1.0		1	12/15/23	12/15/23 17:49	1011
1,3-Dichlorobenzene	ND	ug/L	1.0		1	12/15/23	12/15/23 17:49	1011
1,4-Dichlorobenzene	ND	ug/L	1.0		1	12/15/23	12/15/23 17:49	1011
1,2-Dichlorobenzene	ND	ug/L	1.0		1	12/15/23	12/15/23 17:49	1011

Surrogate(s)	***Recovery***		***Limits***				
Dibromofluoromethane	*101*	*%*	*94-108*		*1*	*12/15/23*	*12/15/23 17:49*	*1011*
4-Bromofluorobenzene	*96*	*%*	*77-120*		*1*	*12/15/23*	*12/15/23 17:49*	*1011*
Toluene-D8	*101*	*%*	*95-104*		*1*	*12/15/23*	*12/15/23 17:49*	*1011*

6630 Baltimore National Pike
Baltimore, MD 21228
410-747-8770
800-932-9047
www.phaseonline.com

Project Name: Kop-Flex

PSS Project No.: 23121509

Any holding time exceedances, deviations from the method specifications, regulatory requirements or variations to the procedures outlined in the PSS Quality Assurance Manual are outlined below.

Matrix spike and matrix spike duplicate analyses may not be performed due to insufficient sample quantity. In these instances, a laboratory control sample and laboratory control sample duplicate are analyzed unless otherwise noted or specified in the method.

Sample Receipt:

All sample receipt conditions were acceptable.

NELAP accreditation was held for all analyses performed unless noted below. See www.phaseonline.com for complete PSS scope of accreditation.

EPA 624 .1: 1,4-Dioxane

PHASE SEPARATION SCIENCE

6630 Baltimore National Pike
Baltimore, MD 21228
410-747-8770
800-932-9047
www.phaseonline.com

Lab Chronology

Project Name: Kop-Flex
PSS Project No.: 23121509

Method	PSS Sample ID	Container ID	Analysis Type	Mtx	Prep Batch	Analytical Batch	Prepared	Analyzed
EPA 200.8	23121509-001	218	Initial	W	98283	209200	12/21/2023 10:50	12/21/2023 21:53
	98283-1-BKS		BKS	W	98283	209200	12/21/2023 10:50	12/21/2023 21:16
	98283-1-BLK		BLK	W	98283	209200	12/21/2023 10:50	12/21/2023 21:11
	23121501-001 S	864	MS	W	98283	209200	12/21/2023 10:50	12/21/2023 21:26
	23122102-001 S	597	MS	W	98283	209200	12/21/2023 10:50	12/21/2023 23:00
	23121501-001 SD	864	MSD	W	98283	209200	12/21/2023 10:50	12/21/2023 21:32
	23121509-001	218	Reanalysis	W	98283	209244	12/21/2023 10:50	12/27/2023 13:07
EPA 624 .1	23121509-001	222	Initial	W	98232	209059	12/15/2023 09:50	12/15/2023 17:29
	23121509-002	227	Initial	W	98232	209059	12/15/2023 09:50	12/15/2023 17:49
	98232-1-BKS		BKS	W	98232	209059	12/15/2023 09:50	12/15/2023 10:11
	98232-1-BLK		BLK	W	98232	209059	12/15/2023 09:50	12/15/2023 11:40
	23121506-001 S	207	MS	W	98232	209059	12/15/2023 09:50	12/15/2023 16:07
	23121506-001 SD	207	MSD	W	98232	209059	12/15/2023 09:50	12/15/2023 16:27
EPA 624 .1	23121509-001	220	Initial	W	98360	209315	12/28/2023 10:07	12/28/2023 12:29
	23121509-002	225	Initial	W	98360	209315	12/28/2023 10:07	12/28/2023 12:56
	98360-1-BKS		BKS	W	98360	209315	12/28/2023 10:07	12/28/2023 10:34
	98360-1-BLK		BLK	W	98360	209315	12/28/2023 10:07	12/28/2023 12:00
	98360-1-BSD		BSD	W	98360	209315	12/28/2023 10:07	12/28/2023 11:06
	23121509-001 S	221	MS	W	98360	209315	12/28/2023 10:07	12/28/2023 13:44
	23121509-001 SD	221	MSD	W	98360	209315	12/28/2023 10:07	12/28/2023 14:07
SM 2540D -2015	23121509-001	217	Initial	W	209156	209156	12/20/2023 18:40	12/20/2023 18:40
	209156-1-BKS		BKS	W	209156	209156	12/20/2023 18:40	12/20/2023 18:40
	209156-1-BLK		BLK	W	209156	209156	12/20/2023 18:40	12/20/2023 18:40
	23121407-001 D	649	MD	W	209156	209156	12/20/2023 18:40	12/20/2023 18:40
	23121512-003 D	256	MD	W	209156	209156	12/20/2023 18:40	12/20/2023 18:40

PHASE SEPARATION SCIENCE

6630 Baltimore National Pike
Baltimore, MD 21228
410-747-8770
800-932-9047
www.phaseonline.com

QC Summary

Project Name Kop-Flex
PSS Project No.: 23121509

Analytical Method: SM 2540D -2015

Seq Number: 209156 Matrix: Water
MB Sample ID: 209156-1-BLK LCS Sample ID: 209156-1-BKS

Parameter	MB Result	Spike Amount	LCS Result	LCS %Rec	Limits	Units	Flag
Total Suspended Solids	<1.000	55.90	56.10	100	86-110	mg/L	

Analytical Method: EPA 200.8

Prep Method: E200.8_PREP
Seq Number: 209200 Matrix: Water Date Prep: 12/21/23
MB Sample ID: 98283-1-BLK LCS Sample ID: 98283-1-BKS

Parameter	MB Result	Spike Amount	LCS Result	LCS %Rec	Limits	Units	Flag
Copper	<1.000	50.00	47.36	95	85-115	ug/L	
Lead	<1.000	50.00	45.90	92	85-115	ug/L	
Nickel	<1.000	50.00	46.66	93	85-115	ug/L	
Zinc	<20.00	100	92.86	93	85-115	ug/L	

Analytical Method: EPA 624 .1

Prep Method: E624PREP
Seq Number: 209315 Matrix: Water Date Prep: 12/28/23
MB Sample ID: 98360-1-BLK LCS Sample ID: 98360-1-BKS LCSD Sample ID: 98360-1-BSD

Parameter	MB Result	Spike Amount	LCS Result	LCS %Rec	LCSD Result	LCSD %Rec	Limits	RPD	RPD Limit	Units	Flag
1,4-Dioxane	<0.001000	30.00	31.33	104	30.52	102	54-145	3	20	ug/L	

Surrogate	MB %Rec	MB Flag	LCS Result	LCS Flag	LCSD Result	LCSD Flag	Limits	Units
Dibromofluoromethane	98		98		97		94-108	%
4-Bromofluorobenzene	92		91		91		77-120	%
Toluene-D8	101		100		102		95-104	%

PHASE SEPARATION SCIENCE

6630 Baltimore National Pike
Baltimore, MD 21228
410-747-8770
800-932-9047
www.phaseonline.com

QC Summary

Project Name Kop-Flex
PSS Project No.: 23121509

Analytical Method: EPA 624 .1
Prep Method: E624PREP
Seq Number: 209059
Matrix: Water
Date Prep: 12/15/23
MB Sample ID: 98232-1-BLK
LCS Sample ID: 98232-1-BKS

Parameter	MB Result	Spike Amount	LCS Result	LCS %Rec	Limits	Units	Flag
Acrolein	<0.005000	50.00	44.67	89	60-140	ug/L	
Acrylonitrile	<0.005000	50.00	50.39	101	60-140	ug/L	
Dichlorodifluoromethane	<0.001000	50.00	61.52	123	51-128	ug/L	
Chloromethane	<0.001000	50.00	49.28	99	1-205	ug/L	
Vinyl Chloride	<0.001000	50.00	54.10	108	5-195	ug/L	
Bromomethane	<0.001000	50.00	50.70	101	15-185	ug/L	
Chloroethane	<0.001000	50.00	42.01	84	40-160	ug/L	
Trichlorofluoromethane	<0.001000	50.00	51.82	104	50-150	ug/L	
2-Chloroethyl Vinyl Ether	<0.001000	50.00	21.07	42	1-225	ug/L	
1,1-Dichloroethene	<0.001000	50.00	54.47	109	50-150	ug/L	
Methylene Chloride	<0.001000	50.00	58.09	116	60-140	ug/L	
trans-1,2-dichloroethene	0.06000	50.00	58.19	116	70-130	ug/L	
1,1-Dichloroethane	<0.001000	50.00	52.93	106	70-130	ug/L	
Chloroform	0.1100	50.00	54.62	109	70-135	ug/L	
1,1,1-Trichloroethane	<0.001000	50.00	56.75	114	70-130	ug/L	
Carbon Tetrachloride	<0.001000	50.00	60.45	121	70-130	ug/L	
Benzene	<0.001000	50.00	56.06	112	65-135	ug/L	
1,2-Dichloroethane	<0.001000	50.00	52.83	106	70-130	ug/L	
Trichloroethene	0.06000	50.00	58.15	116	65-135	ug/L	
1,2-Dichloropropane	<0.001000	50.00	53.97	108	35-165	ug/L	
Bromodichloromethane	<0.001000	50.00	56.92	114	65-135	ug/L	
cis-1,3-Dichloropropene	<0.001000	50.00	54.96	110	25-175	ug/L	
Toluene	<0.001000	50.00	57.31	115	70-130	ug/L	
trans-1,3-dichloropropene	<0.001000	50.00	54.53	109	50-150	ug/L	
1,1,2-Trichloroethane	<0.001000	50.00	56.20	112	70-130	ug/L	
Tetrachloroethylene	0.1200	50.00	61.65	123	70-130	ug/L	
Dibromochloromethane	<0.001000	50.00	59.75	120	70-135	ug/L	
Chlorobenzene	<0.001000	50.00	57.33	115	65-135	ug/L	
Ethylbenzene	0.04000	50.00	56.49	113	60-140	ug/L	
Bromoform	<0.001000	50.00	62.46	125	70-130	ug/L	
1,1,2,2-Tetrachloroethane	<0.001000	50.00	49.67	99	60-140	ug/L	
1,3-Dichlorobenzene	0.1400	50.00	55.20	110	70-130	ug/L	
1,4-Dichlorobenzene	<0.001000	50.00	53.07	106	65-135	ug/L	
1,2-Dichlorobenzene	0.1000	50.00	56.15	112	65-135	ug/L	

Surrogate	MB %Rec	MB Flag	LCS Result	LCS Flag	Limits	Units
Dibromofluoromethane	102		101		94-108	%
4-Bromofluorobenzene	99		89		77-120	%
Toluene-D8	100		101		95-104	%

PHASE SEPARATION SCIENCE

6630 Baltimore National Pike
Baltimore, MD 21228
410-747-8770
800-932-9047
www.phaseonline.com

QC Summary

Project Name Kop-Flex
PSS Project No.: 23121509

Analytical Method: EPA 624 .1 Prep Method: E624PREP
Seq Number: 209315 Matrix: Waste Water Date Prep: 12/28/23
Parent Sample ID: 23121509-001 MS Sample ID: 23121509-001 S MSD Sample ID: 23121509-001 SD

Parameter	Parent Result	Spike Amount	MS Result	MS %Rec	MSD Result	MSD %Rec	Limits	RPD	RPD Limit	Units	Flag
1,4-Dioxane	<1.000	30.00	29.02	97	31.53	105	59-145	8	18	ug/L	

Surrogate	MS Result	MS Flag	MSD Result	MSD Flag	Limits	Units
Dibromofluoromethane	99		98		94-108	%
4-Bromofluorobenzene	89		89		77-120	%
Toluene-D8	102		102		95-104	%

Analytical Method: EPA 200.8
CCV Sample Id: CCV 3 Seq Number: 209200
Analyzed Date: 12/21/23 20:34

Parameter	CCV %Rec	Limits	Flag
Copper	100	85-115	
Lead	98	85-115	

Analytical Method: EPA 200.8
CCV Sample Id: CCV 4 Seq Number: 209200
Analyzed Date: 12/21/23 21:42

Parameter	CCV %Rec	Limits	Flag
Copper	100	85-115	
Lead	104	85-115	

Analytical Method: EPA 200.8
CCV Sample Id: CCV 5 Seq Number: 209200
Analyzed Date: 12/21/23 22:50

Parameter	CCV %Rec	Limits	Flag
Copper	94	85-115	
Lead	102	85-115	

Analytical Method: EPA 200.8
CCV Sample Id: CCV 6 Seq Number: 209200
Analyzed Date: 12/21/23 23:58

Parameter	CCV %Rec	Limits	Flag
Copper	94	85-115	
Lead	98	85-115	

Analytical Method: EPA 200.8
CCV Sample Id: CCV 1 Seq Number: 209244
Analyzed Date: 12/27/23 13:49

Parameter	CCV %Rec	Limits	Flag
Nickel	104	85-115	
Zinc	108	85-115	

Analytical Method: EPA 200.8
Parent Sample Id: ICV 1 Seq Number: 209200
Analyzed Date: 12/21/23 15:42

Parameter	ICV %Rec	Limits	Flag
Copper	106	90-110	
Lead	101	90-110	

Analytical Method: EPA 200.8
Parent Sample Id: ICV 1 Seq Number: 209244
Analyzed Date: 12/27/23 12:40

Parameter	ICV %Rec	Limits	Flag
Nickel	98	90-110	
Zinc	98	90-110	

Analytical Method: EPA 624 .1
Parent Sample Id: ICV-01 Seq Number: 208456
Analyzed Date: 11/20/23 17:46

Parameter	ICV %Rec	Limits	Flag
Acrolein	88	60-140	
Acrylonitrile	90	60-140	
Dichlorodifluoromethane	76	51-128	
Chloromethane	81	1-205	
Vinyl Chloride	87	5-195	
Bromomethane	88	15-185	
Chloroethane	82	40-160	
Trichlorofluoromethane	83	50-150	

PHASE SEPARATION SCIENCE

6630 Baltimore National Pike
Baltimore, MD 21228
410-747-8770
800-932-9047
www.phaseonline.com

QC Summary

Project Name Kop-Flex
PSS Project No.: 23121509

Analytical Method: EPA 624 .1
Parent Sample Id: ICV-01 Seq Number: 208456
Analyzed Date: 11/20/23 17:46

Parameter	ICV %Rec	Limits	Flag
2-Chloroethyl Vinyl Ether	84	1-225	
1,1-Dichloroethene	86	50-150	
Methylene Chloride	85	60-140	
trans-1,2-dichloroethene	86	70-130	
1,1-Dichloroethane	87	70-130	
Chloroform	86	70-135	
1,1,1-Trichloroethane	87	70-130	
Carbon Tetrachloride	86	70-130	
Benzene	87	65-135	
1,2-Dichloroethane	87	70-130	
Trichloroethene	86	65-135	
1,2-Dichloropropane	89	35-165	
Bromodichloromethane	90	65-135	
cis-1,3-Dichloropropene	87	25-175	
Toluene	88	70-130	
trans-1,3-dichloropropene	87	50-150	
1,1,2-Trichloroethane	88	70-130	
Tetrachloroethylene	84	70-130	
Dibromochloromethane	92	70-135	
Chlorobenzene	86	65-135	
Ethylbenzene	90	60-140	
Bromoform	93	70-130	
1,1,2,2-Tetrachloroethane	88	60-140	
1,3-Dichlorobenzene	87	70-130	
1,4-Dichlorobenzene	84	65-135	
1,2-Dichlorobenzene	89	65-135	

Surrogate	Limits	Flag
Dibromofluoromethane	94-108	
4-Bromofluorobenzene	77-120	
Toluene-D8	95-104	

Analytical Method: EPA 624 .1
Parent Sample Id: ICV-01 Seq Number: 208642
Analyzed Date: 11/30/23 12:26

Parameter	ICV %Rec	Limits	Flag
1,4-Dioxane	4	54-145	X

Surrogate	Limits	Flag
Dibromofluoromethane	94-108	
4-Bromofluorobenzene	77-120	
Toluene-D8	95-104	

PHASE SEPARATION SCIENCE

CHAIN OF CUSTODY FORM

All fields must be completed accurately. Shaded sections for lab use only.

www.phaseonline.com ~ info@phaseonline.com

6630 Baltimore National Pike • Suite 103-A • Baltimore, Maryland 21228 • (410) 747-8770 • (800) 932-9047

① PSS CLIENT: WSP USA | OFFICE LOCATION: Herndon, VA | PSS Work Order #: 23121509 | PAGE 1 OF 1

BILL TO (if different): | PHONE #: 703-709-6500

CONTACT: Eric Johnson | EMAIL: eric.johnson@wsp.com

PROJECT NAME: Kop-Flex | PROJECT #: 31405608010/0202

SITE LOCATION: Hanover, MD | P.O. #:

SAMPLER(S): Shannon Burke | DW CERT #:

Matrix Codes: **SW**=Surface Water **DW**=Drinking Water **GW**=Ground Water **WW**=Waste Water **O**=Oil **S**=Soil **SOL**=Solid **A**=Air **WI**=Wipe

② Preservatives Use Codes: 1,6 | 1 | 6 | 3

Analysis/Method Required ③: VOCs (624.1) | 1,4-dioxane (624.1) | TSS | Total metals (200.8)

Preservative Codes: 1 - HCL; 2 - H_2SO_4; 3 - HNO_3; 4 - NaOH; 5 - E624KIT; 6 - ICE; 7 - Sodium Thiosulfate; 8 - Ascorbic Acid; 9 - TerraCore Kit

PSS ID	SAMPLE IDENTIFICATION	DATE SAMPLED	TIME SAMPLED	MATRIX Use Codes	# OF CONTAINERS	SAMPLE TYPE: C=COMPOSITE G=GRAB	VOCs (624.1)	1,4-dioxane (624.1)	TSS	Total metals (200.8)
1	Effluent VSP-4	12/15/23	1215	WW	8	G	X	X	X	X
2	TB-121523	—	—	TB	4	—	X	X		

⑤

Relinquished By: (1)	Date	Time	Received By:
Shannon Burke	12/15/23	1445	
Relinquished By: (2)	Date	Time	Received By:
Relinquished By: (3)	Date	Time	Received By:
Relinquished By: (4)	Date	Time	Received By:

④

Requested TAT (One TAT per COC)

☐ 5-Day ☐ 3-Day ☐ 2-Day
☐ Next Day ☐ Emergency ☒ Other

STATE RESULTS REPORTED TO:
☐ MD ☐ DE ☐ PA ☐ VA ☐ WV
☐ OTHER

Ice Present: PRES TB = 0.2°C

Custody Seal: INTACT - COOLER

Coolers: 1 Temp: 0.6-2.2°C

Shipping Carrier: Client

COMPLIANCE? ☐ DW ☐ WW

EDD FORMAT TYPE

Special Instructions:
Standard 10-day TAT
Metals = Cu, Pb, Ni, Zn

This chain of custody is a legal document. The client (PSS Client), by signing, or having client's agent sign, this "Chain of Custody Form", agrees to pay for the above requested services per the latest version of the Service Brochure or PSS-provided quotation including any and all attorney's or other reasonable fees if collection becomes necessary.

PHASE SEPARATION SCIENCE

6630 Baltimore National Pike
Baltimore, MD 21228
410-747-8770
800-932-9047
www.phaseonline.com

Sample Receipt Checklist

Project Name: Kop-Flex
PSS Project No.: 23121509

Client Name WSP USA - Herndon
Disposal Date 01/19/2024

Received By Amber Confer
Date Received 12/15/2023 02:45:00 PM
Delivered By Client
Tracking No Not Applicable
Logged In By Marissa Vertucci

Shipping Container(s)
No. of Coolers 1

		Ice	Present
Custody Seal(s) Intact?	Yes	Temp (deg C)	2.2
Seal(s) Signed / Dated?	Yes	Temp Blank Present	Yes

Documentation

		Sampler Name	Shannon Burke
COC agrees with sample labels?	Yes	MD DW Cert. No.	N/A
Chain of Custody	Yes		

Sample Container

		Custody Seal(s) Intact?	Not Applicable
Appropriate for Specified Analysis?	Yes	Seal(s) Signed / Dated	Not Applicable
Intact?	Yes		
Labeled and Labels Legible?	Yes		

Holding Time

		Total No. of Samples Received	2
All Samples Received Within Holding Time(s)?	Yes	Total No. of Containers Received	12

Preservation

Total Metals	(pH<2)	Yes
Dissolved Metals, filtered within 15 minutes of collection	(pH<2)	N/A
Orthophosphorus, filtered within 15 minutes of collection		N/A
Cyanides	(pH>12)	N/A
Sulfide	(pH>9)	N/A
TOC, DOC (field filtered), COD, Phenols	(pH<2)	N/A
TOX, TKN, NH3, Total Phos	(pH<2)	N/A
VOC, BTEX (VOA Vials Rcvd Preserved)	(pH<2)	Yes
Do VOA vials have zero headspace?		Yes
624 VOC (Rcvd at least one unpreserved VOA vial)		Yes
524 VOC (Rcvd with trip blanks)	(pH<2)	N/A

Comments: (Any "No" response must be detailed in the comments section below.)

For any improper preservation conditions, list sample ID, preservative added (reagent ID number) below as well as documentation of any client notification as well as client instructions. Samples for pH, chlorine and dissolved oxygen should be analyzed as soon as possible, preferably in the field at the time of sampling. Samples which require thermal preservation shall be considered acceptable when received at a temperature above freezing to 6°C. Samples that are hand delivered on the day that they are collected may not meet these criteria but shall be considered acceptable if there is evidence that the chilling process has begun such as arrival on ice.

Samples Inspected/Checklist Completed By: Marissa Vertucci Date: 12/15/2023

PM Review and Approval: Amber Confer Date: 12/15/2023

APPENDIX

B 2023 RESIN CLEANING REPORTS

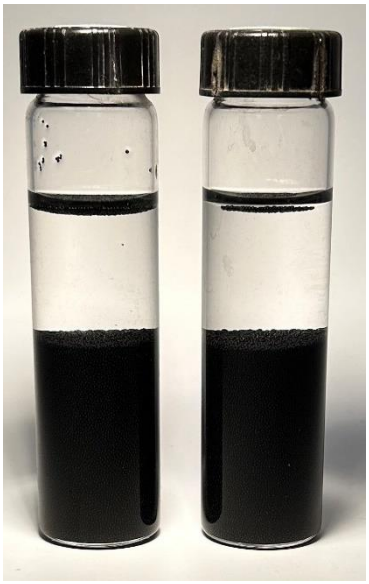
WSP, Baltimore, MD T1100 Resin Report

Introduction

Recirculation Technologies, LLC (RTI) has analyzed the **T1100** before and after cleaning resin samples from WSP in Baltimore, MD. The resin is Dow Ambersorb 560, a carbonaceous adsorbent used to remove selective organics from water solutions.

Analysis

Total Organic Carbon (TOC) analysis, in ppm, shows organic material present in the before cleaning resin sample. The cleaning process performed was a series of subsequent rounds of fresh 10% NaOH solution in the presence of heat with frequent mixing. This method was successful in removing organic material from the resin.

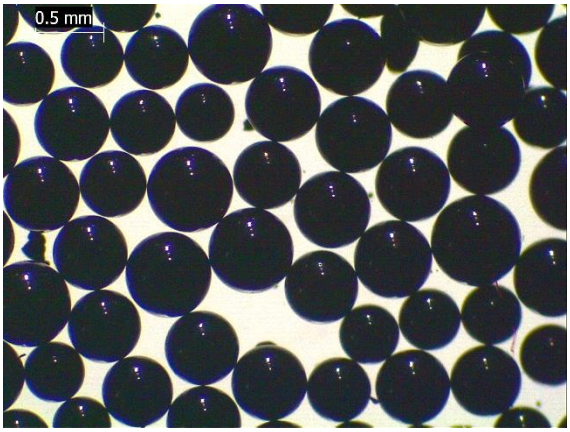


Resin Sample	VCS Color Scale[1]	Total Organic Carbon, ppm
T1100 Before Cleaning	2	27
T1100 After Cleaning	1	23
New Resin	1	20

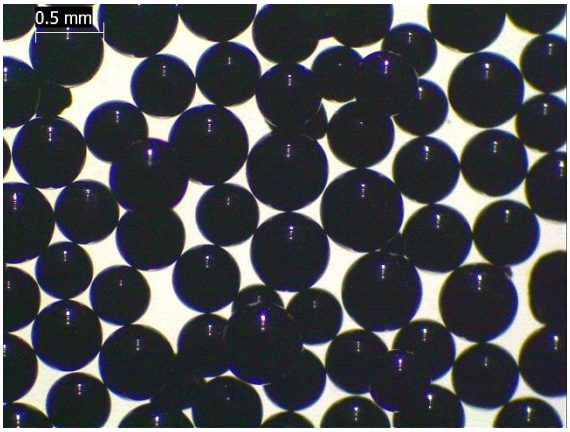
[1] VCS is Varnish Color Scale, a qualitative method used to evaluate varnish. It has been co-opted to characterize natural organics present in solutions since many natural organics are highly colored. The scale extends from 0, which is water-white, to 18, which is opaque black.

This represents a **17%** removal of organic material from before cleaning to after cleaning. This fraction of the organic material was removed efficiently during the cleaning. The TOC solutions eluted from the before and after resin samples showed a light solution before (2 on the 0-18 scale) and a light solution after (1 on the same 0-18 scale), corresponding to low levels of organics present before and less organics present after cleaning.

The before cleaning resin is surrounded by light particulates and some resin fines. The particulates were removed during cleaning by RTI. This opens the flow of process solution through the entire resin bed, allowing for better treatment.



T1100 Before Cleaning Resin Sample



T1100 After Cleaning Resin Sample

Conclusion

The cleaning of the T1100 resin with a 10% NaOH solution removed a portion of the organic fouling contained in the resin. This method lowered the organic fouling, removed all particulate fouling, and will allow the resin to function optimally going forward.

For RTI,
Joel Shulman
Laboratory Manager
jshulman@rtiservices.com
215-682-7099 Ext. 09

November 16, 2023

WSP, Baltimore, MD T1200 Resin Report

Introduction

Recirculation Technologies, LLC (RTI) has analyzed the **T1200** before and after cleaning resin samples from WSP in Baltimore, MD. The resin is Dow Ambersorb 560, a carbonaceous adsorbent used to remove selective organics from water solutions.

Analysis

Total Organic Carbon (TOC) analysis, in ppm, shows organic material present in the before cleaning resin sample. The cleaning process performed was a series of subsequent rounds of fresh 10% NaOH solution in the presence of heat with frequent mixing. This method was successful in removing organic material from the resin.

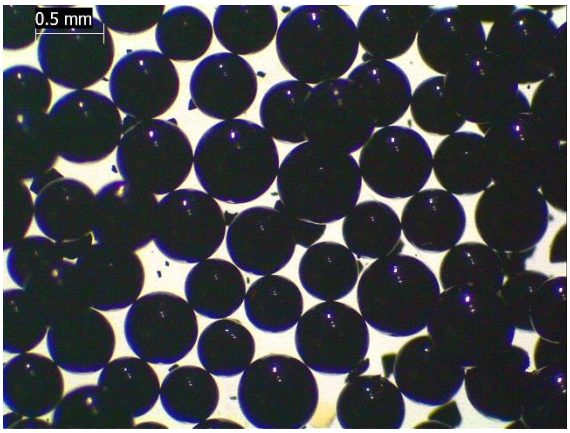


Resin Sample	VCS Color Scale[1]	Total Organic Carbon, ppm
T1100 Before Cleaning	2	38
T1100 After Cleaning	1	24
New Resin	1	20

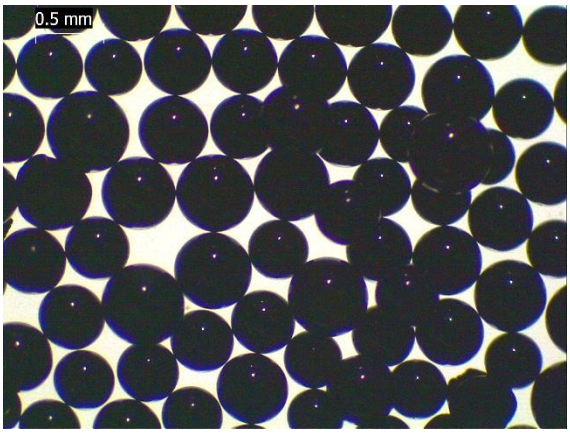
[1] VCS is Varnish Color Scale, a qualitative method used to evaluate varnish. It has been co-opted to characterize natural organics present in solutions since many natural organics are highly colored. The scale extends from 0, which is water-white, to 18, which is opaque black.

This represents a **37%** removal of organic material from before cleaning to after cleaning. This fraction of the organic material was removed efficiently during the cleaning. The TOC solutions eluted from the before and after resin samples showed a light solution before (2 on the 0-18 scale) and a light solution after (1 on the same 0-18 scale), corresponding to low levels of organics present before and less organics present after cleaning.

The before cleaning resin is surrounded by particulates and some resin fines. The particulates were removed during cleaning by RTI. This opens the flow of process solution through the entire resin bed, allowing for better treatment.



T1200 Before Cleaning Resin Sample



T1200 After Cleaning Resin Sample

Conclusion

The cleaning of the T1200 resin with a 10% NaOH solution removed a portion of the organic fouling contained in the resin. This method lowered the organic fouling, removed all particulate fouling, and will allow the resin to function optimally going forward.

For RTI,
Joel Shulman
Laboratory Manager
jshulman@rtiservices.com
215-682-7099 Ext. 09

November 16, 2023

APPENDIX

C RW-3S BOREHOLE VIDEO LOG REPORT

VIDEO BOREHOLE LOGGING SURVEY
ONE 62-FOOT-DEEP EXTRACTION WELL

HANOVER, ANNE ARUNDEL COUNTY, MARYLAND

October 30, 2023

Prepared for:

WSP USA
40 La Riviera Drive, Suite 320
Buffalo, NY 14202

Prepared by:

RETTEW Field Services, Inc.
3020 Columbia Avenue
Lancaster, PA 17603

RETTEW Project No. 111382013

RETTEW
We answer to you.

3020 Columbia Avenue, Lancaster, PA 17603 ● Phone: (800) 738-8395
E-mail: rettew@rettew.com ● Website: rettew.com

Engineers
Environmental Consultants
Surveyors
Landscape Architects
Safety Consultants

October 30, 2023

Erik Reinert, PG
WSP USA
40 La Riviera Drive, Suite 320
Buffalo, NY 14202

RE: Video Borehole Logging Survey
One 62-Foot-Deep Extraction Well
Hanover, MD
RETTEW Project No. 111382013

Dear Erik:

On October 24, 2023, RETTEW Field Services, Inc. completed a video borehole survey at the above-referenced site. The purpose of the survey was to determine whether the well is clogged or fouled.

LOGGING EQUIPMENT

RETTEW conducts video logging using a Well-Vu Camera with a 500-foot cable and fisheye lens that provides a 180-degree view of the well, including both the sidewalls and down the well at the same time. Video images were saved to an internal SD memory device and transferred to the client.

LOGGING RESULTS

The logging results for the well video survey are briefly summarized below.

Note that since analysis of borehole video can be quite subjective, and the level of detail is dependent upon the specific goals of the geologist, the analysis below by RETTEW covers the major features of each log – as well as some possibly minor features – to serve as examples (or guides) for further interpretation by geologists familiar with the site, local geology, and/or project goals.

RW-3

NOTABLE FEATURES

- All feature depths are referenced from the top of well casing ("TOC").
- The total depth (TD) of the well was measured at approximately 61.4 feet below TOC.
- The depth to water was measured at 16.7 feet below TOC at the time of the survey.
- The diameter of the casing at the surface was measured to be approximately 6 inches and reduced to 4 inches at 2.2 feet below TOC.
- Solid PVC casing from TOC to 21.7 feet, then screened casing to the bottom of the well.
- Moderate staining observed from 34.5 to 36.5 feet, no staining from 36.5 to 47.5 feet, heavy staining from 48.9 to 50.0 feet, and no staining from 50.0 feet to the bottom of the well.
- Well casing joints were observed at depths of 7.2, 17.1, 31.8, 41.7, and 51.6 feet below TOC.
- Transducer was observed at a depth of 47.4 feet.

LIMITATIONS

The survey described above was completed using standard and/or routinely accepted practices of the geophysical industry, and the equipment employed represents, in RETTEW's professional opinion, the best available technology. RETTEW does not accept responsibility for survey limitations due to inherent technological limitations or unforeseen site-specific conditions. We will notify you of such limitations or conditions when they are identifiable.

We have enjoyed and appreciated this opportunity to have worked with you. If you have any questions, please do not hesitate to contact the undersigned.

Sincerely,

Robert J. Krause, PG
Senior Geophysicist
bob.krause@rettew.com

Technical Review By:

Felicia Kegel Bechtel, MSc, PG
Senior Geophysical Advisor
felicia.bechtel@rettew.com

Z:\Shared\Projects\11138\111382013 - WSP Video Logging Hanover, PA\GP\111382013_Summary Report_2023-10-30.docx

Boring Log: RW-3S

Project: Kop-Flex

Project No.: 31400389

Location: Hanover, MD

Completion Date: September 11, 2016

Surface Elevation (feet AMSL*): 125.4

TOC Elevation (feet AMSL*): 125.1

Total Depth (feet): 62

Borehole Diameter (inches): 8

**AMSL = Above mean sea level*

Sample Data					Subsurface Profile		
Depth	Sample/Interval	PID/OVM (ppm)	Blow Count	% Recovery	Lithology	Description	Well Details
						Ground Surface	
5						***Poorly-Graded Sand with Clay and Gravel (SP-SC)*** Light to medium brown 7.5 YR-5/3 poorly graded sand with traces of rounded gravel and lean clay. Soft, dry, low density.	
10						***Lean Clay with Sand (CL)*** Dark gray 10 YR-4/1 lean clay with coarse sand (trace fines) and trace rounded to sub rounded gravel. Stiff, moist	
15						***Sandy Lean Clay (CL)*** Light reddish brown 2.5 YR-6/3 clay with fine sand. Very hard, dense, dry, red mottling	
20						Observed Water Level on 10/24/23	
25							

Geologist(s): Chris Cresci

Subcontractor: Cascade Drilling

Driller/Operator: Tommy Ardito

Method: Rotosonic

WSP
11353 Dulles Technology Drive, Suite 300
Herndon, VA 20171
703-709-6500

Boring Log: RW-3S

Project: Kop-Flex
Project No.: 31400389
Location: Hanover, MD
Completion Date: September 11, 2016

Surface Elevation (feet AMSL*): 125.4
TOC Elevation (feet AMSL*): 125.1
Total Depth (feet): 62
Borehole Diameter (inches): 8

*AMSL = Above mean sea level

Sample Data					Subsurface Profile		
Depth	Sample/Interval	PID/OVM (ppm)	Blow Count	% Recovery	Lithology	Description	Well Details
						Sandy Lean Clay (CL) Light reddish brown 2.5 YR-6/3 clay with fine sand. Very hard, dense, dry, red mottling *(continued)*	
30						***Fat Clay with Sand (CH)*** Reddish yellow 5 YR-6/8 fat clay with fine sand and traces of rounded gravel. Stiff, very dense, wet, red mottling. Minimal Iron-Staining on Screened interval to 34.5'	
35						***Lean Clay with Sand (CL)*** Light reddish gray 5 YR-5/2 lean clay with trace fine sand. Stiff, low density, dry. Moderate Iron-oxide Staining to 36.5 feet	
40						***Fat Clay (CH)*** Red 10Y-4/8 fat clay, traces of fine sand. Stiff, wet, very dense. No visible staining or clogging to 47.5 feet	
45						***Clayey Sand (SC)*** Pale reddish gray 2.5 YR-6/2 clayey fine to medium sand. Moist, soft. Moderate to heavy Iron-Oxide Staining to 48.8 feet	
50							

Geologist(s): Chris Cresci
Subcontractor: Cascade Drilling
Driller/Operator: Tommy Ardito
Method: Rotosonic

WSP
11353 Dulles Technology Drive, Suite 300
Herndon, VA 20171
703-709-6500

Boring Log: RW-3S

Project: Kop-Flex

Project No.: 31400389

Location: Hanover, MD

Completion Date: September 11, 2016

Surface Elevation (feet AMSL*): 125.4

TOC Elevation (feet AMSL*): 125.1

Total Depth (feet): 62

Borehole Diameter (inches): 8

*AMSL = Above mean sea level

Sample Data					Subsurface Profile		
Depth	Sample/Interval	PID/OVM (ppm)	Blow Count	% Recovery	Lithology	Description	Well Details
55						***Poorly-Graded Sand with Clay (SP-SC)*** Light reddish brown 5 YR-6/3 fine sand with trace lean clay. Stiff, moist	
60						Minimal iron-oxide staining. Fine-grained sediment visible in screen slots. However, screen does not appear clogged.	
65						Bottom of Boring at 62 feet	
70							
75							

Geologist(s): Chris Cresci

Subcontractor: Cascade Drilling

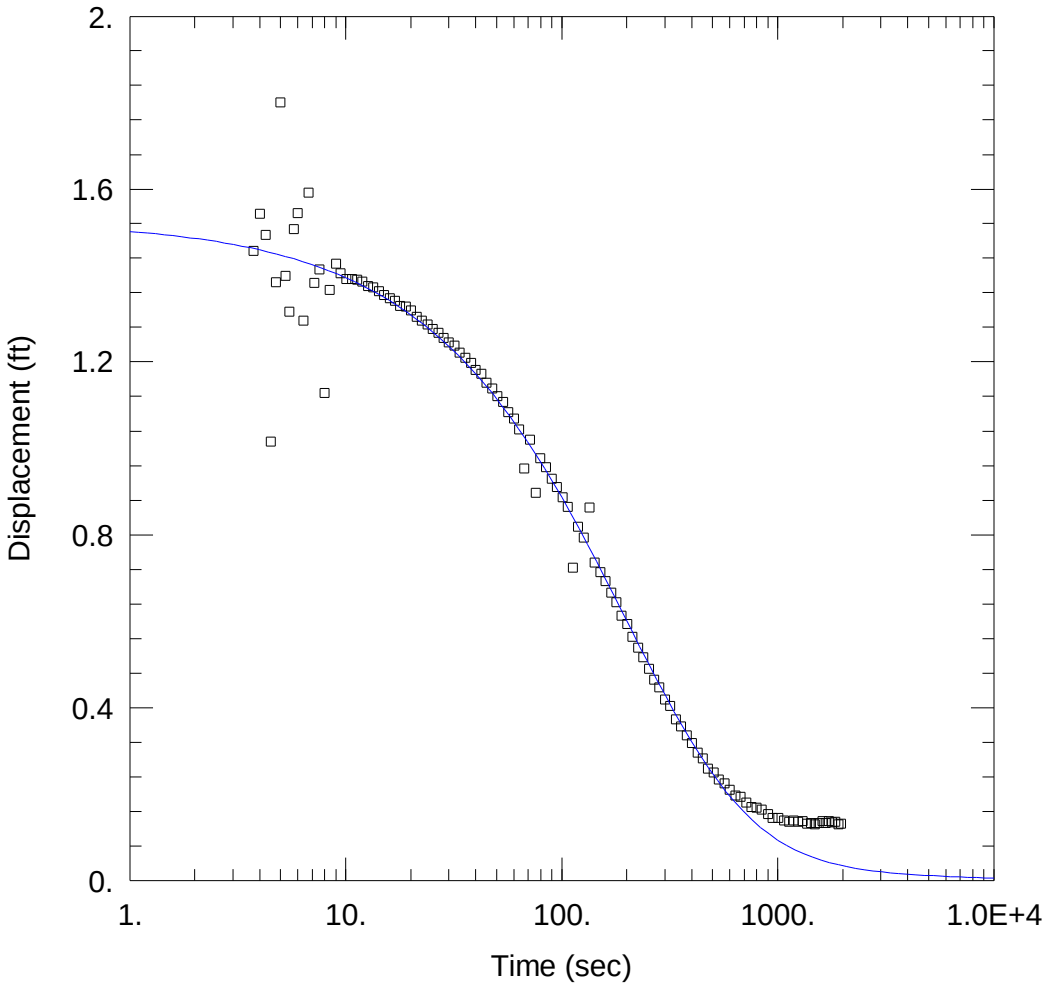
Driller/Operator: Tommy Ardito

Method: Rotosonic

WSP
11353 Dulles Technology Drive, Suite 300
Herndon, VA 20171
703-709-6500

APPENDIX

D RW-3S AQTESOLVE OUTPUTS



RW-3S FALLING HEAD TEST 1

Data Set: Z:\...\Falling Head Test 1 RW-3S.aqt
Date: 01/10/24 Time: 19:06:40

PROJECT INFORMATION

Company: WSP
Client: Emerson
Project: 31405608.010
Location: Hanover, MD
Test Well: RW-3S
Test Date: 11/6/2023

AQUIFER DATA

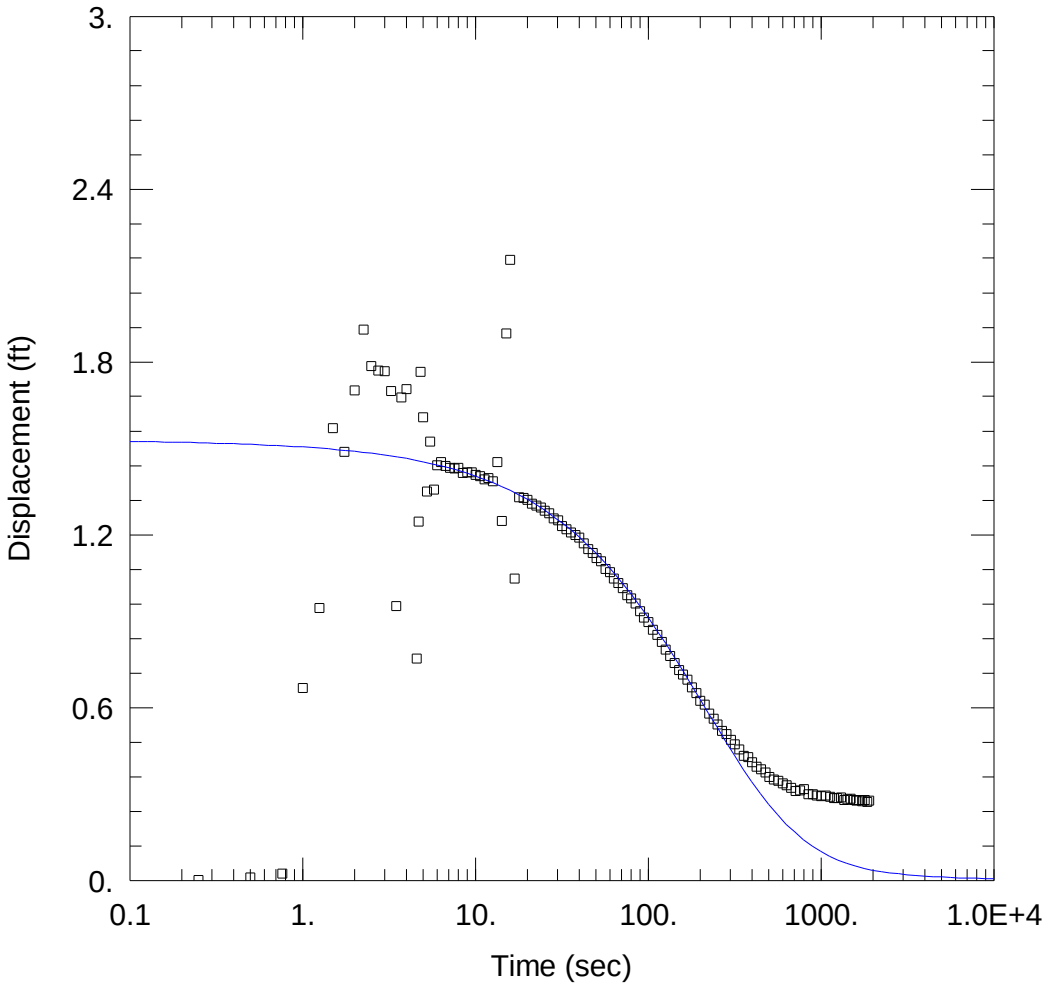
Saturated Thickness: 35. ft Anisotropy Ratio (Kz/Kr): 1.

WELL DATA (RW-3S)

Initial Displacement: 1.53 ft Static Water Column Height: 46. ft
Total Well Penetration Depth: 35. ft Screen Length: 35. ft
Casing Radius: 0.167 ft Well Radius: 0.33 ft

SOLUTION

Aquifer Model: Confined Solution Method: Cooper-Bredehoeft-Papadopulos
T = 18.87 ft^2/day S = 0.0008936



RW-3S FALLING HEAD TEST 2

Data Set: Z:\...\RW-3S Falling Head Test 2.aqt
Date: 01/10/24 Time: 19:07:52

PROJECT INFORMATION

Company: WSP
Client: Emerson
Project: 31405608.010
Location: Hanover, MD
Test Well: RW-3S
Test Date: 11/6/2023

AQUIFER DATA

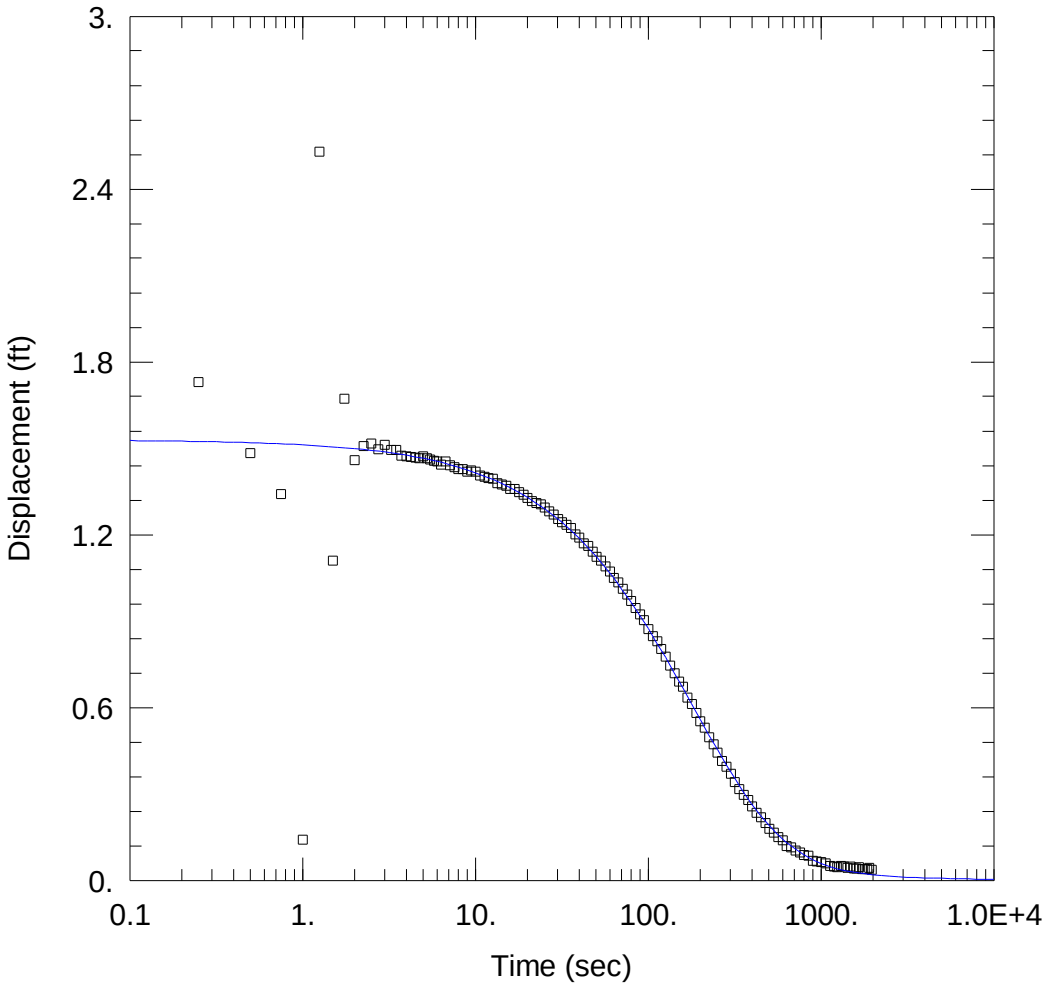
Saturated Thickness: 35. ft Anisotropy Ratio (Kz/Kr): 1.

WELL DATA (RW-3S)

Initial Displacement: 1.53 ft
Total Well Penetration Depth: 35. ft
Casing Radius: 0.165 ft
Static Water Column Height: 46.11 ft
Screen Length: 35. ft
Well Radius: 0.33 ft

SOLUTION

Aquifer Model: Confined
Solution Method: Cooper-Bredehoeft-Papadopulos
T = 17.87 ft^2/day
S = 0.0007139



RW-3S RISING HEAD TEST 1

Data Set: Z:\...\RW-3S Rising Head Test 1.aqt
Date: 01/10/24 Time: 19:08:33

PROJECT INFORMATION

Company: WSP
Client: Emerson
Project: 31405608.010
Location: Hanover, MD
Test Well: RW-3S
Test Date: 11/6/2023

AQUIFER DATA

Saturated Thickness: 35. ft Anisotropy Ratio (Kz/Kr): 1.

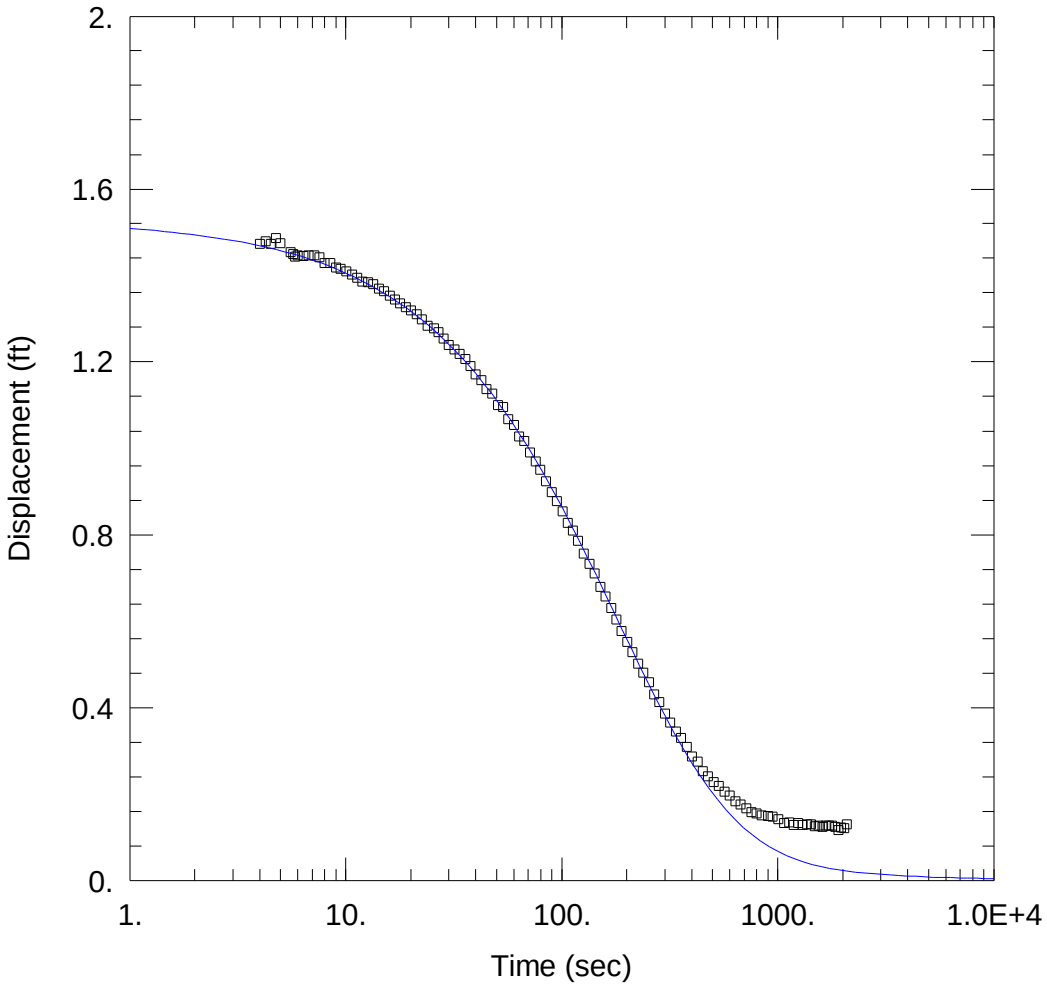
WELL DATA (RW-3S)

Initial Displacement: 1.53 ft
Total Well Penetration Depth: 35. ft
Casing Radius: 0.165 ft
Static Water Column Height: 46. ft
Screen Length: 35. ft
Well Radius: 0.33 ft

SOLUTION

Aquifer Model: Confined Solution Method: Cooper-Bredehoeft-Papadopulos

T = 30.03 ft^2/day S = 4.416E-5



RW-3S RISING HEAD TEST 2

Data Set: Z:\...\RW-3S Rising Head Test 2.aqt
Date: 01/10/24 Time: 19:08:57

PROJECT INFORMATION

Company: WSP
Client: Emerson
Project: 31405608.010
Location: Hanover, MD
Test Well: RW-3S
Test Date: 11/6/2023

AQUIFER DATA

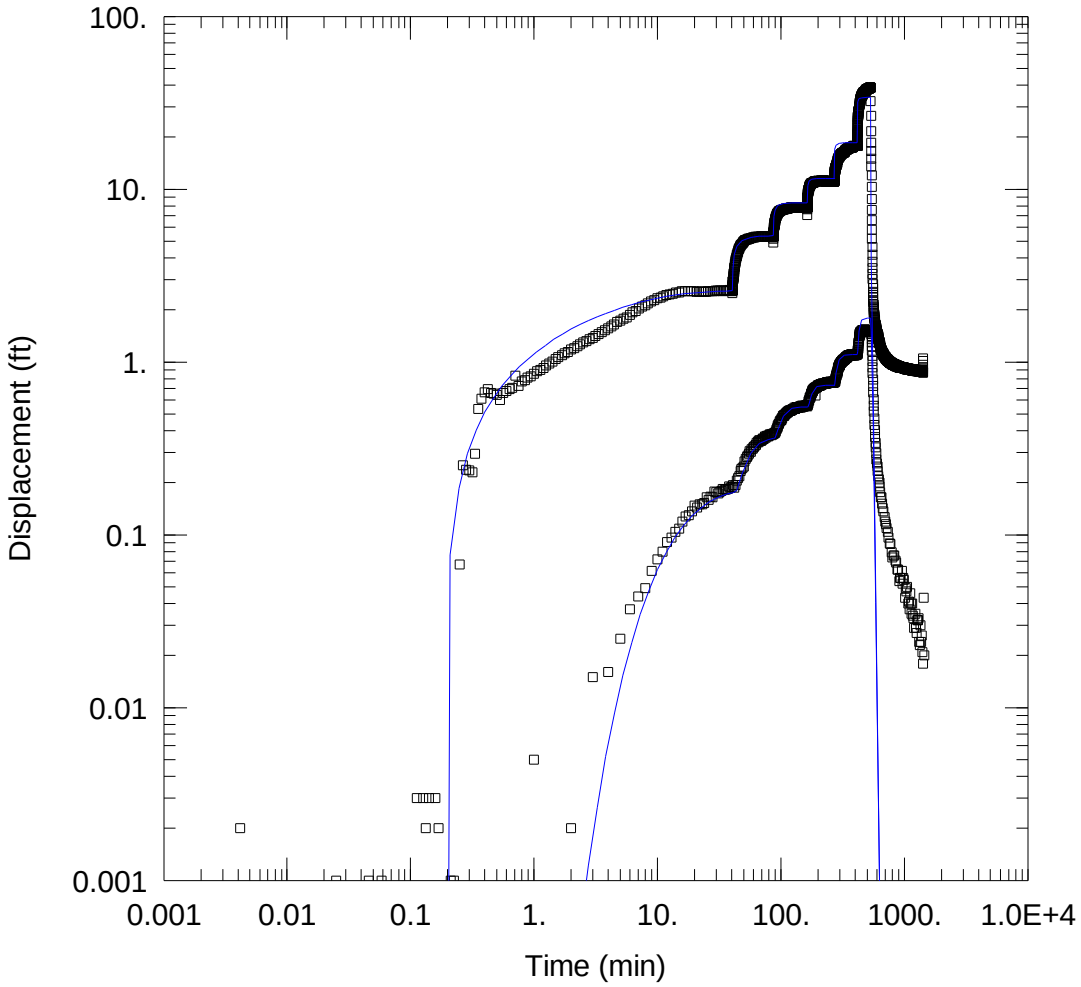
Saturated Thickness: 35. ft Anisotropy Ratio (Kz/Kr): 1.

WELL DATA (RW-3S)

Initial Displacement: 1.53 ft
Total Well Penetration Depth: 35. ft
Casing Radius: 0.165 ft
Static Water Column Height: 46. ft
Screen Length: 35. ft
Well Radius: 0.33 ft

SOLUTION

Aquifer Model: Confined
Solution Method: Cooper-Bredehoeft-Papadopulos
$T = 25.89\ ft^2/day$
S = 0.0001608



RW-3S STEP TEST

Data Set: Z:\...\RW-3S Step Test Analysis Best fit Final.aqt
Date: 02/08/24 Time: 08:31:36

PROJECT INFORMATION

Company: WSP
Client: Emerson
Project: 31405608.010
Location: Hanover, MD
Test Well: RW-3S
Test Date: 11/8/2023

AQUIFER DATA

Saturated Thickness: 11. ft
Aquitard Thickness (b'): 10. ft
Anisotropy Ratio (Kz/Kr): 1.
Aquitard Thickness (b"): 10. ft

WELL DATA

Pumping Wells

Well Name	X (ft)	Y (ft)
RW-3S	0	0

Observation Wells

Well Name	X (ft)	Y (ft)
RW-3S	0	0
MW-44	17.9	-110.1

SOLUTION

Aquifer Model: Leaky
Solution Method: Hantush-Jacob

APPENDIX

E WASTEWATER DISCHARGE MODIFICATION REQUEST AND APPROVAL FOR RESIN CLEANING WASTEWATER

VIA ELECTRONIC MAIL

February 22, 2023

Chris Tait
Regulatory Compliance Program Manager
Pre-treatment Program
Department of Public Works
2662 Riva Road WWD MS 7408
Annapolis, MD 21401

Subject: **Request for Modification to Wastewater Discharge Permit No. 210020**
EMERSUB 16 LLC Treatment Building, Harmans Road, Hanover, Maryland

Dear Mr. Tait:

On behalf of EMERSUB 16, LLC (EMERSUB 16), WSP USA Inc. (WSP) has prepared this letter requesting approval from the Anne Arundel County (County) Pre-treatment Program for a modification to Permit No. 210020 involving the discharge of wastewater to the sanitary sewer system in the Harmans Road area of Hanover, Maryland. The proposed modification involves the discharge of wastewater that will be generated during annual maintenance conducted on the groundwater remediation system (System) and consists of neutralized caustic solution and post-cleaning water generated during the removal of natural organic foulants that have accumulated to treatment resins. The discharge modification request is being submitted in accordance with the requirement specified in *Section 11. Permit Modification* of Wastewater Discharge Permit No. 210020, issued to EMERSUB 16. Information on the maintenance activity that generates the wastewater, chemical characterization of the wastewater, and the proposed plan for discharging the water to the sewer system is provided below.

GROUNDWATER REMEDIATION SYSTEM – DESCRIPTION AND MAINTENANCE ACTIVITY PRODUCING DISCHARGE

Under the Maryland Department of the Environment (MDE) Voluntary Cleanup Program, and as required under Administrative Order on Consent RCRA-03-2016-0170 CA issued by the United States Environmental Protection Agency Region III, EMERSUB 16 has operated the System to control the migration of chlorinated volatile organic compounds (CVOCs) and 1,4-dioxane present in the aquifer underlying the property at 7555 Harmans Road. The System involves the extraction of affected groundwater using recovery wells and treatment of the extracted groundwater using bag filters for suspended solids removal, synthetic resin for the removal of CVOCs and 1,4-dioxane, caustic soda for pH buffering, and an in-line aerator to increase dissolved oxygen levels. The treated groundwater is routed and discharged to the portion of Stony Run on the property. The treated water is discharged to Stony Run under National Pollutant Discharge Elimination System Permit MD0069094. The resin media regularly undergoes steam regeneration onsite to desorb the CVOCs and 1,4-dioxane removed from the groundwater.

WSP USA
Suite 300
13530 Dulles Technology Drive
Herndon, VA 20171

Tel.: +1 703 709-6500
Fax: +1 703 709-8505
wsp.com

In addition to the CVOCs and 1,4-doxane, natural organic constituents (NOCs) present at very low concentrations in the extracted groundwater are also removed by the treatment resin. Since the NOCs are not desorbed during the regeneration process, these constituents continually accumulate and foul the synthetic resin media, thus reducing its treatment performance and requiring more frequent steam regenerations. WSP has identified cleaning of the resin using a heated caustic solution as a periodic maintenance procedure to remove the natural organic foulants and restore the treatment capacity of the resin. The used caustic solution is transferred to a small frac tank and neutralized with acid following completion of the cleaning process. Additionally, high pH water containing residual NOCs that is produced during post-cleaning regenerations of the resin media is combined with the neutralized cleaning water in the frac tank. If deemed necessary, further acid neutralization of the frac tank water is conducted to reduce the pH to a suitable level, which is typically less than 10 standard units (SU). The amount of resin cleaning water generated per event is approximately 12,000 gallons. WSP completed the most recent resin cleaning event between September 25 and October 1, 2021.

CHEMICAL CHARACTERIZATION OF DISCHARGE

On October 7, 2021, WSP collected a sample of the resin cleaning water contained in the frac tank for chemical characterization purposes. The sample was analyzed for the following parameters by Phase Separation Science, Inc., of Baltimore, Maryland.

- Target Analyte List Metals (including mercury),
- Total cyanide
- Organochlorine pesticides,
- Polychlorinated biphenyls,
- VOCs,
- Semi-volatile organic compounds,
- Oil & grease,
- Total suspended solids,
- Biochemical oxygen demand (BOD),
- Chemical oxygen demand (COD),
- Flash point

The temperature and pH of the resin cleaning water was measured using a calibrated field meter at the time of sample collection.

A copy of the certified laboratory analytical report, dated October 14, 2021, is provided in Enclosure A. The laboratory data indicates the neutralized water from the resin cleaning activities meets the standards, including total toxic organics, specified in *Part 2 – Applicable Effluent Limitations* of EMERSUB 16's wastewater discharge permit. As noted in the Special Instructions portion of the chain of custody (COC) form that accompanied the sample shipment to the laboratory, the temperature and pH of the water on the day of sampling were 22.8° Celsius and 8.09 SU, respectively. (A copy of the COC form is included on page 38 of the analytical report.) These field data are also in compliance with the effluent limitations in the wastewater discharge permit.

The COD concentration of the sample – 850 milligrams per liter (mg/L) – exceeds the level of 250 mg/L listed in Footnote 3 of the wastewater discharge standards. Based on the information provided in this footnote, a surcharge would be applicable for this COD level as specified in the County sewer ordinances.

DISCHARGE OF RESIN CLEANING WATER TO SEWER SYSTEM

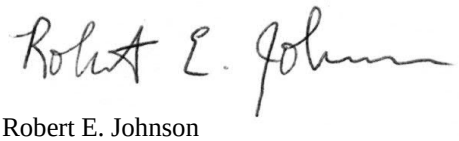
WSP would coordinate with the System operation and maintenance contractor to discharge the contained wastewater to the sanitary sewer system via a drain located inside the treatment building. The wastewater would be discharged during normal business hours so that personnel can be onsite to monitor the process. It is anticipated the discharge of all water would occur over a 2- to 3-day period

once per year. Based on this schedule, the maximum daily volume of resin cleaning water discharged to the sewer would be <5,500 gallons. WSP would provide a notice via email to County Pre-treatment Program at least 7 days before any discharge occurs to the sewer system. As previously mentioned, the resin cleaning water discharge would occur annually.

Once the wastewater is discharged, the frac tank will be cleaned and removed from the property. Water generated during the cleaning of the frac tank will be transported offsite for disposal and not be discharged to the sanitary sewer system. The first discharge is scheduled for Q2 2023 and will occur annually afterwards.

Please contact me at (703) 709-6500 if you have any questions or require additional information regarding this permit modification request. We are planning to conduct the next resin maintenance activity during the 2nd quarter of 2023 and would appreciate a response from the County concerning the inclusion of the resin cleaning water under the wastewater discharge permit.

Kind regards,



Robert E. Johnson
Vice President – Earth & Environment

K:\Emerson\Kop-Flex_$ONSITE AREA\Wastewater Discharge Permit - County\Discharge Request Permanent - Resin Cleaning Water\Permit 210020_EMERSUB 16 Hanover_WW Discharge Request_110122.docx

Encl.

cc: Department of Public Works, Finance Division
Mr. Stephen Clarke, EMERSUB 16 LLC
Ms. Amber Crouch, EMERSUB 16 LLC

ENCLOSURE A – LABORATORY ANALYTICAL REPORT, RESIN CLEANING WATER

PHASE SEPARATION SCIENCE

6630 Baltimore National Pike
Baltimore, MD 21228
410-747-8770
800-932-9047
www.phaseonline.com

Certificate of Analysis

Project Name: Kop-Flex
PSS Project No.: 21100715

October 14, 2021

Eric Johnson
WSP USA - Herndon
13530 Dulles Technology Dr, Ste 300
Herndon, VA 20171

Reference: PSS Project No: **21100715**
Project Name: Kop-Flex
Project Location: Hanover, MD
Project ID.: 31401545.010/04

Dear Eric Johnson:

This report includes the analytical results from the analyses performed on the samples received under the project name referenced above and identified with the Phase Separation Science (PSS) Project number(s) **21100715**.

All work reported herein has been performed in accordance with current NELAP standards, referenced methodologies, PSS Standard Operating Procedures and the PSS Quality Assurance Manual unless otherwise noted in the Case Narrative Summary. PSS is limited in liability to the actual cost of the sample analysis done.

PSS reserves the right to return any unused samples, extracts or related solutions. Otherwise, the samples are scheduled for disposal, without any further notice, on November 11, 2021, with the exception of air canisters which are cleaned immediately following analysis. This includes any samples that were received with a request to be held but lacked a specific hold period. It is your responsibility to provide a written request defining a specific disposal date if additional storage is required. Upon receipt, the request will be acknowledged by PSS, thus extending the storage period.

This report shall not be reproduced except in full, without the written approval of an authorized PSS representative. A copy of this report will be retained by PSS for at least 5 years, after which time it will be disposed of without further notice, unless prior arrangements have been made.

We thank you for selecting Phase Separation Science, Inc. to serve your analytical needs. If you have any questions concerning this report, do not hesitate to contact us at 410-747-8770 or info@phaseonline.com.

Sincerely,

Dan Prucnal
Laboratory Manager

PHASE SEPARATION SCIENCE

6630 Baltimore National Pike
Baltimore, MD 21228
410-747-8770
800-932-9047
www.phaseonline.com

Explanation of Qualifiers

Project Name: Kop-Flex
PSS Project No.: 21100715

Project ID: 31401545.010/04

The following samples were received under chain of custody by Phase Separation Science (PSS) on 10/07/2021 at 01:20 pm

PSS Sample ID	Sample ID	Matrix	Date/Time Collected
21100715-001	Resin Cleaning Water	WASTE WATER	10/07/21 12:10
21100715-002	TB-100721-RCW	WATER	10/07/21 13:20

Please reference the Chain of Custody and Sample Receipt Checklist for specific container counts and preservatives. Any sample conditions not in compliance with sample acceptance criteria are described in Case Narrative Summary.

Notes:

1. The presence of a common laboratory contaminant such as methylene chloride may be considered a possible laboratory artifact. Where observed, appropriate consideration of data should be taken.
2. Unless otherwise noted in the case narrative, results are reported on a dry weight basis with the exception of pH, flashpoint, moisture, and paint filter test.
3. Drinking water samples collected for the purpose of compliance with SDWA may not be suitable for their intended use unless collected by a certified sampler [COMAR 26.08.05.07.C.2].
4. The analyses of 1,2-dibromo-3-chloropropane (DBCP) and 1,2-dibromoethane (EDB) by EPA 524.2 and calcium, magnesium, sodium and iron by EPA 200.8 are not currently promulgated for use in testing to meet the Safe Drinking Water Act and as such cannot be used for compliance purposes. The listings of the current promulgated methods for testing in compliance with the Safe Drinking Water Act can be found in the 40 CFR part 141.1, for the primary drinking water contaminates, and part 141.3, for the secondary drinking water contaminates.
5. Sample prepared under EPA 3550C with concentrations greater than 20 mg/Kg should employ the microtip extraction procedure if required to meet data quality objectives.
6. The analysis of acrolein by EPA 624 must be analyzed within three days of sampling unless pH is adjusted to 4-5 units [40 CFR part 136.3(e)].
7. Method 180.1, The Determination of Turbidity by Nephelometry, recommends samples over 40 NTU be diluted until the turbidity falls below 40 units. Routine samples over 40 NTU may not be diluted as long as the data quality objectives are not affected.
8. Alkalinity results analyzed by EPA 310.2 that are reported by dilution are estimated and are not in compliance with method requirements.

Standard Flags/Abbreviations:

B	A target analyte or common laboratory contaminant was identified in the method blank. Its presence indicates possible field or laboratory contamination.
C	Results Pending Final Confirmation.
E	The data exceeds the upper calibration limit; therefore, the concentration is reported as estimated.
Fail	The result exceeds the regulatory level for Toxicity Characteristic (TCLP) as cited in 40 CFR 261.24 Table 1.
J	The target analyte was positively identified below the reporting limit but greater than the MDL.
MDL	This is the Laboratory Method Detection Limit which is equivalent to the Limit of Detection (LOD). The LOD is an estimate of the minimum amount of a substance that an analytical process can reliably detect. This value will remain constant across multiple similar instrumentation and among different analysts. An LOD is analyte and matrix specific.
ND	Not Detected at or above the reporting limit.
RL	PSS Reporting Limit.
U	Not detected.

Certifications:

NELAP Certifications: PA 68-03330, VA 460156
State Certifications: MD 179, WV 303
Regulated Soil Permit: P330-12-00268
NSWC USCG Accepted Laboratory
LDBE MWAA LD1997-0041-2015

PHASE SEPARATION SCIENCE

6630 Baltimore National Pike
Baltimore, MD 21228
410-747-8770
800-932-9047
www.phaseonline.com

Certificate of Analysis

Project Name: Kop-Flex
PSS Project No.: 21100715

Sample ID: Resin Cleaning Water **Date/Time Sampled: 10/07/2021 12:10** **PSS Sample ID: 21100715-001**
Matrix: WASTE WATER **Date/Time Received: 10/07/2021 13:20**

Oil and Grease — Analytical Method: EPA 1664 B O&G

	Result	Units	RL	Flag	Dil	Prepared	Analyzed	Analyst
Oil & Grease, Total Recovered	ND	mg/L	2.2		1	10/08/21	10/08/21 13:00	1022

TAL Metals (w/o Hg) — Analytical Method: EPA 200.8 — Preparation Method: E200.8

	Result	Units	RL	Flag	Dil	Prepared	Analyzed	Analyst
Aluminum	**5,970**	ug/L	1,000		10	10/08/21	10/13/21 16:32	1064
Antimony	ND	ug/L	10		2	10/08/21	10/11/21 14:13	1064
Arsenic	**2.5**	ug/L	2.0		2	10/08/21	10/11/21 14:13	1064
Barium	**16.4**	ug/L	2.00		2	10/08/21	10/11/21 14:13	1064
Beryllium	**3.3**	ug/L	2.0		2	10/08/21	10/11/21 14:13	1064
Cadmium	ND	ug/L	2.0		2	10/08/21	10/11/21 14:13	1064
Calcium	**2,540**	ug/L	1,000		10	10/08/21	10/13/21 16:32	1064
Chromium	**17.8**	ug/L	2.00		2	10/08/21	10/11/21 14:13	1064
Cobalt	**5.1**	ug/L	2.0		2	10/08/21	10/11/21 14:13	1064
Copper	**221**	ug/L	2.00		2	10/08/21	10/11/21 14:13	1064
Iron	**218**	ug/L	200		2	10/08/21	10/11/21 14:13	1064
Lead	**4.4**	ug/L	2.0		2	10/08/21	10/11/21 14:13	1064
Magnesium	**558**	ug/L	200		2	10/08/21	10/11/21 14:13	1064
Manganese	**7.5**	ug/L	2.0		2	10/08/21	10/11/21 14:13	1064
Nickel	**5.7**	ug/L	2.0		2	10/08/21	10/11/21 14:13	1064
Potassium	**27,600**	ug/L	1,000		10	10/08/21	10/13/21 16:32	1064
Selenium	**3.4**	ug/L	2.0		2	10/08/21	10/11/21 14:13	1064
Silver	ND	ug/L	2.0		2	10/08/21	10/11/21 14:13	1064
Sodium	**10,600,000**	ug/L	1,000,000		10000	10/08/21	10/14/21 14:05	1064
Thallium	ND	ug/L	2.0		2	10/08/21	10/11/21 14:13	1064
Vanadium	**12.1**	ug/L	2.00		2	10/08/21	10/11/21 14:13	1064
Zinc	**67.3**	ug/L	40.0		2	10/08/21	10/11/21 14:13	1064

PHASE SEPARATION SCIENCE

6630 Baltimore National Pike
Baltimore, MD 21228
410-747-8770
800-932-9047
www.phaseonline.com

Certificate of Analysis

Project Name: Kop-Flex
PSS Project No.: 21100715

Sample ID: Resin Cleaning Water **Date/Time Sampled: 10/07/2021 12:10** **PSS Sample ID: 21100715-001**
Matrix: WASTE WATER **Date/Time Received: 10/07/2021 13:20**

Mercury, Total — Analytical Method: EPA 245.1

	Result	Units	RL	Flag	Prepared	Analyzed	Analyst
Mercury	**0.7**	ug/L	0.2		10/13/21	10/13/21 14:15	4005

Organochlorine Pesticides — Analytical Method: EPA 608 .3 — Preparation Method: E608.3

	Result	Units	RL	Flag	Dil	Prepared	Analyzed	Analyst
4,4-DDD	ND	mg/L	0.000040		1	10/09/21	10/12/21 09:21	1029
4,4-DDE	ND	mg/L	0.000040		1	10/09/21	10/12/21 09:21	1029
4,4-DDT	ND	mg/L	0.000040		1	10/09/21	10/12/21 09:21	1029
Aldrin	ND	mg/L	0.000040		1	10/09/21	10/12/21 09:21	1029
alpha-BHC	ND	mg/L	0.000040		1	10/09/21	10/12/21 09:21	1029
alpha-Chlordane	ND	mg/L	0.000040		1	10/09/21	10/12/21 09:21	1029
beta-BHC	ND	mg/L	0.000040		1	10/09/21	10/12/21 09:21	1029
Chlordane	ND	mg/L	0.0010		1	10/09/21	10/12/21 09:21	1029
delta-BHC	ND	mg/L	0.000040		1	10/09/21	10/12/21 09:21	1029
Dieldrin	ND	mg/L	0.000040		1	10/09/21	10/12/21 09:21	1029
Endosulfan I	ND	mg/L	0.000040		1	10/09/21	10/12/21 09:21	1029
Endosulfan II	ND	mg/L	0.000040		1	10/09/21	10/12/21 09:21	1029
Endosulfan sulfate	ND	mg/L	0.000040		1	10/09/21	10/12/21 09:21	1029
Endrin	ND	mg/L	0.000040		1	10/09/21	10/12/21 09:21	1029
Endrin aldehyde	ND	mg/L	0.000040		1	10/09/21	10/12/21 09:21	1029
gamma-BHC (Lindane)	ND	mg/L	0.000040		1	10/09/21	10/12/21 09:21	1029
gamma-Chlordane	ND	mg/L	0.000040		1	10/09/21	10/12/21 09:21	1029
Heptachlor	ND	mg/L	0.000040		1	10/09/21	10/12/21 09:21	1029
Heptachlor epoxide	ND	mg/L	0.000040		1	10/09/21	10/12/21 09:21	1029
Toxaphene	ND	mg/L	0.0010		1	10/09/21	10/12/21 09:21	1029

Surrogate(s)	***Recovery***		***Limits***				
Tetrachloro-m-xylene	*76*	*%*	*23-136*		*1*	*10/09/21*	*10/12/21 09:21*	*1029*
Decachlorobiphenyl	*111*	*%*	*60-139*		*1*	*10/09/21*	*10/12/21 09:21*	*1029*

PHASE SEPARATION SCIENCE

6630 Baltimore National Pike
Baltimore, MD 21228
410-747-8770
800-932-9047
www.phaseonline.com

Certificate of Analysis

Project Name: Kop-Flex
PSS Project No.: 21100715

Sample ID: Resin Cleaning Water **Date/Time Sampled: 10/07/2021 12:10** **PSS Sample ID: 21100715-001**
Matrix: WASTE WATER **Date/Time Received: 10/07/2021 13:20**

Polychlorinated Biphenyls (PCBs) Analytical Method: EPA 608 .3 Preparation Method: E608.3
Clean up Method: SW846 3665A

	Result	Units	RL	Flag	Dil	Prepared	Analyzed	Analyst
PCB-1016	ND	mg/L	0.00050		1	10/09/21	10/11/21 10:01	1029
PCB-1221	ND	mg/L	0.00050		1	10/09/21	10/11/21 10:01	1029
PCB-1232	ND	mg/L	0.00050		1	10/09/21	10/11/21 10:01	1029
PCB-1242	ND	mg/L	0.00050		1	10/09/21	10/11/21 10:01	1029
PCB-1248	ND	mg/L	0.00050		1	10/09/21	10/11/21 10:01	1029
PCB-1254	ND	mg/L	0.00050		1	10/09/21	10/11/21 10:01	1029
PCB-1260	ND	mg/L	0.00050		1	10/09/21	10/11/21 10:01	1029

Surrogate(s)	*Recovery*		*Limits*			
Tetrachloro-m-xylene	*76*	*%*	*23-136*	*1*	*10/09/21*	*10/11/21 10:01*	*1029*
Decachlorobiphenyl	*94*	*%*	*60-139*	*1*	*10/09/21*	*10/11/21 10:01*	*1029*

VOC (Full List) Analytical Method: EPA 624 .1 Preparation Method: E624.1

pH=6

	Result	Units	RL	Flag	Dil	Prepared	Analyzed	Analyst
Acrolein	ND	mg/L	0.0050		1	10/08/21	10/08/21 12:04	1011
Acrylonitrile	ND	mg/L	0.0050		1	10/08/21	10/08/21 12:04	1011
Dichlorodifluoromethane	ND	mg/L	0.0010		1	10/08/21	10/08/21 12:04	1011
Chloromethane	ND	mg/L	0.0010		1	10/08/21	10/08/21 12:04	1011
Vinyl Chloride	ND	mg/L	0.0010		1	10/08/21	10/08/21 12:04	1011
Bromomethane	ND	mg/L	0.0010		1	10/08/21	10/08/21 12:04	1011
Chloroethane	ND	mg/L	0.0010		1	10/08/21	10/08/21 12:04	1011
Trichlorofluoromethane	ND	mg/L	0.0010		1	10/08/21	10/08/21 12:04	1011
2-Chloroethyl Vinyl Ether	ND	mg/L	0.0010		1	10/08/21	10/08/21 12:04	1011
1,1-Dichloroethene	**0.0025**	mg/L	0.0010		1	10/08/21	10/08/21 12:04	1011
Methylene Chloride	ND	mg/L	0.0010		1	10/08/21	10/08/21 12:04	1011
trans-1,2-dichloroethene	ND	mg/L	0.0010		1	10/08/21	10/08/21 12:04	1011
1,1-Dichloroethane	**0.0012**	mg/L	0.0010		1	10/08/21	10/08/21 12:04	1011
Chloroform	ND	mg/L	0.0010		1	10/08/21	10/08/21 12:04	1011
1,1,1-Trichloroethane	ND	mg/L	0.0010		1	10/08/21	10/08/21 12:04	1011
Carbon Tetrachloride	ND	mg/L	0.0010		1	10/08/21	10/08/21 12:04	1011
Benzene	ND	mg/L	0.0010		1	10/08/21	10/08/21 12:04	1011
1,2-Dichloroethane	ND	mg/L	0.0010		1	10/08/21	10/08/21 12:04	1011
Trichloroethene	ND	mg/L	0.0010		1	10/08/21	10/08/21 12:04	1011
1,2-Dichloropropane	ND	mg/L	0.0010		1	10/08/21	10/08/21 12:04	1011

PHASE SEPARATION SCIENCE

6630 Baltimore National Pike
Baltimore, MD 21228
410-747-8770
800-932-9047
www.phaseonline.com

Certificate of Analysis

Project Name: Kop-Flex
PSS Project No.: 21100715

Sample ID: Resin Cleaning Water **Date/Time Sampled: 10/07/2021 12:10** **PSS Sample ID: 21100715-001**
Matrix: WASTE WATER **Date/Time Received: 10/07/2021 13:20**

VOC (Full List) Analytical Method: EPA 624 .1 Preparation Method: E624.1

pH=6

	Result	Units	RL	Flag	Dil	Prepared	Analyzed	Analyst
Bromodichloromethane	ND	mg/L	0.0010		1	10/08/21	10/08/21 12:04	1011
cis-1,3-Dichloropropene	ND	mg/L	0.0010		1	10/08/21	10/08/21 12:04	1011
Toluene	ND	mg/L	0.0010		1	10/08/21	10/08/21 12:04	1011
trans-1,3-dichloropropene	ND	mg/L	0.0010		1	10/08/21	10/08/21 12:04	1011
1,1,2-Trichloroethane	ND	mg/L	0.0010		1	10/08/21	10/08/21 12:04	1011
Tetrachloroethylene	ND	mg/L	0.0010		1	10/08/21	10/08/21 12:04	1011
Dibromochloromethane	ND	mg/L	0.0010		1	10/08/21	10/08/21 12:04	1011
Chlorobenzene	ND	mg/L	0.0010		1	10/08/21	10/08/21 12:04	1011
Ethylbenzene	ND	mg/L	0.0010		1	10/08/21	10/08/21 12:04	1011
Bromoform	ND	mg/L	0.0010		1	10/08/21	10/08/21 12:04	1011
1,1,2,2-Tetrachloroethane	ND	mg/L	0.0010		1	10/08/21	10/08/21 12:04	1011
1,3-Dichlorobenzene	ND	mg/L	0.0010		1	10/08/21	10/08/21 12:04	1011
1,4-Dichlorobenzene	ND	mg/L	0.0010		1	10/08/21	10/08/21 12:04	1011
1,2-Dichlorobenzene	ND	mg/L	0.0010		1	10/08/21	10/08/21 12:04	1011

Surrogate(s)	*Recovery*		*Limits*					
Dibromofluoromethane	*106*	*%*	*87-120*		*1*	*10/08/21*	*10/08/21 12:04*	*1011*
4-Bromofluorobenzene	*84*	*%*	*85-147*	*	*1*	*10/08/21*	*10/08/21 12:04*	*1011*
Toluene-D8	*100*	*%*	*88-110*		*1*	*10/08/21*	*10/08/21 12:04*	*1011*

Extractable Priority Pollutants Analytical Method: EPA 625 .1 Preparation Method: E625.1

Qualifier(s): See Batch 188373 on Case Narrative.

	Result	Units	RL	Flag	Dil	Prepared	Analyzed	Analyst
1,2,4-Trichlorobenzene	ND	mg/L	0.0010		1	10/11/21	10/11/21 17:35	1059
1,2-Diphenylhydrazine	ND	mg/L	0.0050		1	10/11/21	10/11/21 17:35	1059
2,4,6-Trichlorophenol	ND	mg/L	0.0010		1	10/11/21	10/11/21 17:35	1059
2,4-Dichlorophenol	ND	mg/L	0.0010		1	10/11/21	10/11/21 17:35	1059
2,4-Dimethylphenol	ND	mg/L	0.0010		1	10/11/21	10/11/21 17:35	1059
2,4-Dinitrophenol	ND	mg/L	0.0050		1	10/11/21	10/11/21 17:35	1059
2,4-Dinitrotoluene	ND	mg/L	0.0020		1	10/11/21	10/11/21 17:35	1059
2,6-Dinitrotoluene	ND	mg/L	0.0020		1	10/11/21	10/11/21 17:35	1059
2-Chloronaphthalene	ND	mg/L	0.0010		1	10/11/21	10/11/21 17:35	1059
2-Chlorophenol	ND	mg/L	0.0010		1	10/11/21	10/11/21 17:35	1059
2-Nitrophenol	ND	mg/L	0.0010		1	10/11/21	10/11/21 17:35	1059
3,3-Dichlorobenzidine	ND	mg/L	0.0010		1	10/11/21	10/11/21 17:35	1059

PHASE SEPARATION SCIENCE

6630 Baltimore National Pike
Baltimore, MD 21228
410-747-8770
800-932-9047
www.phaseonline.com

Certificate of Analysis

Project Name: Kop-Flex
PSS Project No.: 21100715

Sample ID: Resin Cleaning Water **Date/Time Sampled: 10/07/2021 12:10** **PSS Sample ID: 21100715-001**
Matrix: WASTE WATER **Date/Time Received: 10/07/2021 13:20**

Extractable Priority Pollutants Analytical Method: EPA 625 .1 Preparation Method: E625.1

Qualifier(s): See Batch 188373 on Case Narrative.

	Result	Units	RL	Flag	Dil	Prepared	Analyzed	Analyst
4,6-Dinitro-2-methyl phenol	ND	mg/L	0.0050		1	10/11/21	10/11/21 17:35	1059
4-Bromophenylphenyl ether	ND	mg/L	0.0010		1	10/11/21	10/11/21 17:35	1059
4-Chloro-3-methyl phenol	ND	mg/L	0.0010		1	10/11/21	10/11/21 17:35	1059
4-Chlorophenyl Phenyl ether	ND	mg/L	0.0010		1	10/11/21	10/11/21 17:35	1059
4-Nitrophenol	ND	mg/L	0.0050		1	10/11/21	10/11/21 17:35	1059
Acenaphthene	ND	mg/L	0.00025		1	10/11/21	10/11/21 17:35	1059
Acenaphthylene	ND	mg/L	0.00025		1	10/11/21	10/11/21 17:35	1059
Anthracene	ND	mg/L	0.00025		1	10/11/21	10/11/21 17:35	1059
Benzidine	ND	mg/L	0.0050		1	10/11/21	10/11/21 17:35	1059
Benzo(a)anthracene	ND	mg/L	0.00025		1	10/11/21	10/11/21 17:35	1059
Benzo(a)pyrene	ND	mg/L	0.00025		1	10/11/21	10/11/21 17:35	1059
Benzo(b)fluoranthene	ND	mg/L	0.00025		1	10/11/21	10/11/21 17:35	1059
Benzo(g,h,i)perylene	ND	mg/L	0.00025		1	10/11/21	10/11/21 17:35	1059
Benzo(k)fluoranthene	ND	mg/L	0.00025		1	10/11/21	10/11/21 17:35	1059
Butyl benzyl phthalate	ND	mg/L	0.0010		1	10/11/21	10/11/21 17:35	1059
bis(2-chloroethoxy) methane	ND	mg/L	0.0010		1	10/11/21	10/11/21 17:35	1059
bis(2-chloroethyl) ether	ND	mg/L	0.0010		1	10/11/21	10/11/21 17:35	1059
bis(2-chloroisopropyl) ether	ND	mg/L	0.0010		1	10/11/21	10/11/21 17:35	1059
bis(2-ethylhexyl) phthalate	ND	mg/L	0.0010		1	10/11/21	10/11/21 17:35	1059
Chrysene	ND	mg/L	0.00025		1	10/11/21	10/11/21 17:35	1059
Dibenz(a,h)Anthracene	ND	mg/L	0.00025		1	10/11/21	10/11/21 17:35	1059
Diethyl phthalate	ND	mg/L	0.0010		1	10/11/21	10/11/21 17:35	1059
Dimethyl phthalate	ND	mg/L	0.0010		1	10/11/21	10/11/21 17:35	1059
Di-n-butyl phthalate	ND	mg/L	0.0010		1	10/11/21	10/11/21 17:35	1059
Di-n-octyl phthalate	ND	mg/L	0.0020		1	10/11/21	10/11/21 17:35	1059
Fluoranthene	ND	mg/L	0.00025		1	10/11/21	10/11/21 17:35	1059
Fluorene	ND	mg/L	0.00025		1	10/11/21	10/11/21 17:35	1059
Hexachlorobenzene	ND	mg/L	0.0010		1	10/11/21	10/11/21 17:35	1059
Hexachlorobutadiene	ND	mg/L	0.0010		1	10/11/21	10/11/21 17:35	1059
Hexachlorocyclopentadiene	ND	mg/L	0.0020		1	10/11/21	10/11/21 17:35	1059
Hexachloroethane	ND	mg/L	0.0010		1	10/11/21	10/11/21 17:35	1059
Indeno(1,2,3-c,d)Pyrene	ND	mg/L	0.00025		1	10/11/21	10/11/21 17:35	1059
Isophorone	ND	mg/L	0.0010		1	10/11/21	10/11/21 17:35	1059
Naphthalene	ND	mg/L	0.00025		1	10/11/21	10/11/21 17:35	1059
Nitrobenzene	ND	mg/L	0.0010		1	10/11/21	10/11/21 17:35	1059

PHASE SEPARATION SCIENCE

6630 Baltimore National Pike
Baltimore, MD 21228
410-747-8770
800-932-9047
www.phaseonline.com

Certificate of Analysis

Project Name: Kop-Flex
PSS Project No.: 21100715

Sample ID: Resin Cleaning Water **Date/Time Sampled: 10/07/2021 12:10** **PSS Sample ID: 21100715-001**
Matrix: WASTE WATER **Date/Time Received: 10/07/2021 13:20**

Extractable Priority Pollutants — Analytical Method: EPA 625 .1 — Preparation Method: E625.1

Qualifier(s): See Batch 188373 on Case Narrative.

	Result	Units	RL	Flag	Dil	Prepared	Analyzed	Analyst
N-Nitrosodimethylamine	ND	mg/L	0.0010		1	10/11/21	10/11/21 17:35	1059
N-Nitrosodi-n-propyl amine	ND	mg/L	0.0010		1	10/11/21	10/11/21 17:35	1059
N-Nitrosodiphenylamine	ND	mg/L	0.0010		1	10/11/21	10/11/21 17:35	1059
Pentachlorophenol	ND	mg/L	0.0020		1	10/11/21	10/11/21 17:35	1059
Phenanthrene	ND	mg/L	0.00025		1	10/11/21	10/11/21 17:35	1059
Phenol	ND	mg/L	0.0010		1	10/11/21	10/11/21 17:35	1059
Pyrene	ND	mg/L	0.00025		1	10/11/21	10/11/21 17:35	1059

Surrogate(s)	*Recovery*		*Limits*			
2-Fluorobiphenyl	*69*	*%*	*42-141*	*1*	*10/11/21*	*10/11/21 17:35*	*1059*
2-Fluorophenol	*64*	*%*	*35-131*	*1*	*10/11/21*	*10/11/21 17:35*	*1059*
Nitrobenzene-d5	*71*	*%*	*40-139*	*1*	*10/11/21*	*10/11/21 17:35*	*1059*
2,4,6-Tribromophenol	*79*	*%*	*35-156*	*1*	*10/11/21*	*10/11/21 17:35*	*1059*
Phenol-d6	*70*	*%*	*33-140*	*1*	*10/11/21*	*10/11/21 17:35*	*1059*
Terphenyl-D14	*88*	*%*	*54-138*	*1*	*10/11/21*	*10/11/21 17:35*	*1059*

Total Suspended Solids — Analytical Method: SM 2540D -2011

	Result	Units	RL	Flag	Dil	Prepared	Analyzed	Analyst
Suspended Solids	**28**	mg/L	6.1		1	10/07/21	10/07/21 14:30	1034

Total Cyanide — Analytical Method: SM 4500-CN C,E -2011 — Preparation Method: SM4500CN-C

	Result	Units	RL	Flag	Dil	Prepared	Analyzed	Analyst
Cyanide, Total	ND	mg/L	0.010		1	10/12/21	10/12/21 15:05	1053

PHASE SEPARATION SCIENCE

6630 Baltimore National Pike
Baltimore, MD 21228
410-747-8770
800-932-9047
www.phaseonline.com

Certificate of Analysis

Project Name: Kop-Flex
PSS Project No.: 21100715

Sample ID: Resin Cleaning Water **Date/Time Sampled: 10/07/2021 12:10** **PSS Sample ID: 21100715-001**
Matrix: WASTE WATER **Date/Time Received: 10/07/2021 13:20**

Biochemical Oxygen Demand — Analytical Method: SM 5210B -2011

Start time: 07-Oct-21 17:10

	Result	Units	RL	Flag	Prepared	Analyzed	Analyst
Biochemical Oxygen Demand, 5 day	**46.8**	mg/L	20.0		10/12/21	10/12/21 16:00	4005

Chemical Oxygen Demand — Analytical Method: SM 5220D -2011

Qualifier(s): See Batch 188393 on Case Narrative.

	Result	Units	RL	Flag	Dil	Prepared	Analyzed	Analyst
Chemical Oxygen Demand	**850**	mg/L	200		10	10/12/21	10/12/21 16:22	1053

Flash Point — Analytical Method: SW-846 1020 A

	Result	Units	RL	Flag	Dil	Prepared	Analyzed	Analyst
Flash Point	**> 200**	Deg F	70.0		1	10/07/21	10/07/21 14:45	1022

PHASE SEPARATION SCIENCE

6630 Baltimore National Pike
Baltimore, MD 21228
410-747-8770
800-932-9047
www.phaseonline.com

Certificate of Analysis

Project Name: Kop-Flex
PSS Project No.: 21100715

Sample ID: TB-100721-RCW **Date/Time Sampled: 10/07/2021 13:20** **PSS Sample ID: 21100715-002**
Matrix: WATER **Date/Time Received: 10/07/2021 13:20**

VOC (Full List) Analytical Method: EPA 624 .1 Preparation Method: E624.1

pH=2

	Result	Units	RL	Flag	Dil	Prepared	Analyzed	Analyst
Acrolein	ND	mg/L	0.0050		1	10/08/21	10/08/21 12:49	1011
Acrylonitrile	ND	mg/L	0.0050		1	10/08/21	10/08/21 12:49	1011
Dichlorodifluoromethane	ND	mg/L	0.0010		1	10/08/21	10/08/21 12:49	1011
Chloromethane	ND	mg/L	0.0010		1	10/08/21	10/08/21 12:49	1011
Vinyl Chloride	ND	mg/L	0.0010		1	10/08/21	10/08/21 12:49	1011
Bromomethane	ND	mg/L	0.0010		1	10/08/21	10/08/21 12:49	1011
Chloroethane	ND	mg/L	0.0010		1	10/08/21	10/08/21 12:49	1011
Trichlorofluoromethane	ND	mg/L	0.0010		1	10/08/21	10/08/21 12:49	1011
2-Chloroethyl Vinyl Ether	ND	mg/L	0.0010		1	10/08/21	10/08/21 12:49	1011
1,1-Dichloroethene	ND	mg/L	0.0010		1	10/08/21	10/08/21 12:49	1011
Methylene Chloride	ND	mg/L	0.0010		1	10/08/21	10/08/21 12:49	1011
trans-1,2-dichloroethene	ND	mg/L	0.0010		1	10/08/21	10/08/21 12:49	1011
1,1-Dichloroethane	ND	mg/L	0.0010		1	10/08/21	10/08/21 12:49	1011
Chloroform	ND	mg/L	0.0010		1	10/08/21	10/08/21 12:49	1011
1,1,1-Trichloroethane	ND	mg/L	0.0010		1	10/08/21	10/08/21 12:49	1011
Carbon Tetrachloride	ND	mg/L	0.0010		1	10/08/21	10/08/21 12:49	1011
Benzene	ND	mg/L	0.0010		1	10/08/21	10/08/21 12:49	1011
1,2-Dichloroethane	ND	mg/L	0.0010		1	10/08/21	10/08/21 12:49	1011
Trichloroethene	ND	mg/L	0.0010		1	10/08/21	10/08/21 12:49	1011
1,2-Dichloropropane	ND	mg/L	0.0010		1	10/08/21	10/08/21 12:49	1011
Bromodichloromethane	ND	mg/L	0.0010		1	10/08/21	10/08/21 12:49	1011
cis-1,3-Dichloropropene	ND	mg/L	0.0010		1	10/08/21	10/08/21 12:49	1011
Toluene	ND	mg/L	0.0010		1	10/08/21	10/08/21 12:49	1011
trans-1,3-dichloropropene	ND	mg/L	0.0010		1	10/08/21	10/08/21 12:49	1011
1,1,2-Trichloroethane	ND	mg/L	0.0010		1	10/08/21	10/08/21 12:49	1011
Tetrachloroethylene	ND	mg/L	0.0010		1	10/08/21	10/08/21 12:49	1011
Dibromochloromethane	ND	mg/L	0.0010		1	10/08/21	10/08/21 12:49	1011
Chlorobenzene	ND	mg/L	0.0010		1	10/08/21	10/08/21 12:49	1011
Ethylbenzene	ND	mg/L	0.0010		1	10/08/21	10/08/21 12:49	1011
Bromoform	ND	mg/L	0.0010		1	10/08/21	10/08/21 12:49	1011
1,1,2,2-Tetrachloroethane	ND	mg/L	0.0010		1	10/08/21	10/08/21 12:49	1011
1,3-Dichlorobenzene	ND	mg/L	0.0010		1	10/08/21	10/08/21 12:49	1011
1,4-Dichlorobenzene	ND	mg/L	0.0010		1	10/08/21	10/08/21 12:49	1011
1,2-Dichlorobenzene	ND	mg/L	0.0010		1	10/08/21	10/08/21 12:49	1011

PHASE SEPARATION SCIENCE

6630 Baltimore National Pike
Baltimore, MD 21228
410-747-8770
800-932-9047
www.phaseonline.com

Certificate of Analysis

Project Name: Kop-Flex
PSS Project No.: 21100715

Sample ID: TB-100721-RCW **Date/Time Sampled: 10/07/2021 13:20** **PSS Sample ID: 21100715-002**
Matrix: WATER **Date/Time Received: 10/07/2021 13:20**

VOC (Full List) Analytical Method: EPA 624 .1 Preparation Method: E624.1

pH=2

Surrogate(s)	*Recovery*		*Limits*				
Dibromofluoromethane	*107*	*%*	*87-120*	*1*	*10/08/21*	*10/08/21 12:49*	*1011*
4-Bromofluorobenzene	*86*	*%*	*85-147*	*1*	*10/08/21*	*10/08/21 12:49*	*1011*
Toluene-D8	*100*	*%*	*88-110*	*1*	*10/08/21*	*10/08/21 12:49*	*1011*

6630 Baltimore National Pike
Baltimore, MD 21228
410-747-8770
800-932-9047
www.phaseonline.com

Project Name: Kop-Flex

PSS Project No.: 21100715

Any holding time exceedances, deviations from the method specifications, regulatory requirements or variations to the procedures outlined in the PSS Quality Assurance Manual are outlined below.

Matrix spike and matrix spike duplicate analyses may not be performed due to insufficient sample quantity. In these instances, a laboratory control sample and laboratory control sample duplicate are analyzed unless otherwise noted or specified in the method.

Sample Receipt:

Preservative not indicated on COC for metals, cyanide, COD, oil and grease, and VOC. Received containers preserved with HNO3, NaOH, H2SO4, and a 624 kit with two unpreserved vials and one preserved iwh HCl.

21100715: Analyses associated with analyst code 4005 were performed by
Enviro-Chem Laboratories, Inc., 47 Loveton Circle, Suite K, Sparks, MD 21152

Analytical:

Total Metals

Batch: 188363

Sample 001 was run at 2x dilution due to sample matrix interference on internal standards.

Method exceedance: Continuing Calibration Verification (CCV) #2 falls outside of acceptance limits (85% - 115%) for iron at 126% recovery. See QC summary form.

Analytical:

Extractable Priority Pollutants

Batch: 188373

Method exceedance: Laboratory control sample/laboratory control sample duplicate (LCS/LCSD) exceedances identified; see QC summary.

Analytical:

Chemical Oxygen Demand

Batch: 188393

Relative Percent Difference (RPD) for matrix spike/matrix spike duplicate (MS/MSD) exceedance identified; see QC summary.

NELAP accreditation was held for all analyses performed unless noted below. See www.phaseonline.com for complete PSS scope of accreditation.

EPA 245.1, SM 5210B -2011

PHASE SEPARATION SCIENCE

6630 Baltimore National Pike
Baltimore, MD 21228
410-747-8770
800-932-9047
www.phaseonline.com

Lab Chronology

Project Name: Kop-Flex
PSS Project No.: 21100715

Method	Client Sample ID	Analysis Type	PSS Sample ID	Mtx	Prep Batch	Analytical Batch	Prepared	Analyzed
EPA 1664 B O&G	Resin Cleaning Water	Initial	21100715-001	W	188293	188293	10/08/2021 13:00	10/08/2021 13:00
	188293-1-BKS	BKS	188293-1-BKS	W	188293	188293	10/08/2021 13:00	10/08/2021 13:00
	188293-1-BLK	BLK	188293-1-BLK	W	188293	188293	10/08/2021 13:00	10/08/2021 13:00
	188293-1-BSD	BSD	188293-1-BSD	W	188293	188293	10/08/2021 13:00	10/08/2021 13:00
	MP401 S	MS	21100731-002 S	W	188293	188293	10/08/2021 13:00	10/08/2021 13:00
EPA 200.8	87988-1-BKS	BKS	87988-1-BKS	W	87988	188329	10/08/2021 08:29	10/08/2021 15:23
	87988-1-BLK	BLK	87988-1-BLK	W	87988	188329	10/08/2021 08:29	10/08/2021 15:19
	King St 100421 S	MS	21100603-001 S	W	87988	188329	10/08/2021 08:29	10/08/2021 15:33
	RW-08-10072021 S	MS	21100722-008 S	W	87988	188329	10/08/2021 08:29	10/08/2021 17:40
	King St 100421 SD	MSD	21100603-001 S	W	87988	188329	10/08/2021 08:29	10/08/2021 15:37
	87988-1-BKS	Reanalysis	87988-1-BKS	W	87988	188363	10/08/2021 08:29	10/11/2021 13:45
	87988-1-BLK	Reanalysis	87988-1-BLK	W	87988	188363	10/08/2021 08:29	10/11/2021 13:40
	Resin Cleaning Water	Reanalysis	21100715-001	W	87988	188363	10/08/2021 08:29	10/11/2021 14:13
	Resin Cleaning Water	Reanalysis	21100715-001	W	87988	188445	10/08/2021 08:29	10/13/2021 16:32
	Resin Cleaning Water	Reanalysis	21100715-001	W	87988	188453	10/08/2021 08:29	10/14/2021 14:05
EPA 245.1	Resin Cleaning Water	Initial	21100715-001	W	188434	188434	10/13/2021 14:15	10/13/2021 14:15
EPA 608 .3	Resin Cleaning Water	Initial	21100715-001	W	87999	188387	10/09/2021 11:43	10/11/2021 10:01
	87999-1-BKS	BKS	87999-1-BKS	W	87999	188387	10/09/2021 11:43	10/11/2021 09:05
	87999-1-BLK	BLK	87999-1-BLK	W	87999	188387	10/09/2021 11:43	10/11/2021 08:36
	87999-1-BSD	BSD	87999-1-BSD	W	87999	188387	10/09/2021 11:43	10/11/2021 09:33
EPA 608 .3	Resin Cleaning Water	Initial	21100715-001	W	87998	188389	10/09/2021 11:43	10/12/2021 09:21
	87998-1-BKS	BKS	87998-1-BKS	W	87998	188389	10/09/2021 11:43	10/12/2021 08:52
	87998-1-BLK	BLK	87998-1-BLK	W	87998	188389	10/09/2021 11:43	10/12/2021 08:37
	87998-1-BSD	BSD	87998-1-BSD	W	87998	188389	10/09/2021 11:43	10/12/2021 09:06
EPA 624 .1	Resin Cleaning Water	Initial	21100715-001	W	88004	188319	10/08/2021 08:34	10/08/2021 12:04
	TB-100721-RCW	Initial	21100715-002	W	88004	188319	10/08/2021 08:34	10/08/2021 12:49
	88004-1-BKS	BKS	88004-1-BKS	W	88004	188319	10/08/2021 08:34	10/08/2021 09:40
	88004-1-BLK	BLK	88004-1-BLK	W	88004	188319	10/08/2021 08:34	10/08/2021 11:19
	King St 100421 S	MS	21100603-001 S	W	88004	188319	10/08/2021 08:34	10/08/2021 14:43
	King St 100421 SD	MSD	21100603-001 S	W	88004	188319	10/08/2021 08:34	10/08/2021 15:06
EPA 625 .1	Resin Cleaning Water	Initial	21100715-001	W	88010	188373	10/11/2021 10:19	10/11/2021 17:35
	88010-1-BKS	BKS	88010-1-BKS	W	88010	188373	10/11/2021 10:19	10/11/2021 15:48
	88010-1-BLK	BLK	88010-1-BLK	W	88010	188373	10/11/2021 10:19	10/11/2021 14:55
	88010-1-BSD	BSD	88010-1-BSD	W	88010	188373	10/11/2021 10:19	10/11/2021 16:15
SM 2540D -2011	Resin Cleaning Water	Initial	21100715-001	W	188272	188272	10/07/2021 14:30	10/07/2021 14:30
	188272-1-BKS	BKS	188272-1-BKS	W	188272	188272	10/07/2021 14:30	10/07/2021 14:30
	188272-1-BLK	BLK	188272-1-BLK	W	188272	188272	10/07/2021 14:30	10/07/2021 14:30
	801 Monthly D	MD	21100704-001 D	W	188272	188272	10/07/2021 14:30	10/07/2021 14:30
SM 4500-CN C,E -2011	Resin Cleaning Water	Initial	21100715-001	W	88030	188380	10/12/2021 12:14	10/12/2021 15:05
	88030-1-BKS	BKS	88030-1-BKS	W	88030	188380	10/12/2021 13:02	10/12/2021 14:51
	88030-1-BLK	BLK	88030-1-BLK	W	88030	188380	10/12/2021 13:02	10/12/2021 14:49
	88030-1-BSD	BSD	88030-1-BSD	W	88030	188380	10/12/2021 12:14	10/12/2021 14:53

PHASE SEPARATION SCIENCE

6630 Baltimore National Pike
Baltimore, MD 21228
410-747-8770
800-932-9047
www.phaseonline.com

Lab Chronology

Project Name: Kop-Flex
PSS Project No.: 21100715

Method	Client Sample ID	Analysis Type	PSS Sample ID	Mtx	Prep Batch	Analytical Batch	Prepared	Analyzed
SM 4500-CN C,E -2011	20211006g1&g2 S	MS	21100709-001 S	W	88030	188380	10/12/2021 12:14	10/12/2021 15:01
	20211006g1&g2 SD	MSD	21100709-001 S	W	88030	188380	10/12/2021 12:14	10/12/2021 15:03
SM 5210B -2011	Resin Cleaning Water	Initial	21100715-001	W	188433	188433	10/12/2021 16:00	10/12/2021 16:00
SM 5220D -2011	Resin Cleaning Water	Initial	21100715-001	W	188393	188393	10/12/2021 16:22	10/12/2021 16:22
	188393-1-BKS	BKS	188393-1-BKS	W	188393	188393	10/12/2021 16:22	10/12/2021 16:22
	188393-1-BLK	BLK	188393-1-BLK	W	188393	188393	10/12/2021 16:22	10/12/2021 16:22
	Resin Cleaning Water S	MS	21100715-001 S	W	188393	188393	10/12/2021 16:22	10/12/2021 16:22
	Resin Cleaning Water SD	MSD	21100715-001 S	W	188393	188393	10/12/2021 16:22	10/12/2021 16:22
SW-846 1020 A	Resin Cleaning Water	Initial	21100715-001	W	188275	188275	10/07/2021 14:45	10/07/2021 14:45
	188275-1-BKS	BKS	188275-1-BKS	W	188275	188275	10/07/2021 14:39	10/07/2021 14:39
	Resin Cleaning Water D	MD	21100715-001 D	W	188275	188275	10/07/2021 14:45	10/07/2021 14:45

Analytical Method: EPA 1664 B O&G

Seq Number: 188293 Matrix: Water
MB Sample Id: 188293-1-BLK LCS Sample Id: 188293-1-BKS LCSD Sample Id: 188293-1-BSD

Parameter	MB Result	Spike Amount	LCS Result	LCS %Rec	LCSD Result	LCSD %Rec	Limits	%RPD	RPD Limit	Units	Flag
Oil & Grease, Total Recovered	<2.000	40.00	38.50	96	38.60	97	78-114	1	11	mg/L	

Analytical Method: SM 2540D -2011

Seq Number: 188272 Matrix: Water
MB Sample Id: 188272-1-BLK LCS Sample Id: 188272-1-BKS

Parameter	MB Result	Spike Amount	LCS Result	LCS %Rec	Limits	Units	Flag
Suspended Solids	<1.000	110	105.6	96	80-120	mg/L	

Analytical Method: SM 4500-CN C,E -2011 Prep Method: SM4500CN-CPRE

Seq Number: 188380 Matrix: Water Date Prep: 10/12/21
MB Sample Id: 88030-1-BLK LCS Sample Id: 88030-1-BKS LCSD Sample Id: 88030-1-BSD

Parameter	MB Result	Spike Amount	LCS Result	LCS %Rec	LCSD Result	LCSD %Rec	Limits	%RPD	RPD Limit	Units	Flag
Cyanide, Total	<0.01000	0.1000	0.09558	96	0.09383	94	85-115	2	20	mg/L	

Analytical Method: SM 5220D -2011

Seq Number: 188393 Matrix: Water
MB Sample Id: 188393-1-BLK LCS Sample Id: 188393-1-BKS

Parameter	MB Result	Spike Amount	LCS Result	LCS %Rec	Limits	Units	Flag
Chemical Oxygen Demand	<20.00	483.5	514.4	106	80-120	mg/L	

Analytical Method: SM 5220D -2011

Seq Number: 188393 Matrix: Waste Water
Parent Sample Id: 21100715-001 MS Sample Id: 21100715-001 S MSD Sample Id: 21100715-001 SD

Parameter	Parent Result	Spike Amount	MS Result	MS %Rec	MSD Result	MSD %Rec	Limits	%RPD	RPD Limit	Units	Flag
Chemical Oxygen Demand	852	483.5	1381	109	1273	87	83-149	22	20	mg/L	F

Analytical Method: SW-846 1020 A

Seq Number: 188275 Matrix: Waste Water
Parent Sample Id: 21100715-001 MD Sample Id: 21100715-001 D

Parameter	Parent Result	MD Result	%RPD	RPD Limit	Units	Flag
Flash Point	205	205	0	25	Deg F	

Analytical Method: EPA 200.8 Prep Method: E200.8_PREP
Seq Number: 188329 Matrix: Water Date Prep: 10/08/21
MB Sample Id: 87988-1-BLK LCS Sample Id: 87988-1-BKS

Parameter	MB Result	Spike Amount	LCS Result	LCS %Rec	Limits	Units	Flag
Aluminum	<100	200	201.8	101	85-115	ug/L	
Antimony	<5.000	40.00	40.12	100	85-115	ug/L	
Arsenic	<1.000	40.00	39.71	99	85-115	ug/L	
Barium	<1.000	40.00	38.85	97	85-115	ug/L	
Beryllium	<1.000	40.00	42.77	107	85-115	ug/L	
Cadmium	<1.000	40.00	40.32	101	85-115	ug/L	
Chromium	<1.000	40.00	40.42	101	85-115	ug/L	
Cobalt	<1.000	40.00	40.75	102	85-115	ug/L	
Copper	<1.000	40.00	40.66	102	85-115	ug/L	
Lead	<1.000	40.00	38.69	97	85-115	ug/L	
Magnesium	<100	400	399.9	100	85-115	ug/L	
Manganese	<1.000	40.00	41.22	103	85-115	ug/L	
Nickel	<1.000	40.00	39.60	99	85-115	ug/L	
Potassium	<100	400	391.4	98	85-115	ug/L	
Selenium	<1.000	40.00	37.70	94	85-115	ug/L	
Silver	<1.000	40.00	41.38	103	85-115	ug/L	
Sodium	<100	400	422.5	106	85-115	ug/L	
Thallium	<1.000	40.00	40.44	101	85-115	ug/L	
Vanadium	<1.000	40.00	40.08	100	85-115	ug/L	
Zinc	<20.00	200	202.6	101	85-115	ug/L	

Analytical Method: EPA 200.8 Prep Method: E200.8_PREP
Seq Number: 188363 Matrix: Water Date Prep: 10/08/21
MB Sample Id: 87988-1-BLK LCS Sample Id: 87988-1-BKS

Parameter	MB Result	Spike Amount	LCS Result	LCS %Rec	Limits	Units	Flag
Calcium	<100	400	448.5	112	85-115	ug/L	
Iron	<100	400	456	114	85-115	ug/L	

Analytical Method: EPA 608 .3 Prep Method: E608P
Seq Number: 188387 Matrix: Water Date Prep: 10/09/21
MB Sample Id: 87999-1-BLK LCS Sample Id: 87999-1-BKS LCSD Sample Id: 87999-1-BSD

Parameter	MB Result	Spike Amount	LCS Result	LCS %Rec	LCSD Result	LCSD %Rec	Limits	%RPD	RPD Limit	Units	Flag
PCB-1016	<0.0005	0.005000	0.004692	94	0.004783	96	50-140	2	20	mg/L	
PCB-1260	<0.0005	0.005000	0.005338	107	0.005404	108	8-140	1	20	mg/L	

Surrogate	MB %Rec	MB Flag	LCS Result	LCS Flag	LCSD Result	LCSD Flag	Limits	Units
Decachlorobiphenyl	68		98		98		60-139	%
Tetrachloro-m-xylene	91		100		102		23-136	%

PHASE SEPARATION SCIENCE

6630 Baltimore National Pike
Baltimore, MD 21228
410-747-8770
800-932-9047
www.phaseonline.com

QC Summary

Project Name Kop-Flex
PSS Project No.: 21100715

Analytical Method: EPA 608 .3 Prep Method: E608P
Seq Number: 188389 Matrix: Water Date Prep: 10/09/21
MB Sample Id: 87998-1-BLK LCS Sample Id: 87998-1-BKS LCSD Sample Id: 87998-1-BSD

Parameter	MB Result	Spike Amount	LCS Result	LCS %Rec	LCSD Result	LCSD %Rec	Limits	%RPD	RPD Limit	Units	Flag
4,4-DDD	<0.00004	0.0002	0.0002043	102	0.000201	101	31-141	1	20	mg/L	
4,4-DDE	<0.00004	0.0002	0.0002156	108	0.0002121	106	30-145	2	20	mg/L	
4,4-DDT	<0.00004	0.0002	0.0002311	116	0.0002274	114	25-160	2	20	mg/L	
Aldrin	<0.00004	0.0002	0.000201	101	0.000196	98	42-140	3	20	mg/L	
alpha-BHC	<0.00004	0.0002	0.0002055	103	0.0002012	101	37-140	2	20	mg/L	
alpha-Chlordane	<0.00004	0.0002	0.000197	99	0.0001916	96	45-140	3	20	mg/L	
beta-BHC	<0.00004	0.0002	0.0001957	98	0.0001926	96	17-147	2	20	mg/L	
delta-BHC	<0.00004	0.0002	0.0002139	107	0.0002083	104	19-140	3	20	mg/L	
Dieldrin	<0.00004	0.0002	0.0002146	107	0.0002104	105	36-146	2	20	mg/L	
Endosulfan I	<0.00004	0.0002	0.0002102	105	0.0002054	103	45-153	2	20	mg/L	
Endosulfan II	<0.00004	0.0002	0.0002139	107	0.0002124	106	1-202	1	20	mg/L	
Endosulfan sulfate	<0.00004	0.0002	0.0002121	106	0.0002092	105	26-144	1	20	mg/L	
Endrin	<0.00004	0.0002	0.0002198	110	0.0002166	108	30-147	2	20	mg/L	
Endrin aldehyde	<0.00004	0.0002	0.0002009	100	0.0001967	98	62-140	2	20	mg/L	
gamma-BHC (Lindane)	<0.00004	0.0002	0.0002063	103	0.0002024	101	32-140	2	20	mg/L	
gamma-Chlordane	<0.00004	0.0002	0.0001996	100	0.0001948	97	45-140	3	20	mg/L	
Heptachlor	<0.00004	0.0002	0.0002157	108	0.0002035	102	34-140	6	20	mg/L	
Heptachlor epoxide	<0.00004	0.0002	0.0002084	104	0.0002045	102	37-142	2	20	mg/L	

Surrogate	MB %Rec	MB Flag	LCS Result	LCS Flag	LCSD Result	LCSD Flag	Limits	Units
Decachlorobiphenyl	102		85		86		60-139	%
Tetrachloro-m-xylene	89		98		93		23-136	%

PHASE SEPARATION SCIENCE

6630 Baltimore National Pike
Baltimore, MD 21228
410-747-8770
800-932-9047
www.phaseonline.com

QC Summary

Project Name Kop-Flex
PSS Project No.: 21100715

Analytical Method: EPA 625 .1 Prep Method: E625P
Seq Number: 188373 Matrix: Water Date Prep: 10/11/21
MB Sample Id: 88010-1-BLK LCS Sample Id: 88010-1-BKS LCSD Sample Id: 88010-1-BSD

Parameter	MB Result	Spike Amount	LCS Result	LCS %Rec	LCSD Result	LCSD %Rec	Limits	%RPD	RPD Limit	Units	Flag
1,2,4-Trichlorobenzene	<0.001000	0.04000	0.03324	83	0.03211	80	57-130	4	20	mg/L	
1,2-Diphenylhydrazine	<0.005000	0.04000	0.04634	116	0.04583	115	67-122	1	20	mg/L	
2,4,6-Trichlorophenol	<0.001000	0.04000	0.03637	91	0.03526	88	61-122	3	20	mg/L	
2,4-Dichlorophenol	<0.001000	0.04000	0.03422	86	0.03357	84	53-122	2	20	mg/L	
2,4-Dimethylphenol	<0.001000	0.04000	0.03335	83	0.03235	81	42-120	2	20	mg/L	
2,4-Dinitrophenol	<0.005000	0.04000	0.02881	72	0.03098	77	1-173	7	20	mg/L	
2,4-Dinitrotoluene	<0.002000	0.04000	0.03306	83	0.03280	82	48-127	1	20	mg/L	
2,6-Dinitrotoluene	<0.002000	0.04000	0.03043	76	0.02934	73	68-137	4	20	mg/L	
2-Chloronaphthalene	<0.001000	0.04000	0.03772	94	0.03682	92	65-120	2	20	mg/L	
2-Chlorophenol	<0.001000	0.04000	0.03553	89	0.03436	86	36-120	3	20	mg/L	
2-Nitrophenol	<0.001000	0.04000	0.03055	76	0.02968	74	45-167	3	20	mg/L	
3,3-Dichlorobenzidine	<0.001000	0.04000	0.04524	113	0.04677	117	8-213	3	20	mg/L	
4,6-Dinitro-2-methyl phenol	<0.005000	0.04000	0.03803	95	0.03953	99	53-130	4	20	mg/L	
4-Bromophenylphenyl ether	<0.001000	0.04000	0.03773	94	0.03693	92	65-120	2	20	mg/L	
4-Chloro-3-methyl phenol	<0.001000	0.04000	0.04473	112	0.04311	108	41-128	4	20	mg/L	
4-Chlorophenyl Phenyl ether	<0.001000	0.04000	0.04397	110	0.04173	104	38-145	6	20	mg/L	
4-Nitrophenol	<0.005000	0.04000	0.04955	124	0.04789	120	13-129	3	20	mg/L	
Acenaphthene	<0.00025	0.04000	0.03711	93	0.03625	91	60-132	2	20	mg/L	
Acenaphthylene	<0.00025	0.04000	0.03573	89	0.03472	87	54-126	2	20	mg/L	
Anthracene	<0.00025	0.04000	0.03661	92	0.03582	90	43-120	2	20	mg/L	
Benzidine	<0.005000	0.04000	0.03072	77	0.03370	84	15-183	9	20	mg/L	
Benzo(a)anthracene	<0.00025	0.04000	0.03538	88	0.03651	91	42-133	3	20	mg/L	
Benzo(a)pyrene	<0.00025	0.04000	0.04149	104	0.04115	103	32-148	1	20	mg/L	
Benzo(b)fluoranthene	<0.00025	0.04000	0.04839	121	0.04553	114	42-140	6	20	mg/L	
Benzo(g,h,i)perylene	<0.00025	0.04000	0.03877	97	0.03898	97	1-195	0	20	mg/L	
Benzo(k)fluoranthene	<0.00025	0.04000	0.03529	88	0.03878	97	25-146	10	20	mg/L	
Butyl benzyl phthalate	<0.001000	0.04000	0.03972	99	0.04081	102	1-140	3	20	mg/L	
bis(2-chloroethoxy) methane	<0.001000	0.04000	0.02865	72	0.02757	69	49-165	4	20	mg/L	
bis(2-chloroethyl) ether	<0.001000	0.04000	0.03273	82	0.03150	79	43-126	4	20	mg/L	
bis(2-chloroisopropyl) ether	<0.001000	0.04000	0.02934	73	0.02822	71	63-139	3	20	mg/L	
bis(2-ethylhexyl) phthalate	<0.001000	0.04000	0.03929	98	0.04060	102	29-137	4	20	mg/L	
Chrysene	<0.00025	0.04000	0.04272	107	0.04331	108	44-140	1	20	mg/L	
Dibenz(a,h)Anthracene	<0.00025	0.04000	0.04162	104	0.04169	104	1-200	0	20	mg/L	
Diethyl phthalate	<0.001000	0.04000	0.05015	125	0.04863	122	1-120	2	20	mg/L	H
Dimethyl phthalate	<0.001000	0.04000	0.03930	98	0.03862	97	1-120	1	20	mg/L	
Di-n-butyl phthalate	<0.001000	0.04000	0.04346	109	0.04313	108	8-120	1	20	mg/L	
Di-n-octyl phthalate	<0.002000	0.04000	0.04794	120	0.04802	120	19-132	0	20	mg/L	
Fluoranthene	<0.00025	0.04000	0.03927	98	0.03949	99	43-121	1	20	mg/L	
Fluorene	<0.00025	0.04000	0.03876	97	0.03740	94	70-120	3	20	mg/L	
Hexachlorobenzene	<0.001000	0.04000	0.04626	116	0.04642	116	8-142	0	20	mg/L	
Hexachlorobutadiene	<0.001000	0.04000	0.03944	99	0.03695	92	38-120	7	20	mg/L	
Hexachlorocyclopentadiene	<0.002000	0.04000	0.03342	84	0.03216	80	40-127	5	20	mg/L	
Hexachloroethane	<0.001000	0.04000	0.03853	96	0.03641	91	55-120	5	20	mg/L	
Indeno(1,2,3-c,d)Pyrene	<0.00025	0.04000	0.03912	98	0.03875	97	1-151	1	20	mg/L	
Isophorone	<0.001000	0.04000	0.02791	70	0.02743	69	47-180	1	20	mg/L	
Naphthalene	<0.00025	0.04000	0.03360	84	0.03237	81	36-120	4	20	mg/L	
Nitrobenzene	<0.001000	0.04000	0.03097	77	0.03017	75	54-158	3	20	mg/L	
N-Nitrosodimethylamine	<0.001000	0.04000	0.02601	65	0.02470	62	45-120	5	20	mg/L	
N-Nitrosodi-n-propyl amine	<0.001000	0.04000	0.03250	81	0.03173	79	14-198	3	20	mg/L	
N-Nitrosodiphenylamine	<0.001000	0.04000	0.04040	101	0.03921	98	69-115	3	20	mg/L	
Pentachlorophenol	<0.002000	0.04000	0.03674	92	0.03712	93	38-152	1	20	mg/L	

PHASE SEPARATION SCIENCE

6630 Baltimore National Pike
Baltimore, MD 21228
410-747-8770
800-932-9047
www.phaseonline.com

QC Summary

Project Name Kop-Flex
PSS Project No.: 21100715

Analytical Method: EPA 625 .1 Prep Method: E625P
Seq Number: 188373 Matrix: Water Date Prep: 10/11/21
MB Sample Id: 88010-1-BLK LCS Sample Id: 88010-1-BKS LCSD Sample Id: 88010-1-BSD

Parameter	MB Result	Spike Amount	LCS Result	LCS %Rec	LCSD Result	LCSD %Rec	Limits	%RPD	RPD Limit	Units	Flag
Phenanthrene	<0.00025	0.04000	0.04665	117	0.04670	117	65-120	0	20	mg/L	
Phenol	<0.001000	0.04000	0.03233	81	0.03187	80	17-120	1	20	mg/L	
Pyrene	<0.00025	0.04000	0.03937	98	0.04100	103	70-120	5	20	mg/L	

Surrogate	MB %Rec	MB Flag	LCS Result	LCS Flag	LCSD Result	LCSD Flag	Limits	Units
2-Fluorobiphenyl	70		80		77		42-141	%
2-Fluorophenol	69		63		61		35-131	%
Nitrobenzene-d5	73		78		75		40-139	%
2,4,6-Tribromophenol	80		87		85		35-156	%
Phenol-d6	72		79		79		33-140	%
Terphenyl-D14	94		84		85		54-138	%

PHASE SEPARATION SCIENCE

6630 Baltimore National Pike
Baltimore, MD 21228
410-747-8770
800-932-9047
www.phaseonline.com

QC Summary

Project Name Kop-Flex
PSS Project No.: 21100715

Analytical Method: EPA 624 .1
Prep Method: E624PREP
Seq Number: 188319
Matrix: Water
Date Prep: 10/08/21
MB Sample Id: 88004-1-BLK
LCS Sample Id: 88004-1-BKS

Parameter	MB Result	Spike Amount	LCS Result	LCS %Rec	Limits	Units	Flag
Acrolein	<0.005000	0.05000	0.04927	99	60-140	mg/L	
Acrylonitrile	<0.005000	0.05000	0.04480	90	60-140	mg/L	
Dichlorodifluoromethane	<0.001000	0.05000	0.03978	80	54-148	mg/L	
Chloromethane	<0.001000	0.05000	0.03400	68	1-205	mg/L	
Vinyl Chloride	<0.001000	0.05000	0.04017	80	5-195	mg/L	
Bromomethane	<0.001000	0.05000	0.04625	93	15-185	mg/L	
Chloroethane	<0.001000	0.05000	0.04513	90	40-160	mg/L	
Trichlorofluoromethane	<0.001000	0.05000	0.05400	108	50-150	mg/L	
2-Chloroethyl Vinyl Ether	<0.001000	0.05000	0.03649	73	1-225	mg/L	
1,1-Dichloroethene	<0.001000	0.05000	0.05259	105	50-150	mg/L	
Methylene Chloride	<0.001000	0.05000	0.05117	102	60-140	mg/L	
trans-1,2-dichloroethene	<0.001000	0.05000	0.05249	105	70-130	mg/L	
1,1-Dichloroethane	<0.001000	0.05000	0.04495	90	70-130	mg/L	
Chloroform	<0.001000	0.05000	0.05157	103	70-135	mg/L	
1,1,1-Trichloroethane	<0.001000	0.05000	0.05255	105	70-130	mg/L	
Carbon Tetrachloride	<0.001000	0.05000	0.05808	116	70-130	mg/L	
Benzene	<0.001000	0.05000	0.05123	102	65-135	mg/L	
1,2-Dichloroethane	<0.001000	0.05000	0.04612	92	70-130	mg/L	
Trichloroethene	<0.001000	0.05000	0.05450	109	65-135	mg/L	
1,2-Dichloropropane	<0.001000	0.05000	0.04643	93	35-165	mg/L	
Bromodichloromethane	<0.001000	0.05000	0.05335	107	65-135	mg/L	
cis-1,3-Dichloropropene	<0.001000	0.05000	0.04819	96	25-175	mg/L	
Toluene	<0.001000	0.05000	0.05254	105	70-130	mg/L	
trans-1,3-dichloropropene	<0.001000	0.05000	0.04819	96	50-150	mg/L	
1,1,2-Trichloroethane	<0.001000	0.05000	0.05299	106	70-130	mg/L	
Tetrachloroethylene	<0.001000	0.05000	0.06337	127	70-130	mg/L	
Dibromochloromethane	<0.001000	0.05000	0.05863	117	70-135	mg/L	
Chlorobenzene	<0.001000	0.05000	0.05125	103	65-135	mg/L	
Ethylbenzene	<0.001000	0.05000	0.04956	99	60-140	mg/L	
Bromoform	<0.001000	0.05000	0.06093	122	70-130	mg/L	
1,1,2,2-Tetrachloroethane	<0.001000	0.05000	0.04504	90	60-140	mg/L	
1,3-Dichlorobenzene	<0.001000	0.05000	0.05076	102	70-130	mg/L	
1,4-Dichlorobenzene	<0.001000	0.05000	0.04927	99	65-135	mg/L	
1,2-Dichlorobenzene	<0.001000	0.05000	0.05185	104	65-135	mg/L	

Surrogate	MB %Rec	MB Flag	LCS Result	LCS Flag	Limits	Units
Dibromofluoromethane	106		105		87-120	%
4-Bromofluorobenzene	85		82	*	85-147	%
Toluene-D8	100		100		88-110	%

F = RPD exceeded the laboratory control limits
X = Recovery of MS, MSD or both outside of QC Criteria
H= Recovery of BS,BSD or both exceeded the laboratory control limits
L = Recovery of BS,BSD or both below the laboratory control limits

Analytical Method: SM 4500-CN C,E -2011
Seq Number: 188380 Matrix: Water
CCV Sample Id: CCV-01 Analyzed Date: 10/12/21 15:15

Parameter	Spike Amount	CCV Result	CCV %Rec	Limits	Units	Flag
Cyanide, Total	100	95.65	96	90-110	ug/L	

Analytical Method: SM 4500-CN C,E -2011
Seq Number: 188379 Matrix: Water
Parent Sample Id: ICV ICV Sample Id: ICV Analyzed Date: 10/12/21 14:45

Parameter	Spike Amount	ICV Result	ICV %Rec	Limits	Units	Flag
Cyanide, Total	100	93.34	93	90-110	ug/L	

Analytical Method: SM 4500-CN C,E -2011
Seq Number: 188380 Matrix: Water
Parent Sample Id: MRL MRL Sample Id: MRL Analyzed Date: 10/12/21 14:55

Parameter	Spike Amount	MRL Result	MRL %Rec	Limits	Units	Flag
Cyanide, Total	10.00	9.686	97	50-150	ug/L	

Analytical Method: SM 5220D -2011
Seq Number: 188393 Matrix: Water
CCV Sample Id: CCV-01 Analyzed Date: 10/12/21 16:22

Parameter	Spike Amount	CCV Result	CCV %Rec	Limits	Units	Flag
Chemical Oxygen Demand	483.5	516.7	107	90-110	mg/L	

Analytical Method: SM 5220D -2011
Seq Number: 188393 Matrix: Water
CCV Sample Id: CCV-02 Analyzed Date: 10/12/21 16:22

Parameter	Spike Amount	CCV Result	CCV %Rec	Limits	Units	Flag
Chemical Oxygen Demand	483.5	515.9	107	90-110	mg/L	

Analytical Method: SM 5220D -2011
Seq Number: 175113 Matrix: Water
Parent Sample Id: ICV-01 ICV Sample Id: ICV-01 Analyzed Date: 07/10/19 14:24

Parameter	Spike Amount	ICV Result	ICV %Rec	Limits	Units	Flag
Chemical Oxygen Demand	1004	1039	103	85-115	mg/L	

Analytical Method: SM 5220D -2011

Seq Number: 188393 Matrix: Water
Parent Sample Id: MRL-01 MRL Sample Id: MRL-01 Analyzed Date: 10/12/21 16:22

Parameter	Spike Amount	MRL Result	MRL %Rec	Limits	Units	Flag
Chemical Oxygen Demand	20.00	19.20	96	50-150	mg/L	

Analytical Method: EPA 200.8

Seq Number: 188329 Matrix: Water
CCV Sample Id: CCV 2 Analyzed Date: 10/08/21 14:55

Parameter	Spike Amount	CCV Result	CCV %Rec	Limits	Units	Flag
Aluminum	200	205	103	85-115	ug/L	
Calcium	400	457.5	114	85-115	ug/L	
Potassium	400	407.2	102	85-115	ug/L	
Sodium	400	397.5	99	85-115	ug/L	

Analytical Method: EPA 200.8

Seq Number: 188329 Matrix: Water
CCV Sample Id: CCV 3 Analyzed Date: 10/08/21 15:56

Parameter	Spike Amount	CCV Result	CCV %Rec	Limits	Units	Flag
Aluminum	200	200.1	100	85-115	ug/L	
Calcium	400	451.3	113	85-115	ug/L	
Potassium	400	393.4	98	85-115	ug/L	
Sodium	400	407.4	102	85-115	ug/L	

Analytical Method: EPA 200.8

Seq Number: 188329 Matrix: Water
CCV Sample Id: CCV 4 Analyzed Date: 10/08/21 16:58

Parameter	Spike Amount	CCV Result	CCV %Rec	Limits	Units	Flag
Aluminum	200	228.7	114	85-115	ug/L	
Calcium	400	453.4	113	85-115	ug/L	
Potassium	400	476.9	119	85-115	ug/L	X
Sodium	400	816.1	204	85-115	ug/L	X

Analytical Method: EPA 200.8
Seq Number: 188329 Matrix: Water
CCV Sample Id: CCV 5 Analyzed Date: 10/08/21 17:54

Parameter	Spike Amount	CCV Result	CCV %Rec	Limits	Units	Flag
Aluminum	200	199.4	100	85-115	ug/L	
Calcium	400	422.1	106	85-115	ug/L	
Potassium	400	386.8	97	85-115	ug/L	
Sodium	400	507.4	127	85-115	ug/L	X

Analytical Method: EPA 200.8
Seq Number: 188363 Matrix: Water
CCV Sample Id: CCV 1 Analyzed Date: 10/11/21 13:31

Parameter	Spike Amount	CCV Result	CCV %Rec	Limits	Units	Flag
Antimony	40.00	39.13	98	85-115	ug/L	
Arsenic	40.00	37.21	93	85-115	ug/L	
Barium	40.00	38.96	97	85-115	ug/L	
Beryllium	40.00	36.75	92	85-115	ug/L	
Cadmium	40.00	39.62	99	85-115	ug/L	
Calcium	400	420	105	85-115	ug/L	
Chromium	40.00	36.88	92	85-115	ug/L	
Cobalt	40.00	37.42	94	85-115	ug/L	
Copper	40.00	38.34	96	85-115	ug/L	
Iron	400	447.5	112	85-115	ug/L	
Lead	40.00	38.96	97	85-115	ug/L	
Magnesium	400	360.4	90	85-115	ug/L	
Manganese	40.00	39.62	99	85-115	ug/L	
Nickel	40.00	38.30	96	85-115	ug/L	
Selenium	40.00	38.47	96	85-115	ug/L	
Silver	40.00	40.64	102	85-115	ug/L	
Sodium	400	374	94	85-115	ug/L	
Thallium	40.00	39.83	100	85-115	ug/L	
Vanadium	40.00	38.78	97	85-115	ug/L	
Zinc	200	197.9	99	85-115	ug/L	

Analytical Method: EPA 200.8

Seq Number: 188363 Matrix: Water

CCV Sample Id: CCV 2 Analyzed Date: 10/11/21 14:32

Parameter	Spike Amount	CCV Result	CCV %Rec	Limits	Units	Flag
Antimony	40.00	39.28	98	85-115	ug/L	
Arsenic	40.00	39.09	98	85-115	ug/L	
Barium	40.00	38.95	97	85-115	ug/L	
Beryllium	40.00	44.33	111	85-115	ug/L	
Cadmium	40.00	39.73	99	85-115	ug/L	
Calcium	400	521.6	130	85-115	ug/L	X
Chromium	40.00	40.92	102	85-115	ug/L	
Cobalt	40.00	39.03	98	85-115	ug/L	
Copper	40.00	39.55	99	85-115	ug/L	
Iron	400	504.3	126	85-115	ug/L	X
Lead	40.00	39.65	99	85-115	ug/L	
Magnesium	400	419.7	105	85-115	ug/L	
Manganese	40.00	43.20	108	85-115	ug/L	
Nickel	40.00	39.78	99	85-115	ug/L	
Selenium	40.00	42.22	106	85-115	ug/L	
Silver	40.00	40.19	100	85-115	ug/L	
Sodium	400	1016	254	85-115	ug/L	X
Thallium	40.00	39.83	100	85-115	ug/L	
Vanadium	40.00	43.46	109	85-115	ug/L	
Zinc	200	206.6	103	85-115	ug/L	

Analytical Method: EPA 200.8

Seq Number: 188363 Matrix: Water

CCV Sample Id: CCV 3 Analyzed Date: 10/11/21 15:33

Parameter	Spike Amount	CCV Result	CCV %Rec	Limits	Units	Flag
Antimony	40.00	38.71	97	85-115	ug/L	
Arsenic	40.00	35.40	89	85-115	ug/L	
Barium	40.00	38.42	96	85-115	ug/L	
Beryllium	40.00	37.17	93	85-115	ug/L	
Cadmium	40.00	38.75	97	85-115	ug/L	
Calcium	400	460.8	115	85-115	ug/L	
Chromium	40.00	35.71	89	85-115	ug/L	
Cobalt	40.00	37.03	93	85-115	ug/L	
Copper	40.00	37.61	94	85-115	ug/L	
Iron	400	479	120	85-115	ug/L	X
Lead	40.00	39.85	100	85-115	ug/L	
Magnesium	400	362.4	91	85-115	ug/L	
Manganese	40.00	39.10	98	85-115	ug/L	
Nickel	40.00	37.91	95	85-115	ug/L	
Selenium	40.00	36.42	91	85-115	ug/L	
Silver	40.00	40.58	101	85-115	ug/L	
Sodium	400	527.1	132	85-115	ug/L	X
Thallium	40.00	39.83	100	85-115	ug/L	
Vanadium	40.00	37.23	93	85-115	ug/L	
Zinc	200	193.9	97	85-115	ug/L	

Analytical Method: EPA 200.8
Seq Number: 188445 Matrix: Water
CCV Sample Id: CCV 1 Analyzed Date: 10/13/21 17:00

Parameter	Spike Amount	CCV Result	CCV %Rec	Limits	Units	Flag
Aluminum	200	207.9	104	85-115	ug/L	
Calcium	400	401.9	100	85-115	ug/L	
Potassium	400	454.8	114	85-115	ug/L	
Sodium	400	434.3	109	85-115	ug/L	

Analytical Method: EPA 200.8
Seq Number: 188453 Matrix: Water
CCV Sample Id: CCV 1 Analyzed Date: 10/14/21 14:19

Parameter	Spike Amount	CCV Result	CCV %Rec	Limits	Units	Flag
Aluminum	200	206.6	103	85-115	ug/L	
Calcium	400	544.5	136	85-115	ug/L	X
Potassium	400	449.3	112	85-115	ug/L	
Sodium	400	406.1	102	85-115	ug/L	

Analytical Method: EPA 200.8
Seq Number: 188329 Matrix: Water
Parent Sample Id: ICV 1 ICV Sample Id: ICV 1 Analyzed Date: 10/08/21 12:23

Parameter	Spike Amount	ICV Result	ICV %Rec	Limits	Units	Flag
Aluminum	200	197.9	99	90-110	ug/L	
Calcium	400	401.4	100	90-110	ug/L	
Potassium	400	375.5	94	90-110	ug/L	
Sodium	400	371.5	93	90-110	ug/L	

Analytical Method: EPA 200.8

Seq Number: 188363 Matrix: Water
Parent Sample Id: ICV 1 ICV Sample Id: ICV 1 Analyzed Date: 10/11/21 12:11

Parameter	Spike Amount	ICV Result	ICV %Rec	Limits	Units	Flag
Antimony	40.00	39.54	99	90-110	ug/L	
Arsenic	40.00	37.35	93	90-110	ug/L	
Barium	40.00	39.07	98	90-110	ug/L	
Beryllium	40.00	40.05	100	90-110	ug/L	
Cadmium	40.00	40.05	100	90-110	ug/L	
Calcium	400	415.8	104	90-110	ug/L	
Chromium	40.00	37.00	93	90-110	ug/L	
Cobalt	40.00	37.65	94	90-110	ug/L	
Copper	40.00	38.46	96	90-110	ug/L	
Iron	400	435.5	109	90-110	ug/L	
Lead	40.00	39.54	99	90-110	ug/L	
Magnesium	400	368.9	92	90-110	ug/L	
Manganese	40.00	40.27	101	90-110	ug/L	
Nickel	40.00	38.63	97	90-110	ug/L	
Selenium	40.00	38.57	96	90-110	ug/L	
Silver	40.00	40.97	102	90-110	ug/L	
Sodium	400	383	96	90-110	ug/L	
Thallium	40.00	39.82	100	90-110	ug/L	
Vanadium	40.00	38.59	96	90-110	ug/L	
Zinc	200	202.9	101	90-110	ug/L	

Analytical Method: EPA 200.8

Seq Number: 188445 Matrix: Water
Parent Sample Id: ICV 1 ICV Sample Id: ICV 1 Analyzed Date: 10/13/21 15:39

Parameter	Spike Amount	ICV Result	ICV %Rec	Limits	Units	Flag
Aluminum	200	219.3	110	90-110	ug/L	
Calcium	400	397.9	99	90-110	ug/L	
Potassium	400	436.2	109	90-110	ug/L	
Sodium	400	422.1	106	90-110	ug/L	

Analytical Method: EPA 200.8

Seq Number: 188453 Matrix: Water
Parent Sample Id: ICV 1 ICV Sample Id: ICV 1 Analyzed Date: 10/14/21 13:12

Parameter	Spike Amount	ICV Result	ICV %Rec	Limits	Units	Flag
Aluminum	200	199	100	90-110	ug/L	
Calcium	400	409.3	102	90-110	ug/L	
Potassium	400	391.7	98	90-110	ug/L	
Sodium	400	388.9	97	90-110	ug/L	

6630 Baltimore National Pike
Baltimore, MD 21228
410-747-8770
800-932-9047
www.phaseonline.com

Project Name Kop-Flex
PSS Project No.: 21100715

Analytical Method: EPA 608 .3
Seq Number: 188387 Matrix: Water
CCV Sample Id: CCV-01 Analyzed Date: 10/11/21 07:56

Parameter	Spike Amount	CCV Result	CCV %Rec	Limits	Units	Flag
PCB-1016	0.1000	0.09725	97	75-125	mg/L	
PCB-1016	0.1000	0.09470	95	75-125	mg/L	
PCB-1016	0.1000	0.09782	98	75-125	mg/L	
PCB-1016	0.1000	0.09642	96	75-125	mg/L	
PCB-1016	0.1000	0.1025	103	75-125	mg/L	
PCB-1260	0.1000	0.1055	106	75-125	mg/L	
PCB-1260	0.1000	0.1041	104	75-125	mg/L	
PCB-1260	0.1000	0.09973	100	75-125	mg/L	
PCB-1260	0.1000	0.09899	99	75-125	mg/L	
PCB-1260	0.1000	0.09335	93	75-125	mg/L	

Surrogate	CCV Result	Limits	Units	Flag
Decachlorobiphenyl	104	60-139	%	
Tetrachloro-m-xylene	99	23-136	%	

Analytical Method: EPA 608 .3
Seq Number: 188387 Matrix: Water
CCV Sample Id: CCV-02 Analyzed Date: 10/11/21 12:22

Parameter	Spike Amount	CCV Result	CCV %Rec	Limits	Units	Flag
PCB-1016	0.1000	0.1021	102	75-125	mg/L	
PCB-1016	0.1000	0.09903	99	75-125	mg/L	
PCB-1016	0.1000	0.1038	104	75-125	mg/L	
PCB-1016	0.1000	0.1012	101	75-125	mg/L	
PCB-1016	0.1000	0.1064	106	75-125	mg/L	
PCB-1260	0.1000	0.1102	110	75-125	mg/L	
PCB-1260	0.1000	0.1094	109	75-125	mg/L	
PCB-1260	0.1000	0.1041	104	75-125	mg/L	
PCB-1260	0.1000	0.1043	104	75-125	mg/L	
PCB-1260	0.1000	0.09800	98	75-125	mg/L	

Surrogate	CCV Result	Limits	Units	Flag
Decachlorobiphenyl	99	60-139	%	
Tetrachloro-m-xylene	102	23-136	%	

Analytical Method: EPA 608 .3

Seq Number: 188389 Matrix: Water

CCV Sample Id: CCV-01 Analyzed Date: 10/12/21 07:52

Parameter	Spike Amount	CCV Result	CCV %Rec	Limits	Units	Flag
4,4-DDD	0.02000	0.02043	102	75-125	mg/L	
4,4-DDE	0.02000	0.02211	111	75-125	mg/L	
4,4-DDT	0.02000	0.02320	116	75-125	mg/L	
Aldrin	0.02000	0.02180	109	75-125	mg/L	
alpha-BHC	0.02000	0.02182	109	69-125	mg/L	
alpha-Chlordane	0.02000	0.01976	99	73-125	mg/L	
beta-BHC	0.02000	0.02039	102	75-125	mg/L	
delta-BHC	0.02000	0.02141	107	75-125	mg/L	
Dieldrin	0.02000	0.02132	107	48-125	mg/L	
Endosulfan I	0.02000	0.02109	105	75-125	mg/L	
Endosulfan II	0.02000	0.02137	107	75-125	mg/L	
Endosulfan sulfate	0.02000	0.02116	106	70-125	mg/L	
Endrin	0.02000	0.02122	106	5-125	mg/L	
Endrin aldehyde	0.02000	0.01909	95	75-125	mg/L	
gamma-BHC (Lindane)	0.02000	0.02141	107	75-125	mg/L	
gamma-Chlordane	0.02000	0.02139	107	75-125	mg/L	
Heptachlor	0.02000	0.02158	108	75-125	mg/L	
Heptachlor epoxide	0.02000	0.02132	107	75-125	mg/L	

Surrogate	CCV Result	Limits	Units	Flag
Decachlorobiphenyl	114	60-139	%	
Tetrachloro-m-xylene	102	23-136	%	

Analytical Method: EPA 608 .3

Seq Number: 188389 Matrix: Water

CCV Sample Id: TOX Analyzed Date: 10/12/21 08:06

Parameter	Spike Amount	CCV Result	CCV %Rec	Limits	Units	Flag
Toxaphene	0.3000	0.2760	92	68-134	mg/L	
Toxaphene	0.3000	0.2901	97	68-134	mg/L	
Toxaphene	0.3000	0.3186	106	68-134	mg/L	
Toxaphene	0.3000	0.3296	110	68-134	mg/L	
Toxaphene	0.3000	0.3141	105	68-134	mg/L	

Surrogate	CCV Result	Limits	Units	Flag

Analytical Method: EPA 608 .3
Seq Number: 188389 Matrix: Water
CCV Sample Id: CHLOR Analyzed Date: 10/12/21 08:21

Parameter	Spike Amount	CCV Result	CCV %Rec	Limits	Units	Flag
Chlordane	0.3000	0.2908	97	75-125	mg/L	
Chlordane	0.3000	0.2815	94	75-125	mg/L	
Chlordane	0.3000	0.2821	94	75-125	mg/L	
Chlordane	0.3000	0.2852	95	75-125	mg/L	
Chlordane	0.3000	0.2908	97	75-125	mg/L	

Surrogate	CCV Result	Limits	Units	Flag

Analytical Method: EPA 608 .3
Seq Number: 188389 Matrix: Water
CCV Sample Id: CCV-02 Analyzed Date: 10/12/21 11:02

Parameter	Spike Amount	CCV Result	CCV %Rec	Limits	Units	Flag
4,4-DDD	0.02000	0.02035	102	75-125	mg/L	
4,4-DDE	0.02000	0.02168	108	75-125	mg/L	
4,4-DDT	0.02000	0.02314	116	75-125	mg/L	
Aldrin	0.02000	0.02168	108	75-125	mg/L	
alpha-BHC	0.02000	0.02173	109	69-125	mg/L	
alpha-Chlordane	0.02000	0.01962	98	73-125	mg/L	
beta-BHC	0.02000	0.02086	104	75-125	mg/L	
delta-BHC	0.02000	0.02144	107	75-125	mg/L	
Dieldrin	0.02000	0.02106	105	48-125	mg/L	
Endosulfan I	0.02000	0.02115	106	75-125	mg/L	
Endosulfan II	0.02000	0.02142	107	75-125	mg/L	
Endosulfan sulfate	0.02000	0.02134	107	70-125	mg/L	
Endrin	0.02000	0.02188	109	5-125	mg/L	
Endrin aldehyde	0.02000	0.01972	99	75-125	mg/L	
gamma-BHC (Lindane)	0.02000	0.02142	107	75-125	mg/L	
gamma-Chlordane	0.02000	0.02131	107	75-125	mg/L	
Heptachlor	0.02000	0.02226	111	75-125	mg/L	
Heptachlor epoxide	0.02000	0.02138	107	75-125	mg/L	

Surrogate	CCV Result	Limits	Units	Flag
Decachlorobiphenyl	115	60-139	%	
Tetrachloro-m-xylene	102	23-136	%	

PHASE SEPARATION SCIENCE

6630 Baltimore National Pike
Baltimore, MD 21228
410-747-8770
800-932-9047
www.phaseonline.com

QC Summary

Project Name Kop-Flex
PSS Project No.: 21100715

Analytical Method: EPA 608 .3
Seq Number: 188389 Matrix: Water
CCV Sample Id: TOX Analyzed Date: 10/12/21 11:16

Parameter	Spike Amount	CCV Result	CCV %Rec	Limits	Units	Flag
Toxaphene	0.3000	0.2655	89	68-134	mg/L	
Toxaphene	0.3000	0.2753	92	68-134	mg/L	
Toxaphene	0.3000	0.3022	101	68-134	mg/L	
Toxaphene	0.3000	0.3131	104	68-134	mg/L	
Toxaphene	0.3000	0.2993	100	68-134	mg/L	

Surrogate	CCV Result	Limits	Units	Flag

Analytical Method: EPA 608 .3
Seq Number: 188389 Matrix: Water
CCV Sample Id: CHLOR Analyzed Date: 10/12/21 11:30

Parameter	Spike Amount	CCV Result	CCV %Rec	Limits	Units	Flag
Chlordane	0.3000	0.2900	97	75-125	mg/L	
Chlordane	0.3000	0.2829	94	75-125	mg/L	
Chlordane	0.3000	0.2831	94	75-125	mg/L	
Chlordane	0.3000	0.2874	96	75-125	mg/L	
Chlordane	0.3000	0.2946	98	75-125	mg/L	

Surrogate	CCV Result	Limits	Units	Flag

Analytical Method: EPA 608 .3

Seq Number: 186619 Matrix: Water
Parent Sample Id: ICV-01 ICV Sample Id: ICV-01 Analyzed Date: 08/09/21 10:17

Parameter	Spike Amount	ICV Result	ICV %Rec	Limits	Units	Flag
4,4-DDD	0.02000	0.02045	102	75-125	mg/L	
4,4-DDE	0.02000	0.02071	104	75-125	mg/L	
4,4-DDT	0.02000	0.02078	104	75-125	mg/L	
Aldrin	0.02000	0.02069	103	75-125	mg/L	
alpha-BHC	0.02000	0.02089	104	69-125	mg/L	
alpha-Chlordane	0.02000	0.02042	102	73-125	mg/L	
beta-BHC	0.02000	0.02031	102	75-125	mg/L	
delta-BHC	0.02000	0.02083	104	75-125	mg/L	
Dieldrin	0.02000	0.02056	103	48-125	mg/L	
Endosulfan I	0.02000	0.02036	102	75-125	mg/L	
Endosulfan II	0.02000	0.02059	103	75-125	mg/L	
Endosulfan sulfate	0.02000	0.02018	101	70-125	mg/L	
Endrin	0.02000	0.02044	102	5-125	mg/L	
Endrin aldehyde	0.02000	0.02049	102	75-125	mg/L	
gamma-BHC (Lindane)	0.02000	0.02075	104	75-125	mg/L	
gamma-Chlordane	0.02000	0.02049	102	75-125	mg/L	
Heptachlor	0.02000	0.02052	103	75-125	mg/L	
Heptachlor epoxide	0.02000	0.02035	102	75-125	mg/L	

Surrogate	ICV Result	Limits	Units	Flag
Decachlorobiphenyl	99	60-139	%	
Tetrachloro-m-xylene	102	23-136	%	

Analytical Method: EPA 608 .3

Seq Number: 186619 Matrix: Water
Parent Sample Id: ICV-02 ICV Sample Id: ICV-02 Analyzed Date: 08/09/21 11:58

Parameter	Spike Amount	ICV Result	ICV %Rec	Limits	Units	Flag
Toxaphene	0.3000	0.2953	98	68-134	mg/L	
Toxaphene	0.3000	0.2999	100	68-134	mg/L	
Toxaphene	0.3000	0.3028	101	68-134	mg/L	
Toxaphene	0.3000	0.2960	99	68-134	mg/L	
Toxaphene	0.3000	0.3037	101	68-134	mg/L	

Surrogate	ICV Result	Limits	Units	Flag

PHASE SEPARATION SCIENCE

6630 Baltimore National Pike
Baltimore, MD 21228
410-747-8770
800-932-9047
www.phaseonline.com

QC Summary

Project Name Kop-Flex
PSS Project No.: 21100715

Analytical Method: EPA 608 .3

Seq Number: 186619 Matrix: Water
Parent Sample Id: ICV-03 ICV Sample Id: ICV-03 Analyzed Date: 08/09/21 13:39

Parameter	Spike Amount	ICV Result	ICV %Rec	Limits	Units	Flag
Chlordane	0.3000	0.2964	99	75-125	mg/L	
Chlordane	0.3000	0.2960	99	75-125	mg/L	
Chlordane	0.3000	0.2973	99	75-125	mg/L	
Chlordane	0.3000	0.2960	99	75-125	mg/L	
Chlordane	0.3000	0.2918	97	75-125	mg/L	

Surrogate	ICV Result	Limits	Units	Flag

Analytical Method: EPA 625 .1

Seq Number: 188373 Matrix: Water

CCV Sample Id: CCV-01 Analyzed Date: 10/11/21 14:25

Parameter	Spike Amount	CCV Result	CCV %Rec	Limits	Units	Flag
1,2,4-Trichlorobenzene	40.00	37.08	93	61-130	mg/L	
1,2-Diphenylhydrazine	40.00	48.71	122	60-140	mg/L	
2,4,6-Trichlorophenol	40.00	36.01	90	69-130	mg/L	
2,4-Dichlorophenol	40.00	35.16	88	64-130	mg/L	
2,4-Dimethylphenol	40.00	33.91	85	58-130	mg/L	
2,4-Dinitrophenol	40.00	31.10	78	39-173	mg/L	
2,4-Dinitrotoluene	40.00	33.31	83	53-130	mg/L	
2,6-Dinitrotoluene	40.00	33.93	85	68-137	mg/L	
2-Chloronaphthalene	40.00	40.73	102	70-130	mg/L	
2-Chlorophenol	40.00	39.70	99	55-130	mg/L	
2-Nitrophenol	40.00	32.63	82	61-163	mg/L	
3,3-Dichlorobenzidine	40.00	40.28	101	18-213	mg/L	
4,6-Dinitro-2-methyl phenol	40.00	36.68	92	56-130	mg/L	
4-Bromophenylphenyl ether	40.00	37.71	94	70-130	mg/L	
4-Chloro-3-methyl phenol	40.00	43.69	109	68-130	mg/L	
4-Chlorophenyl Phenyl ether	40.00	43.66	109	57-145	mg/L	
4-Nitrophenol	40.00	44.48	111	35-130	mg/L	
Acenaphthene	40.00	39.90	100	70-130	mg/L	
Acenaphthylene	40.00	37.35	93	60-130	mg/L	
Anthracene	40.00	34.33	86	58-130	mg/L	
Benzidine	40.00	34.51	86	60-140	mg/L	
Benzo(a)anthracene	40.00	33.72	84	42-133	mg/L	
Benzo(a)pyrene	40.00	36.46	91	32-138	mg/L	
Benzo(b)fluoranthene	40.00	37.87	95	42-140	mg/L	
Benzo(g,h,i)perylene	40.00	35.20	88	13-195	mg/L	
Benzo(k)fluoranthene	40.00	35.00	88	25-146	mg/L	
Butyl benzyl phthalate	40.00	36.77	92	43-140	mg/L	
bis(2-chloroethoxy) methane	40.00	31.47	79	52-164	mg/L	
bis(2-chloroethyl) ether	40.00	37.11	93	52-130	mg/L	
bis(2-chloroisopropyl) ether	40.00	33.85	85	63-139	mg/L	
bis(2-ethylhexyl) phthalate	40.00	36.44	91	43-137	mg/L	
Chrysene	40.00	41.51	104	44-140	mg/L	
Dibenz(a,h)Anthracene	40.00	37.36	93	13-200	mg/L	
Diethyl phthalate	40.00	41.58	104	47-130	mg/L	
Dimethyl phthalate	40.00	37.58	94	50-130	mg/L	
Di-n-butyl phthalate	40.00	38.04	95	52-130	mg/L	
Di-n-octyl phthalate	40.00	39.97	100	21-132	mg/L	
Fluoranthene	40.00	37.11	93	47-130	mg/L	
Fluorene	40.00	38.48	96	70-130	mg/L	
Hexachlorobenzene	40.00	47.15	118	38-142	mg/L	
Hexachlorobutadiene	40.00	43.80	110	68-130	mg/L	
Hexachlorocyclopentadiene	40.00	39.90	100	60-140	mg/L	
Hexachloroethane	40.00	46.31	116	55-130	mg/L	
Indeno(1,2,3-c,d)Pyrene	40.00	35.52	89	13-151	mg/L	
Isophorone	40.00	32.77	82	52-180	mg/L	
Naphthalene	40.00	37.95	95	70-130	mg/L	
Nitrobenzene	40.00	37.07	93	54-158	mg/L	
N-Nitrosodimethylamine	40.00	32.77	82	60-140	mg/L	
N-Nitrosodi-n-propyl amine	40.00	35.66	89	59-170	mg/L	
N-Nitrosodiphenylamine	40.00	40.10	100	60-140	mg/L	
Pentachlorophenol	40.00	34.47	86	42-152	mg/L	

PHASE SEPARATION SCIENCE

6630 Baltimore National Pike
Baltimore, MD 21228
410-747-8770
800-932-9047
www.phaseonline.com

QC Summary

Project Name Kop-Flex
PSS Project No.: 21100715

Analytical Method: EPA 625 .1

Seq Number: 188373 Matrix: Water

CCV Sample Id: CCV-01 Analyzed Date: 10/11/21 14:25

Parameter	Spike Amount	CCV Result	CCV %Rec	Limits	Units	Flag
Phenanthrene	40.00	46.16	115	67-130	mg/L	
Phenol	40.00	37.67	94	48-130	mg/L	
Pyrene	40.00	38.33	96	70-130	mg/L	

Surrogate	CCV Result	Limits	Units	Flag
2-Fluorobiphenyl	100	60-140	%	
2-Fluorophenol	94	60-140	%	
Nitrobenzene-d5	98	46-219	%	
2,4,6-Tribromophenol	112	60-140	%	
Phenol-d6	103	48-208	%	
Terphenyl-D14	94	60-140	%	

PHASE SEPARATION SCIENCE

6630 Baltimore National Pike
Baltimore, MD 21228
410-747-8770
800-932-9047
www.phaseonline.com

QC Summary

Project Name Kop-Flex
PSS Project No.: 21100715

Analytical Method: EPA 625 .1

Seq Number: 185838 Matrix: Water
Parent Sample Id: ICV-01 ICV Sample Id: ICV-01 Analyzed Date: 07/09/21 17:07

Parameter	Spike Amount	ICV Result	ICV %Rec	Limits	Units	Flag
1,2,4-Trichlorobenzene	40.00	37.90	95	61-130	mg/L	
1,2-Diphenylhydrazine	40.00	40.88	102	60-140	mg/L	
2,4,6-Trichlorophenol	40.00	39.60	99	69-130	mg/L	
2,4-Dichlorophenol	40.00	39.17	98	64-130	mg/L	
2,4-Dimethylphenol	40.00	37.45	94	58-130	mg/L	
2,4-Dinitrophenol	40.00	41.76	104	39-173	mg/L	
2,4-Dinitrotoluene	40.00	36.79	92	53-130	mg/L	
2,6-Dinitrotoluene	40.00	37.65	94	68-137	mg/L	
2-Chloronaphthalene	40.00	36.66	92	70-130	mg/L	
2-Chlorophenol	40.00	39.41	99	55-130	mg/L	
2-Nitrophenol	40.00	39.43	99	61-163	mg/L	
3,3-Dichlorobenzidine	40.00	36.63	92	18-213	mg/L	
4,6-Dinitro-2-methyl phenol	40.00	42.24	106	56-130	mg/L	
4-Bromophenylphenyl ether	40.00	39.21	98	70-130	mg/L	
4-Chloro-3-methyl phenol	40.00	38.96	97	68-130	mg/L	
4-Chlorophenyl Phenyl ether	40.00	39.20	98	57-145	mg/L	
4-Nitrophenol	40.00	38.27	96	35-130	mg/L	
Acenaphthene	40.00	36.44	91	70-130	mg/L	
Acenaphthylene	40.00	36.75	92	60-130	mg/L	
Anthracene	40.00	36.77	92	58-130	mg/L	
Benzidine	40.00	32.74	82	60-140	mg/L	
Benzo(a)anthracene	40.00	35.28	88	42-133	mg/L	
Benzo(a)pyrene	40.00	38.33	96	32-138	mg/L	
Benzo(b)fluoranthene	40.00	36.70	92	42-140	mg/L	
Benzo(g,h,i)perylene	40.00	40.44	101	13-195	mg/L	
Benzo(k)fluoranthene	40.00	39.85	100	25-146	mg/L	
Butyl benzyl phthalate	40.00	37.94	95	43-140	mg/L	
bis(2-chloroethoxy) methane	40.00	38.13	95	52-164	mg/L	
bis(2-chloroethyl) ether	40.00	38.11	95	52-130	mg/L	
bis(2-chloroisopropyl) ether	40.00	37.33	93	63-139	mg/L	
bis(2-ethylhexyl) phthalate	40.00	36.47	91	43-137	mg/L	
Chrysene	40.00	36.84	92	44-140	mg/L	
Dibenz(a,h)Anthracene	40.00	39.09	98	13-200	mg/L	
Diethyl phthalate	40.00	38.20	96	47-130	mg/L	
Dimethyl phthalate	40.00	37.66	94	50-130	mg/L	
Di-n-butyl phthalate	40.00	37.45	94	52-130	mg/L	
Di-n-octyl phthalate	40.00	37.82	95	21-132	mg/L	
Fluoranthene	40.00	36.93	92	47-130	mg/L	
Fluorene	40.00	37.04	93	70-130	mg/L	
Hexachlorobenzene	40.00	37.74	94	38-142	mg/L	
Hexachlorobutadiene	40.00	38.19	95	68-130	mg/L	
Hexachlorocyclopentadiene	40.00	36.62	92	60-140	mg/L	
Hexachloroethane	40.00	37.52	94	55-130	mg/L	
Indeno(1,2,3-c,d)Pyrene	40.00	39.63	99	13-151	mg/L	
Isophorone	40.00	36.24	91	52-180	mg/L	
Naphthalene	40.00	36.70	92	70-130	mg/L	
Nitrobenzene	40.00	36.41	91	54-158	mg/L	
N-Nitrosodimethylamine	40.00	39.01	98	60-140	mg/L	
N-Nitrosodi-n-propyl amine	40.00	37.40	94	59-170	mg/L	
N-Nitrosodiphenylamine	40.00	36.81	92	60-140	mg/L	
Pentachlorophenol	40.00	41.86	105	42-152	mg/L	

PHASE SEPARATION SCIENCE

6630 Baltimore National Pike
Baltimore, MD 21228
410-747-8770
800-932-9047
www.phaseonline.com

QC Summary

Project Name Kop-Flex
PSS Project No.: 21100715

Analytical Method: EPA 625 .1

Seq Number: 185838 Matrix: Water
Parent Sample Id: ICV-01 ICV Sample Id: ICV-01 Analyzed Date: 07/09/21 17:07

Parameter	Spike Amount	ICV Result	ICV %Rec	Limits	Units	Flag
Phenanthrene	40.00	35.60	89	67-130	mg/L	
Phenol	40.00	38.54	96	48-130	mg/L	
Pyrene	40.00	37.16	93	70-130	mg/L	

Surrogate	ICV Result	Limits	Units	Flag
2-Fluorobiphenyl	95	80-120	%	
2-Fluorophenol	97	80-120	%	
Nitrobenzene-d5	96	46-219	%	
2,4,6-Tribromophenol	100	80-120	%	
Phenol-d6	95	48-208	%	
Terphenyl-D14	95	80-120	%	

PHASE SEPARATION SCIENCE

6630 Baltimore National Pike
Baltimore, MD 21228
410-747-8770
800-932-9047
www.phaseonline.com

QC Summary

Project Name Kop-Flex
PSS Project No.: 21100715

Analytical Method: EPA 624 .1

Seq Number: 186298 Matrix: Water
Parent Sample Id: ICV-01 ICV Sample Id: ICV-01 Analyzed Date: 07/27/21 13:25

Parameter	Spike Amount	ICV Result	ICV %Rec	Limits	Units	Flag
Acrolein	0.05000	0.05190	104	60-139	mg/L	
Acrylonitrile	0.05000	0.05150	103	60-137	mg/L	
Dichlorodifluoromethane	0.05000	0.05535	111	54-148	mg/L	
Chloromethane	0.05000	0.05663	113	57-135	mg/L	
Vinyl Chloride	0.05000	0.05400	108	64-129	mg/L	
Bromomethane	0.05000	0.05306	106	67-132	mg/L	
Chloroethane	0.05000	0.05149	103	62-133	mg/L	
Trichlorofluoromethane	0.05000	0.05188	104	71-137	mg/L	
2-Chloroethyl Vinyl ether	0.05000	0.04802	96	15-141	mg/L	
1,1-Dichloroethene	0.05000	0.05120	102	67-126	mg/L	
Methylene Chloride	0.05000	0.05415	108	73-120	mg/L	
trans-1,2-dichloroethene	0.05000	0.05096	102	75-127	mg/L	
1,1-Dichloroethane	0.05000	0.05104	102	76-127	mg/L	
Chloroform	0.05000	0.05139	103	79-125	mg/L	
1,1,1-Trichloroethane	0.05000	0.05311	106	73-130	mg/L	
Carbon Tetrachloride	0.05000	0.05391	108	73-130	mg/L	
Benzene	0.05000	0.05427	109	73-132	mg/L	
1,2-Dichloroethane	0.05000	0.05128	103	77-129	mg/L	
Trichloroethene	0.05000	0.05270	105	79-126	mg/L	
1,2-Dichloropropane	0.05000	0.05327	107	74-129	mg/L	
Bromodichloromethane	0.05000	0.05345	107	81-125	mg/L	
cis-1,3-Dichloropropene	0.05000	0.05109	102	76-116	mg/L	
Toluene	0.05000	0.05592	112	77-127	mg/L	
trans-1,3-dichloropropene	0.05000	0.05220	104	78-114	mg/L	
1,1,2-Trichloroethane	0.05000	0.05300	106	78-127	mg/L	
Tetrachloroethylene	0.05000	0.05617	112	78-128	mg/L	
Dibromochloromethane	0.05000	0.05438	109	70-132	mg/L	
Chlorobenzene	0.05000	0.05458	109	72-128	mg/L	
Ethylbenzene	0.05000	0.05670	113	69-131	mg/L	
Bromoform	0.05000	0.05224	104	70-130	mg/L	
1,1,2,2-Tetrachloroethane	0.05000	0.05336	107	62-134	mg/L	
1,3-Dichlorobenzene	0.05000	0.05386	108	70-129	mg/L	
1,4-Dichlorobenzene	0.05000	0.05275	106	69-127	mg/L	
1,2-Dichlorobenzene	0.05000	0.05418	108	65-133	mg/L	

Surrogate	ICV Result	Limits	Units	Flag
Dibromofluoromethane	93	87-120	%	
4-Bromofluorobenzene	98	85-147	%	
Toluene-D8	102	88-110	%	

X = Recovery outside of QC Criteria

PHASE SEPARATION SCIENCE

CHAIN OF CUSTODY FORM

All fields must be completed accurately. Shaded sections for lab use only.

www.phaseonline.com ~ info@phaseonline.com

6630 Baltimore National Pike • Suite 103-A • Baltimore, Maryland 21228 • (410) 747-8770 • (800) 932-9047

① PSS CLIENT: WSP USA | OFFICE LOCATION: Herndon, VA | PSS Work Order #: 21100705 (10/7/21) 21100715 | PAGE 1 OF 1

BILL TO (If different): | PHONE #: 703-709-6500

CONTACT: Eric Johnson | EMAIL: eric.johnson@wsp.com

PROJECT NAME: Kop-Flex | PROJECT #: 31401545.010/04

SITE LOCATION: Hanover, MD | P.O. #:

SAMPLER(S): Shannon Burke | DW CERT #:

Matrix Codes: **SW**=Surface Water **DW**=Drinking Water **GW**=Ground Water **WW**=Waste Water **O**=Oil **S**=Soil **SOL**=Solid **A**=Air **WI**=Wipe

② ③

PSS ID	SAMPLE IDENTIFICATION	DATE SAMPLED	TIME SAMPLED	MATRIX Use Codes	# OF CONTAINERS	SAMPLE TYPE: C=COMPOSITE G=GRAB	TAL Metals (200.8)	Total Cyanide (SM4500-CN-E-2011)	Mercury, Total (245.1)	Pesticides (608.3)	PCBs (608.3)	SVOCs (625.1)	VOCs (624.1)	BOD	COD	TSS	Oil & Grease	Flashpoint
Preservatives Use Codes																		
1	Resin Cleaning Water	10/7/21	1210	WW	14	G	X	X	X	X	X	X	X	X	X	X	X	X
2	TB-100721-RCW	—	—	TB	2	—							X					

Preservative Codes: 1 - HCL; 2 - H_2SO_4; 3 - HNO_3; 4 - NaOH; 5 - E624KIT; 6 - ICE; 7 - Sodium Thiosulfate; 8 - Ascorbic Acid; 9 - TerraCore Kit

⑤

Relinquished By:	Date	Time	Received By:
(1)	10/7/21	1320	
(2)			
(3)			
(4)			

④

Requested TAT (One TAT per COC): ☒ 5-Day ☐ 3-Day ☐ 2-Day ☐ Next Day ☐ Emergency ☒ Other

STATE RESULTS REPORTED TO: ☐ MD ☐ DE ☐ PA ☐ VA ☐ WV ☐ OTHER

COMPLIANCE? ☐ DW ☐ WW

EDD FORMAT TYPE

Ice Present: PRES

Custody Seal: COOLER-INTACT

Coolers: 1 Temp: 22.4-22.9°C

Shipping Carrier: CLIENT

Special Instructions:

TEMP BLANK = 21.9°C

5-day TAT

pH = 8.09 SU, Temp = 22.8°C at time of sample collection

This chain of custody is a legal document. The client (PSS Client), by signing, or having client's agent sign, this "Chain of Custody Form", agrees to pay for the above requested services per the latest version of the Service Brochure of PSS-provided quotation including any and all attorney's or other reasonable fees if collection becomes necessary.

PHASE SEPARATION SCIENCE

6630 Baltimore National Pike
Baltimore, MD 21228
410-747-8770
800-932-9047
www.phaseonline.com

Sample Receipt Checklist

Project Name: Kop-Flex
PSS Project No.: 21100715

Client Name WSP USA - Herndon
Disposal Date 11/11/2021

Received By Brad Crozier
Date Received 10/07/2021 01:20:00 PM
Delivered By Client
Tracking No Not Applicable
Logged In By Brad Crozier

Shipping Container(s)
No. of Coolers 1

		Ice	Present
Custody Seal(s) Intact?	Yes	Temp (deg C)	22.9
Seal(s) Signed / Dated?	Yes	Temp Blank Present	Yes

Documentation

		Sampler Name	Shannon Burke
COC agrees with sample labels?	Yes	MD DW Cert. No.	N/A
Chain of Custody	Yes		

Sample Container

		Custody Seal(s) Intact?	Not Applicable
Appropriate for Specified Analysis?	Yes	Seal(s) Signed / Dated	Not Applicable
Intact?	Yes		
Labeled and Labels Legible?	Yes		

Holding Time

		Total No. of Samples Received	2
All Samples Received Within Holding Time(s)?	Yes	Total No. of Containers Received	16

Preservation

Total Metals	(pH<2)	Yes
Dissolved Metals, filtered within 15 minutes of collection	(pH<2)	N/A
Orthophosphorus, filtered within 15 minutes of collection		N/A
Cyanides	(pH>12)	Yes
Sulfide	(pH>9)	N/A
TOC, DOC (field filtered), COD, Phenols	(pH<2)	Yes
TOX, TKN, NH3, Total Phos	(pH<2)	N/A
VOC, BTEX (VOA Vials Rcvd Preserved)	(pH<2)	Yes
Do VOA vials have zero headspace?		Yes
624 VOC (Rcvd at least one unpreserved VOA vial)		Yes
524 VOC (Rcvd with trip blanks)	(pH<2)	N/A

PHASE SEPARATION SCIENCE

6630 Baltimore National Pike
Baltimore, MD 21228
410-747-8770
800-932-9047
www.phaseonline.com

Sample Receipt Checklist

Project Name: Kop-Flex
PSS Project No.: 21100715

Client Name	WSP USA - Herndon	**Received By**	Brad Crozier
Disposal Date	11/11/2021	**Date Received**	10/07/2021 01:20:00 PM
		Delivered By	Client
		Tracking No	Not Applicable
		Logged In By	Brad Crozier

Comments: (Any "No" response must be detailed in the comments section below.)

For any improper preservation conditions, list sample ID, preservative added (reagent ID number) below as well as documentation of any client notification as well as client instructions. Samples for pH, chlorine and dissolved oxygen should be analyzed as soon as possible, preferably in the field at the time of sampling. Samples which require thermal preservation shall be considered acceptable when received at a temperature above freezing to 6°C. Samples that are hand delivered on the day that they are collected may not meet these criteria but shall be considered acceptable if there is evidence that the chilling process has begun such as arrival on ice.

Preservative not indicated on COC for metals, cyanide, COD, oil and grease, and VOC. Received containers preserved with HNO3, NaOH, H2SO4, and a 624 kit with two unpreserved vials and one preserved iwh HCl.

Samples Inspected/Checklist Completed By: _____ Date: 10/07/2021
Brad Crozier

PM Review and Approval: _____ Date: 10/07/2021
Amber Confer

From: Christian Tait
To: Johnson, Eric
Cc: Dolan, Kirstin L.; Burke, Shannon L.
Subject: Re: Wastewater Discharge Permit No. 210020 - EMERSUB 16, Harmans Road, Hanover
Date: Tuesday, October 10, 2023 9:40:07 AM

When you know your schedule better just shoot me an email and let me know also please provide a contact name and number is the event something comes up within the collection system. Thanks

On Tue, Oct 10, 2023 at 9:29 AM Johnson, Eric <Eric.Johnson@wsp.com> wrote:

> Hi Chris.
>
> Thanks for getting back to us regarding our request. We will proceed with the discharge of the cleaning wastewater in accordance with your email approval. Let me know if you want us to provide you with information on the discharge schedule.
>
> We will need to research and evaluate options for potentially reducing the sodium concentration in the wastewater prior to discharge. After we complete this evaluation, we will follow up with you regarding our findings.
>
> Do not hesitate to contact me if you have questions or need any additional information when preparing the updated permit.
>
> Regards,
>
> Eric
>
> Get Outlook for iOS
>
> ---
>
> **From:** Christian Tait <pwtait62@aacounty.org>
> **Sent:** Tuesday, October 10, 2023 9:07:17 AM
> **To:** Johnson, Eric <Eric.Johnson@wsp.com>
> **Cc:** Dolan, Kirstin L. <Kirstin.Dolan@wsp.com>
> **Subject:** Re: Wastewater Discharge Permit No. 210020 - EMERSUB 16, Harmans Road, Hanover
>
> Morning Eric
>
> If you are requesting a response for your February email, I'm guessing that my Program Specialist did not address your initial request. Unfortunately, that individual is no longer with the County. In order to address your request in a more timely manner please use this email as approval for the November discharge of your facility's cleaning wastewater. Reviewing the attached analytical data, my only concern is the very high sodium. If there is any way to lower that number would be helpful. In the meantime, I will begin updating your permit to address the annual event. If you have any questions or concerns please do not hesitate to contact me. Thanks
>
> On Thu, Oct 5, 2023 at 5:03 PM Johnson, Eric <Eric.Johnson@wsp.com> wrote:
>
> > Hi Chris.

I hope you had a great summer 2023. I don't believe that we have heard back from the County Pre-treatment Program in regards to our requested modification to Wastewater Discharge Permit (Permit) #210020, which was emailed to you on February 22, 2023. (I have attached another copy of the February 2023 permit modification request to this email.) Please note that we are planning to conduct maintenance activities on the treatment system in early November that will result in the generation of the wastewater stream that was the subject of the permit modification. To ensure everything is in order for completing this upcoming work, we need to receive a response from the County as to the status of the modification request so that we can make the necessary arrangements for managing the generated wastewater. Therefore, we are respectfully requesting the County provide an update on your review and approval/rejection of the previously submitted Permit modification request no later than Friday, October 27th.

Feel free to contact me if you need additional information or wish to discuss. Thanks you for your time and attention to this matter.

Regards,

Eric J.

Eric Johnson

Senior Technical Manager

Professional Geologist

T+ 1 703-318-3936

M+ 1 703-626-0670

eric.johnson@wsp.com

WSP USA Inc.

13530 Dulles Technology Drive, Suite 300

Herndon, VA 20171

wsp.com

From: Johnson, Eric
Sent: Monday, April 17, 2023 8:11 AM
To: 'Christian Tait' <pwtait62@aacounty.org>
Cc: 'Crouch, Amber [CORP/US]' <Amber.Crouch@Emerson.com>; 'Clarke, Steve [CORP/US]' <steve.clarke@emerson.com>; Dolan, Kirstin L. <Kirstin.Dolan@wsp.com>
Subject: RE: Wastewater Discharge Permit No. 210020 - EMERSUB 16, Harmans Road, Hanover

Hi Chris.

Hope you have been doing well. I wanted to check with you regarding the review of the proposed modification to permit no. 210020 that we submitted to the county Pre-treatment Program on February 22, 2023. Can you please update us on the status of your review of our modification request at your earliest convenience. Thanks.

Take care,

Eric

Eric Johnson

Senior Technical Manager

Professional Geologist

T+ 1 703-318-3936

M+ 1 703-626-0670

eric.johnson@wsp.com

WSP USA Inc.

13530 Dulles Technology Drive, Suite 300

Herndon, VA 20171

wsp.com

From: Johnson, Eric
Sent: Wednesday, February 22, 2023 4:50 PM
To: Christian Tait <pwtait62@aacounty.org>
Cc: Crouch, Amber [CORP/US] <Amber.Crouch@Emerson.com>; Clarke, Steve [CORP/US] <steve.clarke@emerson.com>; Dolan, Kirstin L. <Kirstin.Dolan@wsp.com>
Subject: Wastewater Discharge Permit No. 210020 - EMERSUB 16, Harmans Road, Hanover

Chris-

On behalf of EMERSUB 16 LLC, WSP USA Inc. is submitting the attached modification request for Wastewater Discharge Permit (Permit) No. 210020 for the treatment building located on Harmans Road in Hanover, Maryland. We are requesting Anne Arundel County's (County's) approval to include water generated during annual maintenance of the treatment system as one of the wastewater sources allowed for discharge to the sanitary sewer system under the Permit. The enclosed modification request is being submitted to the County Pre-treatment Program in accordance with the requirement specified under *Section 11 – Permit Modification* of the Permit.

Please contact us if you have any questions or need additional information to facilitate your review the proposed Permit modification. We look forward hearing from the County regarding our request.

Respectfully,

Eric J.

Eric Johnson

Senior Technical Manager

Professional Geologist

T+ 1 703-318-3936

M+ 1 703-626-0670

eric.johnson@wsp.com

WSP USA Inc.

13530 Dulles Technology Drive, Suite 300

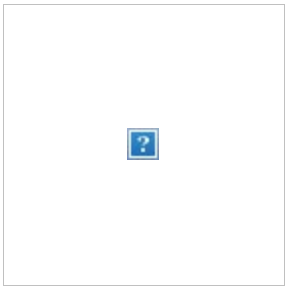
Herndon, VA 20171

wsp.com

NOTICE: This communication and any attachments ("this message") may contain information which is privileged, confidential, proprietary or otherwise subject to restricted disclosure under applicable law. This message is for the sole use of the intended recipient(s). Any unauthorized use, disclosure, viewing, copying, alteration, dissemination or distribution of, or reliance on, this message is strictly prohibited. If you have received this message in error, or you are not an authorized or intended recipient, please notify the sender immediately by replying to this message, delete this message and all copies from your e-mail system and destroy any printed copies.

-LAEmHhHzdJzBITWfa4Hgs7pbKI

--



Chris Tait
Regulatory Compliance
Program Manager
Phone: (410) 222-8818
www.aacounty.org

The Best Place
For All

--

Chris Tait
Regulatory Compliance
Program Manager
Phone: (410) 222-8818
www.aacounty.org

APPENDIX

F LABORATORY REPORTS FOR GROUNDWATER MONITORING

301 Fulling Mill Road | Middletown, PA 17057 | Phone: 717-944-5541 | Fax: 717-944-1430 | www.alsglobal.com

NELAP Certifications: NJ PA010 , NY 11759 , PA 22-293 DoD ELAP: PJLA 74618
State Certifications: FL E871113 , WA C999 , MD 128 , VA 460157 , WV DW 9961-C , WV 343

Analytical Results Report For **WSP USA Inc.**

Project Former KOP-Flex Facility Onsit
Workorder 3304367
Report ID 250632 on 6/13/2023

Certificate of Analysis

Enclosed are the analytical results for samples received by the laboratory on May 22, 2023.

The ALS Environmental laboratory in Middletown, Pennsylvania is a National Environmental Laboratory Accreditation Program (NELAP) accredited laboratory and as such, certifies that all applicable test results meet the requirements of NELAP.

If you have any questions regarding this certificate of analysis, please contact Susan Scherer (Project Coordinator) at (717) 944-5541.

Analyses were performed according to our laboratory's NELAP-approved quality assurance program and any applicable state requirements. The test results meet requirements of the current NELAP standards or state requirements, where applicable. For a specific list of accredited analytes, refer to the certifications section of the ALS website at www.alsglobal.com/en/Our-Services/Life-Sciences/Environmental/Downloads.

This laboratory report may not be reproduced, except in full, without the written approval of ALS Global.
ALS Middletown: 301 Fulling Mill Road, Middletown, PA 17057 : 717-944-5541.

Recipient(s):
Elliott Martynkiewicz - WSP USA Inc.
Eric Johnson - WSP USA INC

This page is included as part of the Analytical Report and must be retained as a permanent record thereof.

Susan Scherer

Susan Scherer *(ALS Digital Signature)*
Project Coordinator

Sample Summary

Lab ID	Sample ID	Matrix	Date Collected	Date Received	Collector	Collection Company
3304367001	MW-01D	Ground Water	05/21/2023 15:00	05/22/2023 18:15	CBC	Collected By Client
3304367002	MW-22D	Ground Water	05/21/2023 15:15	05/22/2023 18:15	CBC	Collected By Client
3304367003	MW-04R	Ground Water	05/21/2023 15:25	05/22/2023 18:15	CBC	Collected By Client
3304367004	MW-20	Ground Water	05/21/2023 15:35	05/22/2023 18:15	CBC	Collected By Client
3304367005	MW-09	Ground Water	05/21/2023 15:55	05/22/2023 18:15	CBC	Collected By Client
3304367006	MW-23D	Ground Water	05/21/2023 16:10	05/22/2023 18:15	CBC	Collected By Client
3304367007	MW-46D	Ground Water	05/21/2023 16:25	05/22/2023 18:15	CBC	Collected By Client
3304367008	MW-16	Ground Water	05/21/2023 16:50	05/22/2023 18:15	CBC	Collected By Client
3304367009	MW-16D	Ground Water	05/21/2023 17:05	05/22/2023 18:15	CBC	Collected By Client
3304367010	DUP-052123	Ground Water	05/21/2023 13:00	05/22/2023 18:15	CBC	Collected By Client
3304367011	MW-43	Ground Water	05/21/2023 11:25	05/22/2023 18:15	CBC	Collected By Client
3304367012	MW-39	Ground Water	05/21/2023 11:35	05/22/2023 18:15	CBC	Collected By Client
3304367013	MW-42	Ground Water	05/21/2023 11:45	05/22/2023 18:15	CBC	Collected By Client
3304367014	MW-18	Ground Water	05/21/2023 12:00	05/22/2023 18:15	CBC	Collected By Client
3304367015	MW-40D	Ground Water	05/21/2023 12:10	05/22/2023 18:15	CBC	Collected By Client
3304367016	MW-38R	Ground Water	05/21/2023 13:35	05/22/2023 18:15	CBC	Collected By Client
3304367017	MW-05R	Ground Water	05/21/2023 13:55	05/22/2023 18:15	CBC	Collected By Client
3304367018	MW-44	Ground Water	05/21/2023 14:05	05/22/2023 18:15	CBC	Collected By Client
3304367019	MW-21D	Ground Water	05/21/2023 14:20	05/22/2023 18:15	CBC	Collected By Client
3304367020	Trip Blank A	Ground Water	05/21/2023 00:00	05/22/2023 18:15	CBC	Collected By Client
3304367021	Trip Blank B	Ground Water	05/21/2023 00:00	05/22/2023 18:15	CBC	Collected By Client

Reference

Notes

- Samples collected by ALS personnel are done so in accordance with the procedures set forth in the ALS Field Sampling Plan (20 - Field Services Sampling Plan).
- Except as qualified, Clean Water Act sample analyses are consistent with methodology requirements in 40 CFR Part 136.
- Except as qualified, Safe Drinking Water Act sample analyses are consistent with methodology requirements in 40 CFR Part 141.
- The Chain of Custody document is included as part of this report.
- All Library Search analytes should be regarded as tentative identifications based on the presumptive evidence of the mass spectra. Concentrations reported are estimated values.
- Parameters identified as "analyze immediately" require analysis within 15 minutes of collection. Any "analyze immediately" parameters not listed under the header "Field Parameters" are preformed in the laboratory and are therefore analyzed out of hold time.
- Method references listed on this report beginning with the prefix “S” followed by a method number (such as S2310B-97) refer to methods from “Standard Methods for the Examination of Water and Wastewater”.
- For microbiological analyses, the "Prepared" value is the date/time into the incubator and the "Analyzed" value is the date/time out the incubator.
- An Analysis-Prep Method Cross Reference Table is included after Analytical Results & Qualifiers section in this report.
- Unless otherwise noted, all quantitative results for soils are reported on a dry weight basis.

Standard Acronyms/Flags

J	Indicates an estimated value between the Method Detection Limit (MDL) and the Practical Quantitation Limit (PQL) for the analyte
U	Indicates that the analyte was Not Detected (ND) above the MDL
N	Indicates presumptive evidence of the presence of a compound
MDL	Method Detection Limit
PQL	Practical Quantitation Limit
RDL	Practical Quantitation Limit for this Project
ND	Not Detected - indicates that the analyte was Not Detected
Cntr	Analysis was performed using this container
RegLmt	Regulatory Limit
LCS	Laboratory Control Sample
MS	Matrix Spike
MSD	Matrix Spike Duplicate
DUP	Sample Duplicate
%Rec	Percent Recovery
RPD	Relative Percent Difference
LOD	DoD Limit of Detection
LOQ	DoD Limit of Quantitation
DL	DoD Detection Limit
I	Indicates reported value is greater than or equal to the Method Detection Limit (MDL) but less than the Report Detection Limit (RDL)
(S)	Surrogate Compound
NC	Not Calculated
*	Result outside of QC limits
#	Please reference the result in the Results Section for analyte-level flags.

Project Notations

Sample Notations

Lab ID	Sample ID

Result Notations

Notation Ref.	
1	The initial calibration verification for method SW846 8260D was outside the control limits for the analyte chloroethane. The % Recovery was reported as 68% and the control limits were 70 to 130%.
2	This compound was recovered below the 20 percent 8260D criteria in the continuing calibration verification associated with this sample.
3	The surrogate 2-Methylnapthalene-d10 for method SW846 8270E SIM was outside of control limits. The % Recovery was reported as 0 and the control limits were 29 to 112. This result was reported at a dilution of 100.
4	The surrogate Fluoranthene-d10 for method SW846 8270E SIM was outside of control limits. The % Recovery was reported as 0 and the control limits were 45 to 130. This result was reported at a dilution of 100.
5	1,1,1,2-Tetrachloroethane was recovered below the 20 percent 8260D criteria in the continuing calibration verification associated with this sample.
6	The QC sample type MS for method SW846 8270E SIM was outside the control limits for the analyte 1,4-Dioxane. The % Recovery was reported as 101 and the control limits were 22 to 75.
7	A dilution of the GCMS volatiles analysis was performed outside of the 14 day 8260D method holding time because 1,1-Dichloroethane exceeded the calibration range in the initial analysis.
8	A dilution of the GCMS volatiles analysis was performed outside of the 14 day 8260D method holding time because 1,1-Dichloroethene exceeded the calibration range in the initial analysis.
9	A dilution of the GCMS volatiles analysis was performed outside of the 14 day 8260D method holding time because 1,1,1-Trichloroethane exceeded the calibration range in the initial analysis.
11	The surrogate Fluoranthene-d10 for method SW846 8270E SIM was outside of control limits. The % Recovery was reported as 40.6 and the control limits were 45 to 130. This result was reported at a dilution of 10.

Detected Results Summary

Client Sample ID	MW-01D	Collected	05/21/2023 15:00
Lab Sample ID	3304367001	Lab Receipt	05/22/2023 18:15

Compound	Result	Units	RDL	Method	Flag
SEMIVOLATILE SIM					
1,4-Dioxane	4.0	ug/L	1.0	SW846 8270E SIM	#
VOLATILE ORGANICS					
1,1-Dichloroethane	1.8	ug/L	1.0	SW846 8260D	#
1,1-Dichloroethene	11.1	ug/L	1.0	SW846 8260D	#

Detected Results Summary

Client Sample ID	MW-22D	Collected	05/21/2023 15:15
Lab Sample ID	3304367002	Lab Receipt	05/22/2023 18:15

Compound	Result	Units	RDL	Method	Flag
SEMIVOLATILE SIM					
1,4-Dioxane	3.0	ug/L	1.0	SW846 8270E SIM	#
VOLATILE ORGANICS					
1,1-Dichloroethene	8.4	ug/L	1.0	SW846 8260D	#

Detected Results Summary

Client Sample ID	MW-04R	Collected	05/21/2023 15:25
Lab Sample ID	3304367003	Lab Receipt	05/22/2023 18:15

Compound	Result	Units	RDL	Method	Flag
SEMIVOLATILE SIM					
1,4-Dioxane	30.8	ug/L	15.6	SW846 8270E SIM	#
VOLATILE ORGANICS					
1,1-Dichloroethane	33.2	ug/L	5.0	SW846 8260D	#
1,1-Dichloroethene	65.5	ug/L	5.0	SW846 8260D	#

Detected Results Summary

Client Sample ID	MW-20	Collected	05/21/2023 15:35
Lab Sample ID	3304367004	Lab Receipt	05/22/2023 18:15

Compound	Result	Units	RDL	Method	Flag
SEMIVOLATILE SIM					
1,4-Dioxane	407	ug/L	100	SW846 8270E SIM	#
VOLATILE ORGANICS					
1,1-Dichloroethane	252	ug/L	5.0	SW846 8260D	#
1,1-Dichloroethene	307	ug/L	5.0	SW846 8260D	#
1,2-Dichloroethane	8.9	ug/L	5.0	SW846 8260D	#

Detected Results Summary

Client Sample ID	MW-09	Collected	05/21/2023 15:55
Lab Sample ID	3304367005	Lab Receipt	05/22/2023 18:15

Compound	Result	Units	RDL	Method	Flag
SEMIVOLATILE SIM					
1,4-Dioxane	4.5	ug/L	1.4	SW846 8270E SIM	#
VOLATILE ORGANICS					
1,1-Dichloroethane	1.9	ug/L	1.0	SW846 8260D	#
1,1-Dichloroethene	36.0	ug/L	1.0	SW846 8260D	#

Detected Results Summary

Client Sample ID	MW-23D	Collected	05/21/2023 16:10
Lab Sample ID	3304367006	Lab Receipt	05/22/2023 18:15

Compound	Result	Units	RDL	Method	Flag
SEMIVOLATILE SIM					
1,4-Dioxane	27.0	ug/L	16.0	SW846 8270E SIM	#
VOLATILE ORGANICS					
1,1,1-Trichloroethane	8.3	ug/L	1.0	SW846 8260D	#
1,1-Dichloroethane	32.4	ug/L	1.0	SW846 8260D	#
1,1-Dichloroethene	116	ug/L	1.0	SW846 8260D	#
1,2-Dichloroethane	1.4	ug/L	1.0	SW846 8260D	#

Detected Results Summary

Client Sample ID	MW-46D	Collected	05/21/2023 16:25
Lab Sample ID	3304367007	Lab Receipt	05/22/2023 18:15

Compound	Result	Units	RDL	Method	Flag
VOLATILE ORGANICS					
1,1-Dichloroethane	1.2	ug/L	1.0	SW846 8260D	#
1,1-Dichloroethene	19.2	ug/L	1.0	SW846 8260D	#

Detected Results Summary

Client Sample ID	MW-16	Collected	05/21/2023 16:50
Lab Sample ID	3304367008	Lab Receipt	05/22/2023 18:15

Compound	Result	Units	RDL	Method	Flag
SEMIVOLATILE SIM					
1,4-Dioxane	89.5	ug/L	10.0	SW846 8270E SIM	#
VOLATILE ORGANICS					
1,1,1-Trichloroethane	2230	ug/L	50.0	SW846 8260D	#
1,1-Dichloroethane	2230	ug/L	50.0	SW846 8260D	#
1,1-Dichloroethene	2510	ug/L	50.0	SW846 8260D	#
Acetone	12.3	ug/L	10.0	SW846 8260D	#
Chloroethane	96.1	ug/L	1.0	SW846 8260D	#
Ethylbenzene	1.3	ug/L	1.0	SW846 8260D	#
Methylene Chloride	3.7	ug/L	1.0	SW846 8260D	#
mp-Xylene	3.7	ug/L	2.0	SW846 8260D	#
o-Xylene	1.9	ug/L	1.0	SW846 8260D	#
Tetrachloroethene	6.3	ug/L	1.0	SW846 8260D	#
Total Xylenes	5.7	ug/L	3.0	SW846 8260D	#
Trichloroethene	19.1	ug/L	1.0	SW846 8260D	#
Vinyl Chloride	6.7	ug/L	1.0	SW846 8260D	#

Detected Results Summary

Client Sample ID	MW-16D	Collected	05/21/2023 17:05
Lab Sample ID	3304367009	Lab Receipt	05/22/2023 18:15

Compound	Result	Units	RDL	Method	Flag
SEMIVOLATILE SIM					
1,4-Dioxane	36.1	ug/L	10.0	SW846 8270E SIM	#
VOLATILE ORGANICS					
1,1,1-Trichloroethane	6.5	ug/L	1.0	SW846 8260D	#
1,1-Dichloroethane	24.8	ug/L	1.0	SW846 8260D	#
1,1-Dichloroethene	111	ug/L	1.0	SW846 8260D	#
1,2-Dichloroethane	1.4	ug/L	1.0	SW846 8260D	#

Detected Results Summary

Client Sample ID	DUP-052123	Collected	05/21/2023 13:00
Lab Sample ID	3304367010	Lab Receipt	05/22/2023 18:15

Compound	Result	Units	RDL	Method	Flag
SEMIVOLATILE SIM					
1,4-Dioxane	21.3	ug/L	10.0	SW846 8270E SIM	#
VOLATILE ORGANICS					
1,1,1-Trichloroethane	6.7	ug/L	1.0	SW846 8260D	#
1,1-Dichloroethane	24.9	ug/L	1.0	SW846 8260D	#
1,1-Dichloroethene	110	ug/L	1.0	SW846 8260D	#
1,2-Dichloroethane	1.4	ug/L	1.0	SW846 8260D	#

Detected Results Summary

Client Sample ID	MW-43	Collected	05/21/2023 11:25
Lab Sample ID	3304367011	Lab Receipt	05/22/2023 18:15

Compound	Result	Units	RDL	Method	Flag
SEMIVOLATILE SIM					
1,4-Dioxane	9.0	ug/L	1.4	SW846 8270E SIM	#
VOLATILE ORGANICS					
1,1-Dichloroethane	1.6	ug/L	1.0	SW846 8260D	#
1,1-Dichloroethene	21.2	ug/L	1.0	SW846 8260D	#
Methyl t-Butyl Ether	2.3	ug/L	1.0	SW846 8260D	#

Detected Results Summary

Client Sample ID	MW-39	Collected	05/21/2023 11:35
Lab Sample ID	3304367012	Lab Receipt	05/22/2023 18:15

Compound	Result	Units	RDL	Method	Flag
VOLATILE ORGANICS					
Methyl t-Butyl Ether	1.1	ug/L	1.0	SW846 8260D	#

Detected Results Summary

Client Sample ID	MW-42	Collected	05/21/2023 11:45
Lab Sample ID	3304367013	Lab Receipt	05/22/2023 18:15

Compound	Result	Units	RDL	Method	Flag
SEMIVOLATILE SIM					
1,4-Dioxane	5.8	ug/L	1.5	SW846 8270E SIM	#

Detected Results Summary

Client Sample ID	MW-38R	Collected	05/21/2023 13:35
Lab Sample ID	3304367016	Lab Receipt	05/22/2023 18:15

Compound	Result	Units	RDL	Method	Flag
SEMIVOLATILE SIM					
1,4-Dioxane	11.4	ug/L	10.0	SW846 8270E SIM	#
VOLATILE ORGANICS					
1,1-Dichloroethane	6.8	ug/L	1.0	SW846 8260D	#

Detected Results Summary

Client Sample ID	MW-05R	Collected	05/21/2023 13:55
Lab Sample ID	3304367017	Lab Receipt	05/22/2023 18:15

Compound	Result	Units	RDL	Method	Flag
SEMIVOLATILE SIM					
1,4-Dioxane	3.3	ug/L	1.0	SW846 8270E SIM	#
VOLATILE ORGANICS					
1,1,1-Trichloroethane	1.6	ug/L	1.0	SW846 8260D	#
1,1-Dichloroethane	1.2	ug/L	1.0	SW846 8260D	#

Detected Results Summary

Client Sample ID	MW-44	Collected	05/21/2023 14:05
Lab Sample ID	3304367018	Lab Receipt	05/22/2023 18:15

Compound	Result	Units	RDL	Method	Flag
SEMIVOLATILE SIM					
1,4-Dioxane	1.9	ug/L	1.6	SW846 8270E SIM	#
VOLATILE ORGANICS					
1,1,1-Trichloroethane	2.6	ug/L	1.0	SW846 8260D	#
1,1-Dichloroethane	1.2	ug/L	1.0	SW846 8260D	#
1,1-Dichloroethene	1.9	ug/L	1.0	SW846 8260D	#

Detected Results Summary

Client Sample ID	MW-21D	Collected	05/21/2023 14:20
Lab Sample ID	3304367019	Lab Receipt	05/22/2023 18:15

Compound	Result	Units	RDL	Method	Flag
SEMIVOLATILE SIM					
1,4-Dioxane	7.1	ug/L	1.0	SW846 8270E SIM	#
VOLATILE ORGANICS					
1,1-Dichloroethene	26.1	ug/L	1.0	SW846 8260D	#
Methyl t-Butyl Ether	1.2	ug/L	1.0	SW846 8260D	#

Results

Client Sample ID	MW-01D	Collected	05/21/2023 15:00
Lab Sample ID	3304367001	Lab Receipt	05/22/2023 18:15

SEMIVOLATILE SIM

Compound	Result	Flag	Units	RDL	Method	Dilution	Analysis Date/Time	By	Cntr
1,4-Dioxane	4.0		ug/L	1.0	SW846 8270E SIM	1	05/26/2023 07:11	M1O	C

SURROGATES

Compound	CAS No	Recovery	Limits(%)	Analysis Date/Time	Qualifiers
2-Methylnapthalene-d10	7297-45-2	70.3%	29 – 112	05/26/2023 07:11	
Fluoranthene-d10	93951-69-0	75.7%	45 – 130	05/26/2023 07:11	

VOLATILE ORGANICS

Compound	Result	Flag	Units	RDL	Method	Dilution	Analysis Date/Time	By	Cntr
1,1,1,2-Tetrachloroethane	1.0 U	U	ug/L	1.0	SW846 8260D	1	06/01/2023 17:50	TMP	A
1,1,1-Trichloroethane	1.0 U	U	ug/L	1.0	SW846 8260D	1	06/01/2023 17:50	TMP	A
1,1,2,2-Tetrachloroethane	1.0 U	U	ug/L	1.0	SW846 8260D	1	06/01/2023 17:50	TMP	A
1,1,2-Trichloroethane	1.0 U	U	ug/L	1.0	SW846 8260D	1	06/01/2023 17:50	TMP	A
1,1-Dichloroethane	1.8		ug/L	1.0	SW846 8260D	1	06/01/2023 17:50	TMP	A
1,1-Dichloroethene	11.1		ug/L	1.0	SW846 8260D	1	06/01/2023 17:50	TMP	A
1,1-Dichloropropene	1.0 U	U	ug/L	1.0	SW846 8260D	1	06/01/2023 17:50	TMP	A
1,2,3-Trichlorobenzene	2.0 U	U	ug/L	2.0	SW846 8260D	1	06/01/2023 17:50	TMP	A
1,2,3-Trichloropropane	2.0 U	U	ug/L	2.0	SW846 8260D	1	06/01/2023 17:50	TMP	A
1,2,4-Trichlorobenzene	2.0 U	U	ug/L	2.0	SW846 8260D	1	06/01/2023 17:50	TMP	A
1,2-Dibromo-3-chloropropane	7.0 U	U	ug/L	7.0	SW846 8260D	1	06/01/2023 17:50	TMP	A
1,2-Dibromoethane	1.0 U	U	ug/L	1.0	SW846 8260D	1	06/01/2023 17:50	TMP	A
1,2-Dichlorobenzene	1.0 U	U	ug/L	1.0	SW846 8260D	1	06/01/2023 17:50	TMP	A
1,2-Dichloroethane	1.0 U	U	ug/L	1.0	SW846 8260D	1	06/01/2023 17:50	TMP	A
1,2-Dichloropropane	1.0 U	U	ug/L	1.0	SW846 8260D	1	06/01/2023 17:50	TMP	A
1,3-Dichlorobenzene	1.0 U	U	ug/L	1.0	SW846 8260D	1	06/01/2023 17:50	TMP	A
1,3-Dichloropropane	1.0 U	U	ug/L	1.0	SW846 8260D	1	06/01/2023 17:50	TMP	A
1,4-Dichlorobenzene	1.0 U	U	ug/L	1.0	SW846 8260D	1	06/01/2023 17:50	TMP	A
2,2-Dichloropropane	1.0 U	U	ug/L	1.0	SW846 8260D	1	06/01/2023 17:50	TMP	A
2-Butanone	10.0 U	U	ug/L	10.0	SW846 8260D	1	06/01/2023 17:50	TMP	A
2-Hexanone	5.0 U	U	ug/L	5.0	SW846 8260D	1	06/01/2023 17:50	TMP	A
4-Methyl-2-Pentanone(MIBK)	5.0 U	U	ug/L	5.0	SW846 8260D	1	06/01/2023 17:50	TMP	A
Acetone	10.0 U	U	ug/L	10.0	SW846 8260D	1	06/01/2023 17:50	TMP	A
Benzene	1.0 U	U	ug/L	1.0	SW846 8260D	1	06/01/2023 17:50	TMP	A
Bromobenzene	1.0 U	U	ug/L	1.0	SW846 8260D	1	06/01/2023 17:50	TMP	A
Bromochloromethane	1.0 U	U	ug/L	1.0	SW846 8260D	1	06/01/2023 17:50	TMP	A
Bromodichloromethane	1.0 U	U	ug/L	1.0	SW846 8260D	1	06/01/2023 17:50	TMP	A
Bromoform	1.0 U	U	ug/L	1.0	SW846 8260D	1	06/01/2023 17:50	TMP	A
Bromomethane	1.0 U	U	ug/L	1.0	SW846 8260D	1	06/01/2023 17:50	TMP	A
Carbon Tetrachloride	1.0 U	U	ug/L	1.0	SW846 8260D	1	06/01/2023 17:50	TMP	A
Chlorobenzene	1.0 U	U	ug/L	1.0	SW846 8260D	1	06/01/2023 17:50	TMP	A
Chlorodibromomethane	1.0 U	U	ug/L	1.0	SW846 8260D	1	06/01/2023 17:50	TMP	A
Chloroethane	1.0 U	U,1	ug/L	1.0	SW846 8260D	1	06/01/2023 17:50	TMP	A
Chloroform	1.0 U	U	ug/L	1.0	SW846 8260D	1	06/01/2023 17:50	TMP	A
Chloromethane	1.0 U	U	ug/L	1.0	SW846 8260D	1	06/01/2023 17:50	TMP	A

Results

Client Sample ID	MW-01D	Collected	05/21/2023 15:00
Lab Sample ID	3304367001	Lab Receipt	05/22/2023 18:15

VOLATILE ORGANICS (cont.)

Compound	Result	Flag	Units	RDL	Method	Dilution	Analysis Date/Time	By	Cntr
cis-1,2-Dichloroethene	1.0 U	U	ug/L	1.0	SW846 8260D	1	06/01/2023 17:50	TMP	A
cis-1,3-Dichloropropene	1.0 U	U	ug/L	1.0	SW846 8260D	1	06/01/2023 17:50	TMP	A
Dibromomethane	1.0 U	U	ug/L	1.0	SW846 8260D	1	06/01/2023 17:50	TMP	A
Dichlorodifluoromethane	1.0 U	U	ug/L	1.0	SW846 8260D	1	06/01/2023 17:50	TMP	A
Diisopropyl ether	1.0 U	U	ug/L	1.0	SW846 8260D	1	06/01/2023 17:50	TMP	A
Ethylbenzene	1.0 U	U	ug/L	1.0	SW846 8260D	1	06/01/2023 17:50	TMP	A
Hexachlorobutadiene	5.0 U	U	ug/L	5.0	SW846 8260D	1	06/01/2023 17:50	TMP	A
Methyl t-Butyl Ether	1.0 U	U	ug/L	1.0	SW846 8260D	1	06/01/2023 17:50	TMP	A
Methylene Chloride	1.0 U	U	ug/L	1.0	SW846 8260D	1	06/01/2023 17:50	TMP	A
mp-Xylene	2.0 U	U	ug/L	2.0	SW846 8260D	1	06/01/2023 17:50	TMP	A
Naphthalene	2.0 U	U	ug/L	2.0	SW846 8260D	1	06/01/2023 17:50	TMP	A
o-Chlorotoluene	1.0 U	U	ug/L	1.0	SW846 8260D	1	06/01/2023 17:50	TMP	A
o-Xylene	1.0 U	U	ug/L	1.0	SW846 8260D	1	06/01/2023 17:50	TMP	A
p-Chlorotoluene	1.0 U	U	ug/L	1.0	SW846 8260D	1	06/01/2023 17:50	TMP	A
p-Isopropyltoluene	1.0 U	U	ug/L	1.0	SW846 8260D	1	06/01/2023 17:50	TMP	A
Styrene	1.0 U	U	ug/L	1.0	SW846 8260D	1	06/01/2023 17:50	TMP	A
Tetrachloroethene	1.0 U	U	ug/L	1.0	SW846 8260D	1	06/01/2023 17:50	TMP	A
Toluene	1.0 U	U	ug/L	1.0	SW846 8260D	1	06/01/2023 17:50	TMP	A
Total Xylenes	3.0 U	U	ug/L	3.0	SW846 8260D	1	06/01/2023 17:50	TMP	A
trans-1,2-Dichloroethene	1.0 U	U	ug/L	1.0	SW846 8260D	1	06/01/2023 17:50	TMP	A
trans-1,3-Dichloropropene	1.0 U	U	ug/L	1.0	SW846 8260D	1	06/01/2023 17:50	TMP	A
Trichloroethene	1.0 U	U	ug/L	1.0	SW846 8260D	1	06/01/2023 17:50	TMP	A
Trichlorofluoromethane	1.0 U	U,2	ug/L	1.0	SW846 8260D	1	06/01/2023 17:50	TMP	A
Vinyl Acetate	5.0 U	U	ug/L	5.0	SW846 8260D	1	06/01/2023 17:50	TMP	A
Vinyl Chloride	1.0 U	U	ug/L	1.0	SW846 8260D	1	06/01/2023 17:50	TMP	A

SURROGATES

Compound	CAS No	Recovery	Limits(%)	Analysis Date/Time	Qualifiers
1,2-Dichloroethane-d4	17060-07-0	101%	62 – 133	06/01/2023 17:50	
4-Bromofluorobenzene	460-00-4	97.7%	79 – 114	06/01/2023 17:50	
Dibromofluoromethane	1868-53-7	95.2%	78 – 116	06/01/2023 17:50	
Toluene-d8	2037-26-5	97.1%	76 – 127	06/01/2023 17:50	

Results

Client Sample ID	MW-22D	Collected	05/21/2023 15:15
Lab Sample ID	3304367002	Lab Receipt	05/22/2023 18:15

SEMIVOLATILE SIM

Compound	Result	Flag	Units	RDL	Method	Dilution	Analysis Date/Time	By	Cntr
1,4-Dioxane	3.0		ug/L	1.0	SW846 8270E SIM	1	05/26/2023 07:38	M1O	C

SURROGATES

Compound	CAS No	Recovery	Limits(%)	Analysis Date/Time	Qualifiers
2-Methylnapthalene-d10	7297-45-2	70.4%	29 – 112	05/26/2023 07:38	
Fluoranthene-d10	93951-69-0	84.7%	45 – 130	05/26/2023 07:38	

VOLATILE ORGANICS

Compound	Result	Flag	Units	RDL	Method	Dilution	Analysis Date/Time	By	Cntr
1,1,1,2-Tetrachloroethane	1.0 U	U	ug/L	1.0	SW846 8260D	1	06/01/2023 18:13	TMP	A
1,1,1-Trichloroethane	1.0 U	U	ug/L	1.0	SW846 8260D	1	06/01/2023 18:13	TMP	A
1,1,2,2-Tetrachloroethane	1.0 U	U	ug/L	1.0	SW846 8260D	1	06/01/2023 18:13	TMP	A
1,1,2-Trichloroethane	1.0 U	U	ug/L	1.0	SW846 8260D	1	06/01/2023 18:13	TMP	A
1,1-Dichloroethane	1.0 U	U	ug/L	1.0	SW846 8260D	1	06/01/2023 18:13	TMP	A
1,1-Dichloroethene	8.4		ug/L	1.0	SW846 8260D	1	06/01/2023 18:13	TMP	A
1,1-Dichloropropene	1.0 U	U	ug/L	1.0	SW846 8260D	1	06/01/2023 18:13	TMP	A
1,2,3-Trichlorobenzene	2.0 U	U	ug/L	2.0	SW846 8260D	1	06/01/2023 18:13	TMP	A
1,2,3-Trichloropropane	2.0 U	U	ug/L	2.0	SW846 8260D	1	06/01/2023 18:13	TMP	A
1,2,4-Trichlorobenzene	2.0 U	U	ug/L	2.0	SW846 8260D	1	06/01/2023 18:13	TMP	A
1,2-Dibromo-3-chloropropane	7.0 U	U	ug/L	7.0	SW846 8260D	1	06/01/2023 18:13	TMP	A
1,2-Dibromoethane	1.0 U	U	ug/L	1.0	SW846 8260D	1	06/01/2023 18:13	TMP	A
1,2-Dichlorobenzene	1.0 U	U	ug/L	1.0	SW846 8260D	1	06/01/2023 18:13	TMP	A
1,2-Dichloroethane	1.0 U	U	ug/L	1.0	SW846 8260D	1	06/01/2023 18:13	TMP	A
1,2-Dichloropropane	1.0 U	U	ug/L	1.0	SW846 8260D	1	06/01/2023 18:13	TMP	A
1,3-Dichlorobenzene	1.0 U	U	ug/L	1.0	SW846 8260D	1	06/01/2023 18:13	TMP	A
1,3-Dichloropropane	1.0 U	U	ug/L	1.0	SW846 8260D	1	06/01/2023 18:13	TMP	A
1,4-Dichlorobenzene	1.0 U	U	ug/L	1.0	SW846 8260D	1	06/01/2023 18:13	TMP	A
2,2-Dichloropropane	1.0 U	U	ug/L	1.0	SW846 8260D	1	06/01/2023 18:13	TMP	A
2-Butanone	10.0 U	U	ug/L	10.0	SW846 8260D	1	06/01/2023 18:13	TMP	A
2-Hexanone	5.0 U	U	ug/L	5.0	SW846 8260D	1	06/01/2023 18:13	TMP	A
4-Methyl-2-Pentanone(MIBK)	5.0 U	U	ug/L	5.0	SW846 8260D	1	06/01/2023 18:13	TMP	A
Acetone	10.0 U	U	ug/L	10.0	SW846 8260D	1	06/01/2023 18:13	TMP	A
Benzene	1.0 U	U	ug/L	1.0	SW846 8260D	1	06/01/2023 18:13	TMP	A
Bromobenzene	1.0 U	U	ug/L	1.0	SW846 8260D	1	06/01/2023 18:13	TMP	A
Bromochloromethane	1.0 U	U	ug/L	1.0	SW846 8260D	1	06/01/2023 18:13	TMP	A
Bromodichloromethane	1.0 U	U	ug/L	1.0	SW846 8260D	1	06/01/2023 18:13	TMP	A
Bromoform	1.0 U	U	ug/L	1.0	SW846 8260D	1	06/01/2023 18:13	TMP	A
Bromomethane	1.0 U	U	ug/L	1.0	SW846 8260D	1	06/01/2023 18:13	TMP	A
Carbon Tetrachloride	1.0 U	U	ug/L	1.0	SW846 8260D	1	06/01/2023 18:13	TMP	A
Chlorobenzene	1.0 U	U	ug/L	1.0	SW846 8260D	1	06/01/2023 18:13	TMP	A
Chlorodibromomethane	1.0 U	U	ug/L	1.0	SW846 8260D	1	06/01/2023 18:13	TMP	A
Chloroethane	1.0 U	U,1	ug/L	1.0	SW846 8260D	1	06/01/2023 18:13	TMP	A
Chloroform	1.0 U	U	ug/L	1.0	SW846 8260D	1	06/01/2023 18:13	TMP	A
Chloromethane	1.0 U	U	ug/L	1.0	SW846 8260D	1	06/01/2023 18:13	TMP	A

Results

Client Sample ID	MW-22D	Collected	05/21/2023 15:15
Lab Sample ID	3304367002	Lab Receipt	05/22/2023 18:15

VOLATILE ORGANICS (cont.)

Compound	Result	Flag	Units	RDL	Method	Dilution	Analysis Date/Time	By	Cntr
cis-1,2-Dichloroethene	1.0 U	U	ug/L	1.0	SW846 8260D	1	06/01/2023 18:13	TMP	A
cis-1,3-Dichloropropene	1.0 U	U	ug/L	1.0	SW846 8260D	1	06/01/2023 18:13	TMP	A
Dibromomethane	1.0 U	U	ug/L	1.0	SW846 8260D	1	06/01/2023 18:13	TMP	A
Dichlorodifluoromethane	1.0 U	U	ug/L	1.0	SW846 8260D	1	06/01/2023 18:13	TMP	A
Diisopropyl ether	1.0 U	U	ug/L	1.0	SW846 8260D	1	06/01/2023 18:13	TMP	A
Ethylbenzene	1.0 U	U	ug/L	1.0	SW846 8260D	1	06/01/2023 18:13	TMP	A
Hexachlorobutadiene	5.0 U	U	ug/L	5.0	SW846 8260D	1	06/01/2023 18:13	TMP	A
Methyl t-Butyl Ether	1.0 U	U	ug/L	1.0	SW846 8260D	1	06/01/2023 18:13	TMP	A
Methylene Chloride	1.0 U	U	ug/L	1.0	SW846 8260D	1	06/01/2023 18:13	TMP	A
mp-Xylene	2.0 U	U	ug/L	2.0	SW846 8260D	1	06/01/2023 18:13	TMP	A
Naphthalene	2.0 U	U	ug/L	2.0	SW846 8260D	1	06/01/2023 18:13	TMP	A
o-Chlorotoluene	1.0 U	U	ug/L	1.0	SW846 8260D	1	06/01/2023 18:13	TMP	A
o-Xylene	1.0 U	U	ug/L	1.0	SW846 8260D	1	06/01/2023 18:13	TMP	A
p-Chlorotoluene	1.0 U	U	ug/L	1.0	SW846 8260D	1	06/01/2023 18:13	TMP	A
p-Isopropyltoluene	1.0 U	U	ug/L	1.0	SW846 8260D	1	06/01/2023 18:13	TMP	A
Styrene	1.0 U	U	ug/L	1.0	SW846 8260D	1	06/01/2023 18:13	TMP	A
Tetrachloroethene	1.0 U	U	ug/L	1.0	SW846 8260D	1	06/01/2023 18:13	TMP	A
Toluene	1.0 U	U	ug/L	1.0	SW846 8260D	1	06/01/2023 18:13	TMP	A
Total Xylenes	3.0 U	U	ug/L	3.0	SW846 8260D	1	06/01/2023 18:13	TMP	A
trans-1,2-Dichloroethene	1.0 U	U	ug/L	1.0	SW846 8260D	1	06/01/2023 18:13	TMP	A
trans-1,3-Dichloropropene	1.0 U	U	ug/L	1.0	SW846 8260D	1	06/01/2023 18:13	TMP	A
Trichloroethene	1.0 U	U	ug/L	1.0	SW846 8260D	1	06/01/2023 18:13	TMP	A
Trichlorofluoromethane	1.0 U	U,2	ug/L	1.0	SW846 8260D	1	06/01/2023 18:13	TMP	A
Vinyl Acetate	5.0 U	U	ug/L	5.0	SW846 8260D	1	06/01/2023 18:13	TMP	A
Vinyl Chloride	1.0 U	U	ug/L	1.0	SW846 8260D	1	06/01/2023 18:13	TMP	A

SURROGATES

Compound	CAS No	Recovery	Limits(%)	Analysis Date/Time	Qualifiers
1,2-Dichloroethane-d4	17060-07-0	101%	62 – 133	06/01/2023 18:13	
4-Bromofluorobenzene	460-00-4	99.7%	79 – 114	06/01/2023 18:13	
Dibromofluoromethane	1868-53-7	94.9%	78 – 116	06/01/2023 18:13	
Toluene-d8	2037-26-5	98.8%	76 – 127	06/01/2023 18:13	

Results

Client Sample ID	MW-04R	Collected	05/21/2023 15:25
Lab Sample ID	3304367003	Lab Receipt	05/22/2023 18:15

SEMIVOLATILE SIM

Compound	Result	Flag	Units	RDL	Method	Dilution	Analysis Date/Time	By	Cntr
1,4-Dioxane	30.8		ug/L	15.6	SW846 8270E SIM	10	05/27/2023 01:02	M1O	C

SURROGATES

Compound	CAS No	Recovery	Limits(%)	Analysis Date/Time	Qualifiers
2-Methylnapthalene-d10	7297-45-2	69.6%	29 – 112	05/26/2023 08:05	
2-Methylnapthalene-d10	7297-45-2	66.3%	29 – 112	05/27/2023 01:02	
Fluoranthene-d10	93951-69-0	77%	45 – 130	05/26/2023 08:05	
Fluoranthene-d10	93951-69-0	61.9%	45 – 130	05/27/2023 01:02	

VOLATILE ORGANICS

Compound	Result	Flag	Units	RDL	Method	Dilution	Analysis Date/Time	By	Cntr
1,1,1,2-Tetrachloroethane	5.0 U	U	ug/L	5.0	SW846 8260D	5	06/01/2023 18:36	TMP	A
1,1,1-Trichloroethane	5.0 U	U	ug/L	5.0	SW846 8260D	5	06/01/2023 18:36	TMP	A
1,1,2,2-Tetrachloroethane	5.0 U	U	ug/L	5.0	SW846 8260D	5	06/01/2023 18:36	TMP	A
1,1,2-Trichloroethane	5.0 U	U	ug/L	5.0	SW846 8260D	5	06/01/2023 18:36	TMP	A
1,1-Dichloroethane	33.2		ug/L	5.0	SW846 8260D	5	06/01/2023 18:36	TMP	A
1,1-Dichloroethene	65.5		ug/L	5.0	SW846 8260D	5	06/01/2023 18:36	TMP	A
1,1-Dichloropropene	5.0 U	U	ug/L	5.0	SW846 8260D	5	06/01/2023 18:36	TMP	A
1,2,3-Trichlorobenzene	10.0 U	U	ug/L	10.0	SW846 8260D	5	06/01/2023 18:36	TMP	A
1,2,3-Trichloropropane	10.0 U	U	ug/L	10.0	SW846 8260D	5	06/01/2023 18:36	TMP	A
1,2,4-Trichlorobenzene	10.0 U	U	ug/L	10.0	SW846 8260D	5	06/01/2023 18:36	TMP	A
1,2-Dibromo-3-chloropropane	35.0 U	U	ug/L	35.0	SW846 8260D	5	06/01/2023 18:36	TMP	A
1,2-Dibromoethane	5.0 U	U	ug/L	5.0	SW846 8260D	5	06/01/2023 18:36	TMP	A
1,2-Dichlorobenzene	5.0 U	U	ug/L	5.0	SW846 8260D	5	06/01/2023 18:36	TMP	A
1,2-Dichloroethane	5.0 U	U	ug/L	5.0	SW846 8260D	5	06/01/2023 18:36	TMP	A
1,2-Dichloropropane	5.0 U	U	ug/L	5.0	SW846 8260D	5	06/01/2023 18:36	TMP	A
1,3-Dichlorobenzene	5.0 U	U	ug/L	5.0	SW846 8260D	5	06/01/2023 18:36	TMP	A
1,3-Dichloropropane	5.0 U	U	ug/L	5.0	SW846 8260D	5	06/01/2023 18:36	TMP	A
1,4-Dichlorobenzene	5.0 U	U	ug/L	5.0	SW846 8260D	5	06/01/2023 18:36	TMP	A
2,2-Dichloropropane	5.0 U	U	ug/L	5.0	SW846 8260D	5	06/01/2023 18:36	TMP	A
2-Butanone	50.0 U	U	ug/L	50.0	SW846 8260D	5	06/01/2023 18:36	TMP	A
2-Hexanone	25.0 U	U	ug/L	25.0	SW846 8260D	5	06/01/2023 18:36	TMP	A
4-Methyl-2-Pentanone(MIBK)	25.0 U	U	ug/L	25.0	SW846 8260D	5	06/01/2023 18:36	TMP	A
Acetone	50.0 U	U	ug/L	50.0	SW846 8260D	5	06/01/2023 18:36	TMP	A
Benzene	5.0 U	U	ug/L	5.0	SW846 8260D	5	06/01/2023 18:36	TMP	A
Bromobenzene	5.0 U	U	ug/L	5.0	SW846 8260D	5	06/01/2023 18:36	TMP	A
Bromochloromethane	5.0 U	U	ug/L	5.0	SW846 8260D	5	06/01/2023 18:36	TMP	A
Bromodichloromethane	5.0 U	U	ug/L	5.0	SW846 8260D	5	06/01/2023 18:36	TMP	A
Bromoform	5.0 U	U	ug/L	5.0	SW846 8260D	5	06/01/2023 18:36	TMP	A
Bromomethane	5.0 U	U	ug/L	5.0	SW846 8260D	5	06/01/2023 18:36	TMP	A
Carbon Tetrachloride	5.0 U	U	ug/L	5.0	SW846 8260D	5	06/01/2023 18:36	TMP	A
Chlorobenzene	5.0 U	U	ug/L	5.0	SW846 8260D	5	06/01/2023 18:36	TMP	A
Chlorodibromomethane	5.0 U	U	ug/L	5.0	SW846 8260D	5	06/01/2023 18:36	TMP	A
Chloroethane	5.0 U	U,1	ug/L	5.0	SW846 8260D	5	06/01/2023 18:36	TMP	A

Results

Client Sample ID	MW-04R	Collected	05/21/2023 15:25
Lab Sample ID	3304367003	Lab Receipt	05/22/2023 18:15

VOLATILE ORGANICS (cont.)

Compound	Result	Flag	Units	RDL	Method	Dilution	Analysis Date/Time	By	Cntr
Chloroform	5.0 U	U	ug/L	5.0	SW846 8260D	5	06/01/2023 18:36	TMP	A
Chloromethane	5.0 U	U	ug/L	5.0	SW846 8260D	5	06/01/2023 18:36	TMP	A
cis-1,2-Dichloroethene	5.0 U	U	ug/L	5.0	SW846 8260D	5	06/01/2023 18:36	TMP	A
cis-1,3-Dichloropropene	5.0 U	U	ug/L	5.0	SW846 8260D	5	06/01/2023 18:36	TMP	A
Dibromomethane	5.0 U	U	ug/L	5.0	SW846 8260D	5	06/01/2023 18:36	TMP	A
Dichlorodifluoromethane	5.0 U	U	ug/L	5.0	SW846 8260D	5	06/01/2023 18:36	TMP	A
Diisopropyl ether	5.0 U	U	ug/L	5.0	SW846 8260D	5	06/01/2023 18:36	TMP	A
Ethylbenzene	5.0 U	U	ug/L	5.0	SW846 8260D	5	06/01/2023 18:36	TMP	A
Hexachlorobutadiene	25.0 U	U	ug/L	25.0	SW846 8260D	5	06/01/2023 18:36	TMP	A
Methyl t-Butyl Ether	5.0 U	U	ug/L	5.0	SW846 8260D	5	06/01/2023 18:36	TMP	A
Methylene Chloride	5.0 U	U	ug/L	5.0	SW846 8260D	5	06/01/2023 18:36	TMP	A
mp-Xylene	10.0 U	U	ug/L	10.0	SW846 8260D	5	06/01/2023 18:36	TMP	A
Naphthalene	10.0 U	U	ug/L	10.0	SW846 8260D	5	06/01/2023 18:36	TMP	A
o-Chlorotoluene	5.0 U	U	ug/L	5.0	SW846 8260D	5	06/01/2023 18:36	TMP	A
o-Xylene	5.0 U	U	ug/L	5.0	SW846 8260D	5	06/01/2023 18:36	TMP	A
p-Chlorotoluene	5.0 U	U	ug/L	5.0	SW846 8260D	5	06/01/2023 18:36	TMP	A
p-Isopropyltoluene	5.0 U	U	ug/L	5.0	SW846 8260D	5	06/01/2023 18:36	TMP	A
Styrene	5.0 U	U	ug/L	5.0	SW846 8260D	5	06/01/2023 18:36	TMP	A
Tetrachloroethene	5.0 U	U	ug/L	5.0	SW846 8260D	5	06/01/2023 18:36	TMP	A
Toluene	5.0 U	U	ug/L	5.0	SW846 8260D	5	06/01/2023 18:36	TMP	A
Total Xylenes	15.0 U	U	ug/L	15.0	SW846 8260D	5	06/01/2023 18:36	TMP	A
trans-1,2-Dichloroethene	5.0 U	U	ug/L	5.0	SW846 8260D	5	06/01/2023 18:36	TMP	A
trans-1,3-Dichloropropene	5.0 U	U	ug/L	5.0	SW846 8260D	5	06/01/2023 18:36	TMP	A
Trichloroethene	5.0 U	U	ug/L	5.0	SW846 8260D	5	06/01/2023 18:36	TMP	A
Trichlorofluoromethane	5.0 U	U,2	ug/L	5.0	SW846 8260D	5	06/01/2023 18:36	TMP	A
Vinyl Acetate	25.0 U	U	ug/L	25.0	SW846 8260D	5	06/01/2023 18:36	TMP	A
Vinyl Chloride	5.0 U	U	ug/L	5.0	SW846 8260D	5	06/01/2023 18:36	TMP	A

SURROGATES

Compound	CAS No	Recovery	Limits(%)	Analysis Date/Time	Qualifiers
1,2-Dichloroethane-d4	17060-07-0	102%	62 – 133	06/01/2023 18:36	
4-Bromofluorobenzene	460-00-4	97%	79 – 114	06/01/2023 18:36	
Dibromofluoromethane	1868-53-7	96%	78 – 116	06/01/2023 18:36	
Toluene-d8	2037-26-5	97.9%	76 – 127	06/01/2023 18:36	

Results

Client Sample ID	MW-20	Collected	05/21/2023 15:35
Lab Sample ID	3304367004	Lab Receipt	05/22/2023 18:15

SEMIVOLATILE SIM

Compound	Result	Flag	Units	RDL	Method	Dilution	Analysis Date/Time	By	Cntr
1,4-Dioxane	407		ug/L	100	SW846 8270E SIM	100	05/27/2023 02:24	M1O	C

SURROGATES

Compound	CAS No	Recovery	Limits(%)	Analysis Date/Time	Qualifiers
2-Methylnapthalene-d10	7297-45-2	74%	29 – 112	05/26/2023 08:33	
2-Methylnapthalene-d10	7297-45-2	0*%	29 – 112	05/27/2023 02:24	3
Fluoranthene-d10	93951-69-0	85.4%	45 – 130	05/26/2023 08:33	
Fluoranthene-d10	93951-69-0	0*%	45 – 130	05/27/2023 02:24	4

VOLATILE ORGANICS

Compound	Result	Flag	Units	RDL	Method	Dilution	Analysis Date/Time	By	Cntr
1,1,1,2-Tetrachloroethane	5.0 U	U	ug/L	5.0	SW846 8260D	5	06/01/2023 18:59	TMP	A
1,1,1-Trichloroethane	5.0 U	U	ug/L	5.0	SW846 8260D	5	06/01/2023 18:59	TMP	A
1,1,2,2-Tetrachloroethane	5.0 U	U	ug/L	5.0	SW846 8260D	5	06/01/2023 18:59	TMP	A
1,1,2-Trichloroethane	5.0 U	U	ug/L	5.0	SW846 8260D	5	06/01/2023 18:59	TMP	A
1,1-Dichloroethane	252		ug/L	5.0	SW846 8260D	5	06/01/2023 18:59	TMP	A
1,1-Dichloroethene	307		ug/L	5.0	SW846 8260D	5	06/01/2023 18:59	TMP	A
1,1-Dichloropropene	5.0 U	U	ug/L	5.0	SW846 8260D	5	06/01/2023 18:59	TMP	A
1,2,3-Trichlorobenzene	10.0 U	U	ug/L	10.0	SW846 8260D	5	06/01/2023 18:59	TMP	A
1,2,3-Trichloropropane	10.0 U	U	ug/L	10.0	SW846 8260D	5	06/01/2023 18:59	TMP	A
1,2,4-Trichlorobenzene	10.0 U	U	ug/L	10.0	SW846 8260D	5	06/01/2023 18:59	TMP	A
1,2-Dibromo-3-chloropropane	35.0 U	U	ug/L	35.0	SW846 8260D	5	06/01/2023 18:59	TMP	A
1,2-Dibromoethane	5.0 U	U	ug/L	5.0	SW846 8260D	5	06/01/2023 18:59	TMP	A
1,2-Dichlorobenzene	5.0 U	U	ug/L	5.0	SW846 8260D	5	06/01/2023 18:59	TMP	A
1,2-Dichloroethane	8.9		ug/L	5.0	SW846 8260D	5	06/01/2023 18:59	TMP	A
1,2-Dichloropropane	5.0 U	U	ug/L	5.0	SW846 8260D	5	06/01/2023 18:59	TMP	A
1,3-Dichlorobenzene	5.0 U	U	ug/L	5.0	SW846 8260D	5	06/01/2023 18:59	TMP	A
1,3-Dichloropropane	5.0 U	U	ug/L	5.0	SW846 8260D	5	06/01/2023 18:59	TMP	A
1,4-Dichlorobenzene	5.0 U	U	ug/L	5.0	SW846 8260D	5	06/01/2023 18:59	TMP	A
2,2-Dichloropropane	5.0 U	U	ug/L	5.0	SW846 8260D	5	06/01/2023 18:59	TMP	A
2-Butanone	50.0 U	U	ug/L	50.0	SW846 8260D	5	06/01/2023 18:59	TMP	A
2-Hexanone	25.0 U	U	ug/L	25.0	SW846 8260D	5	06/01/2023 18:59	TMP	A
4-Methyl-2-Pentanone(MIBK)	25.0 U	U	ug/L	25.0	SW846 8260D	5	06/01/2023 18:59	TMP	A
Acetone	50.0 U	U	ug/L	50.0	SW846 8260D	5	06/01/2023 18:59	TMP	A
Benzene	5.0 U	U	ug/L	5.0	SW846 8260D	5	06/01/2023 18:59	TMP	A
Bromobenzene	5.0 U	U	ug/L	5.0	SW846 8260D	5	06/01/2023 18:59	TMP	A
Bromochloromethane	5.0 U	U	ug/L	5.0	SW846 8260D	5	06/01/2023 18:59	TMP	A
Bromodichloromethane	5.0 U	U	ug/L	5.0	SW846 8260D	5	06/01/2023 18:59	TMP	A
Bromoform	5.0 U	U	ug/L	5.0	SW846 8260D	5	06/01/2023 18:59	TMP	A
Bromomethane	5.0 U	U	ug/L	5.0	SW846 8260D	5	06/01/2023 18:59	TMP	A
Carbon Tetrachloride	5.0 U	U	ug/L	5.0	SW846 8260D	5	06/01/2023 18:59	TMP	A
Chlorobenzene	5.0 U	U	ug/L	5.0	SW846 8260D	5	06/01/2023 18:59	TMP	A
Chlorodibromomethane	5.0 U	U	ug/L	5.0	SW846 8260D	5	06/01/2023 18:59	TMP	A
Chloroethane	5.0 U	U,1	ug/L	5.0	SW846 8260D	5	06/01/2023 18:59	TMP	A

Results

Client Sample ID	MW-20	Collected	05/21/2023 15:35
Lab Sample ID	3304367004	Lab Receipt	05/22/2023 18:15

VOLATILE ORGANICS (cont.)

Compound	Result	Flag	Units	RDL	Method	Dilution	Analysis Date/Time	By	Cntr
Chloroform	5.0 U	U	ug/L	5.0	SW846 8260D	5	06/01/2023 18:59	TMP	A
Chloromethane	5.0 U	U	ug/L	5.0	SW846 8260D	5	06/01/2023 18:59	TMP	A
cis-1,2-Dichloroethene	5.0 U	U	ug/L	5.0	SW846 8260D	5	06/01/2023 18:59	TMP	A
cis-1,3-Dichloropropene	5.0 U	U	ug/L	5.0	SW846 8260D	5	06/01/2023 18:59	TMP	A
Dibromomethane	5.0 U	U	ug/L	5.0	SW846 8260D	5	06/01/2023 18:59	TMP	A
Dichlorodifluoromethane	5.0 U	U	ug/L	5.0	SW846 8260D	5	06/01/2023 18:59	TMP	A
Diisopropyl ether	5.0 U	U	ug/L	5.0	SW846 8260D	5	06/01/2023 18:59	TMP	A
Ethylbenzene	5.0 U	U	ug/L	5.0	SW846 8260D	5	06/01/2023 18:59	TMP	A
Hexachlorobutadiene	25.0 U	U	ug/L	25.0	SW846 8260D	5	06/01/2023 18:59	TMP	A
Methyl t-Butyl Ether	5.0 U	U	ug/L	5.0	SW846 8260D	5	06/01/2023 18:59	TMP	A
Methylene Chloride	5.0 U	U	ug/L	5.0	SW846 8260D	5	06/01/2023 18:59	TMP	A
mp-Xylene	10.0 U	U	ug/L	10.0	SW846 8260D	5	06/01/2023 18:59	TMP	A
Naphthalene	10.0 U	U	ug/L	10.0	SW846 8260D	5	06/01/2023 18:59	TMP	A
o-Chlorotoluene	5.0 U	U	ug/L	5.0	SW846 8260D	5	06/01/2023 18:59	TMP	A
o-Xylene	5.0 U	U	ug/L	5.0	SW846 8260D	5	06/01/2023 18:59	TMP	A
p-Chlorotoluene	5.0 U	U	ug/L	5.0	SW846 8260D	5	06/01/2023 18:59	TMP	A
p-Isopropyltoluene	5.0 U	U	ug/L	5.0	SW846 8260D	5	06/01/2023 18:59	TMP	A
Styrene	5.0 U	U	ug/L	5.0	SW846 8260D	5	06/01/2023 18:59	TMP	A
Tetrachloroethene	5.0 U	U	ug/L	5.0	SW846 8260D	5	06/01/2023 18:59	TMP	A
Toluene	5.0 U	U	ug/L	5.0	SW846 8260D	5	06/01/2023 18:59	TMP	A
Total Xylenes	15.0 U	U	ug/L	15.0	SW846 8260D	5	06/01/2023 18:59	TMP	A
trans-1,2-Dichloroethene	5.0 U	U	ug/L	5.0	SW846 8260D	5	06/01/2023 18:59	TMP	A
trans-1,3-Dichloropropene	5.0 U	U	ug/L	5.0	SW846 8260D	5	06/01/2023 18:59	TMP	A
Trichloroethene	5.0 U	U	ug/L	5.0	SW846 8260D	5	06/01/2023 18:59	TMP	A
Trichlorofluoromethane	5.0 U	U,2	ug/L	5.0	SW846 8260D	5	06/01/2023 18:59	TMP	A
Vinyl Acetate	25.0 U	U	ug/L	25.0	SW846 8260D	5	06/01/2023 18:59	TMP	A
Vinyl Chloride	5.0 U	U	ug/L	5.0	SW846 8260D	5	06/01/2023 18:59	TMP	A

SURROGATES

Compound	CAS No	Recovery	Limits(%)	Analysis Date/Time	Qualifiers
1,2-Dichloroethane-d4	17060-07-0	101%	62 – 133	06/01/2023 18:59	
4-Bromofluorobenzene	460-00-4	97.4%	79 – 114	06/01/2023 18:59	
Dibromofluoromethane	1868-53-7	95.6%	78 – 116	06/01/2023 18:59	
Toluene-d8	2037-26-5	98.9%	76 – 127	06/01/2023 18:59	

Results

Client Sample ID	MW-09	Collected	05/21/2023 15:55
Lab Sample ID	3304367005	Lab Receipt	05/22/2023 18:15

SEMIVOLATILE SIM

Compound	Result	Flag	Units	RDL	Method	Dilution	Analysis Date/Time	By	Cntr
1,4-Dioxane	4.5	6	ug/L	1.4	SW846 8270E SIM	1	05/26/2023 09:00	M1O	C

SURROGATES

Compound	CAS No	Recovery	Limits(%)	Analysis Date/Time	Qualifiers
2-Methylnapthalene-d10	7297-45-2	70.1%	29 – 112	05/26/2023 09:00	
Fluoranthene-d10	93951-69-0	77.7%	45 – 130	05/26/2023 09:00	

VOLATILE ORGANICS

Compound	Result	Flag	Units	RDL	Method	Dilution	Analysis Date/Time	By	Cntr
1,1,1,2-Tetrachloroethane	1.0 U	U,5	ug/L	1.0	SW846 8260D	1	06/02/2023 13:33	TMP	A
1,1,1-Trichloroethane	1.0 U	U	ug/L	1.0	SW846 8260D	1	06/02/2023 13:33	TMP	A
1,1,2,2-Tetrachloroethane	1.0 U	U	ug/L	1.0	SW846 8260D	1	06/02/2023 13:33	TMP	A
1,1,2-Trichloroethane	1.0 U	U	ug/L	1.0	SW846 8260D	1	06/02/2023 13:33	TMP	A
1,1-Dichloroethane	1.9		ug/L	1.0	SW846 8260D	1	06/02/2023 13:33	TMP	A
1,1-Dichloroethene	36.0		ug/L	1.0	SW846 8260D	1	06/02/2023 13:33	TMP	A
1,1-Dichloropropene	1.0 U	U	ug/L	1.0	SW846 8260D	1	06/02/2023 13:33	TMP	A
1,2,3-Trichlorobenzene	2.0 U	U	ug/L	2.0	SW846 8260D	1	06/02/2023 13:33	TMP	A
1,2,3-Trichloropropane	2.0 U	U	ug/L	2.0	SW846 8260D	1	06/02/2023 13:33	TMP	A
1,2,4-Trichlorobenzene	2.0 U	U	ug/L	2.0	SW846 8260D	1	06/02/2023 13:33	TMP	A
1,2-Dibromo-3-chloropropane	7.0 U	U	ug/L	7.0	SW846 8260D	1	06/02/2023 13:33	TMP	A
1,2-Dibromoethane	1.0 U	U	ug/L	1.0	SW846 8260D	1	06/02/2023 13:33	TMP	A
1,2-Dichlorobenzene	1.0 U	U	ug/L	1.0	SW846 8260D	1	06/02/2023 13:33	TMP	A
1,2-Dichloroethane	1.0 U	U	ug/L	1.0	SW846 8260D	1	06/02/2023 13:33	TMP	A
1,2-Dichloropropane	1.0 U	U	ug/L	1.0	SW846 8260D	1	06/02/2023 13:33	TMP	A
1,3-Dichlorobenzene	1.0 U	U	ug/L	1.0	SW846 8260D	1	06/02/2023 13:33	TMP	A
1,3-Dichloropropane	1.0 U	U	ug/L	1.0	SW846 8260D	1	06/02/2023 13:33	TMP	A
1,4-Dichlorobenzene	1.0 U	U	ug/L	1.0	SW846 8260D	1	06/02/2023 13:33	TMP	A
2,2-Dichloropropane	1.0 U	U	ug/L	1.0	SW846 8260D	1	06/02/2023 13:33	TMP	A
2-Butanone	10.0 U	U	ug/L	10.0	SW846 8260D	1	06/02/2023 13:33	TMP	A
2-Hexanone	5.0 U	U	ug/L	5.0	SW846 8260D	1	06/02/2023 13:33	TMP	A
4-Methyl-2-Pentanone(MIBK)	5.0 U	U	ug/L	5.0	SW846 8260D	1	06/02/2023 13:33	TMP	A
Acetone	10.0 U	U	ug/L	10.0	SW846 8260D	1	06/02/2023 13:33	TMP	A
Benzene	1.0 U	U	ug/L	1.0	SW846 8260D	1	06/02/2023 13:33	TMP	A
Bromobenzene	1.0 U	U	ug/L	1.0	SW846 8260D	1	06/02/2023 13:33	TMP	A
Bromochloromethane	1.0 U	U	ug/L	1.0	SW846 8260D	1	06/02/2023 13:33	TMP	A
Bromodichloromethane	1.0 U	U	ug/L	1.0	SW846 8260D	1	06/02/2023 13:33	TMP	A
Bromoform	1.0 U	U	ug/L	1.0	SW846 8260D	1	06/02/2023 13:33	TMP	A
Bromomethane	1.0 U	U	ug/L	1.0	SW846 8260D	1	06/02/2023 13:33	TMP	A
Carbon Tetrachloride	1.0 U	U	ug/L	1.0	SW846 8260D	1	06/02/2023 13:33	TMP	A
Chlorobenzene	1.0 U	U	ug/L	1.0	SW846 8260D	1	06/02/2023 13:33	TMP	A
Chlorodibromomethane	1.0 U	U	ug/L	1.0	SW846 8260D	1	06/02/2023 13:33	TMP	A
Chloroethane	1.0 U	U	ug/L	1.0	SW846 8260D	1	06/02/2023 13:33	TMP	A
Chloroform	1.0 U	U	ug/L	1.0	SW846 8260D	1	06/02/2023 13:33	TMP	A
Chloromethane	1.0 U	U	ug/L	1.0	SW846 8260D	1	06/02/2023 13:33	TMP	A

Results

Client Sample ID	MW-09	Collected	05/21/2023 15:55
Lab Sample ID	3304367005	Lab Receipt	05/22/2023 18:15

VOLATILE ORGANICS (cont.)

Compound	Result	Flag	Units	RDL	Method	Dilution	Analysis Date/Time	By	Cntr
cis-1,2-Dichloroethene	1.0 U	U	ug/L	1.0	SW846 8260D	1	06/02/2023 13:33	TMP	A
cis-1,3-Dichloropropene	1.0 U	U	ug/L	1.0	SW846 8260D	1	06/02/2023 13:33	TMP	A
Dibromomethane	1.0 U	U	ug/L	1.0	SW846 8260D	1	06/02/2023 13:33	TMP	A
Dichlorodifluoromethane	1.0 U	U	ug/L	1.0	SW846 8260D	1	06/02/2023 13:33	TMP	A
Diisopropyl ether	1.0 U	U	ug/L	1.0	SW846 8260D	1	06/02/2023 13:33	TMP	A
Ethylbenzene	1.0 U	U	ug/L	1.0	SW846 8260D	1	06/02/2023 13:33	TMP	A
Hexachlorobutadiene	5.0 U	U	ug/L	5.0	SW846 8260D	1	06/02/2023 13:33	TMP	A
Methyl t-Butyl Ether	1.0 U	U	ug/L	1.0	SW846 8260D	1	06/02/2023 13:33	TMP	A
Methylene Chloride	1.0 U	U	ug/L	1.0	SW846 8260D	1	06/02/2023 13:33	TMP	A
mp-Xylene	2.0 U	U	ug/L	2.0	SW846 8260D	1	06/02/2023 13:33	TMP	A
Naphthalene	2.0 U	U	ug/L	2.0	SW846 8260D	1	06/02/2023 13:33	TMP	A
o-Chlorotoluene	1.0 U	U	ug/L	1.0	SW846 8260D	1	06/02/2023 13:33	TMP	A
o-Xylene	1.0 U	U	ug/L	1.0	SW846 8260D	1	06/02/2023 13:33	TMP	A
p-Chlorotoluene	1.0 U	U	ug/L	1.0	SW846 8260D	1	06/02/2023 13:33	TMP	A
p-Isopropyltoluene	1.0 U	U	ug/L	1.0	SW846 8260D	1	06/02/2023 13:33	TMP	A
Styrene	1.0 U	U	ug/L	1.0	SW846 8260D	1	06/02/2023 13:33	TMP	A
Tetrachloroethene	1.0 U	U	ug/L	1.0	SW846 8260D	1	06/02/2023 13:33	TMP	A
Toluene	1.0 U	U	ug/L	1.0	SW846 8260D	1	06/02/2023 13:33	TMP	A
Total Xylenes	3.0 U	U	ug/L	3.0	SW846 8260D	1	06/02/2023 13:33	TMP	A
trans-1,2-Dichloroethene	1.0 U	U	ug/L	1.0	SW846 8260D	1	06/02/2023 13:33	TMP	A
trans-1,3-Dichloropropene	1.0 U	U	ug/L	1.0	SW846 8260D	1	06/02/2023 13:33	TMP	A
Trichloroethene	1.0 U	U	ug/L	1.0	SW846 8260D	1	06/02/2023 13:33	TMP	A
Trichlorofluoromethane	1.0 U	U	ug/L	1.0	SW846 8260D	1	06/02/2023 13:33	TMP	A
Vinyl Acetate	5.0 U	U	ug/L	5.0	SW846 8260D	1	06/02/2023 13:33	TMP	A
Vinyl Chloride	1.0 U	U	ug/L	1.0	SW846 8260D	1	06/02/2023 13:33	TMP	A

SURROGATES

Compound	CAS No	Recovery	Limits(%)	Analysis Date/Time	Qualifiers
1,2-Dichloroethane-d4	17060-07-0	102%	62 – 133	06/02/2023 13:33	
4-Bromofluorobenzene	460-00-4	99.5%	79 – 114	06/02/2023 13:33	
Dibromofluoromethane	1868-53-7	93.2%	78 – 116	06/02/2023 13:33	
Toluene-d8	2037-26-5	98.4%	76 – 127	06/02/2023 13:33	

Results

Client Sample ID	MW-23D	Collected	05/21/2023 16:10
Lab Sample ID	3304367006	Lab Receipt	05/22/2023 18:15

SEMIVOLATILE SIM

Compound	Result	Flag	Units	RDL	Method	Dilution	Analysis Date/Time	By	Cntr
1,4-Dioxane	27.0		ug/L	16.0	SW846 8270E SIM	10	05/27/2023 03:18	M1O	C

SURROGATES

Compound	CAS No	Recovery	Limits(%)	Analysis Date/Time	Qualifiers
2-Methylnapthalene-d10	7297-45-2	61.2%	29 – 112	05/26/2023 09:55	
2-Methylnapthalene-d10	7297-45-2	48.9%	29 – 112	05/27/2023 03:18	
Fluoranthene-d10	93951-69-0	63.3%	45 – 130	05/26/2023 09:55	
Fluoranthene-d10	93951-69-0	49.1%	45 – 130	05/27/2023 03:18	

VOLATILE ORGANICS

Compound	Result	Flag	Units	RDL	Method	Dilution	Analysis Date/Time	By	Cntr
1,1,1,2-Tetrachloroethane	1.0 U	U,5	ug/L	1.0	SW846 8260D	1	06/02/2023 13:56	TMP	A
1,1,1-Trichloroethane	8.3		ug/L	1.0	SW846 8260D	1	06/02/2023 13:56	TMP	A
1,1,2,2-Tetrachloroethane	1.0 U	U	ug/L	1.0	SW846 8260D	1	06/02/2023 13:56	TMP	A
1,1,2-Trichloroethane	1.0 U	U	ug/L	1.0	SW846 8260D	1	06/02/2023 13:56	TMP	A
1,1-Dichloroethane	32.4		ug/L	1.0	SW846 8260D	1	06/02/2023 13:56	TMP	A
1,1-Dichloroethene	116		ug/L	1.0	SW846 8260D	1	06/02/2023 13:56	TMP	A
1,1-Dichloropropene	1.0 U	U	ug/L	1.0	SW846 8260D	1	06/02/2023 13:56	TMP	A
1,2,3-Trichlorobenzene	2.0 U	U	ug/L	2.0	SW846 8260D	1	06/02/2023 13:56	TMP	A
1,2,3-Trichloropropane	2.0 U	U	ug/L	2.0	SW846 8260D	1	06/02/2023 13:56	TMP	A
1,2,4-Trichlorobenzene	2.0 U	U	ug/L	2.0	SW846 8260D	1	06/02/2023 13:56	TMP	A
1,2-Dibromo-3-chloropropane	7.0 U	U	ug/L	7.0	SW846 8260D	1	06/02/2023 13:56	TMP	A
1,2-Dibromoethane	1.0 U	U	ug/L	1.0	SW846 8260D	1	06/02/2023 13:56	TMP	A
1,2-Dichlorobenzene	1.0 U	U	ug/L	1.0	SW846 8260D	1	06/02/2023 13:56	TMP	A
1,2-Dichloroethane	1.4		ug/L	1.0	SW846 8260D	1	06/02/2023 13:56	TMP	A
1,2-Dichloropropane	1.0 U	U	ug/L	1.0	SW846 8260D	1	06/02/2023 13:56	TMP	A
1,3-Dichlorobenzene	1.0 U	U	ug/L	1.0	SW846 8260D	1	06/02/2023 13:56	TMP	A
1,3-Dichloropropane	1.0 U	U	ug/L	1.0	SW846 8260D	1	06/02/2023 13:56	TMP	A
1,4-Dichlorobenzene	1.0 U	U	ug/L	1.0	SW846 8260D	1	06/02/2023 13:56	TMP	A
2,2-Dichloropropane	1.0 U	U	ug/L	1.0	SW846 8260D	1	06/02/2023 13:56	TMP	A
2-Butanone	10.0 U	U	ug/L	10.0	SW846 8260D	1	06/02/2023 13:56	TMP	A
2-Hexanone	5.0 U	U	ug/L	5.0	SW846 8260D	1	06/02/2023 13:56	TMP	A
4-Methyl-2-Pentanone(MIBK)	5.0 U	U	ug/L	5.0	SW846 8260D	1	06/02/2023 13:56	TMP	A
Acetone	10.0 U	U	ug/L	10.0	SW846 8260D	1	06/02/2023 13:56	TMP	A
Benzene	1.0 U	U	ug/L	1.0	SW846 8260D	1	06/02/2023 13:56	TMP	A
Bromobenzene	1.0 U	U	ug/L	1.0	SW846 8260D	1	06/02/2023 13:56	TMP	A
Bromochloromethane	1.0 U	U	ug/L	1.0	SW846 8260D	1	06/02/2023 13:56	TMP	A
Bromodichloromethane	1.0 U	U	ug/L	1.0	SW846 8260D	1	06/02/2023 13:56	TMP	A
Bromoform	1.0 U	U	ug/L	1.0	SW846 8260D	1	06/02/2023 13:56	TMP	A
Bromomethane	1.0 U	U	ug/L	1.0	SW846 8260D	1	06/02/2023 13:56	TMP	A
Carbon Tetrachloride	1.0 U	U	ug/L	1.0	SW846 8260D	1	06/02/2023 13:56	TMP	A
Chlorobenzene	1.0 U	U	ug/L	1.0	SW846 8260D	1	06/02/2023 13:56	TMP	A
Chlorodibromomethane	1.0 U	U	ug/L	1.0	SW846 8260D	1	06/02/2023 13:56	TMP	A
Chloroethane	1.0 U	U	ug/L	1.0	SW846 8260D	1	06/02/2023 13:56	TMP	A

Results

Client Sample ID	MW-23D	Collected	05/21/2023 16:10
Lab Sample ID	3304367006	Lab Receipt	05/22/2023 18:15

VOLATILE ORGANICS (cont.)

Compound	Result	Flag	Units	RDL	Method	Dilution	Analysis Date/Time	By	Cntr
Chloroform	1.0 U	U	ug/L	1.0	SW846 8260D	1	06/02/2023 13:56	TMP	A
Chloromethane	1.0 U	U	ug/L	1.0	SW846 8260D	1	06/02/2023 13:56	TMP	A
cis-1,2-Dichloroethene	1.0 U	U	ug/L	1.0	SW846 8260D	1	06/02/2023 13:56	TMP	A
cis-1,3-Dichloropropene	1.0 U	U	ug/L	1.0	SW846 8260D	1	06/02/2023 13:56	TMP	A
Dibromomethane	1.0 U	U	ug/L	1.0	SW846 8260D	1	06/02/2023 13:56	TMP	A
Dichlorodifluoromethane	1.0 U	U	ug/L	1.0	SW846 8260D	1	06/02/2023 13:56	TMP	A
Diisopropyl ether	1.0 U	U	ug/L	1.0	SW846 8260D	1	06/02/2023 13:56	TMP	A
Ethylbenzene	1.0 U	U	ug/L	1.0	SW846 8260D	1	06/02/2023 13:56	TMP	A
Hexachlorobutadiene	5.0 U	U	ug/L	5.0	SW846 8260D	1	06/02/2023 13:56	TMP	A
Methyl t-Butyl Ether	1.0 U	U	ug/L	1.0	SW846 8260D	1	06/02/2023 13:56	TMP	A
Methylene Chloride	1.0 U	U	ug/L	1.0	SW846 8260D	1	06/02/2023 13:56	TMP	A
mp-Xylene	2.0 U	U	ug/L	2.0	SW846 8260D	1	06/02/2023 13:56	TMP	A
Naphthalene	2.0 U	U	ug/L	2.0	SW846 8260D	1	06/02/2023 13:56	TMP	A
o-Chlorotoluene	1.0 U	U	ug/L	1.0	SW846 8260D	1	06/02/2023 13:56	TMP	A
o-Xylene	1.0 U	U	ug/L	1.0	SW846 8260D	1	06/02/2023 13:56	TMP	A
p-Chlorotoluene	1.0 U	U	ug/L	1.0	SW846 8260D	1	06/02/2023 13:56	TMP	A
p-Isopropyltoluene	1.0 U	U	ug/L	1.0	SW846 8260D	1	06/02/2023 13:56	TMP	A
Styrene	1.0 U	U	ug/L	1.0	SW846 8260D	1	06/02/2023 13:56	TMP	A
Tetrachloroethene	1.0 U	U	ug/L	1.0	SW846 8260D	1	06/02/2023 13:56	TMP	A
Toluene	1.0 U	U	ug/L	1.0	SW846 8260D	1	06/02/2023 13:56	TMP	A
Total Xylenes	3.0 U	U	ug/L	3.0	SW846 8260D	1	06/02/2023 13:56	TMP	A
trans-1,2-Dichloroethene	1.0 U	U	ug/L	1.0	SW846 8260D	1	06/02/2023 13:56	TMP	A
trans-1,3-Dichloropropene	1.0 U	U	ug/L	1.0	SW846 8260D	1	06/02/2023 13:56	TMP	A
Trichloroethene	1.0 U	U	ug/L	1.0	SW846 8260D	1	06/02/2023 13:56	TMP	A
Trichlorofluoromethane	1.0 U	U	ug/L	1.0	SW846 8260D	1	06/02/2023 13:56	TMP	A
Vinyl Acetate	5.0 U	U	ug/L	5.0	SW846 8260D	1	06/02/2023 13:56	TMP	A
Vinyl Chloride	1.0 U	U	ug/L	1.0	SW846 8260D	1	06/02/2023 13:56	TMP	A

SURROGATES

Compound	CAS No	Recovery	Limits(%)	Analysis Date/Time	Qualifiers
1,2-Dichloroethane-d4	17060-07-0	102%	62 – 133	06/02/2023 13:56	
4-Bromofluorobenzene	460-00-4	98.3%	79 – 114	06/02/2023 13:56	
Dibromofluoromethane	1868-53-7	97.5%	78 – 116	06/02/2023 13:56	
Toluene-d8	2037-26-5	97.2%	76 – 127	06/02/2023 13:56	

Results

Client Sample ID	MW-46D	Collected	05/21/2023 16:25
Lab Sample ID	3304367007	Lab Receipt	05/22/2023 18:15

SEMIVOLATILE SIM

Compound	Result	Flag	Units	RDL	Method	Dilution	Analysis Date/Time	By	Cntr
1,4-Dioxane	1.0 U	U	ug/L	1.0	SW846 8270E SIM	1	05/26/2023 10:49	M1O	C

SURROGATES

Compound	CAS No	Recovery	Limits(%)	Analysis Date/Time	Qualifiers
2-Methylnapthalene-d10	7297-45-2	59.2%	29 – 112	05/26/2023 10:49	
Fluoranthene-d10	93951-69-0	82.4%	45 – 130	05/26/2023 10:49	

VOLATILE ORGANICS

Compound	Result	Flag	Units	RDL	Method	Dilution	Analysis Date/Time	By	Cntr
1,1,1,2-Tetrachloroethane	1.0 U	U,5	ug/L	1.0	SW846 8260D	1	06/02/2023 14:19	TMP	A
1,1,1-Trichloroethane	1.0 U	U	ug/L	1.0	SW846 8260D	1	06/02/2023 14:19	TMP	A
1,1,2,2-Tetrachloroethane	1.0 U	U	ug/L	1.0	SW846 8260D	1	06/02/2023 14:19	TMP	A
1,1,2-Trichloroethane	1.0 U	U	ug/L	1.0	SW846 8260D	1	06/02/2023 14:19	TMP	A
1,1-Dichloroethane	1.2		ug/L	1.0	SW846 8260D	1	06/02/2023 14:19	TMP	A
1,1-Dichloroethene	19.2		ug/L	1.0	SW846 8260D	1	06/02/2023 14:19	TMP	A
1,1-Dichloropropene	1.0 U	U	ug/L	1.0	SW846 8260D	1	06/02/2023 14:19	TMP	A
1,2,3-Trichlorobenzene	2.0 U	U	ug/L	2.0	SW846 8260D	1	06/02/2023 14:19	TMP	A
1,2,3-Trichloropropane	2.0 U	U	ug/L	2.0	SW846 8260D	1	06/02/2023 14:19	TMP	A
1,2,4-Trichlorobenzene	2.0 U	U	ug/L	2.0	SW846 8260D	1	06/02/2023 14:19	TMP	A
1,2-Dibromo-3-chloropropane	7.0 U	U	ug/L	7.0	SW846 8260D	1	06/02/2023 14:19	TMP	A
1,2-Dibromoethane	1.0 U	U	ug/L	1.0	SW846 8260D	1	06/02/2023 14:19	TMP	A
1,2-Dichlorobenzene	1.0 U	U	ug/L	1.0	SW846 8260D	1	06/02/2023 14:19	TMP	A
1,2-Dichloroethane	1.0 U	U	ug/L	1.0	SW846 8260D	1	06/02/2023 14:19	TMP	A
1,2-Dichloropropane	1.0 U	U	ug/L	1.0	SW846 8260D	1	06/02/2023 14:19	TMP	A
1,3-Dichlorobenzene	1.0 U	U	ug/L	1.0	SW846 8260D	1	06/02/2023 14:19	TMP	A
1,3-Dichloropropane	1.0 U	U	ug/L	1.0	SW846 8260D	1	06/02/2023 14:19	TMP	A
1,4-Dichlorobenzene	1.0 U	U	ug/L	1.0	SW846 8260D	1	06/02/2023 14:19	TMP	A
2,2-Dichloropropane	1.0 U	U	ug/L	1.0	SW846 8260D	1	06/02/2023 14:19	TMP	A
2-Butanone	10.0 U	U	ug/L	10.0	SW846 8260D	1	06/02/2023 14:19	TMP	A
2-Hexanone	5.0 U	U	ug/L	5.0	SW846 8260D	1	06/02/2023 14:19	TMP	A
4-Methyl-2-Pentanone(MIBK)	5.0 U	U	ug/L	5.0	SW846 8260D	1	06/02/2023 14:19	TMP	A
Acetone	10.0 U	U	ug/L	10.0	SW846 8260D	1	06/02/2023 14:19	TMP	A
Benzene	1.0 U	U	ug/L	1.0	SW846 8260D	1	06/02/2023 14:19	TMP	A
Bromobenzene	1.0 U	U	ug/L	1.0	SW846 8260D	1	06/02/2023 14:19	TMP	A
Bromochloromethane	1.0 U	U	ug/L	1.0	SW846 8260D	1	06/02/2023 14:19	TMP	A
Bromodichloromethane	1.0 U	U	ug/L	1.0	SW846 8260D	1	06/02/2023 14:19	TMP	A
Bromoform	1.0 U	U	ug/L	1.0	SW846 8260D	1	06/02/2023 14:19	TMP	A
Bromomethane	1.0 U	U	ug/L	1.0	SW846 8260D	1	06/02/2023 14:19	TMP	A
Carbon Tetrachloride	1.0 U	U	ug/L	1.0	SW846 8260D	1	06/02/2023 14:19	TMP	A
Chlorobenzene	1.0 U	U	ug/L	1.0	SW846 8260D	1	06/02/2023 14:19	TMP	A
Chlorodibromomethane	1.0 U	U	ug/L	1.0	SW846 8260D	1	06/02/2023 14:19	TMP	A
Chloroethane	1.0 U	U	ug/L	1.0	SW846 8260D	1	06/02/2023 14:19	TMP	A
Chloroform	1.0 U	U	ug/L	1.0	SW846 8260D	1	06/02/2023 14:19	TMP	A
Chloromethane	1.0 U	U	ug/L	1.0	SW846 8260D	1	06/02/2023 14:19	TMP	A

Results

Client Sample ID	MW-46D	Collected	05/21/2023 16:25
Lab Sample ID	3304367007	Lab Receipt	05/22/2023 18:15

VOLATILE ORGANICS (cont.)

Compound	Result	Flag	Units	RDL	Method	Dilution	Analysis Date/Time	By	Cntr
cis-1,2-Dichloroethene	1.0 U	U	ug/L	1.0	SW846 8260D	1	06/02/2023 14:19	TMP	A
cis-1,3-Dichloropropene	1.0 U	U	ug/L	1.0	SW846 8260D	1	06/02/2023 14:19	TMP	A
Dibromomethane	1.0 U	U	ug/L	1.0	SW846 8260D	1	06/02/2023 14:19	TMP	A
Dichlorodifluoromethane	1.0 U	U	ug/L	1.0	SW846 8260D	1	06/02/2023 14:19	TMP	A
Diisopropyl ether	1.0 U	U	ug/L	1.0	SW846 8260D	1	06/02/2023 14:19	TMP	A
Ethylbenzene	1.0 U	U	ug/L	1.0	SW846 8260D	1	06/02/2023 14:19	TMP	A
Hexachlorobutadiene	5.0 U	U	ug/L	5.0	SW846 8260D	1	06/02/2023 14:19	TMP	A
Methyl t-Butyl Ether	1.0 U	U	ug/L	1.0	SW846 8260D	1	06/02/2023 14:19	TMP	A
Methylene Chloride	1.0 U	U	ug/L	1.0	SW846 8260D	1	06/02/2023 14:19	TMP	A
mp-Xylene	2.0 U	U	ug/L	2.0	SW846 8260D	1	06/02/2023 14:19	TMP	A
Naphthalene	2.0 U	U	ug/L	2.0	SW846 8260D	1	06/02/2023 14:19	TMP	A
o-Chlorotoluene	1.0 U	U	ug/L	1.0	SW846 8260D	1	06/02/2023 14:19	TMP	A
o-Xylene	1.0 U	U	ug/L	1.0	SW846 8260D	1	06/02/2023 14:19	TMP	A
p-Chlorotoluene	1.0 U	U	ug/L	1.0	SW846 8260D	1	06/02/2023 14:19	TMP	A
p-Isopropyltoluene	1.0 U	U	ug/L	1.0	SW846 8260D	1	06/02/2023 14:19	TMP	A
Styrene	1.0 U	U	ug/L	1.0	SW846 8260D	1	06/02/2023 14:19	TMP	A
Tetrachloroethene	1.0 U	U	ug/L	1.0	SW846 8260D	1	06/02/2023 14:19	TMP	A
Toluene	1.0 U	U	ug/L	1.0	SW846 8260D	1	06/02/2023 14:19	TMP	A
Total Xylenes	3.0 U	U	ug/L	3.0	SW846 8260D	1	06/02/2023 14:19	TMP	A
trans-1,2-Dichloroethene	1.0 U	U	ug/L	1.0	SW846 8260D	1	06/02/2023 14:19	TMP	A
trans-1,3-Dichloropropene	1.0 U	U	ug/L	1.0	SW846 8260D	1	06/02/2023 14:19	TMP	A
Trichloroethene	1.0 U	U	ug/L	1.0	SW846 8260D	1	06/02/2023 14:19	TMP	A
Trichlorofluoromethane	1.0 U	U	ug/L	1.0	SW846 8260D	1	06/02/2023 14:19	TMP	A
Vinyl Acetate	5.0 U	U	ug/L	5.0	SW846 8260D	1	06/02/2023 14:19	TMP	A
Vinyl Chloride	1.0 U	U	ug/L	1.0	SW846 8260D	1	06/02/2023 14:19	TMP	A

SURROGATES

Compound	CAS No	Recovery	Limits(%)	Analysis Date/Time	Qualifiers
1,2-Dichloroethane-d4	17060-07-0	102%	62 – 133	06/02/2023 14:19	
4-Bromofluorobenzene	460-00-4	98.9%	79 – 114	06/02/2023 14:19	
Dibromofluoromethane	1868-53-7	96.2%	78 – 116	06/02/2023 14:19	
Toluene-d8	2037-26-5	98%	76 – 127	06/02/2023 14:19	

Results

Client Sample ID	MW-16	Collected	05/21/2023 16:50
Lab Sample ID	3304367008	Lab Receipt	05/22/2023 18:15

SEMIVOLATILE SIM

Compound	Result	Flag	Units	RDL	Method	Dilution	Analysis Date/Time	By	Cntr
1,4-Dioxane	89.5		ug/L	10.0	SW846 8270E SIM	10	05/27/2023 05:05	M1O	C

SURROGATES

Compound	CAS No	Recovery	Limits(%)	Analysis Date/Time	Qualifiers
2-Methylnapthalene-d10	7297-45-2	61.8%	29 – 112	05/26/2023 11:16	
2-Methylnapthalene-d10	7297-45-2	50.2%	29 – 112	05/27/2023 05:05	
Fluoranthene-d10	93951-69-0	70.7%	45 – 130	05/26/2023 11:16	
Fluoranthene-d10	93951-69-0	52.8%	45 – 130	05/27/2023 05:05	

VOLATILE ORGANICS

Compound	Result	Flag	Units	RDL	Method	Dilution	Analysis Date/Time	By	Cntr
1,1,1,2-Tetrachloroethane	1.0 U	U,5	ug/L	1.0	SW846 8260D	1	06/02/2023 19:18	TMP	A
1,1,1-Trichloroethane	2230	9	ug/L	50.0	SW846 8260D	50	06/07/2023 01:59	PDK	B
1,1,2,2-Tetrachloroethane	1.0 U	U	ug/L	1.0	SW846 8260D	1	06/02/2023 19:18	TMP	A
1,1,2-Trichloroethane	1.0 U	U	ug/L	1.0	SW846 8260D	1	06/02/2023 19:18	TMP	A
1,1-Dichloroethane	2230	7	ug/L	50.0	SW846 8260D	50	06/07/2023 01:59	PDK	B
1,1-Dichloroethene	2510	8	ug/L	50.0	SW846 8260D	50	06/07/2023 01:59	PDK	B
1,1-Dichloropropene	1.0 U	U	ug/L	1.0	SW846 8260D	1	06/02/2023 19:18	TMP	A
1,2,3-Trichlorobenzene	2.0 U	U	ug/L	2.0	SW846 8260D	1	06/02/2023 19:18	TMP	A
1,2,3-Trichloropropane	2.0 U	U	ug/L	2.0	SW846 8260D	1	06/02/2023 19:18	TMP	A
1,2,4-Trichlorobenzene	2.0 U	U	ug/L	2.0	SW846 8260D	1	06/02/2023 19:18	TMP	A
1,2-Dibromo-3-chloropropane	7.0 U	U	ug/L	7.0	SW846 8260D	1	06/02/2023 19:18	TMP	A
1,2-Dibromoethane	1.0 U	U	ug/L	1.0	SW846 8260D	1	06/02/2023 19:18	TMP	A
1,2-Dichlorobenzene	1.0 U	U	ug/L	1.0	SW846 8260D	1	06/02/2023 19:18	TMP	A
1,2-Dichloroethane	1.0 U	U	ug/L	1.0	SW846 8260D	1	06/02/2023 19:18	TMP	A
1,2-Dichloropropane	1.0 U	U	ug/L	1.0	SW846 8260D	1	06/02/2023 19:18	TMP	A
1,3-Dichlorobenzene	1.0 U	U	ug/L	1.0	SW846 8260D	1	06/02/2023 19:18	TMP	A
1,3-Dichloropropane	1.0 U	U	ug/L	1.0	SW846 8260D	1	06/02/2023 19:18	TMP	A
1,4-Dichlorobenzene	1.0 U	U	ug/L	1.0	SW846 8260D	1	06/02/2023 19:18	TMP	A
2,2-Dichloropropane	1.0 U	U	ug/L	1.0	SW846 8260D	1	06/02/2023 19:18	TMP	A
2-Butanone	10.0 U	U	ug/L	10.0	SW846 8260D	1	06/02/2023 19:18	TMP	A
2-Hexanone	5.0 U	U	ug/L	5.0	SW846 8260D	1	06/02/2023 19:18	TMP	A
4-Methyl-2-Pentanone(MIBK)	5.0 U	U	ug/L	5.0	SW846 8260D	1	06/02/2023 19:18	TMP	A
Acetone	12.3		ug/L	10.0	SW846 8260D	1	06/02/2023 19:18	TMP	A
Benzene	1.0 U	U	ug/L	1.0	SW846 8260D	1	06/02/2023 19:18	TMP	A
Bromobenzene	1.0 U	U	ug/L	1.0	SW846 8260D	1	06/02/2023 19:18	TMP	A
Bromochloromethane	1.0 U	U	ug/L	1.0	SW846 8260D	1	06/02/2023 19:18	TMP	A
Bromodichloromethane	1.0 U	U	ug/L	1.0	SW846 8260D	1	06/02/2023 19:18	TMP	A
Bromoform	1.0 U	U	ug/L	1.0	SW846 8260D	1	06/02/2023 19:18	TMP	A
Bromomethane	1.0 U	U	ug/L	1.0	SW846 8260D	1	06/02/2023 19:18	TMP	A
Carbon Tetrachloride	1.0 U	U	ug/L	1.0	SW846 8260D	1	06/02/2023 19:18	TMP	A
Chlorobenzene	1.0 U	U	ug/L	1.0	SW846 8260D	1	06/02/2023 19:18	TMP	A
Chlorodibromomethane	1.0 U	U	ug/L	1.0	SW846 8260D	1	06/02/2023 19:18	TMP	A
Chloroethane	96.1		ug/L	1.0	SW846 8260D	1	06/02/2023 19:18	TMP	A

Results

Client Sample ID	MW-16	Collected	05/21/2023 16:50
Lab Sample ID	3304367008	Lab Receipt	05/22/2023 18:15

VOLATILE ORGANICS (cont.)

Compound	Result	Flag	Units	RDL	Method	Dilution	Analysis Date/Time	By	Cntr
Chloroform	1.0 U	U	ug/L	1.0	SW846 8260D	1	06/02/2023 19:18	TMP	A
Chloromethane	1.0 U	U	ug/L	1.0	SW846 8260D	1	06/02/2023 19:18	TMP	A
cis-1,2-Dichloroethene	1.0 U	U	ug/L	1.0	SW846 8260D	1	06/02/2023 19:18	TMP	A
cis-1,3-Dichloropropene	1.0 U	U	ug/L	1.0	SW846 8260D	1	06/02/2023 19:18	TMP	A
Dibromomethane	1.0 U	U	ug/L	1.0	SW846 8260D	1	06/02/2023 19:18	TMP	A
Dichlorodifluoromethane	1.0 U	U	ug/L	1.0	SW846 8260D	1	06/02/2023 19:18	TMP	A
Diisopropyl ether	1.0 U	U	ug/L	1.0	SW846 8260D	1	06/02/2023 19:18	TMP	A
Ethylbenzene	1.3		ug/L	1.0	SW846 8260D	1	06/02/2023 19:18	TMP	A
Hexachlorobutadiene	5.0 U	U	ug/L	5.0	SW846 8260D	1	06/02/2023 19:18	TMP	A
Methyl t-Butyl Ether	1.0 U	U	ug/L	1.0	SW846 8260D	1	06/02/2023 19:18	TMP	A
Methylene Chloride	3.7		ug/L	1.0	SW846 8260D	1	06/02/2023 19:18	TMP	A
mp-Xylene	3.7		ug/L	2.0	SW846 8260D	1	06/02/2023 19:18	TMP	A
Naphthalene	2.0 U	U	ug/L	2.0	SW846 8260D	1	06/02/2023 19:18	TMP	A
o-Chlorotoluene	1.0 U	U	ug/L	1.0	SW846 8260D	1	06/02/2023 19:18	TMP	A
o-Xylene	1.9		ug/L	1.0	SW846 8260D	1	06/02/2023 19:18	TMP	A
p-Chlorotoluene	1.0 U	U	ug/L	1.0	SW846 8260D	1	06/02/2023 19:18	TMP	A
p-Isopropyltoluene	1.0 U	U	ug/L	1.0	SW846 8260D	1	06/02/2023 19:18	TMP	A
Styrene	1.0 U	U	ug/L	1.0	SW846 8260D	1	06/02/2023 19:18	TMP	A
Tetrachloroethene	6.3		ug/L	1.0	SW846 8260D	1	06/02/2023 19:18	TMP	A
Toluene	1.0 U	U	ug/L	1.0	SW846 8260D	1	06/02/2023 19:18	TMP	A
Total Xylenes	5.7		ug/L	3.0	SW846 8260D	1	06/02/2023 19:18	TMP	A
trans-1,2-Dichloroethene	1.0 U	U	ug/L	1.0	SW846 8260D	1	06/02/2023 19:18	TMP	A
trans-1,3-Dichloropropene	1.0 U	U	ug/L	1.0	SW846 8260D	1	06/02/2023 19:18	TMP	A
Trichloroethene	19.1		ug/L	1.0	SW846 8260D	1	06/02/2023 19:18	TMP	A
Trichlorofluoromethane	1.0 U	U	ug/L	1.0	SW846 8260D	1	06/02/2023 19:18	TMP	A
Vinyl Acetate	5.0 U	U	ug/L	5.0	SW846 8260D	1	06/02/2023 19:18	TMP	A
Vinyl Chloride	6.7		ug/L	1.0	SW846 8260D	1	06/02/2023 19:18	TMP	A

SURROGATES

Compound	CAS No	Recovery	Limits(%)	Analysis Date/Time	Qualifiers
1,2-Dichloroethane-d4	17060-07-0	111%	62 – 133	06/02/2023 19:18	
1,2-Dichloroethane-d4	17060-07-0	96.6%	62 – 133	06/07/2023 01:59	
4-Bromofluorobenzene	460-00-4	97.8%	79 – 114	06/02/2023 19:18	
4-Bromofluorobenzene	460-00-4	104%	79 – 114	06/07/2023 01:59	
Dibromofluoromethane	1868-53-7	116%	78 – 116	06/02/2023 19:18	
Dibromofluoromethane	1868-53-7	104%	78 – 116	06/07/2023 01:59	
Toluene-d8	2037-26-5	97.8%	76 – 127	06/02/2023 19:18	
Toluene-d8	2037-26-5	100%	76 – 127	06/07/2023 01:59	

Results

Client Sample ID	MW-16D	Collected	05/21/2023 17:05
Lab Sample ID	3304367009	Lab Receipt	05/22/2023 18:15

SEMIVOLATILE SIM

Compound	Result	Flag	Units	RDL	Method	Dilution	Analysis Date/Time	By	Cntr
1,4-Dioxane	36.1		ug/L	10.0	SW846 8270E SIM	10	05/27/2023 05:58	M1O	C

SURROGATES

Compound	CAS No	Recovery	Limits(%)	Analysis Date/Time	Qualifiers
2-Methylnapthalene-d10	7297-45-2	69.9%	29 – 112	05/26/2023 11:43	
2-Methylnapthalene-d10	7297-45-2	58.2%	29 – 112	05/27/2023 05:58	
Fluoranthene-d10	93951-69-0	65.2%	45 – 130	05/26/2023 11:43	
Fluoranthene-d10	93951-69-0	54.2%	45 – 130	05/27/2023 05:58	

VOLATILE ORGANICS

Compound	Result	Flag	Units	RDL	Method	Dilution	Analysis Date/Time	By	Cntr
1,1,1,2-Tetrachloroethane	1.0 U	U,5	ug/L	1.0	SW846 8260D	1	06/02/2023 14:42	TMP	A
1,1,1-Trichloroethane	6.5		ug/L	1.0	SW846 8260D	1	06/02/2023 14:42	TMP	A
1,1,2,2-Tetrachloroethane	1.0 U	U	ug/L	1.0	SW846 8260D	1	06/02/2023 14:42	TMP	A
1,1,2-Trichloroethane	1.0 U	U	ug/L	1.0	SW846 8260D	1	06/02/2023 14:42	TMP	A
1,1-Dichloroethane	24.8		ug/L	1.0	SW846 8260D	1	06/02/2023 14:42	TMP	A
1,1-Dichloroethene	111		ug/L	1.0	SW846 8260D	1	06/02/2023 14:42	TMP	A
1,1-Dichloropropene	1.0 U	U	ug/L	1.0	SW846 8260D	1	06/02/2023 14:42	TMP	A
1,2,3-Trichlorobenzene	2.0 U	U	ug/L	2.0	SW846 8260D	1	06/02/2023 14:42	TMP	A
1,2,3-Trichloropropane	2.0 U	U	ug/L	2.0	SW846 8260D	1	06/02/2023 14:42	TMP	A
1,2,4-Trichlorobenzene	2.0 U	U	ug/L	2.0	SW846 8260D	1	06/02/2023 14:42	TMP	A
1,2-Dibromo-3-chloropropane	7.0 U	U	ug/L	7.0	SW846 8260D	1	06/02/2023 14:42	TMP	A
1,2-Dibromoethane	1.0 U	U	ug/L	1.0	SW846 8260D	1	06/02/2023 14:42	TMP	A
1,2-Dichlorobenzene	1.0 U	U	ug/L	1.0	SW846 8260D	1	06/02/2023 14:42	TMP	A
1,2-Dichloroethane	1.4		ug/L	1.0	SW846 8260D	1	06/02/2023 14:42	TMP	A
1,2-Dichloropropane	1.0 U	U	ug/L	1.0	SW846 8260D	1	06/02/2023 14:42	TMP	A
1,3-Dichlorobenzene	1.0 U	U	ug/L	1.0	SW846 8260D	1	06/02/2023 14:42	TMP	A
1,3-Dichloropropane	1.0 U	U	ug/L	1.0	SW846 8260D	1	06/02/2023 14:42	TMP	A
1,4-Dichlorobenzene	1.0 U	U	ug/L	1.0	SW846 8260D	1	06/02/2023 14:42	TMP	A
2,2-Dichloropropane	1.0 U	U	ug/L	1.0	SW846 8260D	1	06/02/2023 14:42	TMP	A
2-Butanone	10.0 U	U	ug/L	10.0	SW846 8260D	1	06/02/2023 14:42	TMP	A
2-Hexanone	5.0 U	U	ug/L	5.0	SW846 8260D	1	06/02/2023 14:42	TMP	A
4-Methyl-2-Pentanone(MIBK)	5.0 U	U	ug/L	5.0	SW846 8260D	1	06/02/2023 14:42	TMP	A
Acetone	10.0 U	U	ug/L	10.0	SW846 8260D	1	06/02/2023 14:42	TMP	A
Benzene	1.0 U	U	ug/L	1.0	SW846 8260D	1	06/02/2023 14:42	TMP	A
Bromobenzene	1.0 U	U	ug/L	1.0	SW846 8260D	1	06/02/2023 14:42	TMP	A
Bromochloromethane	1.0 U	U	ug/L	1.0	SW846 8260D	1	06/02/2023 14:42	TMP	A
Bromodichloromethane	1.0 U	U	ug/L	1.0	SW846 8260D	1	06/02/2023 14:42	TMP	A
Bromoform	1.0 U	U	ug/L	1.0	SW846 8260D	1	06/02/2023 14:42	TMP	A
Bromomethane	1.0 U	U	ug/L	1.0	SW846 8260D	1	06/02/2023 14:42	TMP	A
Carbon Tetrachloride	1.0 U	U	ug/L	1.0	SW846 8260D	1	06/02/2023 14:42	TMP	A
Chlorobenzene	1.0 U	U	ug/L	1.0	SW846 8260D	1	06/02/2023 14:42	TMP	A
Chlorodibromomethane	1.0 U	U	ug/L	1.0	SW846 8260D	1	06/02/2023 14:42	TMP	A
Chloroethane	1.0 U	U	ug/L	1.0	SW846 8260D	1	06/02/2023 14:42	TMP	A

Results

Client Sample ID	MW-16D	Collected	05/21/2023 17:05
Lab Sample ID	3304367009	Lab Receipt	05/22/2023 18:15

VOLATILE ORGANICS (cont.)

Compound	Result	Flag	Units	RDL	Method	Dilution	Analysis Date/Time	By	Cntr
Chloroform	1.0 U	U	ug/L	1.0	SW846 8260D	1	06/02/2023 14:42	TMP	A
Chloromethane	1.0 U	U	ug/L	1.0	SW846 8260D	1	06/02/2023 14:42	TMP	A
cis-1,2-Dichloroethene	1.0 U	U	ug/L	1.0	SW846 8260D	1	06/02/2023 14:42	TMP	A
cis-1,3-Dichloropropene	1.0 U	U	ug/L	1.0	SW846 8260D	1	06/02/2023 14:42	TMP	A
Dibromomethane	1.0 U	U	ug/L	1.0	SW846 8260D	1	06/02/2023 14:42	TMP	A
Dichlorodifluoromethane	1.0 U	U	ug/L	1.0	SW846 8260D	1	06/02/2023 14:42	TMP	A
Diisopropyl ether	1.0 U	U	ug/L	1.0	SW846 8260D	1	06/02/2023 14:42	TMP	A
Ethylbenzene	1.0 U	U	ug/L	1.0	SW846 8260D	1	06/02/2023 14:42	TMP	A
Hexachlorobutadiene	5.0 U	U	ug/L	5.0	SW846 8260D	1	06/02/2023 14:42	TMP	A
Methyl t-Butyl Ether	1.0 U	U	ug/L	1.0	SW846 8260D	1	06/02/2023 14:42	TMP	A
Methylene Chloride	1.0 U	U	ug/L	1.0	SW846 8260D	1	06/02/2023 14:42	TMP	A
mp-Xylene	2.0 U	U	ug/L	2.0	SW846 8260D	1	06/02/2023 14:42	TMP	A
Naphthalene	2.0 U	U	ug/L	2.0	SW846 8260D	1	06/02/2023 14:42	TMP	A
o-Chlorotoluene	1.0 U	U	ug/L	1.0	SW846 8260D	1	06/02/2023 14:42	TMP	A
o-Xylene	1.0 U	U	ug/L	1.0	SW846 8260D	1	06/02/2023 14:42	TMP	A
p-Chlorotoluene	1.0 U	U	ug/L	1.0	SW846 8260D	1	06/02/2023 14:42	TMP	A
p-Isopropyltoluene	1.0 U	U	ug/L	1.0	SW846 8260D	1	06/02/2023 14:42	TMP	A
Styrene	1.0 U	U	ug/L	1.0	SW846 8260D	1	06/02/2023 14:42	TMP	A
Tetrachloroethene	1.0 U	U	ug/L	1.0	SW846 8260D	1	06/02/2023 14:42	TMP	A
Toluene	1.0 U	U	ug/L	1.0	SW846 8260D	1	06/02/2023 14:42	TMP	A
Total Xylenes	3.0 U	U	ug/L	3.0	SW846 8260D	1	06/02/2023 14:42	TMP	A
trans-1,2-Dichloroethene	1.0 U	U	ug/L	1.0	SW846 8260D	1	06/02/2023 14:42	TMP	A
trans-1,3-Dichloropropene	1.0 U	U	ug/L	1.0	SW846 8260D	1	06/02/2023 14:42	TMP	A
Trichloroethene	1.0 U	U	ug/L	1.0	SW846 8260D	1	06/02/2023 14:42	TMP	A
Trichlorofluoromethane	1.0 U	U	ug/L	1.0	SW846 8260D	1	06/02/2023 14:42	TMP	A
Vinyl Acetate	5.0 U	U	ug/L	5.0	SW846 8260D	1	06/02/2023 14:42	TMP	A
Vinyl Chloride	1.0 U	U	ug/L	1.0	SW846 8260D	1	06/02/2023 14:42	TMP	A

SURROGATES

Compound	CAS No	Recovery	Limits(%)	Analysis Date/Time	Qualifiers
1,2-Dichloroethane-d4	17060-07-0	103%	62 – 133	06/02/2023 14:42	
4-Bromofluorobenzene	460-00-4	98.4%	79 – 114	06/02/2023 14:42	
Dibromofluoromethane	1868-53-7	96.9%	78 – 116	06/02/2023 14:42	
Toluene-d8	2037-26-5	97.2%	76 – 127	06/02/2023 14:42	

Results

Client Sample ID	DUP-052123	Collected	05/21/2023 13:00
Lab Sample ID	3304367010	Lab Receipt	05/22/2023 18:15

SEMIVOLATILE SIM

Compound	Result	Flag	Units	RDL	Method	Dilution	Analysis Date/Time	By	Cntr
1,4-Dioxane	21.3		ug/L	10.0	SW846 8270E SIM	10	05/27/2023 06:52	M1O	C

SURROGATES

Compound	CAS No	Recovery	Limits(%)	Analysis Date/Time	Qualifiers
2-Methylnapthalene-d10	7297-45-2	57%	29 – 112	05/26/2023 12:11	
2-Methylnapthalene-d10	7297-45-2	41.6%	29 – 112	05/27/2023 06:52	
Fluoranthene-d10	93951-69-0	56.9%	45 – 130	05/26/2023 12:11	
Fluoranthene-d10	93951-69-0	40.6*%	45 – 130	05/27/2023 06:52	11

VOLATILE ORGANICS

Compound	Result	Flag	Units	RDL	Method	Dilution	Analysis Date/Time	By	Cntr
1,1,1,2-Tetrachloroethane	1.0 U	U,5	ug/L	1.0	SW846 8260D	1	06/02/2023 15:05	TMP	A
1,1,1-Trichloroethane	6.7		ug/L	1.0	SW846 8260D	1	06/02/2023 15:05	TMP	A
1,1,2,2-Tetrachloroethane	1.0 U	U	ug/L	1.0	SW846 8260D	1	06/02/2023 15:05	TMP	A
1,1,2-Trichloroethane	1.0 U	U	ug/L	1.0	SW846 8260D	1	06/02/2023 15:05	TMP	A
1,1-Dichloroethane	24.9		ug/L	1.0	SW846 8260D	1	06/02/2023 15:05	TMP	A
1,1-Dichloroethene	110		ug/L	1.0	SW846 8260D	1	06/02/2023 15:05	TMP	A
1,1-Dichloropropene	1.0 U	U	ug/L	1.0	SW846 8260D	1	06/02/2023 15:05	TMP	A
1,2,3-Trichlorobenzene	2.0 U	U	ug/L	2.0	SW846 8260D	1	06/02/2023 15:05	TMP	A
1,2,3-Trichloropropane	2.0 U	U	ug/L	2.0	SW846 8260D	1	06/02/2023 15:05	TMP	A
1,2,4-Trichlorobenzene	2.0 U	U	ug/L	2.0	SW846 8260D	1	06/02/2023 15:05	TMP	A
1,2-Dibromo-3-chloropropane	7.0 U	U	ug/L	7.0	SW846 8260D	1	06/02/2023 15:05	TMP	A
1,2-Dibromoethane	1.0 U	U	ug/L	1.0	SW846 8260D	1	06/02/2023 15:05	TMP	A
1,2-Dichlorobenzene	1.0 U	U	ug/L	1.0	SW846 8260D	1	06/02/2023 15:05	TMP	A
1,2-Dichloroethane	1.4		ug/L	1.0	SW846 8260D	1	06/02/2023 15:05	TMP	A
1,2-Dichloropropane	1.0 U	U	ug/L	1.0	SW846 8260D	1	06/02/2023 15:05	TMP	A
1,3-Dichlorobenzene	1.0 U	U	ug/L	1.0	SW846 8260D	1	06/02/2023 15:05	TMP	A
1,3-Dichloropropane	1.0 U	U	ug/L	1.0	SW846 8260D	1	06/02/2023 15:05	TMP	A
1,4-Dichlorobenzene	1.0 U	U	ug/L	1.0	SW846 8260D	1	06/02/2023 15:05	TMP	A
2,2-Dichloropropane	1.0 U	U	ug/L	1.0	SW846 8260D	1	06/02/2023 15:05	TMP	A
2-Butanone	10.0 U	U	ug/L	10.0	SW846 8260D	1	06/02/2023 15:05	TMP	A
2-Hexanone	5.0 U	U	ug/L	5.0	SW846 8260D	1	06/02/2023 15:05	TMP	A
4-Methyl-2-Pentanone(MIBK)	5.0 U	U	ug/L	5.0	SW846 8260D	1	06/02/2023 15:05	TMP	A
Acetone	10.0 U	U	ug/L	10.0	SW846 8260D	1	06/02/2023 15:05	TMP	A
Benzene	1.0 U	U	ug/L	1.0	SW846 8260D	1	06/02/2023 15:05	TMP	A
Bromobenzene	1.0 U	U	ug/L	1.0	SW846 8260D	1	06/02/2023 15:05	TMP	A
Bromochloromethane	1.0 U	U	ug/L	1.0	SW846 8260D	1	06/02/2023 15:05	TMP	A
Bromodichloromethane	1.0 U	U	ug/L	1.0	SW846 8260D	1	06/02/2023 15:05	TMP	A
Bromoform	1.0 U	U	ug/L	1.0	SW846 8260D	1	06/02/2023 15:05	TMP	A
Bromomethane	1.0 U	U	ug/L	1.0	SW846 8260D	1	06/02/2023 15:05	TMP	A
Carbon Tetrachloride	1.0 U	U	ug/L	1.0	SW846 8260D	1	06/02/2023 15:05	TMP	A
Chlorobenzene	1.0 U	U	ug/L	1.0	SW846 8260D	1	06/02/2023 15:05	TMP	A
Chlorodibromomethane	1.0 U	U	ug/L	1.0	SW846 8260D	1	06/02/2023 15:05	TMP	A
Chloroethane	1.0 U	U	ug/L	1.0	SW846 8260D	1	06/02/2023 15:05	TMP	A

Results

Client Sample ID	DUP-052123	Collected	05/21/2023 13:00
Lab Sample ID	3304367010	Lab Receipt	05/22/2023 18:15

VOLATILE ORGANICS (cont.)

Compound	Result	Flag	Units	RDL	Method	Dilution	Analysis Date/Time	By	Cntr
Chloroform	1.0 U	U	ug/L	1.0	SW846 8260D	1	06/02/2023 15:05	TMP	A
Chloromethane	1.0 U	U	ug/L	1.0	SW846 8260D	1	06/02/2023 15:05	TMP	A
cis-1,2-Dichloroethene	1.0 U	U	ug/L	1.0	SW846 8260D	1	06/02/2023 15:05	TMP	A
cis-1,3-Dichloropropene	1.0 U	U	ug/L	1.0	SW846 8260D	1	06/02/2023 15:05	TMP	A
Dibromomethane	1.0 U	U	ug/L	1.0	SW846 8260D	1	06/02/2023 15:05	TMP	A
Dichlorodifluoromethane	1.0 U	U	ug/L	1.0	SW846 8260D	1	06/02/2023 15:05	TMP	A
Diisopropyl ether	1.0 U	U	ug/L	1.0	SW846 8260D	1	06/02/2023 15:05	TMP	A
Ethylbenzene	1.0 U	U	ug/L	1.0	SW846 8260D	1	06/02/2023 15:05	TMP	A
Hexachlorobutadiene	5.0 U	U	ug/L	5.0	SW846 8260D	1	06/02/2023 15:05	TMP	A
Methyl t-Butyl Ether	1.0 U	U	ug/L	1.0	SW846 8260D	1	06/02/2023 15:05	TMP	A
Methylene Chloride	1.0 U	U	ug/L	1.0	SW846 8260D	1	06/02/2023 15:05	TMP	A
mp-Xylene	2.0 U	U	ug/L	2.0	SW846 8260D	1	06/02/2023 15:05	TMP	A
Naphthalene	2.0 U	U	ug/L	2.0	SW846 8260D	1	06/02/2023 15:05	TMP	A
o-Chlorotoluene	1.0 U	U	ug/L	1.0	SW846 8260D	1	06/02/2023 15:05	TMP	A
o-Xylene	1.0 U	U	ug/L	1.0	SW846 8260D	1	06/02/2023 15:05	TMP	A
p-Chlorotoluene	1.0 U	U	ug/L	1.0	SW846 8260D	1	06/02/2023 15:05	TMP	A
p-Isopropyltoluene	1.0 U	U	ug/L	1.0	SW846 8260D	1	06/02/2023 15:05	TMP	A
Styrene	1.0 U	U	ug/L	1.0	SW846 8260D	1	06/02/2023 15:05	TMP	A
Tetrachloroethene	1.0 U	U	ug/L	1.0	SW846 8260D	1	06/02/2023 15:05	TMP	A
Toluene	1.0 U	U	ug/L	1.0	SW846 8260D	1	06/02/2023 15:05	TMP	A
Total Xylenes	3.0 U	U	ug/L	3.0	SW846 8260D	1	06/02/2023 15:05	TMP	A
trans-1,2-Dichloroethene	1.0 U	U	ug/L	1.0	SW846 8260D	1	06/02/2023 15:05	TMP	A
trans-1,3-Dichloropropene	1.0 U	U	ug/L	1.0	SW846 8260D	1	06/02/2023 15:05	TMP	A
Trichloroethene	1.0 U	U	ug/L	1.0	SW846 8260D	1	06/02/2023 15:05	TMP	A
Trichlorofluoromethane	1.0 U	U	ug/L	1.0	SW846 8260D	1	06/02/2023 15:05	TMP	A
Vinyl Acetate	5.0 U	U	ug/L	5.0	SW846 8260D	1	06/02/2023 15:05	TMP	A
Vinyl Chloride	1.0 U	U	ug/L	1.0	SW846 8260D	1	06/02/2023 15:05	TMP	A

SURROGATES

Compound	CAS No	Recovery	Limits(%)	Analysis Date/Time	Qualifiers
1,2-Dichloroethane-d4	17060-07-0	103%	62 – 133	06/02/2023 15:05	
4-Bromofluorobenzene	460-00-4	98.3%	79 – 114	06/02/2023 15:05	
Dibromofluoromethane	1868-53-7	96.6%	78 – 116	06/02/2023 15:05	
Toluene-d8	2037-26-5	97.7%	76 – 127	06/02/2023 15:05	

Results

Client Sample ID	MW-43	Collected	05/21/2023 11:25
Lab Sample ID	3304367011	Lab Receipt	05/22/2023 18:15

SEMIVOLATILE SIM

Compound	Result	Flag	Units	RDL	Method	Dilution	Analysis Date/Time	By	Cntr
1,4-Dioxane	9.0		ug/L	1.4	SW846 8270E SIM	1	05/26/2023 12:38	M1O	C

SURROGATES

Compound	CAS No	Recovery	Limits(%)	Analysis Date/Time	Qualifiers
2-Methylnapthalene-d10	7297-45-2	73.7%	29 – 112	05/26/2023 12:38	
Fluoranthene-d10	93951-69-0	80.6%	45 – 130	05/26/2023 12:38	

VOLATILE ORGANICS

Compound	Result	Flag	Units	RDL	Method	Dilution	Analysis Date/Time	By	Cntr
1,1,1,2-Tetrachloroethane	1.0 U	U,5	ug/L	1.0	SW846 8260D	1	06/02/2023 15:28	TMP	A
1,1,1-Trichloroethane	1.0 U	U	ug/L	1.0	SW846 8260D	1	06/02/2023 15:28	TMP	A
1,1,2,2-Tetrachloroethane	1.0 U	U	ug/L	1.0	SW846 8260D	1	06/02/2023 15:28	TMP	A
1,1,2-Trichloroethane	1.0 U	U	ug/L	1.0	SW846 8260D	1	06/02/2023 15:28	TMP	A
1,1-Dichloroethane	1.6		ug/L	1.0	SW846 8260D	1	06/02/2023 15:28	TMP	A
1,1-Dichloroethene	21.2		ug/L	1.0	SW846 8260D	1	06/02/2023 15:28	TMP	A
1,1-Dichloropropene	1.0 U	U	ug/L	1.0	SW846 8260D	1	06/02/2023 15:28	TMP	A
1,2,3-Trichlorobenzene	2.0 U	U	ug/L	2.0	SW846 8260D	1	06/02/2023 15:28	TMP	A
1,2,3-Trichloropropane	2.0 U	U	ug/L	2.0	SW846 8260D	1	06/02/2023 15:28	TMP	A
1,2,4-Trichlorobenzene	2.0 U	U	ug/L	2.0	SW846 8260D	1	06/02/2023 15:28	TMP	A
1,2-Dibromo-3-chloropropane	7.0 U	U	ug/L	7.0	SW846 8260D	1	06/02/2023 15:28	TMP	A
1,2-Dibromoethane	1.0 U	U	ug/L	1.0	SW846 8260D	1	06/02/2023 15:28	TMP	A
1,2-Dichlorobenzene	1.0 U	U	ug/L	1.0	SW846 8260D	1	06/02/2023 15:28	TMP	A
1,2-Dichloroethane	1.0 U	U	ug/L	1.0	SW846 8260D	1	06/02/2023 15:28	TMP	A
1,2-Dichloropropane	1.0 U	U	ug/L	1.0	SW846 8260D	1	06/02/2023 15:28	TMP	A
1,3-Dichlorobenzene	1.0 U	U	ug/L	1.0	SW846 8260D	1	06/02/2023 15:28	TMP	A
1,3-Dichloropropane	1.0 U	U	ug/L	1.0	SW846 8260D	1	06/02/2023 15:28	TMP	A
1,4-Dichlorobenzene	1.0 U	U	ug/L	1.0	SW846 8260D	1	06/02/2023 15:28	TMP	A
2,2-Dichloropropane	1.0 U	U	ug/L	1.0	SW846 8260D	1	06/02/2023 15:28	TMP	A
2-Butanone	10.0 U	U	ug/L	10.0	SW846 8260D	1	06/02/2023 15:28	TMP	A
2-Hexanone	5.0 U	U	ug/L	5.0	SW846 8260D	1	06/02/2023 15:28	TMP	A
4-Methyl-2-Pentanone(MIBK)	5.0 U	U	ug/L	5.0	SW846 8260D	1	06/02/2023 15:28	TMP	A
Acetone	10.0 U	U	ug/L	10.0	SW846 8260D	1	06/02/2023 15:28	TMP	A
Benzene	1.0 U	U	ug/L	1.0	SW846 8260D	1	06/02/2023 15:28	TMP	A
Bromobenzene	1.0 U	U	ug/L	1.0	SW846 8260D	1	06/02/2023 15:28	TMP	A
Bromochloromethane	1.0 U	U	ug/L	1.0	SW846 8260D	1	06/02/2023 15:28	TMP	A
Bromodichloromethane	1.0 U	U	ug/L	1.0	SW846 8260D	1	06/02/2023 15:28	TMP	A
Bromoform	1.0 U	U	ug/L	1.0	SW846 8260D	1	06/02/2023 15:28	TMP	A
Bromomethane	1.0 U	U	ug/L	1.0	SW846 8260D	1	06/02/2023 15:28	TMP	A
Carbon Tetrachloride	1.0 U	U	ug/L	1.0	SW846 8260D	1	06/02/2023 15:28	TMP	A
Chlorobenzene	1.0 U	U	ug/L	1.0	SW846 8260D	1	06/02/2023 15:28	TMP	A
Chlorodibromomethane	1.0 U	U	ug/L	1.0	SW846 8260D	1	06/02/2023 15:28	TMP	A
Chloroethane	1.0 U	U	ug/L	1.0	SW846 8260D	1	06/02/2023 15:28	TMP	A
Chloroform	1.0 U	U	ug/L	1.0	SW846 8260D	1	06/02/2023 15:28	TMP	A
Chloromethane	1.0 U	U	ug/L	1.0	SW846 8260D	1	06/02/2023 15:28	TMP	A

Results

Client Sample ID	MW-43	Collected	05/21/2023 11:25
Lab Sample ID	3304367011	Lab Receipt	05/22/2023 18:15

VOLATILE ORGANICS (cont.)

Compound	Result	Flag	Units	RDL	Method	Dilution	Analysis Date/Time	By	Cntr
cis-1,2-Dichloroethene	1.0 U	U	ug/L	1.0	SW846 8260D	1	06/02/2023 15:28	TMP	A
cis-1,3-Dichloropropene	1.0 U	U	ug/L	1.0	SW846 8260D	1	06/02/2023 15:28	TMP	A
Dibromomethane	1.0 U	U	ug/L	1.0	SW846 8260D	1	06/02/2023 15:28	TMP	A
Dichlorodifluoromethane	1.0 U	U	ug/L	1.0	SW846 8260D	1	06/02/2023 15:28	TMP	A
Diisopropyl ether	1.0 U	U	ug/L	1.0	SW846 8260D	1	06/02/2023 15:28	TMP	A
Ethylbenzene	1.0 U	U	ug/L	1.0	SW846 8260D	1	06/02/2023 15:28	TMP	A
Hexachlorobutadiene	5.0 U	U	ug/L	5.0	SW846 8260D	1	06/02/2023 15:28	TMP	A
Methyl t-Butyl Ether	2.3		ug/L	1.0	SW846 8260D	1	06/02/2023 15:28	TMP	A
Methylene Chloride	1.0 U	U	ug/L	1.0	SW846 8260D	1	06/02/2023 15:28	TMP	A
mp-Xylene	2.0 U	U	ug/L	2.0	SW846 8260D	1	06/02/2023 15:28	TMP	A
Naphthalene	2.0 U	U	ug/L	2.0	SW846 8260D	1	06/02/2023 15:28	TMP	A
o-Chlorotoluene	1.0 U	U	ug/L	1.0	SW846 8260D	1	06/02/2023 15:28	TMP	A
o-Xylene	1.0 U	U	ug/L	1.0	SW846 8260D	1	06/02/2023 15:28	TMP	A
p-Chlorotoluene	1.0 U	U	ug/L	1.0	SW846 8260D	1	06/02/2023 15:28	TMP	A
p-Isopropyltoluene	1.0 U	U	ug/L	1.0	SW846 8260D	1	06/02/2023 15:28	TMP	A
Styrene	1.0 U	U	ug/L	1.0	SW846 8260D	1	06/02/2023 15:28	TMP	A
Tetrachloroethene	1.0 U	U	ug/L	1.0	SW846 8260D	1	06/02/2023 15:28	TMP	A
Toluene	1.0 U	U	ug/L	1.0	SW846 8260D	1	06/02/2023 15:28	TMP	A
Total Xylenes	3.0 U	U	ug/L	3.0	SW846 8260D	1	06/02/2023 15:28	TMP	A
trans-1,2-Dichloroethene	1.0 U	U	ug/L	1.0	SW846 8260D	1	06/02/2023 15:28	TMP	A
trans-1,3-Dichloropropene	1.0 U	U	ug/L	1.0	SW846 8260D	1	06/02/2023 15:28	TMP	A
Trichloroethene	1.0 U	U	ug/L	1.0	SW846 8260D	1	06/02/2023 15:28	TMP	A
Trichlorofluoromethane	1.0 U	U	ug/L	1.0	SW846 8260D	1	06/02/2023 15:28	TMP	A
Vinyl Acetate	5.0 U	U	ug/L	5.0	SW846 8260D	1	06/02/2023 15:28	TMP	A
Vinyl Chloride	1.0 U	U	ug/L	1.0	SW846 8260D	1	06/02/2023 15:28	TMP	A

SURROGATES

Compound	CAS No	Recovery	Limits(%)	Analysis Date/Time	Qualifiers
1,2-Dichloroethane-d4	17060-07-0	104%	62 – 133	06/02/2023 15:28	
4-Bromofluorobenzene	460-00-4	100%	79 – 114	06/02/2023 15:28	
Dibromofluoromethane	1868-53-7	95.8%	78 – 116	06/02/2023 15:28	
Toluene-d8	2037-26-5	98%	76 – 127	06/02/2023 15:28	

Results

Client Sample ID	MW-39	Collected	05/21/2023 11:35
Lab Sample ID	3304367012	Lab Receipt	05/22/2023 18:15

SEMIVOLATILE SIM

Compound	Result	Flag	Units	RDL	Method	Dilution	Analysis Date/Time	By	Cntr
1,4-Dioxane	1.0 U	U	ug/L	1.0	SW846 8270E SIM	1	05/26/2023 13:05	M1O	C

SURROGATES

Compound	CAS No	Recovery	Limits(%)	Analysis Date/Time	Qualifiers
2-Methylnapthalene-d10	7297-45-2	70.5%	29 – 112	05/26/2023 13:05	
Fluoranthene-d10	93951-69-0	87.7%	45 – 130	05/26/2023 13:05	

VOLATILE ORGANICS

Compound	Result	Flag	Units	RDL	Method	Dilution	Analysis Date/Time	By	Cntr
1,1,1,2-Tetrachloroethane	1.0 U	U,5	ug/L	1.0	SW846 8260D	1	06/02/2023 15:51	TMP	A
1,1,1-Trichloroethane	1.0 U	U	ug/L	1.0	SW846 8260D	1	06/02/2023 15:51	TMP	A
1,1,2,2-Tetrachloroethane	1.0 U	U	ug/L	1.0	SW846 8260D	1	06/02/2023 15:51	TMP	A
1,1,2-Trichloroethane	1.0 U	U	ug/L	1.0	SW846 8260D	1	06/02/2023 15:51	TMP	A
1,1-Dichloroethane	1.0 U	U	ug/L	1.0	SW846 8260D	1	06/02/2023 15:51	TMP	A
1,1-Dichloroethene	1.0 U	U	ug/L	1.0	SW846 8260D	1	06/02/2023 15:51	TMP	A
1,1-Dichloropropene	1.0 U	U	ug/L	1.0	SW846 8260D	1	06/02/2023 15:51	TMP	A
1,2,3-Trichlorobenzene	2.0 U	U	ug/L	2.0	SW846 8260D	1	06/02/2023 15:51	TMP	A
1,2,3-Trichloropropane	2.0 U	U	ug/L	2.0	SW846 8260D	1	06/02/2023 15:51	TMP	A
1,2,4-Trichlorobenzene	2.0 U	U	ug/L	2.0	SW846 8260D	1	06/02/2023 15:51	TMP	A
1,2-Dibromo-3-chloropropane	7.0 U	U	ug/L	7.0	SW846 8260D	1	06/02/2023 15:51	TMP	A
1,2-Dibromoethane	1.0 U	U	ug/L	1.0	SW846 8260D	1	06/02/2023 15:51	TMP	A
1,2-Dichlorobenzene	1.0 U	U	ug/L	1.0	SW846 8260D	1	06/02/2023 15:51	TMP	A
1,2-Dichloroethane	1.0 U	U	ug/L	1.0	SW846 8260D	1	06/02/2023 15:51	TMP	A
1,2-Dichloropropane	1.0 U	U	ug/L	1.0	SW846 8260D	1	06/02/2023 15:51	TMP	A
1,3-Dichlorobenzene	1.0 U	U	ug/L	1.0	SW846 8260D	1	06/02/2023 15:51	TMP	A
1,3-Dichloropropane	1.0 U	U	ug/L	1.0	SW846 8260D	1	06/02/2023 15:51	TMP	A
1,4-Dichlorobenzene	1.0 U	U	ug/L	1.0	SW846 8260D	1	06/02/2023 15:51	TMP	A
2,2-Dichloropropane	1.0 U	U	ug/L	1.0	SW846 8260D	1	06/02/2023 15:51	TMP	A
2-Butanone	10.0 U	U	ug/L	10.0	SW846 8260D	1	06/02/2023 15:51	TMP	A
2-Hexanone	5.0 U	U	ug/L	5.0	SW846 8260D	1	06/02/2023 15:51	TMP	A
4-Methyl-2-Pentanone(MIBK)	5.0 U	U	ug/L	5.0	SW846 8260D	1	06/02/2023 15:51	TMP	A
Acetone	10.0 U	U	ug/L	10.0	SW846 8260D	1	06/02/2023 15:51	TMP	A
Benzene	1.0 U	U	ug/L	1.0	SW846 8260D	1	06/02/2023 15:51	TMP	A
Bromobenzene	1.0 U	U	ug/L	1.0	SW846 8260D	1	06/02/2023 15:51	TMP	A
Bromochloromethane	1.0 U	U	ug/L	1.0	SW846 8260D	1	06/02/2023 15:51	TMP	A
Bromodichloromethane	1.0 U	U	ug/L	1.0	SW846 8260D	1	06/02/2023 15:51	TMP	A
Bromoform	1.0 U	U	ug/L	1.0	SW846 8260D	1	06/02/2023 15:51	TMP	A
Bromomethane	1.0 U	U	ug/L	1.0	SW846 8260D	1	06/02/2023 15:51	TMP	A
Carbon Tetrachloride	1.0 U	U	ug/L	1.0	SW846 8260D	1	06/02/2023 15:51	TMP	A
Chlorobenzene	1.0 U	U	ug/L	1.0	SW846 8260D	1	06/02/2023 15:51	TMP	A
Chlorodibromomethane	1.0 U	U	ug/L	1.0	SW846 8260D	1	06/02/2023 15:51	TMP	A
Chloroethane	1.0 U	U	ug/L	1.0	SW846 8260D	1	06/02/2023 15:51	TMP	A
Chloroform	1.0 U	U	ug/L	1.0	SW846 8260D	1	06/02/2023 15:51	TMP	A
Chloromethane	1.0 U	U	ug/L	1.0	SW846 8260D	1	06/02/2023 15:51	TMP	A

Results

Client Sample ID	MW-39	Collected	05/21/2023 11:35
Lab Sample ID	3304367012	Lab Receipt	05/22/2023 18:15

VOLATILE ORGANICS (cont.)

Compound	Result	Flag	Units	RDL	Method	Dilution	Analysis Date/Time	By	Cntr
cis-1,2-Dichloroethene	1.0 U	U	ug/L	1.0	SW846 8260D	1	06/02/2023 15:51	TMP	A
cis-1,3-Dichloropropene	1.0 U	U	ug/L	1.0	SW846 8260D	1	06/02/2023 15:51	TMP	A
Dibromomethane	1.0 U	U	ug/L	1.0	SW846 8260D	1	06/02/2023 15:51	TMP	A
Dichlorodifluoromethane	1.0 U	U	ug/L	1.0	SW846 8260D	1	06/02/2023 15:51	TMP	A
Diisopropyl ether	1.0 U	U	ug/L	1.0	SW846 8260D	1	06/02/2023 15:51	TMP	A
Ethylbenzene	1.0 U	U	ug/L	1.0	SW846 8260D	1	06/02/2023 15:51	TMP	A
Hexachlorobutadiene	5.0 U	U	ug/L	5.0	SW846 8260D	1	06/02/2023 15:51	TMP	A
Methyl t-Butyl Ether	1.1		ug/L	1.0	SW846 8260D	1	06/02/2023 15:51	TMP	A
Methylene Chloride	1.0 U	U	ug/L	1.0	SW846 8260D	1	06/02/2023 15:51	TMP	A
mp-Xylene	2.0 U	U	ug/L	2.0	SW846 8260D	1	06/02/2023 15:51	TMP	A
Naphthalene	2.0 U	U	ug/L	2.0	SW846 8260D	1	06/02/2023 15:51	TMP	A
o-Chlorotoluene	1.0 U	U	ug/L	1.0	SW846 8260D	1	06/02/2023 15:51	TMP	A
o-Xylene	1.0 U	U	ug/L	1.0	SW846 8260D	1	06/02/2023 15:51	TMP	A
p-Chlorotoluene	1.0 U	U	ug/L	1.0	SW846 8260D	1	06/02/2023 15:51	TMP	A
p-Isopropyltoluene	1.0 U	U	ug/L	1.0	SW846 8260D	1	06/02/2023 15:51	TMP	A
Styrene	1.0 U	U	ug/L	1.0	SW846 8260D	1	06/02/2023 15:51	TMP	A
Tetrachloroethene	1.0 U	U	ug/L	1.0	SW846 8260D	1	06/02/2023 15:51	TMP	A
Toluene	1.0 U	U	ug/L	1.0	SW846 8260D	1	06/02/2023 15:51	TMP	A
Total Xylenes	3.0 U	U	ug/L	3.0	SW846 8260D	1	06/02/2023 15:51	TMP	A
trans-1,2-Dichloroethene	1.0 U	U	ug/L	1.0	SW846 8260D	1	06/02/2023 15:51	TMP	A
trans-1,3-Dichloropropene	1.0 U	U	ug/L	1.0	SW846 8260D	1	06/02/2023 15:51	TMP	A
Trichloroethene	1.0 U	U	ug/L	1.0	SW846 8260D	1	06/02/2023 15:51	TMP	A
Trichlorofluoromethane	1.0 U	U	ug/L	1.0	SW846 8260D	1	06/02/2023 15:51	TMP	A
Vinyl Acetate	5.0 U	U	ug/L	5.0	SW846 8260D	1	06/02/2023 15:51	TMP	A
Vinyl Chloride	1.0 U	U	ug/L	1.0	SW846 8260D	1	06/02/2023 15:51	TMP	A

SURROGATES

Compound	CAS No	Recovery	Limits(%)	Analysis Date/Time	Qualifiers
1,2-Dichloroethane-d4	17060-07-0	104%	62 – 133	06/02/2023 15:51	
4-Bromofluorobenzene	460-00-4	99.7%	79 – 114	06/02/2023 15:51	
Dibromofluoromethane	1868-53-7	95.4%	78 – 116	06/02/2023 15:51	
Toluene-d8	2037-26-5	98%	76 – 127	06/02/2023 15:51	

Results

Client Sample ID	MW-42	Collected	05/21/2023 11:45
Lab Sample ID	3304367013	Lab Receipt	05/22/2023 18:15

SEMIVOLATILE SIM

Compound	Result	Flag	Units	RDL	Method	Dilution	Analysis Date/Time	By	Cntr
1,4-Dioxane	5.8		ug/L	1.5	SW846 8270E SIM	1	05/26/2023 13:33	M1O	C

SURROGATES

Compound	CAS No	Recovery	Limits(%)	Analysis Date/Time	Qualifiers
2-Methylnapthalene-d10	7297-45-2	70.8%	29 – 112	05/26/2023 13:33	
Fluoranthene-d10	93951-69-0	81%	45 – 130	05/26/2023 13:33	

VOLATILE ORGANICS

Compound	Result	Flag	Units	RDL	Method	Dilution	Analysis Date/Time	By	Cntr
1,1,1,2-Tetrachloroethane	1.0 U	U,5	ug/L	1.0	SW846 8260D	1	06/02/2023 16:14	TMP	A
1,1,1-Trichloroethane	1.0 U	U	ug/L	1.0	SW846 8260D	1	06/02/2023 16:14	TMP	A
1,1,2,2-Tetrachloroethane	1.0 U	U	ug/L	1.0	SW846 8260D	1	06/02/2023 16:14	TMP	A
1,1,2-Trichloroethane	1.0 U	U	ug/L	1.0	SW846 8260D	1	06/02/2023 16:14	TMP	A
1,1-Dichloroethane	1.0 U	U	ug/L	1.0	SW846 8260D	1	06/02/2023 16:14	TMP	A
1,1-Dichloroethene	1.0 U	U	ug/L	1.0	SW846 8260D	1	06/02/2023 16:14	TMP	A
1,1-Dichloropropene	1.0 U	U	ug/L	1.0	SW846 8260D	1	06/02/2023 16:14	TMP	A
1,2,3-Trichlorobenzene	2.0 U	U	ug/L	2.0	SW846 8260D	1	06/02/2023 16:14	TMP	A
1,2,3-Trichloropropane	2.0 U	U	ug/L	2.0	SW846 8260D	1	06/02/2023 16:14	TMP	A
1,2,4-Trichlorobenzene	2.0 U	U	ug/L	2.0	SW846 8260D	1	06/02/2023 16:14	TMP	A
1,2-Dibromo-3-chloropropane	7.0 U	U	ug/L	7.0	SW846 8260D	1	06/02/2023 16:14	TMP	A
1,2-Dibromoethane	1.0 U	U	ug/L	1.0	SW846 8260D	1	06/02/2023 16:14	TMP	A
1,2-Dichlorobenzene	1.0 U	U	ug/L	1.0	SW846 8260D	1	06/02/2023 16:14	TMP	A
1,2-Dichloroethane	1.0 U	U	ug/L	1.0	SW846 8260D	1	06/02/2023 16:14	TMP	A
1,2-Dichloropropane	1.0 U	U	ug/L	1.0	SW846 8260D	1	06/02/2023 16:14	TMP	A
1,3-Dichlorobenzene	1.0 U	U	ug/L	1.0	SW846 8260D	1	06/02/2023 16:14	TMP	A
1,3-Dichloropropane	1.0 U	U	ug/L	1.0	SW846 8260D	1	06/02/2023 16:14	TMP	A
1,4-Dichlorobenzene	1.0 U	U	ug/L	1.0	SW846 8260D	1	06/02/2023 16:14	TMP	A
2,2-Dichloropropane	1.0 U	U	ug/L	1.0	SW846 8260D	1	06/02/2023 16:14	TMP	A
2-Butanone	10.0 U	U	ug/L	10.0	SW846 8260D	1	06/02/2023 16:14	TMP	A
2-Hexanone	5.0 U	U	ug/L	5.0	SW846 8260D	1	06/02/2023 16:14	TMP	A
4-Methyl-2-Pentanone(MIBK)	5.0 U	U	ug/L	5.0	SW846 8260D	1	06/02/2023 16:14	TMP	A
Acetone	10.0 U	U	ug/L	10.0	SW846 8260D	1	06/02/2023 16:14	TMP	A
Benzene	1.0 U	U	ug/L	1.0	SW846 8260D	1	06/02/2023 16:14	TMP	A
Bromobenzene	1.0 U	U	ug/L	1.0	SW846 8260D	1	06/02/2023 16:14	TMP	A
Bromochloromethane	1.0 U	U	ug/L	1.0	SW846 8260D	1	06/02/2023 16:14	TMP	A
Bromodichloromethane	1.0 U	U	ug/L	1.0	SW846 8260D	1	06/02/2023 16:14	TMP	A
Bromoform	1.0 U	U	ug/L	1.0	SW846 8260D	1	06/02/2023 16:14	TMP	A
Bromomethane	1.0 U	U	ug/L	1.0	SW846 8260D	1	06/02/2023 16:14	TMP	A
Carbon Tetrachloride	1.0 U	U	ug/L	1.0	SW846 8260D	1	06/02/2023 16:14	TMP	A
Chlorobenzene	1.0 U	U	ug/L	1.0	SW846 8260D	1	06/02/2023 16:14	TMP	A
Chlorodibromomethane	1.0 U	U	ug/L	1.0	SW846 8260D	1	06/02/2023 16:14	TMP	A
Chloroethane	1.0 U	U	ug/L	1.0	SW846 8260D	1	06/02/2023 16:14	TMP	A
Chloroform	1.0 U	U	ug/L	1.0	SW846 8260D	1	06/02/2023 16:14	TMP	A
Chloromethane	1.0 U	U	ug/L	1.0	SW846 8260D	1	06/02/2023 16:14	TMP	A

Results

Client Sample ID	MW-42	Collected	05/21/2023 11:45
Lab Sample ID	3304367013	Lab Receipt	05/22/2023 18:15

VOLATILE ORGANICS (cont.)

Compound	Result	Flag	Units	RDL	Method	Dilution	Analysis Date/Time	By	Cntr
cis-1,2-Dichloroethene	1.0 U	U	ug/L	1.0	SW846 8260D	1	06/02/2023 16:14	TMP	A
cis-1,3-Dichloropropene	1.0 U	U	ug/L	1.0	SW846 8260D	1	06/02/2023 16:14	TMP	A
Dibromomethane	1.0 U	U	ug/L	1.0	SW846 8260D	1	06/02/2023 16:14	TMP	A
Dichlorodifluoromethane	1.0 U	U	ug/L	1.0	SW846 8260D	1	06/02/2023 16:14	TMP	A
Diisopropyl ether	1.0 U	U	ug/L	1.0	SW846 8260D	1	06/02/2023 16:14	TMP	A
Ethylbenzene	1.0 U	U	ug/L	1.0	SW846 8260D	1	06/02/2023 16:14	TMP	A
Hexachlorobutadiene	5.0 U	U	ug/L	5.0	SW846 8260D	1	06/02/2023 16:14	TMP	A
Methyl t-Butyl Ether	1.0 U	U	ug/L	1.0	SW846 8260D	1	06/02/2023 16:14	TMP	A
Methylene Chloride	1.0 U	U	ug/L	1.0	SW846 8260D	1	06/02/2023 16:14	TMP	A
mp-Xylene	2.0 U	U	ug/L	2.0	SW846 8260D	1	06/02/2023 16:14	TMP	A
Naphthalene	2.0 U	U	ug/L	2.0	SW846 8260D	1	06/02/2023 16:14	TMP	A
o-Chlorotoluene	1.0 U	U	ug/L	1.0	SW846 8260D	1	06/02/2023 16:14	TMP	A
o-Xylene	1.0 U	U	ug/L	1.0	SW846 8260D	1	06/02/2023 16:14	TMP	A
p-Chlorotoluene	1.0 U	U	ug/L	1.0	SW846 8260D	1	06/02/2023 16:14	TMP	A
p-Isopropyltoluene	1.0 U	U	ug/L	1.0	SW846 8260D	1	06/02/2023 16:14	TMP	A
Styrene	1.0 U	U	ug/L	1.0	SW846 8260D	1	06/02/2023 16:14	TMP	A
Tetrachloroethene	1.0 U	U	ug/L	1.0	SW846 8260D	1	06/02/2023 16:14	TMP	A
Toluene	1.0 U	U	ug/L	1.0	SW846 8260D	1	06/02/2023 16:14	TMP	A
Total Xylenes	3.0 U	U	ug/L	3.0	SW846 8260D	1	06/02/2023 16:14	TMP	A
trans-1,2-Dichloroethene	1.0 U	U	ug/L	1.0	SW846 8260D	1	06/02/2023 16:14	TMP	A
trans-1,3-Dichloropropene	1.0 U	U	ug/L	1.0	SW846 8260D	1	06/02/2023 16:14	TMP	A
Trichloroethene	1.0 U	U	ug/L	1.0	SW846 8260D	1	06/02/2023 16:14	TMP	A
Trichlorofluoromethane	1.0 U	U	ug/L	1.0	SW846 8260D	1	06/02/2023 16:14	TMP	A
Vinyl Acetate	5.0 U	U	ug/L	5.0	SW846 8260D	1	06/02/2023 16:14	TMP	A
Vinyl Chloride	1.0 U	U	ug/L	1.0	SW846 8260D	1	06/02/2023 16:14	TMP	A

SURROGATES

Compound	CAS No	Recovery	Limits(%)	Analysis Date/Time	Qualifiers
1,2-Dichloroethane-d4	17060-07-0	103%	62 – 133	06/02/2023 16:14	
4-Bromofluorobenzene	460-00-4	99%	79 – 114	06/02/2023 16:14	
Dibromofluoromethane	1868-53-7	95.8%	78 – 116	06/02/2023 16:14	
Toluene-d8	2037-26-5	98%	76 – 127	06/02/2023 16:14	

Results

Client Sample ID	MW-18	Collected	05/21/2023 12:00
Lab Sample ID	3304367014	Lab Receipt	05/22/2023 18:15

SEMIVOLATILE SIM

Compound	Result	Flag	Units	RDL	Method	Dilution	Analysis Date/Time	By	Cntr
1,4-Dioxane	1.0 U	U	ug/L	1.0	SW846 8270E SIM	1	05/26/2023 14:00	M1O	C

SURROGATES

Compound	CAS No	Recovery	Limits(%)	Analysis Date/Time	Qualifiers
2-Methylnapthalene-d10	7297-45-2	59.3%	29 – 112	05/26/2023 14:00	
Fluoranthene-d10	93951-69-0	77.7%	45 – 130	05/26/2023 14:00	

VOLATILE ORGANICS

Compound	Result	Flag	Units	RDL	Method	Dilution	Analysis Date/Time	By	Cntr
1,1,1,2-Tetrachloroethane	1.0 U	U,5	ug/L	1.0	SW846 8260D	1	06/02/2023 16:37	TMP	A
1,1,1-Trichloroethane	1.0 U	U	ug/L	1.0	SW846 8260D	1	06/02/2023 16:37	TMP	A
1,1,2,2-Tetrachloroethane	1.0 U	U	ug/L	1.0	SW846 8260D	1	06/02/2023 16:37	TMP	A
1,1,2-Trichloroethane	1.0 U	U	ug/L	1.0	SW846 8260D	1	06/02/2023 16:37	TMP	A
1,1-Dichloroethane	1.0 U	U	ug/L	1.0	SW846 8260D	1	06/02/2023 16:37	TMP	A
1,1-Dichloroethene	1.0 U	U	ug/L	1.0	SW846 8260D	1	06/02/2023 16:37	TMP	A
1,1-Dichloropropene	1.0 U	U	ug/L	1.0	SW846 8260D	1	06/02/2023 16:37	TMP	A
1,2,3-Trichlorobenzene	2.0 U	U	ug/L	2.0	SW846 8260D	1	06/02/2023 16:37	TMP	A
1,2,3-Trichloropropane	2.0 U	U	ug/L	2.0	SW846 8260D	1	06/02/2023 16:37	TMP	A
1,2,4-Trichlorobenzene	2.0 U	U	ug/L	2.0	SW846 8260D	1	06/02/2023 16:37	TMP	A
1,2-Dibromo-3-chloropropane	7.0 U	U	ug/L	7.0	SW846 8260D	1	06/02/2023 16:37	TMP	A
1,2-Dibromoethane	1.0 U	U	ug/L	1.0	SW846 8260D	1	06/02/2023 16:37	TMP	A
1,2-Dichlorobenzene	1.0 U	U	ug/L	1.0	SW846 8260D	1	06/02/2023 16:37	TMP	A
1,2-Dichloroethane	1.0 U	U	ug/L	1.0	SW846 8260D	1	06/02/2023 16:37	TMP	A
1,2-Dichloropropane	1.0 U	U	ug/L	1.0	SW846 8260D	1	06/02/2023 16:37	TMP	A
1,3-Dichlorobenzene	1.0 U	U	ug/L	1.0	SW846 8260D	1	06/02/2023 16:37	TMP	A
1,3-Dichloropropane	1.0 U	U	ug/L	1.0	SW846 8260D	1	06/02/2023 16:37	TMP	A
1,4-Dichlorobenzene	1.0 U	U	ug/L	1.0	SW846 8260D	1	06/02/2023 16:37	TMP	A
2,2-Dichloropropane	1.0 U	U	ug/L	1.0	SW846 8260D	1	06/02/2023 16:37	TMP	A
2-Butanone	10.0 U	U	ug/L	10.0	SW846 8260D	1	06/02/2023 16:37	TMP	A
2-Hexanone	5.0 U	U	ug/L	5.0	SW846 8260D	1	06/02/2023 16:37	TMP	A
4-Methyl-2-Pentanone(MIBK)	5.0 U	U	ug/L	5.0	SW846 8260D	1	06/02/2023 16:37	TMP	A
Acetone	10.0 U	U	ug/L	10.0	SW846 8260D	1	06/02/2023 16:37	TMP	A
Benzene	1.0 U	U	ug/L	1.0	SW846 8260D	1	06/02/2023 16:37	TMP	A
Bromobenzene	1.0 U	U	ug/L	1.0	SW846 8260D	1	06/02/2023 16:37	TMP	A
Bromochloromethane	1.0 U	U	ug/L	1.0	SW846 8260D	1	06/02/2023 16:37	TMP	A
Bromodichloromethane	1.0 U	U	ug/L	1.0	SW846 8260D	1	06/02/2023 16:37	TMP	A
Bromoform	1.0 U	U	ug/L	1.0	SW846 8260D	1	06/02/2023 16:37	TMP	A
Bromomethane	1.0 U	U	ug/L	1.0	SW846 8260D	1	06/02/2023 16:37	TMP	A
Carbon Tetrachloride	1.0 U	U	ug/L	1.0	SW846 8260D	1	06/02/2023 16:37	TMP	A
Chlorobenzene	1.0 U	U	ug/L	1.0	SW846 8260D	1	06/02/2023 16:37	TMP	A
Chlorodibromomethane	1.0 U	U	ug/L	1.0	SW846 8260D	1	06/02/2023 16:37	TMP	A
Chloroethane	1.0 U	U	ug/L	1.0	SW846 8260D	1	06/02/2023 16:37	TMP	A
Chloroform	1.0 U	U	ug/L	1.0	SW846 8260D	1	06/02/2023 16:37	TMP	A
Chloromethane	1.0 U	U	ug/L	1.0	SW846 8260D	1	06/02/2023 16:37	TMP	A

Results

Client Sample ID	MW-18	Collected	05/21/2023 12:00
Lab Sample ID	3304367014	Lab Receipt	05/22/2023 18:15

VOLATILE ORGANICS (cont.)

Compound	Result	Flag	Units	RDL	Method	Dilution	Analysis Date/Time	By	Cntr
cis-1,2-Dichloroethene	1.0 U	U	ug/L	1.0	SW846 8260D	1	06/02/2023 16:37	TMP	A
cis-1,3-Dichloropropene	1.0 U	U	ug/L	1.0	SW846 8260D	1	06/02/2023 16:37	TMP	A
Dibromomethane	1.0 U	U	ug/L	1.0	SW846 8260D	1	06/02/2023 16:37	TMP	A
Dichlorodifluoromethane	1.0 U	U	ug/L	1.0	SW846 8260D	1	06/02/2023 16:37	TMP	A
Diisopropyl ether	1.0 U	U	ug/L	1.0	SW846 8260D	1	06/02/2023 16:37	TMP	A
Ethylbenzene	1.0 U	U	ug/L	1.0	SW846 8260D	1	06/02/2023 16:37	TMP	A
Hexachlorobutadiene	5.0 U	U	ug/L	5.0	SW846 8260D	1	06/02/2023 16:37	TMP	A
Methyl t-Butyl Ether	1.0 U	U	ug/L	1.0	SW846 8260D	1	06/02/2023 16:37	TMP	A
Methylene Chloride	1.0 U	U	ug/L	1.0	SW846 8260D	1	06/02/2023 16:37	TMP	A
mp-Xylene	2.0 U	U	ug/L	2.0	SW846 8260D	1	06/02/2023 16:37	TMP	A
Naphthalene	2.0 U	U	ug/L	2.0	SW846 8260D	1	06/02/2023 16:37	TMP	A
o-Chlorotoluene	1.0 U	U	ug/L	1.0	SW846 8260D	1	06/02/2023 16:37	TMP	A
o-Xylene	1.0 U	U	ug/L	1.0	SW846 8260D	1	06/02/2023 16:37	TMP	A
p-Chlorotoluene	1.0 U	U	ug/L	1.0	SW846 8260D	1	06/02/2023 16:37	TMP	A
p-Isopropyltoluene	1.0 U	U	ug/L	1.0	SW846 8260D	1	06/02/2023 16:37	TMP	A
Styrene	1.0 U	U	ug/L	1.0	SW846 8260D	1	06/02/2023 16:37	TMP	A
Tetrachloroethene	1.0 U	U	ug/L	1.0	SW846 8260D	1	06/02/2023 16:37	TMP	A
Toluene	1.0 U	U	ug/L	1.0	SW846 8260D	1	06/02/2023 16:37	TMP	A
Total Xylenes	3.0 U	U	ug/L	3.0	SW846 8260D	1	06/02/2023 16:37	TMP	A
trans-1,2-Dichloroethene	1.0 U	U	ug/L	1.0	SW846 8260D	1	06/02/2023 16:37	TMP	A
trans-1,3-Dichloropropene	1.0 U	U	ug/L	1.0	SW846 8260D	1	06/02/2023 16:37	TMP	A
Trichloroethene	1.0 U	U	ug/L	1.0	SW846 8260D	1	06/02/2023 16:37	TMP	A
Trichlorofluoromethane	1.0 U	U	ug/L	1.0	SW846 8260D	1	06/02/2023 16:37	TMP	A
Vinyl Acetate	5.0 U	U	ug/L	5.0	SW846 8260D	1	06/02/2023 16:37	TMP	A
Vinyl Chloride	1.0 U	U	ug/L	1.0	SW846 8260D	1	06/02/2023 16:37	TMP	A

SURROGATES

Compound	CAS No	Recovery	Limits(%)	Analysis Date/Time	Qualifiers
1,2-Dichloroethane-d4	17060-07-0	100%	62 – 133	06/02/2023 16:37	
4-Bromofluorobenzene	460-00-4	98%	79 – 114	06/02/2023 16:37	
Dibromofluoromethane	1868-53-7	93.2%	78 – 116	06/02/2023 16:37	
Toluene-d8	2037-26-5	97.3%	76 – 127	06/02/2023 16:37	

Results

Client Sample ID	MW-40D	Collected	05/21/2023 12:10
Lab Sample ID	3304367015	Lab Receipt	05/22/2023 18:15

SEMIVOLATILE SIM

Compound	Result	Flag	Units	RDL	Method	Dilution	Analysis Date/Time	By	Cntr
1,4-Dioxane	1.4 U	U	ug/L	1.4	SW846 8270E SIM	1	05/26/2023 14:27	M1O	C

SURROGATES

Compound	CAS No	Recovery	Limits(%)	Analysis Date/Time	Qualifiers
2-Methylnapthalene-d10	7297-45-2	70.9%	29 – 112	05/26/2023 14:27	
Fluoranthene-d10	93951-69-0	78.4%	45 – 130	05/26/2023 14:27	

VOLATILE ORGANICS

Compound	Result	Flag	Units	RDL	Method	Dilution	Analysis Date/Time	By	Cntr
1,1,1,2-Tetrachloroethane	1.0 U	U,5	ug/L	1.0	SW846 8260D	1	06/02/2023 17:00	TMP	A
1,1,1-Trichloroethane	1.0 U	U	ug/L	1.0	SW846 8260D	1	06/02/2023 17:00	TMP	A
1,1,2,2-Tetrachloroethane	1.0 U	U	ug/L	1.0	SW846 8260D	1	06/02/2023 17:00	TMP	A
1,1,2-Trichloroethane	1.0 U	U	ug/L	1.0	SW846 8260D	1	06/02/2023 17:00	TMP	A
1,1-Dichloroethane	1.0 U	U	ug/L	1.0	SW846 8260D	1	06/02/2023 17:00	TMP	A
1,1-Dichloroethene	1.0 U	U	ug/L	1.0	SW846 8260D	1	06/02/2023 17:00	TMP	A
1,1-Dichloropropene	1.0 U	U	ug/L	1.0	SW846 8260D	1	06/02/2023 17:00	TMP	A
1,2,3-Trichlorobenzene	2.0 U	U	ug/L	2.0	SW846 8260D	1	06/02/2023 17:00	TMP	A
1,2,3-Trichloropropane	2.0 U	U	ug/L	2.0	SW846 8260D	1	06/02/2023 17:00	TMP	A
1,2,4-Trichlorobenzene	2.0 U	U	ug/L	2.0	SW846 8260D	1	06/02/2023 17:00	TMP	A
1,2-Dibromo-3-chloropropane	7.0 U	U	ug/L	7.0	SW846 8260D	1	06/02/2023 17:00	TMP	A
1,2-Dibromoethane	1.0 U	U	ug/L	1.0	SW846 8260D	1	06/02/2023 17:00	TMP	A
1,2-Dichlorobenzene	1.0 U	U	ug/L	1.0	SW846 8260D	1	06/02/2023 17:00	TMP	A
1,2-Dichloroethane	1.0 U	U	ug/L	1.0	SW846 8260D	1	06/02/2023 17:00	TMP	A
1,2-Dichloropropane	1.0 U	U	ug/L	1.0	SW846 8260D	1	06/02/2023 17:00	TMP	A
1,3-Dichlorobenzene	1.0 U	U	ug/L	1.0	SW846 8260D	1	06/02/2023 17:00	TMP	A
1,3-Dichloropropane	1.0 U	U	ug/L	1.0	SW846 8260D	1	06/02/2023 17:00	TMP	A
1,4-Dichlorobenzene	1.0 U	U	ug/L	1.0	SW846 8260D	1	06/02/2023 17:00	TMP	A
2,2-Dichloropropane	1.0 U	U	ug/L	1.0	SW846 8260D	1	06/02/2023 17:00	TMP	A
2-Butanone	10.0 U	U	ug/L	10.0	SW846 8260D	1	06/02/2023 17:00	TMP	A
2-Hexanone	5.0 U	U	ug/L	5.0	SW846 8260D	1	06/02/2023 17:00	TMP	A
4-Methyl-2-Pentanone(MIBK)	5.0 U	U	ug/L	5.0	SW846 8260D	1	06/02/2023 17:00	TMP	A
Acetone	10.0 U	U	ug/L	10.0	SW846 8260D	1	06/02/2023 17:00	TMP	A
Benzene	1.0 U	U	ug/L	1.0	SW846 8260D	1	06/02/2023 17:00	TMP	A
Bromobenzene	1.0 U	U	ug/L	1.0	SW846 8260D	1	06/02/2023 17:00	TMP	A
Bromochloromethane	1.0 U	U	ug/L	1.0	SW846 8260D	1	06/02/2023 17:00	TMP	A
Bromodichloromethane	1.0 U	U	ug/L	1.0	SW846 8260D	1	06/02/2023 17:00	TMP	A
Bromoform	1.0 U	U	ug/L	1.0	SW846 8260D	1	06/02/2023 17:00	TMP	A
Bromomethane	1.0 U	U	ug/L	1.0	SW846 8260D	1	06/02/2023 17:00	TMP	A
Carbon Tetrachloride	1.0 U	U	ug/L	1.0	SW846 8260D	1	06/02/2023 17:00	TMP	A
Chlorobenzene	1.0 U	U	ug/L	1.0	SW846 8260D	1	06/02/2023 17:00	TMP	A
Chlorodibromomethane	1.0 U	U	ug/L	1.0	SW846 8260D	1	06/02/2023 17:00	TMP	A
Chloroethane	1.0 U	U	ug/L	1.0	SW846 8260D	1	06/02/2023 17:00	TMP	A
Chloroform	1.0 U	U	ug/L	1.0	SW846 8260D	1	06/02/2023 17:00	TMP	A
Chloromethane	1.0 U	U	ug/L	1.0	SW846 8260D	1	06/02/2023 17:00	TMP	A

Results

Client Sample ID	MW-40D	Collected	05/21/2023 12:10
Lab Sample ID	3304367015	Lab Receipt	05/22/2023 18:15

VOLATILE ORGANICS (cont.)

Compound	Result	Flag	Units	RDL	Method	Dilution	Analysis Date/Time	By	Cntr
cis-1,2-Dichloroethene	1.0 U	U	ug/L	1.0	SW846 8260D	1	06/02/2023 17:00	TMP	A
cis-1,3-Dichloropropene	1.0 U	U	ug/L	1.0	SW846 8260D	1	06/02/2023 17:00	TMP	A
Dibromomethane	1.0 U	U	ug/L	1.0	SW846 8260D	1	06/02/2023 17:00	TMP	A
Dichlorodifluoromethane	1.0 U	U	ug/L	1.0	SW846 8260D	1	06/02/2023 17:00	TMP	A
Diisopropyl ether	1.0 U	U	ug/L	1.0	SW846 8260D	1	06/02/2023 17:00	TMP	A
Ethylbenzene	1.0 U	U	ug/L	1.0	SW846 8260D	1	06/02/2023 17:00	TMP	A
Hexachlorobutadiene	5.0 U	U	ug/L	5.0	SW846 8260D	1	06/02/2023 17:00	TMP	A
Methyl t-Butyl Ether	1.0 U	U	ug/L	1.0	SW846 8260D	1	06/02/2023 17:00	TMP	A
Methylene Chloride	1.0 U	U	ug/L	1.0	SW846 8260D	1	06/02/2023 17:00	TMP	A
mp-Xylene	2.0 U	U	ug/L	2.0	SW846 8260D	1	06/02/2023 17:00	TMP	A
Naphthalene	2.0 U	U	ug/L	2.0	SW846 8260D	1	06/02/2023 17:00	TMP	A
o-Chlorotoluene	1.0 U	U	ug/L	1.0	SW846 8260D	1	06/02/2023 17:00	TMP	A
o-Xylene	1.0 U	U	ug/L	1.0	SW846 8260D	1	06/02/2023 17:00	TMP	A
p-Chlorotoluene	1.0 U	U	ug/L	1.0	SW846 8260D	1	06/02/2023 17:00	TMP	A
p-Isopropyltoluene	1.0 U	U	ug/L	1.0	SW846 8260D	1	06/02/2023 17:00	TMP	A
Styrene	1.0 U	U	ug/L	1.0	SW846 8260D	1	06/02/2023 17:00	TMP	A
Tetrachloroethene	1.0 U	U	ug/L	1.0	SW846 8260D	1	06/02/2023 17:00	TMP	A
Toluene	1.0 U	U	ug/L	1.0	SW846 8260D	1	06/02/2023 17:00	TMP	A
Total Xylenes	3.0 U	U	ug/L	3.0	SW846 8260D	1	06/02/2023 17:00	TMP	A
trans-1,2-Dichloroethene	1.0 U	U	ug/L	1.0	SW846 8260D	1	06/02/2023 17:00	TMP	A
trans-1,3-Dichloropropene	1.0 U	U	ug/L	1.0	SW846 8260D	1	06/02/2023 17:00	TMP	A
Trichloroethene	1.0 U	U	ug/L	1.0	SW846 8260D	1	06/02/2023 17:00	TMP	A
Trichlorofluoromethane	1.0 U	U	ug/L	1.0	SW846 8260D	1	06/02/2023 17:00	TMP	A
Vinyl Acetate	5.0 U	U	ug/L	5.0	SW846 8260D	1	06/02/2023 17:00	TMP	A
Vinyl Chloride	1.0 U	U	ug/L	1.0	SW846 8260D	1	06/02/2023 17:00	TMP	A

SURROGATES

Compound	CAS No	Recovery	Limits(%)	Analysis Date/Time	Qualifiers
1,2-Dichloroethane-d4	17060-07-0	104%	62 – 133	06/02/2023 17:00	
4-Bromofluorobenzene	460-00-4	98.7%	79 – 114	06/02/2023 17:00	
Dibromofluoromethane	1868-53-7	95.5%	78 – 116	06/02/2023 17:00	
Toluene-d8	2037-26-5	98.3%	76 – 127	06/02/2023 17:00	

Results

Client Sample ID	MW-38R	Collected	05/21/2023 13:35
Lab Sample ID	3304367016	Lab Receipt	05/22/2023 18:15

SEMIVOLATILE SIM

Compound	Result	Flag	Units	RDL	Method	Dilution	Analysis Date/Time	By	Cntr
1,4-Dioxane	11.4		ug/L	10.0	SW846 8270E SIM	10	05/27/2023 07:19	M1O	C

SURROGATES

Compound	CAS No	Recovery	Limits(%)	Analysis Date/Time	Qualifiers
2-Methylnapthalene-d10	7297-45-2	59.3%	29 – 112	05/26/2023 14:54	
2-Methylnapthalene-d10	7297-45-2	47%	29 – 112	05/27/2023 07:19	
Fluoranthene-d10	93951-69-0	64.4%	45 – 130	05/26/2023 14:54	
Fluoranthene-d10	93951-69-0	50.1%	45 – 130	05/27/2023 07:19	

VOLATILE ORGANICS

Compound	Result	Flag	Units	RDL	Method	Dilution	Analysis Date/Time	By	Cntr
1,1,1,2-Tetrachloroethane	1.0 U	U,5	ug/L	1.0	SW846 8260D	1	06/02/2023 17:24	TMP	A
1,1,1-Trichloroethane	1.0 U	U	ug/L	1.0	SW846 8260D	1	06/02/2023 17:24	TMP	A
1,1,2,2-Tetrachloroethane	1.0 U	U	ug/L	1.0	SW846 8260D	1	06/02/2023 17:24	TMP	A
1,1,2-Trichloroethane	1.0 U	U	ug/L	1.0	SW846 8260D	1	06/02/2023 17:24	TMP	A
1,1-Dichloroethane	6.8		ug/L	1.0	SW846 8260D	1	06/02/2023 17:24	TMP	A
1,1-Dichloroethene	1.0 U	U	ug/L	1.0	SW846 8260D	1	06/02/2023 17:24	TMP	A
1,1-Dichloropropene	1.0 U	U	ug/L	1.0	SW846 8260D	1	06/02/2023 17:24	TMP	A
1,2,3-Trichlorobenzene	2.0 U	U	ug/L	2.0	SW846 8260D	1	06/02/2023 17:24	TMP	A
1,2,3-Trichloropropane	2.0 U	U	ug/L	2.0	SW846 8260D	1	06/02/2023 17:24	TMP	A
1,2,4-Trichlorobenzene	2.0 U	U	ug/L	2.0	SW846 8260D	1	06/02/2023 17:24	TMP	A
1,2-Dibromo-3-chloropropane	7.0 U	U	ug/L	7.0	SW846 8260D	1	06/02/2023 17:24	TMP	A
1,2-Dibromoethane	1.0 U	U	ug/L	1.0	SW846 8260D	1	06/02/2023 17:24	TMP	A
1,2-Dichlorobenzene	1.0 U	U	ug/L	1.0	SW846 8260D	1	06/02/2023 17:24	TMP	A
1,2-Dichloroethane	1.0 U	U	ug/L	1.0	SW846 8260D	1	06/02/2023 17:24	TMP	A
1,2-Dichloropropane	1.0 U	U	ug/L	1.0	SW846 8260D	1	06/02/2023 17:24	TMP	A
1,3-Dichlorobenzene	1.0 U	U	ug/L	1.0	SW846 8260D	1	06/02/2023 17:24	TMP	A
1,3-Dichloropropane	1.0 U	U	ug/L	1.0	SW846 8260D	1	06/02/2023 17:24	TMP	A
1,4-Dichlorobenzene	1.0 U	U	ug/L	1.0	SW846 8260D	1	06/02/2023 17:24	TMP	A
2,2-Dichloropropane	1.0 U	U	ug/L	1.0	SW846 8260D	1	06/02/2023 17:24	TMP	A
2-Butanone	10.0 U	U	ug/L	10.0	SW846 8260D	1	06/02/2023 17:24	TMP	A
2-Hexanone	5.0 U	U	ug/L	5.0	SW846 8260D	1	06/02/2023 17:24	TMP	A
4-Methyl-2-Pentanone(MIBK)	5.0 U	U	ug/L	5.0	SW846 8260D	1	06/02/2023 17:24	TMP	A
Acetone	10.0 U	U	ug/L	10.0	SW846 8260D	1	06/02/2023 17:24	TMP	A
Benzene	1.0 U	U	ug/L	1.0	SW846 8260D	1	06/02/2023 17:24	TMP	A
Bromobenzene	1.0 U	U	ug/L	1.0	SW846 8260D	1	06/02/2023 17:24	TMP	A
Bromochloromethane	1.0 U	U	ug/L	1.0	SW846 8260D	1	06/02/2023 17:24	TMP	A
Bromodichloromethane	1.0 U	U	ug/L	1.0	SW846 8260D	1	06/02/2023 17:24	TMP	A
Bromoform	1.0 U	U	ug/L	1.0	SW846 8260D	1	06/02/2023 17:24	TMP	A
Bromomethane	1.0 U	U	ug/L	1.0	SW846 8260D	1	06/02/2023 17:24	TMP	A
Carbon Tetrachloride	1.0 U	U	ug/L	1.0	SW846 8260D	1	06/02/2023 17:24	TMP	A
Chlorobenzene	1.0 U	U	ug/L	1.0	SW846 8260D	1	06/02/2023 17:24	TMP	A
Chlorodibromomethane	1.0 U	U	ug/L	1.0	SW846 8260D	1	06/02/2023 17:24	TMP	A
Chloroethane	1.0 U	U	ug/L	1.0	SW846 8260D	1	06/02/2023 17:24	TMP	A

Results

Client Sample ID	MW-38R	Collected	05/21/2023 13:35
Lab Sample ID	3304367016	Lab Receipt	05/22/2023 18:15

VOLATILE ORGANICS (cont.)

Compound	Result	Flag	Units	RDL	Method	Dilution	Analysis Date/Time	By	Cntr
Chloroform	1.0 U	U	ug/L	1.0	SW846 8260D	1	06/02/2023 17:24	TMP	A
Chloromethane	1.0 U	U	ug/L	1.0	SW846 8260D	1	06/02/2023 17:24	TMP	A
cis-1,2-Dichloroethene	1.0 U	U	ug/L	1.0	SW846 8260D	1	06/02/2023 17:24	TMP	A
cis-1,3-Dichloropropene	1.0 U	U	ug/L	1.0	SW846 8260D	1	06/02/2023 17:24	TMP	A
Dibromomethane	1.0 U	U	ug/L	1.0	SW846 8260D	1	06/02/2023 17:24	TMP	A
Dichlorodifluoromethane	1.0 U	U	ug/L	1.0	SW846 8260D	1	06/02/2023 17:24	TMP	A
Diisopropyl ether	1.0 U	U	ug/L	1.0	SW846 8260D	1	06/02/2023 17:24	TMP	A
Ethylbenzene	1.0 U	U	ug/L	1.0	SW846 8260D	1	06/02/2023 17:24	TMP	A
Hexachlorobutadiene	5.0 U	U	ug/L	5.0	SW846 8260D	1	06/02/2023 17:24	TMP	A
Methyl t-Butyl Ether	1.0 U	U	ug/L	1.0	SW846 8260D	1	06/02/2023 17:24	TMP	A
Methylene Chloride	1.0 U	U	ug/L	1.0	SW846 8260D	1	06/02/2023 17:24	TMP	A
mp-Xylene	2.0 U	U	ug/L	2.0	SW846 8260D	1	06/02/2023 17:24	TMP	A
Naphthalene	2.0 U	U	ug/L	2.0	SW846 8260D	1	06/02/2023 17:24	TMP	A
o-Chlorotoluene	1.0 U	U	ug/L	1.0	SW846 8260D	1	06/02/2023 17:24	TMP	A
o-Xylene	1.0 U	U	ug/L	1.0	SW846 8260D	1	06/02/2023 17:24	TMP	A
p-Chlorotoluene	1.0 U	U	ug/L	1.0	SW846 8260D	1	06/02/2023 17:24	TMP	A
p-Isopropyltoluene	1.0 U	U	ug/L	1.0	SW846 8260D	1	06/02/2023 17:24	TMP	A
Styrene	1.0 U	U	ug/L	1.0	SW846 8260D	1	06/02/2023 17:24	TMP	A
Tetrachloroethene	1.0 U	U	ug/L	1.0	SW846 8260D	1	06/02/2023 17:24	TMP	A
Toluene	1.0 U	U	ug/L	1.0	SW846 8260D	1	06/02/2023 17:24	TMP	A
Total Xylenes	3.0 U	U	ug/L	3.0	SW846 8260D	1	06/02/2023 17:24	TMP	A
trans-1,2-Dichloroethene	1.0 U	U	ug/L	1.0	SW846 8260D	1	06/02/2023 17:24	TMP	A
trans-1,3-Dichloropropene	1.0 U	U	ug/L	1.0	SW846 8260D	1	06/02/2023 17:24	TMP	A
Trichloroethene	1.0 U	U	ug/L	1.0	SW846 8260D	1	06/02/2023 17:24	TMP	A
Trichlorofluoromethane	1.0 U	U	ug/L	1.0	SW846 8260D	1	06/02/2023 17:24	TMP	A
Vinyl Acetate	5.0 U	U	ug/L	5.0	SW846 8260D	1	06/02/2023 17:24	TMP	A
Vinyl Chloride	1.0 U	U	ug/L	1.0	SW846 8260D	1	06/02/2023 17:24	TMP	A

SURROGATES

Compound	CAS No	Recovery	Limits(%)	Analysis Date/Time	Qualifiers
1,2-Dichloroethane-d4	17060-07-0	101%	62 – 133	06/02/2023 17:24	
4-Bromofluorobenzene	460-00-4	97.4%	79 – 114	06/02/2023 17:24	
Dibromofluoromethane	1868-53-7	94.5%	78 – 116	06/02/2023 17:24	
Toluene-d8	2037-26-5	98.4%	76 – 127	06/02/2023 17:24	

Results

Client Sample ID	MW-05R	Collected	05/21/2023 13:55
Lab Sample ID	3304367017	Lab Receipt	05/22/2023 18:15

SEMIVOLATILE SIM

Compound	Result	Flag	Units	RDL	Method	Dilution	Analysis Date/Time	By	Cntr
1,4-Dioxane	3.3		ug/L	1.0	SW846 8270E SIM	1	05/26/2023 15:21	M1O	C

SURROGATES

Compound	CAS No	Recovery	Limits(%)	Analysis Date/Time	Qualifiers
2-Methylnapthalene-d10	7297-45-2	67.9%	29 – 112	05/26/2023 15:21	
Fluoranthene-d10	93951-69-0	76.2%	45 – 130	05/26/2023 15:21	

VOLATILE ORGANICS

Compound	Result	Flag	Units	RDL	Method	Dilution	Analysis Date/Time	By	Cntr
1,1,1,2-Tetrachloroethane	1.0 U	U,5	ug/L	1.0	SW846 8260D	1	06/02/2023 17:47	TMP	A
1,1,1-Trichloroethane	1.6		ug/L	1.0	SW846 8260D	1	06/02/2023 17:47	TMP	A
1,1,2,2-Tetrachloroethane	1.0 U	U	ug/L	1.0	SW846 8260D	1	06/02/2023 17:47	TMP	A
1,1,2-Trichloroethane	1.0 U	U	ug/L	1.0	SW846 8260D	1	06/02/2023 17:47	TMP	A
1,1-Dichloroethane	1.2		ug/L	1.0	SW846 8260D	1	06/02/2023 17:47	TMP	A
1,1-Dichloroethene	1.0 U	U	ug/L	1.0	SW846 8260D	1	06/02/2023 17:47	TMP	A
1,1-Dichloropropene	1.0 U	U	ug/L	1.0	SW846 8260D	1	06/02/2023 17:47	TMP	A
1,2,3-Trichlorobenzene	2.0 U	U	ug/L	2.0	SW846 8260D	1	06/02/2023 17:47	TMP	A
1,2,3-Trichloropropane	2.0 U	U	ug/L	2.0	SW846 8260D	1	06/02/2023 17:47	TMP	A
1,2,4-Trichlorobenzene	2.0 U	U	ug/L	2.0	SW846 8260D	1	06/02/2023 17:47	TMP	A
1,2-Dibromo-3-chloropropane	7.0 U	U	ug/L	7.0	SW846 8260D	1	06/02/2023 17:47	TMP	A
1,2-Dibromoethane	1.0 U	U	ug/L	1.0	SW846 8260D	1	06/02/2023 17:47	TMP	A
1,2-Dichlorobenzene	1.0 U	U	ug/L	1.0	SW846 8260D	1	06/02/2023 17:47	TMP	A
1,2-Dichloroethane	1.0 U	U	ug/L	1.0	SW846 8260D	1	06/02/2023 17:47	TMP	A
1,2-Dichloropropane	1.0 U	U	ug/L	1.0	SW846 8260D	1	06/02/2023 17:47	TMP	A
1,3-Dichlorobenzene	1.0 U	U	ug/L	1.0	SW846 8260D	1	06/02/2023 17:47	TMP	A
1,3-Dichloropropane	1.0 U	U	ug/L	1.0	SW846 8260D	1	06/02/2023 17:47	TMP	A
1,4-Dichlorobenzene	1.0 U	U	ug/L	1.0	SW846 8260D	1	06/02/2023 17:47	TMP	A
2,2-Dichloropropane	1.0 U	U	ug/L	1.0	SW846 8260D	1	06/02/2023 17:47	TMP	A
2-Butanone	10.0 U	U	ug/L	10.0	SW846 8260D	1	06/02/2023 17:47	TMP	A
2-Hexanone	5.0 U	U	ug/L	5.0	SW846 8260D	1	06/02/2023 17:47	TMP	A
4-Methyl-2-Pentanone(MIBK)	5.0 U	U	ug/L	5.0	SW846 8260D	1	06/02/2023 17:47	TMP	A
Acetone	10.0 U	U	ug/L	10.0	SW846 8260D	1	06/02/2023 17:47	TMP	A
Benzene	1.0 U	U	ug/L	1.0	SW846 8260D	1	06/02/2023 17:47	TMP	A
Bromobenzene	1.0 U	U	ug/L	1.0	SW846 8260D	1	06/02/2023 17:47	TMP	A
Bromochloromethane	1.0 U	U	ug/L	1.0	SW846 8260D	1	06/02/2023 17:47	TMP	A
Bromodichloromethane	1.0 U	U	ug/L	1.0	SW846 8260D	1	06/02/2023 17:47	TMP	A
Bromoform	1.0 U	U	ug/L	1.0	SW846 8260D	1	06/02/2023 17:47	TMP	A
Bromomethane	1.0 U	U	ug/L	1.0	SW846 8260D	1	06/02/2023 17:47	TMP	A
Carbon Tetrachloride	1.0 U	U	ug/L	1.0	SW846 8260D	1	06/02/2023 17:47	TMP	A
Chlorobenzene	1.0 U	U	ug/L	1.0	SW846 8260D	1	06/02/2023 17:47	TMP	A
Chlorodibromomethane	1.0 U	U	ug/L	1.0	SW846 8260D	1	06/02/2023 17:47	TMP	A
Chloroethane	1.0 U	U	ug/L	1.0	SW846 8260D	1	06/02/2023 17:47	TMP	A
Chloroform	1.0 U	U	ug/L	1.0	SW846 8260D	1	06/02/2023 17:47	TMP	A
Chloromethane	1.0 U	U	ug/L	1.0	SW846 8260D	1	06/02/2023 17:47	TMP	A

Results

Client Sample ID	MW-05R	Collected	05/21/2023 13:55
Lab Sample ID	3304367017	Lab Receipt	05/22/2023 18:15

VOLATILE ORGANICS (cont.)

Compound	Result	Flag	Units	RDL	Method	Dilution	Analysis Date/Time	By	Cntr
cis-1,2-Dichloroethene	1.0 U	U	ug/L	1.0	SW846 8260D	1	06/02/2023 17:47	TMP	A
cis-1,3-Dichloropropene	1.0 U	U	ug/L	1.0	SW846 8260D	1	06/02/2023 17:47	TMP	A
Dibromomethane	1.0 U	U	ug/L	1.0	SW846 8260D	1	06/02/2023 17:47	TMP	A
Dichlorodifluoromethane	1.0 U	U	ug/L	1.0	SW846 8260D	1	06/02/2023 17:47	TMP	A
Diisopropyl ether	1.0 U	U	ug/L	1.0	SW846 8260D	1	06/02/2023 17:47	TMP	A
Ethylbenzene	1.0 U	U	ug/L	1.0	SW846 8260D	1	06/02/2023 17:47	TMP	A
Hexachlorobutadiene	5.0 U	U	ug/L	5.0	SW846 8260D	1	06/02/2023 17:47	TMP	A
Methyl t-Butyl Ether	1.0 U	U	ug/L	1.0	SW846 8260D	1	06/02/2023 17:47	TMP	A
Methylene Chloride	1.0 U	U	ug/L	1.0	SW846 8260D	1	06/02/2023 17:47	TMP	A
mp-Xylene	2.0 U	U	ug/L	2.0	SW846 8260D	1	06/02/2023 17:47	TMP	A
Naphthalene	2.0 U	U	ug/L	2.0	SW846 8260D	1	06/02/2023 17:47	TMP	A
o-Chlorotoluene	1.0 U	U	ug/L	1.0	SW846 8260D	1	06/02/2023 17:47	TMP	A
o-Xylene	1.0 U	U	ug/L	1.0	SW846 8260D	1	06/02/2023 17:47	TMP	A
p-Chlorotoluene	1.0 U	U	ug/L	1.0	SW846 8260D	1	06/02/2023 17:47	TMP	A
p-Isopropyltoluene	1.0 U	U	ug/L	1.0	SW846 8260D	1	06/02/2023 17:47	TMP	A
Styrene	1.0 U	U	ug/L	1.0	SW846 8260D	1	06/02/2023 17:47	TMP	A
Tetrachloroethene	1.0 U	U	ug/L	1.0	SW846 8260D	1	06/02/2023 17:47	TMP	A
Toluene	1.0 U	U	ug/L	1.0	SW846 8260D	1	06/02/2023 17:47	TMP	A
Total Xylenes	3.0 U	U	ug/L	3.0	SW846 8260D	1	06/02/2023 17:47	TMP	A
trans-1,2-Dichloroethene	1.0 U	U	ug/L	1.0	SW846 8260D	1	06/02/2023 17:47	TMP	A
trans-1,3-Dichloropropene	1.0 U	U	ug/L	1.0	SW846 8260D	1	06/02/2023 17:47	TMP	A
Trichloroethene	1.0 U	U	ug/L	1.0	SW846 8260D	1	06/02/2023 17:47	TMP	A
Trichlorofluoromethane	1.0 U	U	ug/L	1.0	SW846 8260D	1	06/02/2023 17:47	TMP	A
Vinyl Acetate	5.0 U	U	ug/L	5.0	SW846 8260D	1	06/02/2023 17:47	TMP	A
Vinyl Chloride	1.0 U	U	ug/L	1.0	SW846 8260D	1	06/02/2023 17:47	TMP	A

SURROGATES

Compound	CAS No	Recovery	Limits(%)	Analysis Date/Time	Qualifiers
1,2-Dichloroethane-d4	17060-07-0	104%	62 – 133	06/02/2023 17:47	
4-Bromofluorobenzene	460-00-4	99.6%	79 – 114	06/02/2023 17:47	
Dibromofluoromethane	1868-53-7	95.5%	78 – 116	06/02/2023 17:47	
Toluene-d8	2037-26-5	97.7%	76 – 127	06/02/2023 17:47	

Results

Client Sample ID	MW-44	Collected	05/21/2023 14:05
Lab Sample ID	3304367018	Lab Receipt	05/22/2023 18:15

SEMIVOLATILE SIM

Compound	Result	Flag	Units	RDL	Method	Dilution	Analysis Date/Time	By	Cntr
1,4-Dioxane	1.9		ug/L	1.6	SW846 8270E SIM	1	05/26/2023 15:49	M1O	C

SURROGATES

Compound	CAS No	Recovery	Limits(%)	Analysis Date/Time	Qualifiers
2-Methylnapthalene-d10	7297-45-2	70.3%	29 – 112	05/26/2023 15:49	
Fluoranthene-d10	93951-69-0	82.5%	45 – 130	05/26/2023 15:49	

VOLATILE ORGANICS

Compound	Result	Flag	Units	RDL	Method	Dilution	Analysis Date/Time	By	Cntr
1,1,1,2-Tetrachloroethane	1.0 U	U,5	ug/L	1.0	SW846 8260D	1	06/02/2023 18:10	TMP	A
1,1,1-Trichloroethane	2.6		ug/L	1.0	SW846 8260D	1	06/02/2023 18:10	TMP	A
1,1,2,2-Tetrachloroethane	1.0 U	U	ug/L	1.0	SW846 8260D	1	06/02/2023 18:10	TMP	A
1,1,2-Trichloroethane	1.0 U	U	ug/L	1.0	SW846 8260D	1	06/02/2023 18:10	TMP	A
1,1-Dichloroethane	1.2		ug/L	1.0	SW846 8260D	1	06/02/2023 18:10	TMP	A
1,1-Dichloroethene	1.9		ug/L	1.0	SW846 8260D	1	06/02/2023 18:10	TMP	A
1,1-Dichloropropene	1.0 U	U	ug/L	1.0	SW846 8260D	1	06/02/2023 18:10	TMP	A
1,2,3-Trichlorobenzene	2.0 U	U	ug/L	2.0	SW846 8260D	1	06/02/2023 18:10	TMP	A
1,2,3-Trichloropropane	2.0 U	U	ug/L	2.0	SW846 8260D	1	06/02/2023 18:10	TMP	A
1,2,4-Trichlorobenzene	2.0 U	U	ug/L	2.0	SW846 8260D	1	06/02/2023 18:10	TMP	A
1,2-Dibromo-3-chloropropane	7.0 U	U	ug/L	7.0	SW846 8260D	1	06/02/2023 18:10	TMP	A
1,2-Dibromoethane	1.0 U	U	ug/L	1.0	SW846 8260D	1	06/02/2023 18:10	TMP	A
1,2-Dichlorobenzene	1.0 U	U	ug/L	1.0	SW846 8260D	1	06/02/2023 18:10	TMP	A
1,2-Dichloroethane	1.0 U	U	ug/L	1.0	SW846 8260D	1	06/02/2023 18:10	TMP	A
1,2-Dichloropropane	1.0 U	U	ug/L	1.0	SW846 8260D	1	06/02/2023 18:10	TMP	A
1,3-Dichlorobenzene	1.0 U	U	ug/L	1.0	SW846 8260D	1	06/02/2023 18:10	TMP	A
1,3-Dichloropropane	1.0 U	U	ug/L	1.0	SW846 8260D	1	06/02/2023 18:10	TMP	A
1,4-Dichlorobenzene	1.0 U	U	ug/L	1.0	SW846 8260D	1	06/02/2023 18:10	TMP	A
2,2-Dichloropropane	1.0 U	U	ug/L	1.0	SW846 8260D	1	06/02/2023 18:10	TMP	A
2-Butanone	10.0 U	U	ug/L	10.0	SW846 8260D	1	06/02/2023 18:10	TMP	A
2-Hexanone	5.0 U	U	ug/L	5.0	SW846 8260D	1	06/02/2023 18:10	TMP	A
4-Methyl-2-Pentanone(MIBK)	5.0 U	U	ug/L	5.0	SW846 8260D	1	06/02/2023 18:10	TMP	A
Acetone	10.0 U	U	ug/L	10.0	SW846 8260D	1	06/02/2023 18:10	TMP	A
Benzene	1.0 U	U	ug/L	1.0	SW846 8260D	1	06/02/2023 18:10	TMP	A
Bromobenzene	1.0 U	U	ug/L	1.0	SW846 8260D	1	06/02/2023 18:10	TMP	A
Bromochloromethane	1.0 U	U	ug/L	1.0	SW846 8260D	1	06/02/2023 18:10	TMP	A
Bromodichloromethane	1.0 U	U	ug/L	1.0	SW846 8260D	1	06/02/2023 18:10	TMP	A
Bromoform	1.0 U	U	ug/L	1.0	SW846 8260D	1	06/02/2023 18:10	TMP	A
Bromomethane	1.0 U	U	ug/L	1.0	SW846 8260D	1	06/02/2023 18:10	TMP	A
Carbon Tetrachloride	1.0 U	U	ug/L	1.0	SW846 8260D	1	06/02/2023 18:10	TMP	A
Chlorobenzene	1.0 U	U	ug/L	1.0	SW846 8260D	1	06/02/2023 18:10	TMP	A
Chlorodibromomethane	1.0 U	U	ug/L	1.0	SW846 8260D	1	06/02/2023 18:10	TMP	A
Chloroethane	1.0 U	U	ug/L	1.0	SW846 8260D	1	06/02/2023 18:10	TMP	A
Chloroform	1.0 U	U	ug/L	1.0	SW846 8260D	1	06/02/2023 18:10	TMP	A
Chloromethane	1.0 U	U	ug/L	1.0	SW846 8260D	1	06/02/2023 18:10	TMP	A

Results

Client Sample ID	MW-44	Collected	05/21/2023 14:05
Lab Sample ID	3304367018	Lab Receipt	05/22/2023 18:15

VOLATILE ORGANICS (cont.)

Compound	Result	Flag	Units	RDL	Method	Dilution	Analysis Date/Time	By	Cntr
cis-1,2-Dichloroethene	1.0 U	U	ug/L	1.0	SW846 8260D	1	06/02/2023 18:10	TMP	A
cis-1,3-Dichloropropene	1.0 U	U	ug/L	1.0	SW846 8260D	1	06/02/2023 18:10	TMP	A
Dibromomethane	1.0 U	U	ug/L	1.0	SW846 8260D	1	06/02/2023 18:10	TMP	A
Dichlorodifluoromethane	1.0 U	U	ug/L	1.0	SW846 8260D	1	06/02/2023 18:10	TMP	A
Diisopropyl ether	1.0 U	U	ug/L	1.0	SW846 8260D	1	06/02/2023 18:10	TMP	A
Ethylbenzene	1.0 U	U	ug/L	1.0	SW846 8260D	1	06/02/2023 18:10	TMP	A
Hexachlorobutadiene	5.0 U	U	ug/L	5.0	SW846 8260D	1	06/02/2023 18:10	TMP	A
Methyl t-Butyl Ether	1.0 U	U	ug/L	1.0	SW846 8260D	1	06/02/2023 18:10	TMP	A
Methylene Chloride	1.0 U	U	ug/L	1.0	SW846 8260D	1	06/02/2023 18:10	TMP	A
mp-Xylene	2.0 U	U	ug/L	2.0	SW846 8260D	1	06/02/2023 18:10	TMP	A
Naphthalene	2.0 U	U	ug/L	2.0	SW846 8260D	1	06/02/2023 18:10	TMP	A
o-Chlorotoluene	1.0 U	U	ug/L	1.0	SW846 8260D	1	06/02/2023 18:10	TMP	A
o-Xylene	1.0 U	U	ug/L	1.0	SW846 8260D	1	06/02/2023 18:10	TMP	A
p-Chlorotoluene	1.0 U	U	ug/L	1.0	SW846 8260D	1	06/02/2023 18:10	TMP	A
p-Isopropyltoluene	1.0 U	U	ug/L	1.0	SW846 8260D	1	06/02/2023 18:10	TMP	A
Styrene	1.0 U	U	ug/L	1.0	SW846 8260D	1	06/02/2023 18:10	TMP	A
Tetrachloroethene	1.0 U	U	ug/L	1.0	SW846 8260D	1	06/02/2023 18:10	TMP	A
Toluene	1.0 U	U	ug/L	1.0	SW846 8260D	1	06/02/2023 18:10	TMP	A
Total Xylenes	3.0 U	U	ug/L	3.0	SW846 8260D	1	06/02/2023 18:10	TMP	A
trans-1,2-Dichloroethene	1.0 U	U	ug/L	1.0	SW846 8260D	1	06/02/2023 18:10	TMP	A
trans-1,3-Dichloropropene	1.0 U	U	ug/L	1.0	SW846 8260D	1	06/02/2023 18:10	TMP	A
Trichloroethene	1.0 U	U	ug/L	1.0	SW846 8260D	1	06/02/2023 18:10	TMP	A
Trichlorofluoromethane	1.0 U	U	ug/L	1.0	SW846 8260D	1	06/02/2023 18:10	TMP	A
Vinyl Acetate	5.0 U	U	ug/L	5.0	SW846 8260D	1	06/02/2023 18:10	TMP	A
Vinyl Chloride	1.0 U	U	ug/L	1.0	SW846 8260D	1	06/02/2023 18:10	TMP	A

SURROGATES

Compound	CAS No	Recovery	Limits(%)	Analysis Date/Time	Qualifiers
1,2-Dichloroethane-d4	17060-07-0	101%	62 – 133	06/02/2023 18:10	
4-Bromofluorobenzene	460-00-4	99.6%	79 – 114	06/02/2023 18:10	
Dibromofluoromethane	1868-53-7	93.4%	78 – 116	06/02/2023 18:10	
Toluene-d8	2037-26-5	99%	76 – 127	06/02/2023 18:10	

Results

Client Sample ID	MW-21D	Collected	05/21/2023 14:20
Lab Sample ID	3304367019	Lab Receipt	05/22/2023 18:15

SEMIVOLATILE SIM

Compound	Result	Flag	Units	RDL	Method	Dilution	Analysis Date/Time	By	Cntr
1,4-Dioxane	7.1		ug/L	1.0	SW846 8270E SIM	1	05/26/2023 16:16	M1O	C

SURROGATES

Compound	CAS No	Recovery	Limits(%)	Analysis Date/Time	Qualifiers
2-Methylnapthalene-d10	7297-45-2	68.9%	29 – 112	05/26/2023 16:16	
Fluoranthene-d10	93951-69-0	80.1%	45 – 130	05/26/2023 16:16	

VOLATILE ORGANICS

Compound	Result	Flag	Units	RDL	Method	Dilution	Analysis Date/Time	By	Cntr
1,1,1,2-Tetrachloroethane	1.0 U	U,5	ug/L	1.0	SW846 8260D	1	06/02/2023 18:33	TMP	A
1,1,1-Trichloroethane	1.0 U	U	ug/L	1.0	SW846 8260D	1	06/02/2023 18:33	TMP	A
1,1,2,2-Tetrachloroethane	1.0 U	U	ug/L	1.0	SW846 8260D	1	06/02/2023 18:33	TMP	A
1,1,2-Trichloroethane	1.0 U	U	ug/L	1.0	SW846 8260D	1	06/02/2023 18:33	TMP	A
1,1-Dichloroethane	1.0 U	U	ug/L	1.0	SW846 8260D	1	06/02/2023 18:33	TMP	A
1,1-Dichloroethene	26.1		ug/L	1.0	SW846 8260D	1	06/02/2023 18:33	TMP	A
1,1-Dichloropropene	1.0 U	U	ug/L	1.0	SW846 8260D	1	06/02/2023 18:33	TMP	A
1,2,3-Trichlorobenzene	2.0 U	U	ug/L	2.0	SW846 8260D	1	06/02/2023 18:33	TMP	A
1,2,3-Trichloropropane	2.0 U	U	ug/L	2.0	SW846 8260D	1	06/02/2023 18:33	TMP	A
1,2,4-Trichlorobenzene	2.0 U	U	ug/L	2.0	SW846 8260D	1	06/02/2023 18:33	TMP	A
1,2-Dibromo-3-chloropropane	7.0 U	U	ug/L	7.0	SW846 8260D	1	06/02/2023 18:33	TMP	A
1,2-Dibromoethane	1.0 U	U	ug/L	1.0	SW846 8260D	1	06/02/2023 18:33	TMP	A
1,2-Dichlorobenzene	1.0 U	U	ug/L	1.0	SW846 8260D	1	06/02/2023 18:33	TMP	A
1,2-Dichloroethane	1.0 U	U	ug/L	1.0	SW846 8260D	1	06/02/2023 18:33	TMP	A
1,2-Dichloropropane	1.0 U	U	ug/L	1.0	SW846 8260D	1	06/02/2023 18:33	TMP	A
1,3-Dichlorobenzene	1.0 U	U	ug/L	1.0	SW846 8260D	1	06/02/2023 18:33	TMP	A
1,3-Dichloropropane	1.0 U	U	ug/L	1.0	SW846 8260D	1	06/02/2023 18:33	TMP	A
1,4-Dichlorobenzene	1.0 U	U	ug/L	1.0	SW846 8260D	1	06/02/2023 18:33	TMP	A
2,2-Dichloropropane	1.0 U	U	ug/L	1.0	SW846 8260D	1	06/02/2023 18:33	TMP	A
2-Butanone	10.0 U	U	ug/L	10.0	SW846 8260D	1	06/02/2023 18:33	TMP	A
2-Hexanone	5.0 U	U	ug/L	5.0	SW846 8260D	1	06/02/2023 18:33	TMP	A
4-Methyl-2-Pentanone(MIBK)	5.0 U	U	ug/L	5.0	SW846 8260D	1	06/02/2023 18:33	TMP	A
Acetone	10.0 U	U	ug/L	10.0	SW846 8260D	1	06/02/2023 18:33	TMP	A
Benzene	1.0 U	U	ug/L	1.0	SW846 8260D	1	06/02/2023 18:33	TMP	A
Bromobenzene	1.0 U	U	ug/L	1.0	SW846 8260D	1	06/02/2023 18:33	TMP	A
Bromochloromethane	1.0 U	U	ug/L	1.0	SW846 8260D	1	06/02/2023 18:33	TMP	A
Bromodichloromethane	1.0 U	U	ug/L	1.0	SW846 8260D	1	06/02/2023 18:33	TMP	A
Bromoform	1.0 U	U	ug/L	1.0	SW846 8260D	1	06/02/2023 18:33	TMP	A
Bromomethane	1.0 U	U	ug/L	1.0	SW846 8260D	1	06/02/2023 18:33	TMP	A
Carbon Tetrachloride	1.0 U	U	ug/L	1.0	SW846 8260D	1	06/02/2023 18:33	TMP	A
Chlorobenzene	1.0 U	U	ug/L	1.0	SW846 8260D	1	06/02/2023 18:33	TMP	A
Chlorodibromomethane	1.0 U	U	ug/L	1.0	SW846 8260D	1	06/02/2023 18:33	TMP	A
Chloroethane	1.0 U	U	ug/L	1.0	SW846 8260D	1	06/02/2023 18:33	TMP	A
Chloroform	1.0 U	U	ug/L	1.0	SW846 8260D	1	06/02/2023 18:33	TMP	A
Chloromethane	1.0 U	U	ug/L	1.0	SW846 8260D	1	06/02/2023 18:33	TMP	A

Results

Client Sample ID	MW-21D	Collected	05/21/2023 14:20
Lab Sample ID	3304367019	Lab Receipt	05/22/2023 18:15

VOLATILE ORGANICS (cont.)

Compound	Result	Flag	Units	RDL	Method	Dilution	Analysis Date/Time	By	Cntr
cis-1,2-Dichloroethene	1.0 U	U	ug/L	1.0	SW846 8260D	1	06/02/2023 18:33	TMP	A
cis-1,3-Dichloropropene	1.0 U	U	ug/L	1.0	SW846 8260D	1	06/02/2023 18:33	TMP	A
Dibromomethane	1.0 U	U	ug/L	1.0	SW846 8260D	1	06/02/2023 18:33	TMP	A
Dichlorodifluoromethane	1.0 U	U	ug/L	1.0	SW846 8260D	1	06/02/2023 18:33	TMP	A
Diisopropyl ether	1.0 U	U	ug/L	1.0	SW846 8260D	1	06/02/2023 18:33	TMP	A
Ethylbenzene	1.0 U	U	ug/L	1.0	SW846 8260D	1	06/02/2023 18:33	TMP	A
Hexachlorobutadiene	5.0 U	U	ug/L	5.0	SW846 8260D	1	06/02/2023 18:33	TMP	A
Methyl t-Butyl Ether	1.2		ug/L	1.0	SW846 8260D	1	06/02/2023 18:33	TMP	A
Methylene Chloride	1.0 U	U	ug/L	1.0	SW846 8260D	1	06/02/2023 18:33	TMP	A
mp-Xylene	2.0 U	U	ug/L	2.0	SW846 8260D	1	06/02/2023 18:33	TMP	A
Naphthalene	2.0 U	U	ug/L	2.0	SW846 8260D	1	06/02/2023 18:33	TMP	A
o-Chlorotoluene	1.0 U	U	ug/L	1.0	SW846 8260D	1	06/02/2023 18:33	TMP	A
o-Xylene	1.0 U	U	ug/L	1.0	SW846 8260D	1	06/02/2023 18:33	TMP	A
p-Chlorotoluene	1.0 U	U	ug/L	1.0	SW846 8260D	1	06/02/2023 18:33	TMP	A
p-Isopropyltoluene	1.0 U	U	ug/L	1.0	SW846 8260D	1	06/02/2023 18:33	TMP	A
Styrene	1.0 U	U	ug/L	1.0	SW846 8260D	1	06/02/2023 18:33	TMP	A
Tetrachloroethene	1.0 U	U	ug/L	1.0	SW846 8260D	1	06/02/2023 18:33	TMP	A
Toluene	1.0 U	U	ug/L	1.0	SW846 8260D	1	06/02/2023 18:33	TMP	A
Total Xylenes	3.0 U	U	ug/L	3.0	SW846 8260D	1	06/02/2023 18:33	TMP	A
trans-1,2-Dichloroethene	1.0 U	U	ug/L	1.0	SW846 8260D	1	06/02/2023 18:33	TMP	A
trans-1,3-Dichloropropene	1.0 U	U	ug/L	1.0	SW846 8260D	1	06/02/2023 18:33	TMP	A
Trichloroethene	1.0 U	U	ug/L	1.0	SW846 8260D	1	06/02/2023 18:33	TMP	A
Trichlorofluoromethane	1.0 U	U	ug/L	1.0	SW846 8260D	1	06/02/2023 18:33	TMP	A
Vinyl Acetate	5.0 U	U	ug/L	5.0	SW846 8260D	1	06/02/2023 18:33	TMP	A
Vinyl Chloride	1.0 U	U	ug/L	1.0	SW846 8260D	1	06/02/2023 18:33	TMP	A

SURROGATES

Compound	CAS No	Recovery	Limits(%)	Analysis Date/Time	Qualifiers
1,2-Dichloroethane-d4	17060-07-0	103%	62 – 133	06/02/2023 18:33	
4-Bromofluorobenzene	460-00-4	99.8%	79 – 114	06/02/2023 18:33	
Dibromofluoromethane	1868-53-7	95%	78 – 116	06/02/2023 18:33	
Toluene-d8	2037-26-5	98.3%	76 – 127	06/02/2023 18:33	

Results

Client Sample ID	Trip Blank A	Collected	05/21/2023 00:00
Lab Sample ID	3304367020	Lab Receipt	05/22/2023 18:15

VOLATILE ORGANICS

Compound	Result	Flag	Units	RDL	Method	Dilution	Analysis Date/Time	By	Cntr
1,1,1,2-Tetrachloroethane	1.0 U	U,5	ug/L	1.0	SW846 8260D	1	06/02/2023 12:01	TMP	A
1,1,1-Trichloroethane	1.0 U	U	ug/L	1.0	SW846 8260D	1	06/02/2023 12:01	TMP	A
1,1,2,2-Tetrachloroethane	1.0 U	U	ug/L	1.0	SW846 8260D	1	06/02/2023 12:01	TMP	A
1,1,2-Trichloroethane	1.0 U	U	ug/L	1.0	SW846 8260D	1	06/02/2023 12:01	TMP	A
1,1-Dichloroethane	1.0 U	U	ug/L	1.0	SW846 8260D	1	06/02/2023 12:01	TMP	A
1,1-Dichloroethene	1.0 U	U	ug/L	1.0	SW846 8260D	1	06/02/2023 12:01	TMP	A
1,1-Dichloropropene	1.0 U	U	ug/L	1.0	SW846 8260D	1	06/02/2023 12:01	TMP	A
1,2,3-Trichlorobenzene	2.0 U	U	ug/L	2.0	SW846 8260D	1	06/02/2023 12:01	TMP	A
1,2,3-Trichloropropane	2.0 U	U	ug/L	2.0	SW846 8260D	1	06/02/2023 12:01	TMP	A
1,2,4-Trichlorobenzene	2.0 U	U	ug/L	2.0	SW846 8260D	1	06/02/2023 12:01	TMP	A
1,2-Dibromo-3-chloropropane	7.0 U	U	ug/L	7.0	SW846 8260D	1	06/02/2023 12:01	TMP	A
1,2-Dibromoethane	1.0 U	U	ug/L	1.0	SW846 8260D	1	06/02/2023 12:01	TMP	A
1,2-Dichlorobenzene	1.0 U	U	ug/L	1.0	SW846 8260D	1	06/02/2023 12:01	TMP	A
1,2-Dichloroethane	1.0 U	U	ug/L	1.0	SW846 8260D	1	06/02/2023 12:01	TMP	A
1,2-Dichloropropane	1.0 U	U	ug/L	1.0	SW846 8260D	1	06/02/2023 12:01	TMP	A
1,3-Dichlorobenzene	1.0 U	U	ug/L	1.0	SW846 8260D	1	06/02/2023 12:01	TMP	A
1,3-Dichloropropane	1.0 U	U	ug/L	1.0	SW846 8260D	1	06/02/2023 12:01	TMP	A
1,4-Dichlorobenzene	1.0 U	U	ug/L	1.0	SW846 8260D	1	06/02/2023 12:01	TMP	A
2,2-Dichloropropane	1.0 U	U	ug/L	1.0	SW846 8260D	1	06/02/2023 12:01	TMP	A
2-Butanone	10.0 U	U	ug/L	10.0	SW846 8260D	1	06/02/2023 12:01	TMP	A
2-Hexanone	5.0 U	U	ug/L	5.0	SW846 8260D	1	06/02/2023 12:01	TMP	A
4-Methyl-2-Pentanone(MIBK)	5.0 U	U	ug/L	5.0	SW846 8260D	1	06/02/2023 12:01	TMP	A
Acetone	10.0 U	U	ug/L	10.0	SW846 8260D	1	06/02/2023 12:01	TMP	A
Benzene	1.0 U	U	ug/L	1.0	SW846 8260D	1	06/02/2023 12:01	TMP	A
Bromobenzene	1.0 U	U	ug/L	1.0	SW846 8260D	1	06/02/2023 12:01	TMP	A
Bromochloromethane	1.0 U	U	ug/L	1.0	SW846 8260D	1	06/02/2023 12:01	TMP	A
Bromodichloromethane	1.0 U	U	ug/L	1.0	SW846 8260D	1	06/02/2023 12:01	TMP	A
Bromoform	1.0 U	U	ug/L	1.0	SW846 8260D	1	06/02/2023 12:01	TMP	A
Bromomethane	1.0 U	U	ug/L	1.0	SW846 8260D	1	06/02/2023 12:01	TMP	A
Carbon Tetrachloride	1.0 U	U	ug/L	1.0	SW846 8260D	1	06/02/2023 12:01	TMP	A
Chlorobenzene	1.0 U	U	ug/L	1.0	SW846 8260D	1	06/02/2023 12:01	TMP	A
Chlorodibromomethane	1.0 U	U	ug/L	1.0	SW846 8260D	1	06/02/2023 12:01	TMP	A
Chloroethane	1.0 U	U	ug/L	1.0	SW846 8260D	1	06/02/2023 12:01	TMP	A
Chloroform	1.0 U	U	ug/L	1.0	SW846 8260D	1	06/02/2023 12:01	TMP	A
Chloromethane	1.0 U	U	ug/L	1.0	SW846 8260D	1	06/02/2023 12:01	TMP	A
cis-1,2-Dichloroethene	1.0 U	U	ug/L	1.0	SW846 8260D	1	06/02/2023 12:01	TMP	A
cis-1,3-Dichloropropene	1.0 U	U	ug/L	1.0	SW846 8260D	1	06/02/2023 12:01	TMP	A
Dibromomethane	1.0 U	U	ug/L	1.0	SW846 8260D	1	06/02/2023 12:01	TMP	A
Dichlorodifluoromethane	1.0 U	U	ug/L	1.0	SW846 8260D	1	06/02/2023 12:01	TMP	A
Diisopropyl ether	1.0 U	U	ug/L	1.0	SW846 8260D	1	06/02/2023 12:01	TMP	A
Ethylbenzene	1.0 U	U	ug/L	1.0	SW846 8260D	1	06/02/2023 12:01	TMP	A
Hexachlorobutadiene	5.0 U	U	ug/L	5.0	SW846 8260D	1	06/02/2023 12:01	TMP	A
Methyl t-Butyl Ether	1.0 U	U	ug/L	1.0	SW846 8260D	1	06/02/2023 12:01	TMP	A
Methylene Chloride	1.0 U	U	ug/L	1.0	SW846 8260D	1	06/02/2023 12:01	TMP	A
mp-Xylene	2.0 U	U	ug/L	2.0	SW846 8260D	1	06/02/2023 12:01	TMP	A
Naphthalene	2.0 U	U	ug/L	2.0	SW846 8260D	1	06/02/2023 12:01	TMP	A
o-Chlorotoluene	1.0 U	U	ug/L	1.0	SW846 8260D	1	06/02/2023 12:01	TMP	A

Results

Client Sample ID	Trip Blank A	Collected	05/21/2023 00:00
Lab Sample ID	3304367020	Lab Receipt	05/22/2023 18:15

VOLATILE ORGANICS (cont.)

Compound	Result	Flag	Units	RDL	Method	Dilution	Analysis Date/Time	By	Cntr
o-Xylene	1.0 U	U	ug/L	1.0	SW846 8260D	1	06/02/2023 12:01	TMP	A
p-Chlorotoluene	1.0 U	U	ug/L	1.0	SW846 8260D	1	06/02/2023 12:01	TMP	A
p-Isopropyltoluene	1.0 U	U	ug/L	1.0	SW846 8260D	1	06/02/2023 12:01	TMP	A
Styrene	1.0 U	U	ug/L	1.0	SW846 8260D	1	06/02/2023 12:01	TMP	A
Tetrachloroethene	1.0 U	U	ug/L	1.0	SW846 8260D	1	06/02/2023 12:01	TMP	A
Toluene	1.0 U	U	ug/L	1.0	SW846 8260D	1	06/02/2023 12:01	TMP	A
Total Xylenes	3.0 U	U	ug/L	3.0	SW846 8260D	1	06/02/2023 12:01	TMP	A
trans-1,2-Dichloroethene	1.0 U	U	ug/L	1.0	SW846 8260D	1	06/02/2023 12:01	TMP	A
trans-1,3-Dichloropropene	1.0 U	U	ug/L	1.0	SW846 8260D	1	06/02/2023 12:01	TMP	A
Trichloroethene	1.0 U	U	ug/L	1.0	SW846 8260D	1	06/02/2023 12:01	TMP	A
Trichlorofluoromethane	1.0 U	U	ug/L	1.0	SW846 8260D	1	06/02/2023 12:01	TMP	A
Vinyl Acetate	5.0 U	U	ug/L	5.0	SW846 8260D	1	06/02/2023 12:01	TMP	A
Vinyl Chloride	1.0 U	U	ug/L	1.0	SW846 8260D	1	06/02/2023 12:01	TMP	A

SURROGATES

Compound	CAS No	Recovery	Limits(%)	Analysis Date/Time	Qualifiers
1,2-Dichloroethane-d4	17060-07-0	103%	62 – 133	06/02/2023 12:01	
4-Bromofluorobenzene	460-00-4	98%	79 – 114	06/02/2023 12:01	
Dibromofluoromethane	1868-53-7	96.7%	78 – 116	06/02/2023 12:01	
Toluene-d8	2037-26-5	97.5%	76 – 127	06/02/2023 12:01	

Results

Client Sample ID	Trip Blank B	Collected	05/21/2023 00:00
Lab Sample ID	3304367021	Lab Receipt	05/22/2023 18:15

VOLATILE ORGANICS

Compound	Result	Flag	Units	RDL	Method	Dilution	Analysis Date/Time	By	Cntr
1,1,1,2-Tetrachloroethane	1.0 U	U,5	ug/L	1.0	SW846 8260D	1	06/02/2023 12:24	TMP	A
1,1,1-Trichloroethane	1.0 U	U	ug/L	1.0	SW846 8260D	1	06/02/2023 12:24	TMP	A
1,1,2,2-Tetrachloroethane	1.0 U	U	ug/L	1.0	SW846 8260D	1	06/02/2023 12:24	TMP	A
1,1,2-Trichloroethane	1.0 U	U	ug/L	1.0	SW846 8260D	1	06/02/2023 12:24	TMP	A
1,1-Dichloroethane	1.0 U	U	ug/L	1.0	SW846 8260D	1	06/02/2023 12:24	TMP	A
1,1-Dichloroethene	1.0 U	U	ug/L	1.0	SW846 8260D	1	06/02/2023 12:24	TMP	A
1,1-Dichloropropene	1.0 U	U	ug/L	1.0	SW846 8260D	1	06/02/2023 12:24	TMP	A
1,2,3-Trichlorobenzene	2.0 U	U	ug/L	2.0	SW846 8260D	1	06/02/2023 12:24	TMP	A
1,2,3-Trichloropropane	2.0 U	U	ug/L	2.0	SW846 8260D	1	06/02/2023 12:24	TMP	A
1,2,4-Trichlorobenzene	2.0 U	U	ug/L	2.0	SW846 8260D	1	06/02/2023 12:24	TMP	A
1,2-Dibromo-3-chloropropane	7.0 U	U	ug/L	7.0	SW846 8260D	1	06/02/2023 12:24	TMP	A
1,2-Dibromoethane	1.0 U	U	ug/L	1.0	SW846 8260D	1	06/02/2023 12:24	TMP	A
1,2-Dichlorobenzene	1.0 U	U	ug/L	1.0	SW846 8260D	1	06/02/2023 12:24	TMP	A
1,2-Dichloroethane	1.0 U	U	ug/L	1.0	SW846 8260D	1	06/02/2023 12:24	TMP	A
1,2-Dichloropropane	1.0 U	U	ug/L	1.0	SW846 8260D	1	06/02/2023 12:24	TMP	A
1,3-Dichlorobenzene	1.0 U	U	ug/L	1.0	SW846 8260D	1	06/02/2023 12:24	TMP	A
1,3-Dichloropropane	1.0 U	U	ug/L	1.0	SW846 8260D	1	06/02/2023 12:24	TMP	A
1,4-Dichlorobenzene	1.0 U	U	ug/L	1.0	SW846 8260D	1	06/02/2023 12:24	TMP	A
2,2-Dichloropropane	1.0 U	U	ug/L	1.0	SW846 8260D	1	06/02/2023 12:24	TMP	A
2-Butanone	10.0 U	U	ug/L	10.0	SW846 8260D	1	06/02/2023 12:24	TMP	A
2-Hexanone	5.0 U	U	ug/L	5.0	SW846 8260D	1	06/02/2023 12:24	TMP	A
4-Methyl-2-Pentanone(MIBK)	5.0 U	U	ug/L	5.0	SW846 8260D	1	06/02/2023 12:24	TMP	A
Acetone	10.0 U	U	ug/L	10.0	SW846 8260D	1	06/02/2023 12:24	TMP	A
Benzene	1.0 U	U	ug/L	1.0	SW846 8260D	1	06/02/2023 12:24	TMP	A
Bromobenzene	1.0 U	U	ug/L	1.0	SW846 8260D	1	06/02/2023 12:24	TMP	A
Bromochloromethane	1.0 U	U	ug/L	1.0	SW846 8260D	1	06/02/2023 12:24	TMP	A
Bromodichloromethane	1.0 U	U	ug/L	1.0	SW846 8260D	1	06/02/2023 12:24	TMP	A
Bromoform	1.0 U	U	ug/L	1.0	SW846 8260D	1	06/02/2023 12:24	TMP	A
Bromomethane	1.0 U	U	ug/L	1.0	SW846 8260D	1	06/02/2023 12:24	TMP	A
Carbon Tetrachloride	1.0 U	U	ug/L	1.0	SW846 8260D	1	06/02/2023 12:24	TMP	A
Chlorobenzene	1.0 U	U	ug/L	1.0	SW846 8260D	1	06/02/2023 12:24	TMP	A
Chlorodibromomethane	1.0 U	U	ug/L	1.0	SW846 8260D	1	06/02/2023 12:24	TMP	A
Chloroethane	1.0 U	U	ug/L	1.0	SW846 8260D	1	06/02/2023 12:24	TMP	A
Chloroform	1.0 U	U	ug/L	1.0	SW846 8260D	1	06/02/2023 12:24	TMP	A
Chloromethane	1.0 U	U	ug/L	1.0	SW846 8260D	1	06/02/2023 12:24	TMP	A
cis-1,2-Dichloroethene	1.0 U	U	ug/L	1.0	SW846 8260D	1	06/02/2023 12:24	TMP	A
cis-1,3-Dichloropropene	1.0 U	U	ug/L	1.0	SW846 8260D	1	06/02/2023 12:24	TMP	A
Dibromomethane	1.0 U	U	ug/L	1.0	SW846 8260D	1	06/02/2023 12:24	TMP	A
Dichlorodifluoromethane	1.0 U	U	ug/L	1.0	SW846 8260D	1	06/02/2023 12:24	TMP	A
Diisopropyl ether	1.0 U	U	ug/L	1.0	SW846 8260D	1	06/02/2023 12:24	TMP	A
Ethylbenzene	1.0 U	U	ug/L	1.0	SW846 8260D	1	06/02/2023 12:24	TMP	A
Hexachlorobutadiene	5.0 U	U	ug/L	5.0	SW846 8260D	1	06/02/2023 12:24	TMP	A
Methyl t-Butyl Ether	1.0 U	U	ug/L	1.0	SW846 8260D	1	06/02/2023 12:24	TMP	A
Methylene Chloride	1.0 U	U	ug/L	1.0	SW846 8260D	1	06/02/2023 12:24	TMP	A
mp-Xylene	2.0 U	U	ug/L	2.0	SW846 8260D	1	06/02/2023 12:24	TMP	A
Naphthalene	2.0 U	U	ug/L	2.0	SW846 8260D	1	06/02/2023 12:24	TMP	A
o-Chlorotoluene	1.0 U	U	ug/L	1.0	SW846 8260D	1	06/02/2023 12:24	TMP	A

Results

Client Sample ID	Trip Blank B	Collected	05/21/2023 00:00
Lab Sample ID	3304367021	Lab Receipt	05/22/2023 18:15

VOLATILE ORGANICS (cont.)

Compound	Result	Flag	Units	RDL	Method	Dilution	Analysis Date/Time	By	Cntr
o-Xylene	1.0 U	U	ug/L	1.0	SW846 8260D	1	06/02/2023 12:24	TMP	A
p-Chlorotoluene	1.0 U	U	ug/L	1.0	SW846 8260D	1	06/02/2023 12:24	TMP	A
p-Isopropyltoluene	1.0 U	U	ug/L	1.0	SW846 8260D	1	06/02/2023 12:24	TMP	A
Styrene	1.0 U	U	ug/L	1.0	SW846 8260D	1	06/02/2023 12:24	TMP	A
Tetrachloroethene	1.0 U	U	ug/L	1.0	SW846 8260D	1	06/02/2023 12:24	TMP	A
Toluene	1.0 U	U	ug/L	1.0	SW846 8260D	1	06/02/2023 12:24	TMP	A
Total Xylenes	3.0 U	U	ug/L	3.0	SW846 8260D	1	06/02/2023 12:24	TMP	A
trans-1,2-Dichloroethene	1.0 U	U	ug/L	1.0	SW846 8260D	1	06/02/2023 12:24	TMP	A
trans-1,3-Dichloropropene	1.0 U	U	ug/L	1.0	SW846 8260D	1	06/02/2023 12:24	TMP	A
Trichloroethene	1.0 U	U	ug/L	1.0	SW846 8260D	1	06/02/2023 12:24	TMP	A
Trichlorofluoromethane	1.0 U	U	ug/L	1.0	SW846 8260D	1	06/02/2023 12:24	TMP	A
Vinyl Acetate	5.0 U	U	ug/L	5.0	SW846 8260D	1	06/02/2023 12:24	TMP	A
Vinyl Chloride	1.0 U	U	ug/L	1.0	SW846 8260D	1	06/02/2023 12:24	TMP	A

SURROGATES

Compound	CAS No	Recovery	Limits(%)	Analysis Date/Time	Qualifiers
1,2-Dichloroethane-d4	17060-07-0	102%	62 – 133	06/02/2023 12:24	
4-Bromofluorobenzene	460-00-4	98.9%	79 – 114	06/02/2023 12:24	
Dibromofluoromethane	1868-53-7	95.3%	78 – 116	06/02/2023 12:24	
Toluene-d8	2037-26-5	97.7%	76 – 127	06/02/2023 12:24	

Sample - Method Cross Reference Table

Lab ID	Sample ID	Analysis Method	Preparation Method	Leachate Method
3304367001	MW-01D	SW846 8270E SIM	SW846 3510C	
		SW846 8260D	N/A	
3304367002	MW-22D	SW846 8270E SIM	SW846 3510C	
		SW846 8260D	N/A	
3304367003	MW-04R	SW846 8270E SIM	SW846 3510C	
		SW846 8260D	N/A	
3304367004	MW-20	SW846 8270E SIM	SW846 3510C	
		SW846 8260D	N/A	
3304367005	MW-09	SW846 8270E SIM	SW846 3510C	
		SW846 8260D	N/A	
3304367006	MW-23D	SW846 8270E SIM	SW846 3510C	
		SW846 8260D	N/A	
3304367007	MW-46D	SW846 8270E SIM	SW846 3510C	
		SW846 8260D	N/A	
3304367008	MW-16	SW846 8270E SIM	SW846 3510C	
		SW846 8260D	N/A	
		SW846 8260D	N/A	
3304367009	MW-16D	SW846 8270E SIM	SW846 3510C	
		SW846 8260D	N/A	
3304367010	DUP-052123	SW846 8270E SIM	SW846 3510C	
		SW846 8260D	N/A	
3304367011	MW-43	SW846 8270E SIM	SW846 3510C	
		SW846 8260D	N/A	
3304367012	MW-39	SW846 8270E SIM	SW846 3510C	
		SW846 8260D	N/A	
3304367013	MW-42	SW846 8270E SIM	SW846 3510C	
		SW846 8260D	N/A	
3304367014	MW-18	SW846 8270E SIM	SW846 3510C	
		SW846 8260D	N/A	
3304367015	MW-40D	SW846 8270E SIM	SW846 3510C	
		SW846 8260D	N/A	
3304367016	MW-38R	SW846 8270E SIM	SW846 3510C	
		SW846 8260D	N/A	
3304367017	MW-05R	SW846 8270E SIM	SW846 3510C	
		SW846 8260D	N/A	
3304367018	MW-44	SW846 8270E SIM	SW846 3510C	
		SW846 8260D	N/A	
3304367019	MW-21D	SW846 8270E SIM	SW846 3510C	
		SW846 8260D	N/A	
3304367020	Trip Blank A	SW846 8260D	N/A	
3304367021	Trip Blank B	SW846 8260D	N/A	

QUALITY CONTROL SAMPLES

SEMIVOLATILE SIM

QC Batch

QC Batch	1005881	Prep Method	SW846 3510C
Date	05/24/2023 10:10	Analysis Method	SW846 8270E SIM
Tech.	SRL		

Associated Samples

3304367001	3304367002	3304367003	3304367004
3304367005	3304367006	3304367007	3304367008
3304367009	3304367010	3304367011	3304367012
3304367013	3304367014	3304367015	3304367016
3304367017	3304367018	3304367019	

Method Blank 3673863 (MB) Created on 05/24/2023 08:09 For QC Batch 1005881

RESULTS

Compound	CAS No		Result	Units	RDL	Qualifiers
1,4-Dioxane	123-91-1	BLK	1.0 U	ug/L	1.0	U

SURROGATES

Compound	CAS No		Result (ug/L)	Expected (ug/L)	Rec. (%)	Limits (%)	Qualifiers
2-Methylnapthalene-d10	7297-45-2	BLK	0.69	1	69.3	29 - 112	
Fluoranthene-d10	93951-69-0	BLK	0.81	1	81.2	45 - 130	

Lab Control Standard 3673864 (LCS) Created on 05/24/2023 08:09 For QC Batch 1005881

RESULTS

Compound	CAS No		Result (ug/L)	Orig. Result (ug/L)	Spk Added (ug/L)	Rec. (%)	Limits (%)	RPD Limit (%)	Qualifiers
1,4-Dioxane	123-91-1	LCS	0.52		1	51.8	22 - 75		U

SURROGATES

Compound	CAS No		Result (ug/L)	Expected (ug/L)	Rec. (%)	Limits (%)	Qualifiers
2-Methylnapthalene-d10	7297-45-2	LCS	0.73	1	73.3	29 - 112	
Fluoranthene-d10	93951-69-0	LCS	0.85	1	84.6	45 - 130	

Matrix Spike 3673865 (MS) 3304367005 For QC Batch 1005881

****NOTE - The Original Result shown below is a raw result and is only used for the purpose of calculating Matrix Spike percent recoveries. This result is not a final value and cannot be used as such.

RESULTS

Compound	CAS No		Result (ug/L)	Orig. Result (ug/L)	Spk Added (ug/L)	Rec. (%)	Limits (%)	RPD Limit (%)	Qualifiers
1,4-Dioxane	123-91-1	MS	5.50	4.50	1	NC	22 - 75		

QUALITY CONTROL SAMPLES

SEMIVOLATILE SIM (cont.)

SURROGATES

Compound	CAS No		Result (ug/L)	Expected (ug/L)	Rec. (%)	Limits (%)	Qualifiers
2-Methylnapthalene-d10	7297-45-2	MS	0.75	1	74.7	29 - 112	
Fluoranthene-d10	93951-69-0	MS	0.85	1	85.3	45 - 130	

Duplicate 3673866 (DUP) 3304367006 For QC Batch 1005881

****NOTE - The Original Result and Duplicate Result shown below are raw results and are only used for the purpose of calculating Sample Duplicate percent recoveries. This result is not a final value and cannot be used as such.

RESULTS

Compound	CAS No		Result (ug/L)	Orig. Result (ug/L)			Qualifiers
1,4-Dioxane	123-91-1	DUP	29.6262	26.9576	RPD	9.43 (Max-30)	

SURROGATES

Compound	CAS No		Result (ug/L)	Expected (ug/L)	Rec. (%)	Limits (%)	Qualifiers
2-Methylnapthalene-d10	7297-45-2	DUP	0.51	1	50.5	29 - 112	
2-Methylnapthalene-d10	7297-45-2	DUP	0.64	1	63.8	29 - 112	
Fluoranthene-d10	93951-69-0	DUP	0.55	1	55.2	45 - 130	
Fluoranthene-d10	93951-69-0	DUP	0.72	1	71.9	45 - 130	

QUALITY CONTROL SAMPLES

VOLATILE ORGANICS

QC Batch

QC Batch	1008495	Prep Method	N/A
Date	N/A	Analysis Method	SW846 8260D
Tech.			

Associated Samples

3304367001 3304367002 3304367003 3304367004

Matrix Spike 3677151 (MS) 3304366014 (non-Project Sample) For QC Batch 1008495

****NOTE - The Original Result shown below is a raw result and is only used for the purpose of calculating Matrix Spike percent recoveries. This result is not a final value and cannot be used as such.

Matrix Spike Duplicate 3677152 (MSD) 3304366014 (non-Project Sample) For QC Batch 1008495

RESULTS

Compound	CAS No		Result (ug/L)	Orig. Result (ug/L)	Spk Added (ug/L)	Rec. (%)	Limits (%)	RPD Limit (%)	Qualifiers
1,1,1,2-Tetrachloroethane	630-20-6	MS	16.80	0	20	84.1	78 - 121		
1,1,1,2-Tetrachloroethane	630-20-6	MSD	16.40	0	20	81.8	78 - 121	RPD 2.74 (Max-16)	
1,1,1-Trichloroethane	71-55-6	MS	26.90	3.60	20	117	66 - 130		
1,1,1-Trichloroethane	71-55-6	MSD	25.20	3.60	20	108	66 - 130	RPD 6.52 (Max-20)	
1,1,2,2-Tetrachloroethane	79-34-5	MS	21.50	0	20	108	74 - 135		
1,1,2,2-Tetrachloroethane	79-34-5	MSD	21.50	0	20	107	74 - 135	RPD 0.34 (Max-16)	
1,1,2-Trichloroethane	79-00-5	MS	20.80	0	20	104	82 - 126		
1,1,2-Trichloroethane	79-00-5	MSD	20.90	0	20	104	82 - 126	RPD 0.50 (Max-15)	
1,1-Dichloroethane	75-34-3	MS	29.40	7.10	20	111	78 - 124		
1,1-Dichloroethane	75-34-3	MSD	28	7.10	20	104	78 - 124	RPD 4.85 (Max-15)	
1,1-Dichloroethene	75-35-4	MS	53.20	30.10	20	115	63 - 128		
1,1-Dichloroethene	75-35-4	MSD	49.90	30.10	20	98.8	63 - 128	RPD 6.44 (Max-21)	
1,1-Dichloropropene	563-58-6	MS	22.70	0	20	113	76 - 126		
1,1-Dichloropropene	563-58-6	MSD	21.30	0	20	107	76 - 126	RPD 6.15 (Max-16)	
1,2,3-Trichlorobenzene	87-61-6	MS	20.30	0	20	102	61 - 126		
1,2,3-Trichlorobenzene	87-61-6	MSD	20.80	0	20	104	61 - 126	RPD 2.24 (Max-36)	
1,2,3-Trichloropropane	96-18-4	MS	21.90	0	20	110	75 - 132		
1,2,3-Trichloropropane	96-18-4	MSD	21.80	0	20	109	75 - 132	RPD 0.55 (Max-19)	
1,2,4-Trichlorobenzene	120-82-1	MS	19.90	0	20	99.3	67 - 123		
1,2,4-Trichlorobenzene	120-82-1	MSD	20.20	0	20	101	67 - 123	RPD 1.43 (Max-22)	
1,2-Dibromo-3-chloropropane	96-12-8	MS	17.50	0	20	87.7	59 - 133		
1,2-Dibromo-3-chloropropane	96-12-8	MSD	17.10	0	20	85.7	59 - 133	RPD 2.34 (Max-26)	
1,2-Dibromoethane	106-93-4	MS	20.10	0	20	101	80 - 124		
1,2-Dibromoethane	106-93-4	MSD	20	0	20	100	80 - 124	RPD 0.47 (Max-19)	
1,2-Dichlorobenzene	95-50-1	MS	20.90	0	20	104	82 - 118		
1,2-Dichlorobenzene	95-50-1	MSD	20.70	0	20	104	82 - 118	RPD 0.65 (Max-15)	
1,2-Dichloroethane	107-06-2	MS	21.50	0	20	108	70 - 133		
1,2-Dichloroethane	107-06-2	MSD	20.90	0	20	104	70 - 133	RPD 3.08 (Max-19)	
1,2-Dichloropropane	78-87-5	MS	21	0	20	105	81 - 127		
1,2-Dichloropropane	78-87-5	MSD	20.40	0	20	102	81 - 127	RPD 2.93 (Max-15)	
1,3-Dichlorobenzene	541-73-1	MS	20.50	0	20	102	81 - 118		
1,3-Dichlorobenzene	541-73-1	MSD	20.10	0	20	101	81 - 118	RPD 1.68 (Max-16)	
1,3-Dichloropropane	142-28-9	MS	20.60	0	20	103	82 - 126		
1,3-Dichloropropane	142-28-9	MSD	20.10	0	20	101	82 - 126	RPD 2.30 (Max-15)	
1,4-Dichlorobenzene	106-46-7	MS	21.20	0	20	106	81 - 116		

QUALITY CONTROL SAMPLES

VOLATILE ORGANICS (cont.)

RESULTS

Compound	CAS No		Result (ug/L)	Orig. Result (ug/L)	Spk Added (ug/L)	Rec. (%)	Limits (%)	RPD Limit (%)	Qualifiers
1,4-Dichlorobenzene	106-46-7	MSD	20.70	0	20	103	81 - 116	RPD 2.64 (Max-15)	
2,2-Dichloropropane	594-20-7	MS	19.40	0	20	97.1	64 - 129		
2,2-Dichloropropane	594-20-7	MSD	18.10	0	20	90.4	64 - 129	RPD 7.17 (Max-18)	
2-Butanone	78-93-3	MS	120	0	100	120	50 - 152		
2-Butanone	78-93-3	MSD	121	0	100	121	50 - 152	RPD 0.29 (Max-16)	
2-Hexanone	591-78-6	MS	111	0	100	111	65 - 154		
2-Hexanone	591-78-6	MSD	110	0	100	110	65 - 154	RPD 0.89 (Max-17)	
4-Methyl-2-Pentanone(MIBK)	108-10-1	MS	117	0	100	117	71 - 146		
4-Methyl-2-Pentanone(MIBK)	108-10-1	MSD	116	0	100	116	71 - 146	RPD 0.76 (Max-16)	
Acetone	67-64-1	MS	109	0	100	109	40 - 151		
Acetone	67-64-1	MSD	107	0	100	107	40 - 151	RPD 1.85 (Max-40)	
Benzene	71-43-2	MS	22.10	0	20	111	80 - 124		
Benzene	71-43-2	MSD	20.70	0	20	103	80 - 124	RPD 6.92 (Max-26)	
Bromobenzene	108-86-1	MS	21.40	0	20	107	81 - 119		
Bromobenzene	108-86-1	MSD	20.90	0	20	104	81 - 119	RPD 2.58 (Max-17)	
Bromochloromethane	74-97-5	MS	18	0	20	89.9	73 - 117		
Bromochloromethane	74-97-5	MSD	17.30	0	20	86.7	73 - 117	RPD 3.66 (Max-19)	
Bromodichloromethane	75-27-4	MS	21	0	20	105	79 - 126		
Bromodichloromethane	75-27-4	MSD	19.90	0	20	99.5	79 - 126	RPD 5.33 (Max-16)	
Bromoform	75-25-2	MS	17.60	0	20	88	70 - 123		
Bromoform	75-25-2	MSD	17.70	0	20	88.4	70 - 123	RPD 0.44 (Max-16)	
Bromomethane	74-83-9	MS	16.70	0	20	83.7	45 - 148		
Bromomethane	74-83-9	MSD	16.90	0	20	84.3	45 - 148	RPD 0.66 (Max-26)	
Carbon Tetrachloride	56-23-5	MS	22.60	0	20	113	62 - 132		
Carbon Tetrachloride	56-23-5	MSD	20.40	0	20	102	62 - 132	RPD 10.40 (Max-17)	
Chlorobenzene	108-90-7	MS	21	0	20	105	85 - 117		
Chlorobenzene	108-90-7	MSD	20.10	0	20	101	85 - 117	RPD 4.04 (Max-15)	
Chlorodibromomethane	124-48-1	MS	19.20	0	20	96.2	77 - 122		
Chlorodibromomethane	124-48-1	MSD	19	0	20	95.1	77 - 122	RPD 1.18 (Max-15)	
Chloroethane	75-00-3	MS	14	0	20	70.1	51 - 142		
Chloroethane	75-00-3	MSD	13.60	0	20	68.2	51 - 142	RPD 2.69 (Max-24)	
Chloroform	67-66-3	MS	22.50	0	20	112	78 - 122		
Chloroform	67-66-3	MSD	21.70	0	20	108	78 - 122	RPD 3.62 (Max-16)	
Chloromethane	74-87-3	MS	24.50	0	20	123	38 - 156		
Chloromethane	74-87-3	MSD	22.60	0	20	113	38 - 156	RPD 8.14 (Max-27)	
cis-1,2-Dichloroethene	156-59-2	MS	22.30	0	20	111	78 - 125		
cis-1,2-Dichloroethene	156-59-2	MSD	20.80	0	20	104	78 - 125	RPD 6.91 (Max-21)	
cis-1,3-Dichloropropene	10061-01-5	MS	19.80	0	20	98.8	81 - 121		
cis-1,3-Dichloropropene	10061-01-5	MSD	19	0	20	94.8	81 - 121	RPD 4.12 (Max-16)	
Dibromomethane	74-95-3	MS	21	0	20	105	81 - 125		
Dibromomethane	74-95-3	MSD	21	0	20	105	81 - 125	RPD 0.12 (Max-16)	
Dichlorodifluoromethane	75-71-8	MS	28.40	0	20	142	17 - 166		
Dichlorodifluoromethane	75-71-8	MSD	26.20	0	20	131	17 - 166	RPD 7.94 (Max-24)	
Diisopropyl ether	108-20-3	MS	23.20	0	20	116	74 - 131		
Diisopropyl ether	108-20-3	MSD	22.40	0	20	112	74 - 131	RPD 3.72 (Max-15)	
Ethylbenzene	100-41-4	MS	21.60	0	20	108	80 - 124		
Ethylbenzene	100-41-4	MSD	20.50	0	20	102	80 - 124	RPD 5.32 (Max-19)	
Hexachlorobutadiene	87-68-3	MS	22.80	0	20	114	55 - 128		
Hexachlorobutadiene	87-68-3	MSD	21.40	0	20	107	55 - 128	RPD 6.34 (Max-35)	

QUALITY CONTROL SAMPLES

VOLATILE ORGANICS (cont.)

RESULTS

Compound	CAS No		Result (ug/L)	Orig. Result (ug/L)	Spk Added (ug/L)	Rec. (%)	Limits (%)	RPD Limit (%)	Qualifiers
Methyl t-Butyl Ether	1634-04-4	MS	23.80	1.40	20	112	69 - 115		
Methyl t-Butyl Ether	1634-04-4	MSD	23.70	1.40	20	112	69 - 115	RPD 0.52 (Max-20)	
Methylene Chloride	75-09-2	MS	22.40	0	20	112	76 - 121		
Methylene Chloride	75-09-2	MSD	21.80	0	20	109	76 - 121	RPD 2.66 (Max-17)	
mp-Xylene	108383/106423	MS	43.60	0	40	109	79 - 125		
mp-Xylene	108383/106423	MSD	41.60	0	40	104	79 - 125	RPD 4.63 (Max-21)	
Naphthalene	91-20-3	MS	19.50	0	20	97.6	56 - 134		
Naphthalene	91-20-3	MSD	20.20	0	20	101	56 - 134	RPD 3.54 (Max-40)	
o-Chlorotoluene	95-49-8	MS	21.80	0	20	109	78 - 126		
o-Chlorotoluene	95-49-8	MSD	21.40	0	20	107	78 - 126	RPD 1.92 (Max-17)	
o-Xylene	95-47-6	MS	21	0	20	105	79 - 124		
o-Xylene	95-47-6	MSD	20.30	0	20	101	79 - 124	RPD 3.59 (Max-19)	
p-Chlorotoluene	106-43-4	MS	21.30	0	20	107	78 - 125		
p-Chlorotoluene	106-43-4	MSD	20.80	0	20	104	78 - 125	RPD 2.46 (Max-16)	
p-Isopropyltoluene	99-87-6	MS	22.30	0	20	112	72 - 123		
p-Isopropyltoluene	99-87-6	MSD	22.60	0	20	113	72 - 123	RPD 1.10 (Max-17)	
Styrene	100-42-5	MS	21.40	0	20	107	79 - 123		
Styrene	100-42-5	MSD	20.80	0	20	104	79 - 123	RPD 2.77 (Max-16)	
Tetrachloroethene	127-18-4	MS	20.90	0	20	105	72 - 124		
Tetrachloroethene	127-18-4	MSD	19.90	0	20	99.3	72 - 124	RPD 5.32 (Max-38)	
Toluene	108-88-3	MS	21.70	0	20	108	80 - 125		
Toluene	108-88-3	MSD	20.50	0	20	103	80 - 125	RPD 5.46 (Max-20)	
Total Xylenes	1330-20-7	MS	64.70	0	60	108	79 - 125		
Total Xylenes	1330-20-7	MSD	61.90	0	60	103	79 - 125	RPD 4.29 (Max-35)	
trans-1,2-Dichloroethene	156-60-5	MS	22.80	0	20	114	71 - 122		
trans-1,2-Dichloroethene	156-60-5	MSD	20.90	0	20	105	71 - 122	RPD 8.73 (Max-22)	
trans-1,3-Dichloropropene	10061-02-6	MS	20.10	0	20	101	78 - 126		
trans-1,3-Dichloropropene	10061-02-6	MSD	19.90	0	20	99.5	78 - 126	RPD 0.98 (Max-18)	
Trichloroethene	79-01-6	MS	21.70	0	20	108	77 - 124		
Trichloroethene	79-01-6	MSD	20.30	0	20	102	77 - 124	RPD 6.42 (Max-18)	
Trichlorofluoromethane	75-69-4	MS	16.90	0	20	84.5	38 - 123		
Trichlorofluoromethane	75-69-4	MSD	15.80	0	20	79	38 - 123	RPD 6.67 (Max-23)	
Vinyl Acetate	108-05-4	MS	15.90	0	20	79.6	58 - 136		
Vinyl Acetate	108-05-4	MSD	16.20	0	20	80.8	58 - 136	RPD 1.45 (Max-17)	
Vinyl Chloride	75-01-4	MS	24.30	0	20	121	27 - 138		
Vinyl Chloride	75-01-4	MSD	22	0	20	110	27 - 138	RPD 9.79 (Max-40)	

SURROGATES

Compound	CAS No		Result (ug/L)	Expected (ug/L)	Rec. (%)	Limits (%)	Qualifiers
1,2-Dichloroethane-d4	17060-07-0	MS	30.40	30	101	62 - 133	
1,2-Dichloroethane-d4	17060-07-0	MSD	30.30	30	101	62 - 133	
4-Bromofluorobenzene	460-00-4	MS	29.90	30	99.6	79 - 114	
4-Bromofluorobenzene	460-00-4	MSD	29.80	30	99.5	79 - 114	
Dibromofluoromethane	1868-53-7	MS	30.20	30	101	78 - 116	
Dibromofluoromethane	1868-53-7	MSD	29.80	30	99.3	78 - 116	
Toluene-d8	2037-26-5	MS	29.50	30	98.4	76 - 127	
Toluene-d8	2037-26-5	MSD	29.60	30	98.6	76 - 127	

QUALITY CONTROL SAMPLES

VOLATILE ORGANICS (cont.)

Method Blank 3677099 (MB) Created on 06/01/2023 10:14 For QC Batch 1008495

RESULTS

Compound	CAS No		Result	Units	RDL	Qualifiers
1,1,1,2-Tetrachloroethane	630-20-6	BLK	1.0 U	ug/L	1.0	U
1,1,1-Trichloroethane	71-55-6	BLK	1.0 U	ug/L	1.0	U
1,1,2,2-Tetrachloroethane	79-34-5	BLK	1.0 U	ug/L	1.0	U
1,1,2-Trichloroethane	79-00-5	BLK	1.0 U	ug/L	1.0	U
1,1-Dichloroethane	75-34-3	BLK	1.0 U	ug/L	1.0	U
1,1-Dichloroethene	75-35-4	BLK	1.0 U	ug/L	1.0	U
1,1-Dichloropropene	563-58-6	BLK	1.0 U	ug/L	1.0	U
1,2,3-Trichlorobenzene	87-61-6	BLK	2.0 U	ug/L	2.0	U
1,2,3-Trichloropropane	96-18-4	BLK	2.0 U	ug/L	2.0	U
1,2,4-Trichlorobenzene	120-82-1	BLK	2.0 U	ug/L	2.0	U
1,2-Dibromo-3-chloropropane	96-12-8	BLK	7.0 U	ug/L	7.0	U
1,2-Dibromoethane	106-93-4	BLK	1.0 U	ug/L	1.0	U
1,2-Dichlorobenzene	95-50-1	BLK	1.0 U	ug/L	1.0	U
1,2-Dichloroethane	107-06-2	BLK	1.0 U	ug/L	1.0	U
1,2-Dichloropropane	78-87-5	BLK	1.0 U	ug/L	1.0	U
1,3-Dichlorobenzene	541-73-1	BLK	1.0 U	ug/L	1.0	U
1,3-Dichloropropane	142-28-9	BLK	1.0 U	ug/L	1.0	U
1,4-Dichlorobenzene	106-46-7	BLK	1.0 U	ug/L	1.0	U
2,2-Dichloropropane	594-20-7	BLK	1.0 U	ug/L	1.0	U
2-Butanone	78-93-3	BLK	10.0 U	ug/L	10.0	U
2-Hexanone	591-78-6	BLK	5.0 U	ug/L	5.0	U
4-Methyl-2-Pentanone(MIBK)	108-10-1	BLK	5.0 U	ug/L	5.0	U
Acetone	67-64-1	BLK	10.0 U	ug/L	10.0	U
Benzene	71-43-2	BLK	1.0 U	ug/L	1.0	U
Bromobenzene	108-86-1	BLK	1.0 U	ug/L	1.0	U
Bromochloromethane	74-97-5	BLK	1.0 U	ug/L	1.0	U
Bromodichloromethane	75-27-4	BLK	1.0 U	ug/L	1.0	U
Bromoform	75-25-2	BLK	1.0 U	ug/L	1.0	U
Bromomethane	74-83-9	BLK	1.0 U	ug/L	1.0	U
Carbon Tetrachloride	56-23-5	BLK	1.0 U	ug/L	1.0	U
Chlorobenzene	108-90-7	BLK	1.0 U	ug/L	1.0	U
Chlorodibromomethane	124-48-1	BLK	1.0 U	ug/L	1.0	U
Chloroethane	75-00-3	BLK	1.0 U	ug/L	1.0	U
Chloroform	67-66-3	BLK	1.0 U	ug/L	1.0	U
Chloromethane	74-87-3	BLK	1.0 U	ug/L	1.0	U
cis-1,2-Dichloroethene	156-59-2	BLK	1.0 U	ug/L	1.0	U
cis-1,3-Dichloropropene	10061-01-5	BLK	1.0 U	ug/L	1.0	U
Dibromomethane	74-95-3	BLK	1.0 U	ug/L	1.0	U
Dichlorodifluoromethane	75-71-8	BLK	1.0 U	ug/L	1.0	U
Diisopropyl ether	108-20-3	BLK	1.0 U	ug/L	1.0	U
Ethylbenzene	100-41-4	BLK	1.0 U	ug/L	1.0	U
Hexachlorobutadiene	87-68-3	BLK	5.0 U	ug/L	5.0	U
Methyl t-Butyl Ether	1634-04-4	BLK	1.0 U	ug/L	1.0	U
Methylene Chloride	75-09-2	BLK	1.0 U	ug/L	1.0	U
mp-Xylene	108383/106423	BLK	2.0 U	ug/L	2.0	U

QUALITY CONTROL SAMPLES

VOLATILE ORGANICS (cont.)

RESULTS

Compound	CAS No		Result	Units	RDL	Qualifiers
Naphthalene	91-20-3	BLK	2.0 U	ug/L	2.0	U
o-Chlorotoluene	95-49-8	BLK	1.0 U	ug/L	1.0	U
o-Xylene	95-47-6	BLK	1.0 U	ug/L	1.0	U
p-Chlorotoluene	106-43-4	BLK	1.0 U	ug/L	1.0	U
p-Isopropyltoluene	99-87-6	BLK	1.0 U	ug/L	1.0	U
Styrene	100-42-5	BLK	1.0 U	ug/L	1.0	U
Tetrachloroethene	127-18-4	BLK	1.0 U	ug/L	1.0	U
Toluene	108-88-3	BLK	1.0 U	ug/L	1.0	U
Total Xylenes	1330-20-7	BLK	3.0 U	ug/L	3.0	U
trans-1,2-Dichloroethene	156-60-5	BLK	1.0 U	ug/L	1.0	U
trans-1,3-Dichloropropene	10061-02-6	BLK	1.0 U	ug/L	1.0	U
Trichloroethene	79-01-6	BLK	1.0 U	ug/L	1.0	U
Trichlorofluoromethane	75-69-4	BLK	1.0 U	ug/L	1.0	U
Vinyl Acetate	108-05-4	BLK	5.0 U	ug/L	5.0	U
Vinyl Chloride	75-01-4	BLK	1.0 U	ug/L	1.0	U

SURROGATES

Compound	CAS No		Result (ug/L)	Expected (ug/L)	Rec. (%)	Limits (%)	Qualifiers
1,2-Dichloroethane-d4	17060-07-0	BLK	29.80	30	99.4	62 - 133	
4-Bromofluorobenzene	460-00-4	BLK	28.60	30	95.4	79 - 114	
Dibromofluoromethane	1868-53-7	BLK	28.40	30	94.6	78 - 116	
Toluene-d8	2037-26-5	BLK	29.70	30	99.1	76 - 127	

Lab Control Standard 3677100 (LCS) Created on 06/01/2023 10:14 For QC Batch 1008495

RESULTS

Compound	CAS No		Result (ug/L)	Orig. Result (ug/L)	Spk Added (ug/L)	Rec. (%)	Limits (%)	RPD Limit (%)	Qualifiers
1,1,1,2-Tetrachloroethane	630-20-6	LCS	16.50		20	82.7	78 - 121		
1,1,1-Trichloroethane	71-55-6	LCS	20.70		20	103	66 - 130		
1,1,2,2-Tetrachloroethane	79-34-5	LCS	20.60		20	103	74 - 135		
1,1,2-Trichloroethane	79-00-5	LCS	19.90		20	99.4	82 - 126		
1,1-Dichloroethane	75-34-3	LCS	19.70		20	98.4	78 - 124		
1,1-Dichloroethene	75-35-4	LCS	22.30		20	111	63 - 128		
1,1-Dichloropropene	563-58-6	LCS	20.60		20	103	76 - 126		
1,2,3-Trichlorobenzene	87-61-6	LCS	21.90		20	110	61 - 126		
1,2,3-Trichloropropane	96-18-4	LCS	20.70		20	104	75 - 132		
1,2,4-Trichlorobenzene	120-82-1	LCS	20.70		20	104	67 - 123		
1,2-Dibromo-3-chloropropane	96-12-8	LCS	17		20	85	59 - 133		
1,2-Dibromoethane	106-93-4	LCS	20.10		20	100	80 - 124		
1,2-Dichlorobenzene	95-50-1	LCS	20.40		20	102	82 - 118		
1,2-Dichloroethane	107-06-2	LCS	19.90		20	99.3	70 - 133		
1,2-Dichloropropane	78-87-5	LCS	19.50		20	97.4	81 - 127		
1,3-Dichlorobenzene	541-73-1	LCS	20		20	100	81 - 118		
1,3-Dichloropropane	142-28-9	LCS	19.80		20	98.9	82 - 126		

QUALITY CONTROL SAMPLES

VOLATILE ORGANICS (cont.)

RESULTS

Compound	CAS No		Result (ug/L)	Orig. Result (ug/L)	Spk Added (ug/L)	Rec. (%)	Limits (%)	RPD Limit (%)	Qualifiers
1,4-Dichlorobenzene	106-46-7	LCS	20.70		20	103	81 - 116		
2,2-Dichloropropane	594-20-7	LCS	20.70		20	104	64 - 129		
2-Butanone	78-93-3	LCS	107		100	107	50 - 152		
2-Hexanone	591-78-6	LCS	104		100	104	65 - 154		
4-Methyl-2-Pentanone(MIBK)	108-10-1	LCS	109		100	109	71 - 146		
Acetone	67-64-1	LCS	106		100	106	40 - 151		
Benzene	71-43-2	LCS	20.60		20	103	80 - 124		
Bromobenzene	108-86-1	LCS	20.80		20	104	81 - 119		
Bromochloromethane	74-97-5	LCS	17.80		20	89	73 - 117		
Bromodichloromethane	75-27-4	LCS	19.90		20	99.5	79 - 126		
Bromoform	75-25-2	LCS	18.80		20	94	70 - 123		
Bromomethane	74-83-9	LCS	17.20		20	85.8	45 - 148		
Carbon Tetrachloride	56-23-5	LCS	20.90		20	104	62 - 132		
Chlorobenzene	108-90-7	LCS	20.20		20	101	85 - 117		
Chlorodibromomethane	124-48-1	LCS	19.40		20	97	77 - 122		
Chloroethane	75-00-3	LCS	13.70		20	68.5	51 - 142		
Chloroform	67-66-3	LCS	21		20	105	78 - 122		
Chloromethane	74-87-3	LCS	21.90		20	110	38 - 156		
cis-1,2-Dichloroethene	156-59-2	LCS	20.40		20	102	78 - 125		
cis-1,3-Dichloropropene	10061-01-5	LCS	19.80		20	99	81 - 121		
Dibromomethane	74-95-3	LCS	20.70		20	104	81 - 125		
Dichlorodifluoromethane	75-71-8	LCS	25.30		20	127	17 - 166		
Diisopropyl ether	108-20-3	LCS	21.60		20	108	74 - 131		
Ethylbenzene	100-41-4	LCS	20.40		20	102	80 - 124		
Hexachlorobutadiene	87-68-3	LCS	24.10		20	121	55 - 128		
Methyl t-Butyl Ether	1634-04-4	LCS	21.30		20	107	69 - 115		
Methylene Chloride	75-09-2	LCS	21.80		20	109	76 - 121		
mp-Xylene	108383/106423	LCS	41.70		40	104	79 - 125		
Naphthalene	91-20-3	LCS	21.30		20	106	56 - 134		
o-Chlorotoluene	95-49-8	LCS	20.90		20	105	78 - 126		
o-Xylene	95-47-6	LCS	19.90		20	99.5	79 - 124		
p-Chlorotoluene	106-43-4	LCS	20.60		20	103	78 - 125		
p-Isopropyltoluene	99-87-6	LCS	21.70		20	108	72 - 123		
Styrene	100-42-5	LCS	21.30		20	106	79 - 123		
Tetrachloroethene	127-18-4	LCS	20.30		20	101	72 - 124		
Toluene	108-88-3	LCS	20.60		20	103	80 - 125		
Total Xylenes	1330-20-7	LCS	61.60		60	103	79 - 125		
trans-1,2-Dichloroethene	156-60-5	LCS	20.30		20	102	71 - 122		
trans-1,3-Dichloropropene	10061-02-6	LCS	20.40		20	102	78 - 126		
Trichloroethene	79-01-6	LCS	19.50		20	97.7	77 - 124		
Trichlorofluoromethane	75-69-4	LCS	16		20	80.1	38 - 123		
Vinyl Acetate	108-05-4	LCS	19.30		20	96.6	58 - 136		
Vinyl Chloride	75-01-4	LCS	21.60		20	108	27 - 138		

QUALITY CONTROL SAMPLES

VOLATILE ORGANICS (cont.)

SURROGATES

Compound	CAS No		Result (ug/L)	Expected (ug/L)	Rec. (%)	Limits (%)	Qualifiers
1,2-Dichloroethane-d4	17060-07-0	LCS	30	30	100	62 - 133	
4-Bromofluorobenzene	460-00-4	LCS	30.10	30	100	79 - 114	
Dibromofluoromethane	1868-53-7	LCS	30.50	30	102	78 - 116	
Toluene-d8	2037-26-5	LCS	30.40	30	101	76 - 127	

QC Batch

QC Batch	1009215	Prep Method	N/A
Date	N/A	Analysis Method	SW846 8260D
Tech.			

Associated Samples

3304367005	3304367006	3304367007	3304367008
3304367009	3304367010	3304367011	3304367012
3304367013	3304367014	3304367015	3304367016
3304367017	3304367018	3304367019	3304367020
3304367021			

Matrix Spike 3677797 (MS) 3305818001 (non-Project Sample) For QC Batch 1009215

****NOTE - The Original Result shown below is a raw result and is only used for the purpose of calculating Matrix Spike percent recoveries. This result is not a final value and cannot be used as such.

Matrix Spike Duplicate 3677798 (MSD) 3305818001 (non-Project Sample) For QC Batch 1009215

RESULTS

Compound	CAS No		Result (ug/L)	Orig. Result (ug/L)	Spk Added (ug/L)	Rec. (%)	Limits (%)	RPD Limit (%)	Qualifiers
1,1,1,2-Tetrachloroethane	630-20-6	MS	16.20	0	20	81.1	78 - 121		
1,1,1,2-Tetrachloroethane	630-20-6	MSD	15.70	0	20	78.3	78 - 121	RPD 3.44 (Max-16)	
1,1,1-Trichloroethane	71-55-6	MS	23.30	0	20	117	66 - 130		
1,1,1-Trichloroethane	71-55-6	MSD	21.40	0	20	107	66 - 130	RPD 8.43 (Max-20)	
1,1,2,2-Tetrachloroethane	79-34-5	MS	21.60	0	20	108	74 - 135		
1,1,2,2-Tetrachloroethane	79-34-5	MSD	21.20	0	20	106	74 - 135	RPD 1.77 (Max-16)	
1,1,2-Trichloroethane	79-00-5	MS	20.60	0	20	103	82 - 126		
1,1,2-Trichloroethane	79-00-5	MSD	19.80	0	20	98.8	82 - 126	RPD 4.12 (Max-15)	
1,1-Dichloroethane	75-34-3	MS	22.70	0	20	114	78 - 124		
1,1-Dichloroethane	75-34-3	MSD	20.90	0	20	104	78 - 124	RPD 8.67 (Max-15)	
1,1-Dichloroethene	75-35-4	MS	25.50	0	20	128	63 - 128		
1,1-Dichloroethene	75-35-4	MSD	23.10	0	20	116	63 - 128	RPD 9.95 (Max-21)	
1,1-Dichloropropene	563-58-6	MS	22.70	0	20	114	76 - 126		
1,1-Dichloropropene	563-58-6	MSD	20.90	0	20	105	76 - 126	RPD 8.13 (Max-16)	
1,2,3-Trichlorobenzene	87-61-6	MS	20.30	0	20	102	61 - 126		
1,2,3-Trichlorobenzene	87-61-6	MSD	20.80	0	20	104	61 - 126	RPD 2.18 (Max-36)	
1,2,3-Trichloropropane	96-18-4	MS	21.40	0	20	107	75 - 132		
1,2,3-Trichloropropane	96-18-4	MSD	20.90	0	20	104	75 - 132	RPD 2.54 (Max-19)	
1,2,4-Trichlorobenzene	120-82-1	MS	19.90	0	20	99.5	67 - 123		
1,2,4-Trichlorobenzene	120-82-1	MSD	20.20	0	20	101	67 - 123	RPD 1.59 (Max-22)	
1,2-Dibromo-3-chloropropane	96-12-8	MS	17.70	0	20	88.6	59 - 133		
1,2-Dibromo-3-chloropropane	96-12-8	MSD	17.80	0	20	89.1	59 - 133	RPD 0.60 (Max-26)	
1,2-Dibromoethane	106-93-4	MS	20	0	20	100	80 - 124		

QUALITY CONTROL SAMPLES

VOLATILE ORGANICS (cont.)

RESULTS

Compound	CAS No		Result (ug/L)	Orig. Result (ug/L)	Spk Added (ug/L)	Rec. (%)	Limits (%)	RPD Limit (%)	Qualifiers
1,2-Dibromoethane	106-93-4	MSD	19.30	0	20	96.6	80 - 124	RPD 3.43 (Max-19)	
1,2-Dichlorobenzene	95-50-1	MS	20.90	0	20	104	82 - 118		
1,2-Dichlorobenzene	95-50-1	MSD	20.30	0	20	101	82 - 118	RPD 2.78 (Max-15)	
1,2-Dichloroethane	107-06-2	MS	21.50	0	20	107	70 - 133		
1,2-Dichloroethane	107-06-2	MSD	20.90	0	20	105	70 - 133	RPD 2.49 (Max-19)	
1,2-Dichloropropane	78-87-5	MS	21.80	0	20	109	81 - 127		
1,2-Dichloropropane	78-87-5	MSD	20.70	0	20	104	81 - 127	RPD 5.24 (Max-15)	
1,3-Dichlorobenzene	541-73-1	MS	20.50	0	20	103	81 - 118		
1,3-Dichlorobenzene	541-73-1	MSD	19.80	0	20	99.1	81 - 118	RPD 3.50 (Max-16)	
1,3-Dichloropropane	142-28-9	MS	20	0	20	100	82 - 126		
1,3-Dichloropropane	142-28-9	MSD	19.60	0	20	97.8	82 - 126	RPD 2.27 (Max-15)	
1,4-Dichlorobenzene	106-46-7	MS	21.20	0	20	106	81 - 116		
1,4-Dichlorobenzene	106-46-7	MSD	20.10	0	20	100	81 - 116	RPD 5.63 (Max-15)	
2,2-Dichloropropane	594-20-7	MS	19.50	0	20	97.3	64 - 129		
2,2-Dichloropropane	594-20-7	MSD	17.90	0	20	89.7	64 - 129	RPD 8.13 (Max-18)	
2-Butanone	78-93-3	MS	120	0	100	120	50 - 152		
2-Butanone	78-93-3	MSD	122	0	100	122	50 - 152	RPD 2.37 (Max-16)	
2-Hexanone	591-78-6	MS	111	0	100	111	65 - 154		
2-Hexanone	591-78-6	MSD	112	0	100	112	65 - 154	RPD 0.41 (Max-17)	
4-Methyl-2-Pentanone(MIBK)	108-10-1	MS	119	0	100	119	71 - 146		
4-Methyl-2-Pentanone(MIBK)	108-10-1	MSD	119	0	100	119	71 - 146	RPD 0.67 (Max-16)	
Acetone	67-64-1	MS	112	0	100	112	40 - 151		
Acetone	67-64-1	MSD	114	0	100	114	40 - 151	RPD 1.84 (Max-40)	
Benzene	71-43-2	MS	22.10	0	20	110	80 - 124		
Benzene	71-43-2	MSD	20.80	0	20	104	80 - 124	RPD 6.12 (Max-26)	
Bromobenzene	108-86-1	MS	21.10	0	20	105	81 - 119		
Bromobenzene	108-86-1	MSD	20.20	0	20	101	81 - 119	RPD 4.10 (Max-17)	
Bromochloromethane	74-97-5	MS	18.30	0	20	91.7	73 - 117		
Bromochloromethane	74-97-5	MSD	17.60	0	20	88.2	73 - 117	RPD 3.92 (Max-19)	
Bromodichloromethane	75-27-4	MS	23.50	2.60	20	105	79 - 126		
Bromodichloromethane	75-27-4	MSD	22.80	2.60	20	101	79 - 126	RPD 3.04 (Max-16)	
Bromoform	75-25-2	MS	17.80	0	20	89.1	70 - 123		
Bromoform	75-25-2	MSD	17.40	0	20	87	70 - 123	RPD 2.33 (Max-16)	
Bromomethane	74-83-9	MS	18.30	0	20	91.4	45 - 148		
Bromomethane	74-83-9	MSD	17.70	0	20	88.3	45 - 148	RPD 3.50 (Max-26)	
Carbon Tetrachloride	56-23-5	MS	22.20	0	20	111	62 - 132		
Carbon Tetrachloride	56-23-5	MSD	21.20	0	20	106	62 - 132	RPD 4.82 (Max-17)	
Chlorobenzene	108-90-7	MS	20.50	0	20	102	85 - 117		
Chlorobenzene	108-90-7	MSD	19.50	0	20	97.3	85 - 117	RPD 5.09 (Max-15)	
Chlorodibromomethane	124-48-1	MS	19.40	0.51	20	94.6	77 - 122		
Chlorodibromomethane	124-48-1	MSD	18.70	0.51	20	90.9	77 - 122	RPD 3.79 (Max-15)	
Chloroethane	75-00-3	MS	15.10	0	20	75.3	51 - 142		
Chloroethane	75-00-3	MSD	14.60	0	20	72.8	51 - 142	RPD 3.33 (Max-24)	
Chloroform	67-66-3	MS	31.40	8.50	20	115	78 - 122		
Chloroform	67-66-3	MSD	30.10	8.50	20	108	78 - 122	RPD 4.22 (Max-16)	
Chloromethane	74-87-3	MS	25.20	0	20	126	38 - 156		
Chloromethane	74-87-3	MSD	22.70	0	20	114	38 - 156	RPD 10.10 (Max-27)	
cis-1,2-Dichloroethene	156-59-2	MS	22.30	0	20	112	78 - 125		
cis-1,2-Dichloroethene	156-59-2	MSD	21.10	0	20	106	78 - 125	RPD 5.37 (Max-21)	

QUALITY CONTROL SAMPLES

VOLATILE ORGANICS (cont.)

RESULTS

Compound	CAS No		Result (ug/L)	Orig. Result (ug/L)	Spk Added (ug/L)	Rec. (%)	Limits (%)	RPD Limit (%)	Qualifiers
cis-1,3-Dichloropropene	10061-01-5	MS	18.90	0	20	94.5	81 - 121		
cis-1,3-Dichloropropene	10061-01-5	MSD	18.30	0	20	91.4	81 - 121	RPD 3.32 (Max-16)	
Dibromomethane	74-95-3	MS	21.40	0	20	107	81 - 125		
Dibromomethane	74-95-3	MSD	20.60	0	20	103	81 - 125	RPD 3.78 (Max-16)	
Dichlorodifluoromethane	75-71-8	MS	28.80	0	20	144	17 - 166		
Dichlorodifluoromethane	75-71-8	MSD	26.20	0	20	131	17 - 166	RPD 9.55 (Max-24)	
Diisopropyl ether	108-20-3	MS	23.90	0	20	120	74 - 131		
Diisopropyl ether	108-20-3	MSD	22.90	0	20	114	74 - 131	RPD 4.53 (Max-15)	
Ethylbenzene	100-41-4	MS	20.90	0	20	105	80 - 124		
Ethylbenzene	100-41-4	MSD	19.80	0	20	99	80 - 124	RPD 5.51 (Max-19)	
Hexachlorobutadiene	87-68-3	MS	23	0	20	115	55 - 128		
Hexachlorobutadiene	87-68-3	MSD	21.20	0	20	106	55 - 128	RPD 8.09 (Max-35)	
Methyl t-Butyl Ether	1634-04-4	MS	22.60	0	20	113	69 - 115		
Methyl t-Butyl Ether	1634-04-4	MSD	22	0	20	110	69 - 115	RPD 2.60 (Max-20)	
Methylene Chloride	75-09-2	MS	23.10	0	20	116	76 - 121		
Methylene Chloride	75-09-2	MSD	22.20	0	20	111	76 - 121	RPD 4.04 (Max-17)	
mp-Xylene	108383/106423	MS	42.80	0	40	107	79 - 125		
mp-Xylene	108383/106423	MSD	41	0	40	103	79 - 125	RPD 4.09 (Max-21)	
Naphthalene	91-20-3	MS	19.70	0	20	98.5	56 - 134		
Naphthalene	91-20-3	MSD	20.10	0	20	101	56 - 134	RPD 2.11 (Max-40)	
o-Chlorotoluene	95-49-8	MS	22.10	0	20	111	78 - 126		
o-Chlorotoluene	95-49-8	MSD	21.20	0	20	106	78 - 126	RPD 4.30 (Max-17)	
o-Xylene	95-47-6	MS	20.50	0	20	103	79 - 124		
o-Xylene	95-47-6	MSD	19.70	0	20	98.4	79 - 124	RPD 4.23 (Max-19)	
p-Chlorotoluene	106-43-4	MS	21.40	0	20	107	78 - 125		
p-Chlorotoluene	106-43-4	MSD	20.60	0	20	103	78 - 125	RPD 4.02 (Max-16)	
p-Isopropyltoluene	99-87-6	MS	21.90	0	20	109	72 - 123		
p-Isopropyltoluene	99-87-6	MSD	22.20	0	20	111	72 - 123	RPD 1.52 (Max-17)	
Styrene	100-42-5	MS	21.90	0	20	110	79 - 123		
Styrene	100-42-5	MSD	20.70	0	20	103	79 - 123	RPD 5.88 (Max-16)	
Tetrachloroethene	127-18-4	MS	20	0	20	100	72 - 124		
Tetrachloroethene	127-18-4	MSD	19	0	20	94.9	72 - 124	RPD 5.36 (Max-38)	
Toluene	108-88-3	MS	21.40	0	20	107	80 - 125		
Toluene	108-88-3	MSD	20.30	0	20	102	80 - 125	RPD 5.06 (Max-20)	
Total Xylenes	1330-20-7	MS	63.30	0	60	105	79 - 125		
Total Xylenes	1330-20-7	MSD	60.70	0	60	101	79 - 125	RPD 4.13 (Max-35)	
trans-1,2-Dichloroethene	156-60-5	MS	22.90	0	20	114	71 - 122		
trans-1,2-Dichloroethene	156-60-5	MSD	21.40	0	20	107	71 - 122	RPD 6.82 (Max-22)	
trans-1,3-Dichloropropene	10061-02-6	MS	19.60	0	20	98.2	78 - 126		
trans-1,3-Dichloropropene	10061-02-6	MSD	18.70	0	20	93.7	78 - 126	RPD 4.72 (Max-18)	
Trichloroethene	79-01-6	MS	21.20	0	20	106	77 - 124		
Trichloroethene	79-01-6	MSD	19.90	0	20	99.6	77 - 124	RPD 6.25 (Max-18)	
Trichlorofluoromethane	75-69-4	MS	17.80	0	20	89.2	38 - 123		
Trichlorofluoromethane	75-69-4	MSD	16.60	0	20	83.1	38 - 123	RPD 7.08 (Max-23)	
Vinyl Acetate	108-05-4	MS	18.10	0	20	90.6	58 - 136		
Vinyl Acetate	108-05-4	MSD	17.50	0	20	87.5	58 - 136	RPD 3.58 (Max-17)	
Vinyl Chloride	75-01-4	MS	24.90	0	20	125	27 - 138		
Vinyl Chloride	75-01-4	MSD	22.70	0	20	113	27 - 138	RPD 9.51 (Max-40)	

QUALITY CONTROL SAMPLES

VOLATILE ORGANICS (cont.)

SURROGATES

Compound	CAS No		Result (ug/L)	Expected (ug/L)	Rec. (%)	Limits (%)	Qualifiers
1,2-Dichloroethane-d4	17060-07-0	MS	31.60	30	105	62 - 133	
1,2-Dichloroethane-d4	17060-07-0	MSD	30.80	30	103	62 - 133	
4-Bromofluorobenzene	460-00-4	MS	29.70	30	99	79 - 114	
4-Bromofluorobenzene	460-00-4	MSD	30	30	100	79 - 114	
Dibromofluoromethane	1868-53-7	MS	30.80	30	103	78 - 116	
Dibromofluoromethane	1868-53-7	MSD	30.30	30	101	78 - 116	
Toluene-d8	2037-26-5	MS	29.40	30	98	76 - 127	
Toluene-d8	2037-26-5	MSD	29.30	30	97.7	76 - 127	

Method Blank 3677761 (MB) Created on 06/02/2023 10:53 For QC Batch 1009215

RESULTS

Compound	CAS No		Result	Units	RDL	Qualifiers
1,1,1,2-Tetrachloroethane	630-20-6	BLK	1.0 U	ug/L	1.0	U
1,1,1-Trichloroethane	71-55-6	BLK	1.0 U	ug/L	1.0	U
1,1,2,2-Tetrachloroethane	79-34-5	BLK	1.0 U	ug/L	1.0	U
1,1,2-Trichloroethane	79-00-5	BLK	1.0 U	ug/L	1.0	U
1,1-Dichloroethane	75-34-3	BLK	1.0 U	ug/L	1.0	U
1,1-Dichloroethene	75-35-4	BLK	1.0 U	ug/L	1.0	U
1,1-Dichloropropene	563-58-6	BLK	1.0 U	ug/L	1.0	U
1,2,3-Trichlorobenzene	87-61-6	BLK	2.0 U	ug/L	2.0	U
1,2,3-Trichloropropane	96-18-4	BLK	2.0 U	ug/L	2.0	U
1,2,4-Trichlorobenzene	120-82-1	BLK	2.0 U	ug/L	2.0	U
1,2-Dibromo-3-chloropropane	96-12-8	BLK	7.0 U	ug/L	7.0	U
1,2-Dibromoethane	106-93-4	BLK	1.0 U	ug/L	1.0	U
1,2-Dichlorobenzene	95-50-1	BLK	1.0 U	ug/L	1.0	U
1,2-Dichloroethane	107-06-2	BLK	1.0 U	ug/L	1.0	U
1,2-Dichloropropane	78-87-5	BLK	1.0 U	ug/L	1.0	U
1,3-Dichlorobenzene	541-73-1	BLK	1.0 U	ug/L	1.0	U
1,3-Dichloropropane	142-28-9	BLK	1.0 U	ug/L	1.0	U
1,4-Dichlorobenzene	106-46-7	BLK	1.0 U	ug/L	1.0	U
2,2-Dichloropropane	594-20-7	BLK	1.0 U	ug/L	1.0	U
2-Butanone	78-93-3	BLK	10.0 U	ug/L	10.0	U
2-Hexanone	591-78-6	BLK	5.0 U	ug/L	5.0	U
4-Methyl-2-Pentanone(MIBK)	108-10-1	BLK	5.0 U	ug/L	5.0	U
Acetone	67-64-1	BLK	10.0 U	ug/L	10.0	U
Benzene	71-43-2	BLK	1.0 U	ug/L	1.0	U
Bromobenzene	108-86-1	BLK	1.0 U	ug/L	1.0	U
Bromochloromethane	74-97-5	BLK	1.0 U	ug/L	1.0	U
Bromodichloromethane	75-27-4	BLK	1.0 U	ug/L	1.0	U
Bromoform	75-25-2	BLK	1.0 U	ug/L	1.0	U
Bromomethane	74-83-9	BLK	1.0 U	ug/L	1.0	U
Carbon Tetrachloride	56-23-5	BLK	1.0 U	ug/L	1.0	U
Chlorobenzene	108-90-7	BLK	1.0 U	ug/L	1.0	U
Chlorodibromomethane	124-48-1	BLK	1.0 U	ug/L	1.0	U

QUALITY CONTROL SAMPLES

VOLATILE ORGANICS (cont.)

RESULTS

Compound	CAS No		Result	Units	RDL	Qualifiers
Chloroethane	75-00-3	BLK	1.0 U	ug/L	1.0	U
Chloroform	67-66-3	BLK	1.0 U	ug/L	1.0	U
Chloromethane	74-87-3	BLK	1.0 U	ug/L	1.0	U
cis-1,2-Dichloroethene	156-59-2	BLK	1.0 U	ug/L	1.0	U
cis-1,3-Dichloropropene	10061-01-5	BLK	1.0 U	ug/L	1.0	U
Dibromomethane	74-95-3	BLK	1.0 U	ug/L	1.0	U
Dichlorodifluoromethane	75-71-8	BLK	1.0 U	ug/L	1.0	U
Diisopropyl ether	108-20-3	BLK	1.0 U	ug/L	1.0	U
Ethylbenzene	100-41-4	BLK	1.0 U	ug/L	1.0	U
Hexachlorobutadiene	87-68-3	BLK	5.0 U	ug/L	5.0	U
Methyl t-Butyl Ether	1634-04-4	BLK	1.0 U	ug/L	1.0	U
Methylene Chloride	75-09-2	BLK	1.0 U	ug/L	1.0	U
mp-Xylene	108383/106423	BLK	2.0 U	ug/L	2.0	U
Naphthalene	91-20-3	BLK	2.0 U	ug/L	2.0	U
o-Chlorotoluene	95-49-8	BLK	1.0 U	ug/L	1.0	U
o-Xylene	95-47-6	BLK	1.0 U	ug/L	1.0	U
p-Chlorotoluene	106-43-4	BLK	1.0 U	ug/L	1.0	U
p-Isopropyltoluene	99-87-6	BLK	1.0 U	ug/L	1.0	U
Styrene	100-42-5	BLK	1.0 U	ug/L	1.0	U
Tetrachloroethene	127-18-4	BLK	1.0 U	ug/L	1.0	U
Toluene	108-88-3	BLK	1.0 U	ug/L	1.0	U
Total Xylenes	1330-20-7	BLK	3.0 U	ug/L	3.0	U
trans-1,2-Dichloroethene	156-60-5	BLK	1.0 U	ug/L	1.0	U
trans-1,3-Dichloropropene	10061-02-6	BLK	1.0 U	ug/L	1.0	U
Trichloroethene	79-01-6	BLK	1.0 U	ug/L	1.0	U
Trichlorofluoromethane	75-69-4	BLK	1.0 U	ug/L	1.0	U
Vinyl Acetate	108-05-4	BLK	5.0 U	ug/L	5.0	U
Vinyl Chloride	75-01-4	BLK	1.0 U	ug/L	1.0	U

SURROGATES

Compound	CAS No		Result (ug/L)	Expected (ug/L)	Rec. (%)	Limits (%)	Qualifiers
1,2-Dichloroethane-d4	17060-07-0	BLK	30.90	30	103	62 - 133	
4-Bromofluorobenzene	460-00-4	BLK	29.60	30	98.6	79 - 114	
Dibromofluoromethane	1868-53-7	BLK	28.30	30	94.5	78 - 116	
Toluene-d8	2037-26-5	BLK	29.40	30	98	76 - 127	

Lab Control Standard 3677762 (LCS) Created on 06/02/2023 10:53 For QC Batch 1009215

RESULTS

Compound	CAS No		Result (ug/L)	Orig. Result (ug/L)	Spk Added (ug/L)	Rec. (%)	Limits (%)	RPD Limit (%)	Qualifiers
1,1,1,2-Tetrachloroethane	630-20-6	LCS	16.30		20	81.5	78 - 121		
1,1,1-Trichloroethane	71-55-6	LCS	22.10		20	111	66 - 130		
1,1,2,2-Tetrachloroethane	79-34-5	LCS	21.30		20	106	74 - 135		
1,1,2-Trichloroethane	79-00-5	LCS	20.30		20	102	82 - 126		

QUALITY CONTROL SAMPLES

VOLATILE ORGANICS (cont.)

RESULTS

Compound	CAS No		Result (ug/L)	Orig. Result (ug/L)	Spk Added (ug/L)	Rec. (%)	Limits (%)	RPD Limit (%)	Qualifiers
1,1-Dichloroethane	75-34-3	LCS	20.90		20	105	78 - 124		
1,1-Dichloroethene	75-35-4	LCS	23.30		20	116	63 - 128		
1,1-Dichloropropene	563-58-6	LCS	21.40		20	107	76 - 126		
1,2,3-Trichlorobenzene	87-61-6	LCS	22.30		20	112	61 - 126		
1,2,3-Trichloropropane	96-18-4	LCS	21.10		20	106	75 - 132		
1,2,4-Trichlorobenzene	120-82-1	LCS	21.40		20	107	67 - 123		
1,2-Dibromo-3-chloropropane	96-12-8	LCS	17.90		20	89.5	59 - 133		
1,2-Dibromoethane	106-93-4	LCS	19.60		20	98.2	80 - 124		
1,2-Dichlorobenzene	95-50-1	LCS	20.80		20	104	82 - 118		
1,2-Dichloroethane	107-06-2	LCS	20.90		20	104	70 - 133		
1,2-Dichloropropane	78-87-5	LCS	20.70		20	104	81 - 127		
1,3-Dichlorobenzene	541-73-1	LCS	20.50		20	103	81 - 118		
1,3-Dichloropropane	142-28-9	LCS	19.80		20	99.1	82 - 126		
1,4-Dichlorobenzene	106-46-7	LCS	21		20	105	81 - 116		
2,2-Dichloropropane	594-20-7	LCS	21.90		20	110	64 - 129		
2-Butanone	78-93-3	LCS	112		100	112	50 - 152		
2-Hexanone	591-78-6	LCS	109		100	109	65 - 154		
4-Methyl-2-Pentanone(MIBK)	108-10-1	LCS	115		100	115	71 - 146		
Acetone	67-64-1	LCS	112		100	112	40 - 151		
Benzene	71-43-2	LCS	21.20		20	106	80 - 124		
Bromobenzene	108-86-1	LCS	21		20	105	81 - 119		
Bromochloromethane	74-97-5	LCS	17.70		20	88.5	73 - 117		
Bromodichloromethane	75-27-4	LCS	20.20		20	101	79 - 126		
Bromoform	75-25-2	LCS	18.90		20	94.3	70 - 123		
Bromomethane	74-83-9	LCS	18.30		20	91.6	45 - 148		
Carbon Tetrachloride	56-23-5	LCS	21.80		20	109	62 - 132		
Chlorobenzene	108-90-7	LCS	20.30		20	101	85 - 117		
Chlorodibromomethane	124-48-1	LCS	19		20	95	77 - 122		
Chloroethane	75-00-3	LCS	13.90		20	69.6	51 - 142		
Chloroform	67-66-3	LCS	21.80		20	109	78 - 122		
Chloromethane	74-87-3	LCS	21.80		20	109	38 - 156		
cis-1,2-Dichloroethene	156-59-2	LCS	21.30		20	106	78 - 125		
cis-1,3-Dichloropropene	10061-01-5	LCS	19.70		20	98.7	81 - 121		
Dibromomethane	74-95-3	LCS	20.90		20	104	81 - 125		
Dichlorodifluoromethane	75-71-8	LCS	24		20	120	17 - 166		
Diisopropyl ether	108-20-3	LCS	23		20	115	74 - 131		
Ethylbenzene	100-41-4	LCS	20.40		20	102	80 - 124		
Hexachlorobutadiene	87-68-3	LCS	24.50		20	123	55 - 128		
Methyl t-Butyl Ether	1634-04-4	LCS	22.30		20	112	69 - 115		
Methylene Chloride	75-09-2	LCS	22.10		20	110	76 - 121		
mp-Xylene	108383/106423	LCS	42.60		40	106	79 - 125		
Naphthalene	91-20-3	LCS	21.50		20	107	56 - 134		
o-Chlorotoluene	95-49-8	LCS	21.70		20	109	78 - 126		
o-Xylene	95-47-6	LCS	20.60		20	103	79 - 124		
p-Chlorotoluene	106-43-4	LCS	21.30		20	106	78 - 125		
p-Isopropyltoluene	99-87-6	LCS	22		20	110	72 - 123		
Styrene	100-42-5	LCS	21.60		20	108	79 - 123		

QUALITY CONTROL SAMPLES

VOLATILE ORGANICS (cont.)

RESULTS

Compound	CAS No		Result (ug/L)	Orig. Result (ug/L)	Spk Added (ug/L)	Rec. (%)	Limits (%)	RPD Limit (%)	Qualifiers
Tetrachloroethene	127-18-4	LCS	20.30		20	101	72 - 124		
Toluene	108-88-3	LCS	21.10		20	106	80 - 125		
Total Xylenes	1330-20-7	LCS	63.20		60	105	79 - 125		
trans-1,2-Dichloroethene	156-60-5	LCS	21.90		20	109	71 - 122		
trans-1,3-Dichloropropene	10061-02-6	LCS	20.40		20	102	78 - 126		
Trichloroethene	79-01-6	LCS	20.20		20	101	77 - 124		
Trichlorofluoromethane	75-69-4	LCS	16.80		20	84.2	38 - 123		
Vinyl Acetate	108-05-4	LCS	19.80		20	99.1	58 - 136		
Vinyl Chloride	75-01-4	LCS	22.10		20	111	27 - 138		

SURROGATES

Compound	CAS No		Result (ug/L)	Expected (ug/L)	Rec. (%)	Limits (%)	Qualifiers
1,2-Dichloroethane-d4	17060-07-0	LCS	30.80	30	103	62 - 133	
4-Bromofluorobenzene	460-00-4	LCS	30.20	30	101	79 - 114	
Dibromofluoromethane	1868-53-7	LCS	30.50	30	102	78 - 116	
Toluene-d8	2037-26-5	LCS	29.80	30	99.2	76 - 127	

QC Batch

QC Batch	1012322	Prep Method	N/A
Date	N/A	Analysis Method	SW846 8260D
Tech.			

Associated Samples

3304367008

Method Blank 3680419 (MB) Created on 06/09/2023 00:01 For QC Batch 1012322

RESULTS

Compound	CAS No		Result	Units	RDL	Qualifiers
1,1,1,2-Tetrachloroethane	630-20-6	BLK	1.0 U	ug/L	1.0	U
1,1,1-Trichloroethane	71-55-6	BLK	1.0 U	ug/L	1.0	U
1,1,2,2-Tetrachloroethane	79-34-5	BLK	1.0 U	ug/L	1.0	U
1,1,2-Trichloroethane	79-00-5	BLK	1.0 U	ug/L	1.0	U
1,1-Dichloroethane	75-34-3	BLK	1.0 U	ug/L	1.0	U
1,1-Dichloroethene	75-35-4	BLK	1.0 U	ug/L	1.0	U
1,1-Dichloropropene	563-58-6	BLK	1.0 U	ug/L	1.0	U
1,2,3-Trichlorobenzene	87-61-6	BLK	2.0 U	ug/L	2.0	U
1,2,3-Trichloropropane	96-18-4	BLK	2.0 U	ug/L	2.0	U
1,2,4-Trichlorobenzene	120-82-1	BLK	2.0 U	ug/L	2.0	U
1,2-Dibromo-3-chloropropane	96-12-8	BLK	7.0 U	ug/L	7.0	U
1,2-Dibromoethane	106-93-4	BLK	1.0 U	ug/L	1.0	U
1,2-Dichlorobenzene	95-50-1	BLK	1.0 U	ug/L	1.0	U
1,2-Dichloroethane	107-06-2	BLK	1.0 U	ug/L	1.0	U
1,2-Dichloropropane	78-87-5	BLK	1.0 U	ug/L	1.0	U
1,3-Dichlorobenzene	541-73-1	BLK	1.0 U	ug/L	1.0	U

QUALITY CONTROL SAMPLES

VOLATILE ORGANICS (cont.)

RESULTS

Compound	CAS No		Result	Units	RDL	Qualifiers
1,3-Dichloropropane	142-28-9	BLK	1.0 U	ug/L	1.0	U
1,4-Dichlorobenzene	106-46-7	BLK	1.0 U	ug/L	1.0	U
2,2-Dichloropropane	594-20-7	BLK	1.0 U	ug/L	1.0	U
2-Butanone	78-93-3	BLK	10.0 U	ug/L	10.0	U
2-Hexanone	591-78-6	BLK	5.0 U	ug/L	5.0	U
4-Methyl-2-Pentanone(MIBK)	108-10-1	BLK	5.0 U	ug/L	5.0	U
Acetone	67-64-1	BLK	10.0 U	ug/L	10.0	U
Benzene	71-43-2	BLK	1.0 U	ug/L	1.0	U
Bromobenzene	108-86-1	BLK	1.0 U	ug/L	1.0	U
Bromochloromethane	74-97-5	BLK	1.0 U	ug/L	1.0	U
Bromodichloromethane	75-27-4	BLK	1.0 U	ug/L	1.0	U
Bromoform	75-25-2	BLK	1.0 U	ug/L	1.0	U
Bromomethane	74-83-9	BLK	1.0 U	ug/L	1.0	U
Carbon Tetrachloride	56-23-5	BLK	1.0 U	ug/L	1.0	U
Chlorobenzene	108-90-7	BLK	1.0 U	ug/L	1.0	U
Chlorodibromomethane	124-48-1	BLK	1.0 U	ug/L	1.0	U
Chloroethane	75-00-3	BLK	1.0 U	ug/L	1.0	U
Chloroform	67-66-3	BLK	1.0 U	ug/L	1.0	U
Chloromethane	74-87-3	BLK	1.0 U	ug/L	1.0	U
cis-1,2-Dichloroethene	156-59-2	BLK	1.0 U	ug/L	1.0	U
cis-1,3-Dichloropropene	10061-01-5	BLK	1.0 U	ug/L	1.0	U
Dibromomethane	74-95-3	BLK	1.0 U	ug/L	1.0	U
Dichlorodifluoromethane	75-71-8	BLK	1.0 U	ug/L	1.0	U
Diisopropyl ether	108-20-3	BLK	1.0 U	ug/L	1.0	U
Ethylbenzene	100-41-4	BLK	1.0 U	ug/L	1.0	U
Hexachlorobutadiene	87-68-3	BLK	5.0 U	ug/L	5.0	U
Methyl t-Butyl Ether	1634-04-4	BLK	1.0 U	ug/L	1.0	U
Methylene Chloride	75-09-2	BLK	1.0 U	ug/L	1.0	U
mp-Xylene	108383/106423	BLK	2.0 U	ug/L	2.0	U
Naphthalene	91-20-3	BLK	2.0 U	ug/L	2.0	U
o-Chlorotoluene	95-49-8	BLK	1.0 U	ug/L	1.0	U
o-Xylene	95-47-6	BLK	1.0 U	ug/L	1.0	U
p-Chlorotoluene	106-43-4	BLK	1.0 U	ug/L	1.0	U
p-Isopropyltoluene	99-87-6	BLK	1.0 U	ug/L	1.0	U
Styrene	100-42-5	BLK	1.0 U	ug/L	1.0	U
Tetrachloroethene	127-18-4	BLK	1.0 U	ug/L	1.0	U
Toluene	108-88-3	BLK	1.0 U	ug/L	1.0	U
Total Xylenes	1330-20-7	BLK	3.0 U	ug/L	3.0	U
trans-1,2-Dichloroethene	156-60-5	BLK	1.0 U	ug/L	1.0	U
trans-1,3-Dichloropropene	10061-02-6	BLK	1.0 U	ug/L	1.0	U
Trichloroethene	79-01-6	BLK	1.0 U	ug/L	1.0	U
Trichlorofluoromethane	75-69-4	BLK	1.0 U	ug/L	1.0	U
Vinyl Acetate	108-05-4	BLK	5.0 U	ug/L	5.0	U
Vinyl Chloride	75-01-4	BLK	1.0 U	ug/L	1.0	U

QUALITY CONTROL SAMPLES

VOLATILE ORGANICS (cont.)

SURROGATES

Compound	CAS No		Result (ug/L)	Expected (ug/L)	Rec. (%)	Limits (%)	Qualifiers
1,2-Dichloroethane-d4	17060-07-0	BLK	27.50	30	91.7	62 - 133	
4-Bromofluorobenzene	460-00-4	BLK	31.10	30	104	79 - 114	
Dibromofluoromethane	1868-53-7	BLK	30.50	30	102	78 - 116	
Toluene-d8	2037-26-5	BLK	30.40	30	101	76 - 127	

Lab Control Standard 3680420 (LCS) Created on 06/09/2023 00:01 For QC Batch 1012322

RESULTS

Compound	CAS No		Result (ug/L)	Orig. Result (ug/L)	Spk Added (ug/L)	Rec. (%)	Limits (%)	RPD Limit (%)	Qualifiers
1,1,1,2-Tetrachloroethane	630-20-6	LCS	17.40		20	86.8	78 - 121		
1,1,1-Trichloroethane	71-55-6	LCS	17		20	84.9	66 - 130		
1,1,2,2-Tetrachloroethane	79-34-5	LCS	19.40		20	96.8	74 - 135		
1,1,2-Trichloroethane	79-00-5	LCS	18.10		20	90.5	82 - 126		
1,1-Dichloroethane	75-34-3	LCS	17		20	85.1	78 - 124		
1,1-Dichloroethene	75-35-4	LCS	17.50		20	87.6	63 - 128		
1,1-Dichloropropene	563-58-6	LCS	17.70		20	88.4	76 - 126		
1,2,3-Trichlorobenzene	87-61-6	LCS	31.60		20	158*	61 - 126		
1,2,3-Trichloropropane	96-18-4	LCS	19		20	95	75 - 132		
1,2,4-Trichlorobenzene	120-82-1	LCS	19.70		20	98.4	67 - 123		
1,2-Dibromo-3-chloropropane	96-12-8	LCS	16.50		20	82.6	59 - 133		
1,2-Dibromoethane	106-93-4	LCS	18.20		20	91.2	80 - 124		
1,2-Dichlorobenzene	95-50-1	LCS	18.50		20	92.7	82 - 118		
1,2-Dichloroethane	107-06-2	LCS	17		20	85	70 - 133		
1,2-Dichloropropane	78-87-5	LCS	18.30		20	91.4	81 - 127		
1,3-Dichlorobenzene	541-73-1	LCS	18.30		20	91.6	81 - 118		
1,3-Dichloropropane	142-28-9	LCS	18		20	89.9	82 - 126		
1,4-Dichlorobenzene	106-46-7	LCS	17.70		20	88.5	81 - 116		
2,2-Dichloropropane	594-20-7	LCS	17.90		20	89.4	64 - 129		
2-Butanone	78-93-3	LCS	124		100	124	50 - 152		
2-Hexanone	591-78-6	LCS	110		100	110	65 - 154		
4-Methyl-2-Pentanone(MIBK)	108-10-1	LCS	108		100	108	71 - 146		
Acetone	67-64-1	LCS	104		100	104	40 - 151		
Benzene	71-43-2	LCS	18.20		20	90.8	80 - 124		
Bromobenzene	108-86-1	LCS	17.50		20	87.6	81 - 119		
Bromochloromethane	74-97-5	LCS	19.70		20	98.4	73 - 117		
Bromodichloromethane	75-27-4	LCS	17.70		20	88.3	79 - 126		
Bromoform	75-25-2	LCS	18		20	90	70 - 123		
Bromomethane	74-83-9	LCS	20.20		20	101	45 - 148		
Carbon Tetrachloride	56-23-5	LCS	16.70		20	83.4	62 - 132		
Chlorobenzene	108-90-7	LCS	17.80		20	89.1	85 - 117		
Chlorodibromomethane	124-48-1	LCS	18.40		20	91.9	77 - 122		
Chloroethane	75-00-3	LCS	19.90		20	99.4	51 - 142		
Chloroform	67-66-3	LCS	17.80		20	88.8	78 - 122		
Chloromethane	74-87-3	LCS	19.50		20	97.5	38 - 156		
cis-1,2-Dichloroethene	156-59-2	LCS	18.30		20	91.4	78 - 125		

QUALITY CONTROL SAMPLES

VOLATILE ORGANICS (cont.)

RESULTS

Compound	CAS No		Result (ug/L)	Orig. Result (ug/L)	Spk Added (ug/L)	Rec. (%)	Limits (%)	RPD Limit (%)	Qualifiers
cis-1,3-Dichloropropene	10061-01-5	LCS	17.90		20	89.7	81 - 121		
Dibromomethane	74-95-3	LCS	19.50		20	97.6	81 - 125		
Dichlorodifluoromethane	75-71-8	LCS	21.70		20	108	17 - 166		
Diisopropyl ether	108-20-3	LCS	19		20	95	74 - 131		
Ethylbenzene	100-41-4	LCS	18		20	89.8	80 - 124		
Hexachlorobutadiene	87-68-3	LCS	22.40		20	112	55 - 128		
Methyl t-Butyl Ether	1634-04-4	LCS	19.10		20	95.4	69 - 115		
Methylene Chloride	75-09-2	LCS	18.10		20	90.5	76 - 121		
mp-Xylene	108383/106423	LCS	36.20		40	90.4	79 - 125		
Naphthalene	91-20-3	LCS	25.20		20	126	56 - 134		
o-Chlorotoluene	95-49-8	LCS	17.80		20	88.9	78 - 126		
o-Xylene	95-47-6	LCS	17.70		20	88.5	79 - 124		
p-Chlorotoluene	106-43-4	LCS	17.90		20	89.7	78 - 125		
p-Isopropyltoluene	99-87-6	LCS	19.80		20	98.8	72 - 123		
Styrene	100-42-5	LCS	18.50		20	92.5	79 - 123		
Tetrachloroethene	127-18-4	LCS	17.10		20	85.7	72 - 124		
Toluene	108-88-3	LCS	17.30		20	86.3	80 - 125		
Total Xylenes	1330-20-7	LCS	53.90		60	89.8	79 - 125		
trans-1,2-Dichloroethene	156-60-5	LCS	17.20		20	85.9	71 - 122		
trans-1,3-Dichloropropene	10061-02-6	LCS	18.80		20	93.9	78 - 126		
Trichloroethene	79-01-6	LCS	17.40		20	86.8	77 - 124		
Trichlorofluoromethane	75-69-4	LCS	16.90		20	84.7	38 - 123		
Vinyl Acetate	108-05-4	LCS	18.40		20	92	58 - 136		
Vinyl Chloride	75-01-4	LCS	18.90		20	94.7	27 - 138		

SURROGATES

Compound	CAS No		Result (ug/L)	Expected (ug/L)	Rec. (%)	Limits (%)	Qualifiers
1,2-Dichloroethane-d4	17060-07-0	LCS	27.80	30	92.6	62 - 133	
4-Bromofluorobenzene	460-00-4	LCS	28.80	30	95.9	79 - 114	
Dibromofluoromethane	1868-53-7	LCS	30.60	30	102	78 - 116	
Toluene-d8	2037-26-5	LCS	29.30	30	97.6	76 - 127	

QUALITY CONTROL DATA CROSS REFERENCE TABLE

Lab ID	Sample ID	Preparation Method	Prep Batch	Prep Date/Time	By	Analysis Method	Anly Batch
3304367001	MW-01D	SW846 3510C	1005881	05/24/2023 10:10	SRL	SW846 8270E SIM	1006374
		N/A	N/A	N/A		SW846 8260D	1008495
3304367002	MW-22D	SW846 3510C	1005881	05/24/2023 10:10	SRL	SW846 8270E SIM	1006374
		N/A	N/A	N/A		SW846 8260D	1008495
3304367003	MW-04R	SW846 3510C	1005881	05/24/2023 10:10	SRL	SW846 8270E SIM	1006374
		SW846 3510C	1005881	05/24/2023 10:10	SRL	SW846 8270E SIM	1007328
		N/A	N/A	N/A		SW846 8260D	1008495
3304367004	MW-20	SW846 3510C	1005881	05/24/2023 10:10	SRL	SW846 8270E SIM	1006374
		SW846 3510C	1005881	05/24/2023 10:10	SRL	SW846 8270E SIM	1007328
		N/A	N/A	N/A		SW846 8260D	1008495
3304367005	MW-09	SW846 3510C	1005881	05/24/2023 10:10	SRL	SW846 8270E SIM	1006374
		N/A	N/A	N/A		SW846 8260D	1009215
3304367006	MW-23D	SW846 3510C	1005881	05/24/2023 10:10	SRL	SW846 8270E SIM	1006374
		SW846 3510C	1005881	05/24/2023 10:10	SRL	SW846 8270E SIM	1007328
		N/A	N/A	N/A		SW846 8260D	1009215
3304367007	MW-46D	SW846 3510C	1005881	05/24/2023 10:10	SRL	SW846 8270E SIM	1006374
		N/A	N/A	N/A		SW846 8260D	1009215
3304367008	MW-16	SW846 3510C	1005881	05/24/2023 10:10	SRL	SW846 8270E SIM	1006374
		SW846 3510C	1005881	05/24/2023 10:10	SRL	SW846 8270E SIM	1007328
		N/A	N/A	N/A		SW846 8260D	1009215
		N/A	N/A	N/A		SW846 8260D	1012322
3304367009	MW-16D	SW846 3510C	1005881	05/24/2023 10:10	SRL	SW846 8270E SIM	1006374
		SW846 3510C	1005881	05/24/2023 10:10	SRL	SW846 8270E SIM	1007328
		N/A	N/A	N/A		SW846 8260D	1009215
3304367010	DUP-052123	SW846 3510C	1005881	05/24/2023 10:10	SRL	SW846 8270E SIM	1006374
		SW846 3510C	1005881	05/24/2023 10:10	SRL	SW846 8270E SIM	1007328
		N/A	N/A	N/A		SW846 8260D	1009215
3304367011	MW-43	SW846 3510C	1005881	05/24/2023 10:10	SRL	SW846 8270E SIM	1006374
		N/A	N/A	N/A		SW846 8260D	1009215
3304367012	MW-39	SW846 3510C	1005881	05/24/2023 10:10	SRL	SW846 8270E SIM	1006374
		N/A	N/A	N/A		SW846 8260D	1009215
3304367013	MW-42	SW846 3510C	1005881	05/24/2023 10:10	SRL	SW846 8270E SIM	1006374
		N/A	N/A	N/A		SW846 8260D	1009215
3304367014	MW-18	SW846 3510C	1005881	05/24/2023 10:10	SRL	SW846 8270E SIM	1006374
		N/A	N/A	N/A		SW846 8260D	1009215
3304367015	MW-40D	SW846 3510C	1005881	05/24/2023 10:10	SRL	SW846 8270E SIM	1006374
		N/A	N/A	N/A		SW846 8260D	1009215
3304367016	MW-38R	SW846 3510C	1005881	05/24/2023 10:10	SRL	SW846 8270E SIM	1006374
		SW846 3510C	1005881	05/24/2023 10:10	SRL	SW846 8270E SIM	1007328
		N/A	N/A	N/A		SW846 8260D	1009215
3304367017	MW-05R	SW846 3510C	1005881	05/24/2023 10:10	SRL	SW846 8270E SIM	1006374
		N/A	N/A	N/A		SW846 8260D	1009215
3304367018	MW-44	SW846 3510C	1005881	05/24/2023 10:10	SRL	SW846 8270E SIM	1006374
		N/A	N/A	N/A		SW846 8260D	1009215
3304367019	MW-21D	SW846 3510C	1005881	05/24/2023 10:10	SRL	SW846 8270E SIM	1006374
		N/A	N/A	N/A		SW846 8260D	1009215
3304367020	Trip Blank A	N/A	N/A	N/A		SW846 8260D	1009215
3304367021	Trip Blank B	N/A	N/A	N/A		SW846 8260D	1009215

301 Fulling Mill Rd, Suite A
Middletown, PA 17057
P. 717-944-5541

CHAIN OF CUSTODY/ REQUEST FOR ANALYSIS

3304367

Logged By: SLS
PM: SJB

347

ALL SHADED AREAS MUST BE COMPLETED BY THE CLIENT / SAMPLER. INSTRUCTIONS ON THE BACK.

(Completed by Receiving Lab)

Client Name: WSP

Address: 13530 Dulles Technology Dr. Suite 300 Herndon VA 20171

Contact: Eric Johnson

Phone#: (703) 709-6500

Project Name/#: Kop-Flex Onsite / 31405608.000

Bill To:

Purchase Order #:

TAT: [X] Normal-Standard TAT is 10-12 business days. [ ] Rush-Subject to ALS approval and surcharges.

Date Required: Approved?

Email? [X] eric.johnson@wsp.com

	Container Type	Container Size	Preservative
	CG	AG	
	40mL	250 mL	
	HCl	None	

Orthophosphate Filtered? Y N (NA) Hexavalent Chromium Filtered? Y N (NA)

ANALYSIS / METHOD REQUESTED

	Sample Description/Location (as it will appear on the lab report)	Date Collected mm/dd/yy	Time hh:mm	SDWA Sample Type (see key)	*G or C	**Matrix (See bottom of COC)	VOCs / 8260	1,4 Dioxane / 8270 SIM									
							Enter Number of Containers Per Sample or Field Results Below.										
1	MW-01D	5/21/23	1500		G	GW	2X	2X									
2	MW-22D	5/21/23	1515		G	GW	2X	2X									
3	MW-04R	5/21/23	1525		G	GW	2X	2X									
4	MW-20	5/21/23	1535		G	GW	2X	2X									
5	MW-09	5/21/23	1555		G	GW	2X	2X									
6	MW-23D	5/21/23	1610		G	GW	2X	2X									
7	MW-46D	5/21/23	1625		G	GW	2X	2X									
8	MW-16	5/21/23	1650		G	GW	2X	2X									
9	MW-16D	5/21/23	1705		G	GW	2X	2X									
10	DUP-052123	5/21/23	1300		G	GW	2X	2X									

Temp Taken By: Therm ID: WO Temp (°C)

Receipt Info completed by:_____ WV Containers 0-6°C Y N NA

Temp By:	WO Temp (°C)	Therm ID
DPB	3	570

Deviations? NO YES
If YES, list below:

Receipt Info Completed By:	DPB	
Cooler Custody Seal Intact	Y N	NA
Sample Custody Seal Intact	Y N	NA
Received on Ice	Y N	NA
Cooler & Samples Intact	Y N	
Correct Containers Provided	Y N	
Sample Label/COC Agree	Y N	NA
Adequate Sample Volumes	Y N	
CR6 Samples Filtered	Y N	NA
OP Samples Filtered	Y N	NA
VOA Headspace Present	Y N	NA
Voa Trip Blank	Y N	NA
NJ≤ 4 Days?	Y N	
Rad Screen (uCi)		
Courier/Tracking #:		
SDWA Compliance	Y N	
PWSID		
WV Containers 0-6°C	Y N	NA

Client contact: Date/Tech:

Rad Screen (uCi)_____

New Source? Y N

New Source Contact:

#:_____

SDWA Sample Type Key: D=Distribution E=Entry Point R=Raw P=Plant C=Check S=Special A=Annual Startup

Contains Short Hold Testing YES NO

Internal Use: If less than 48 hours - notify lab upon receipt

Circle Sample Collector: ALS Tech / Client

Name: Elliott M ID:

Comments:

DPB 5/22/23

Date:	Time	Relinquished By / Company Name		Received By / Company Name
5/22/23	1505	1 Elliott M WSP	2	
5/22/23	1815	3 Hmaeus	4	
		5	6	
		7	8	
		9	10	

Data Deliverables: [ ] Standard Lvl 1 [ ] Standard Lvl 2 [ ] Standard Lvl 3 [ ] Standard Lvl 4 [ ] CLP-like [ ] DOD [ ] NJ RED [ ] NJ Full [ ] HSCA [ ] Landfill [ ] NJ GW [ ]_____

EDDs: [ ] Excel Summary [ ] Equis [ ] Custom

Sample Disposal: [ ] Lab [ ] Special

EDDS: Format Type

State Samples Collected In: [ ] NY [ ] NJ [ ] PA [ ] WV [ ] FL [ ] other

* G=Grab; C=Composite **Matrix - A=Air; D=Drinking Water; GW=Groundwater; O=Oil; LW=Liquid Waste; S=Solid/Soil/Sludge; SW=Surface Water; WP=Wipe; WW=Wastewater

ALS SHIPPING ADDRESS: 301 Fulling Mill Road, Suite A, Middletown, PA 17057

Rev 11.14.22

6/13/2023 6:58 PM

301 Fulling Mill Rd, Suite A
Middletown, PA 17057
P. 717-944-5541

CHAIN OF CUSTODY/ REQUEST FOR ANALYSIS

ALL SHADED AREAS MUST BE COMPLETED BY THE CLIENT / SAMPLER. INSTRUCTIONS ON THE BACK.

COC #: 3304367 — 2 of 3
ALS Quote #:

Client Name: WSP
Address: 13530 Dulles Technology Dr Suite 300 Herndon VA 20171
Contact: Eric Johnson
Phone#: (703) 709-6500
Project Name/#: Kop-Flex Onsite / 31405608.010
Bill To:
Purchase Order #:
TAT: [X] Normal-Standard TAT is 10-12 business days. [ ] Rush-Subject to ALS approval and surcharges.
Date Required: Approved?
Email? [X] eric.johnson@wsp.com

	Sample Description/Location (as it will appear on the lab report)	Date Collected mm/dd/yy	Time hh:mm	SDWA Sample Type (see key)	*G or C	**Matrix (See bottom of COC)	Container Type	Container Size	Preservative	VOCs / 8260	1,4 Dioxane / 8270E
							CG	AG			
							40mL	250mL			
							HCl	None			
1	MW-43	5/21/23	1125		G	GW	2X	2X			
2	MW-39	5/21/23	1135		G	GW	2X	2X			
3	MW-42	5/21/23	1145		G	GW	2X	2X			
4	MW-18	5/21/23	1200		G	GW	2X	2X			
5	MW-40D	5/21/23	1210		G	GW	2X	2X			
6	~~RW-1S~~	~~5/21/23~~	~~1215~~								
7	MW-38R	5/21/23	1335		G	GW	2X	2X			
8	MW-05R	5/21/23	1355		G	GW	2X	2X			
9	MW-44	5/21/23	1405		G	GW	2X	2X			
10	MW-21D	5/21/23	1420		G	GW	2X	2X			

Orthophosphate Filtered? Y N (NA) Hexavalent Chromium Filtered? Y N (NA)

ANALYSIS / METHOD REQUESTED

Enter Number of Containers Per Sample or Field Results Below.

Circle Sample Collector: ALS Tech / Client
Name: Elliott M ID:

Comments: DP 5/22/23

Date:	Time		Relinquished By / Company Name		Received By / Company Name
5/22/23	1505	1	WSP	2	
5/22/23	1215	3		4	
		5		6	
		7		8	
		9		10	

Receipt Information (completed by Receiving Lab)
Temp Taken By: Therm ID: WO Temp (°C)
Receipt Info completed by: WV Containers 0-6°C Y N NA

Cooler Custody Seals Intact	Y	N	NA
Sample Custody Seal Intact	Y	N	NA
Received on Ice	Y	N	NA
Coolers & Samples Intact	Y	N	
Correct Containers Provided	Y	N	
Sample Label/COC Agree	Y	N	
Adequate Sample Volumes	Y	N	
VOA only: Headspace Present	Y	N	NA
VOA only: Trip Blank	Y	N	NA

NJ ≤ 4 days? Y N
Courier/Tracking #:

Deviations? NO YES
If YES, list below:

Client contact: Date/Tech:

Sample(s) for Radiation testing? Y N Rad Screen (uCi)
Reportable SDWA Sample(s)? Y N New Source? Y N
SDWA State of Origin? New Source Contact:
PWSID #
PWS Contact: PWS Phone #:

SDWA Sample Type Key: D=Distribution E=Entry Point R=Raw P=Plant C=Check S=Special A=Annual Startup

Contains Short Hold Testing YES NO
Internal Use: If less than 48 hours - notify lab upon receipt

Data Deliverables: [ ] Standard Lvl 1 [ ] Standard Lvl 2 [ ] Standard Lvl 3 [ ] Standard Lvl 4 [ ] CLP-like [ ] DOD [ ] NJ RED [ ] NJ Full [ ] HSCA [ ] Landfill [ ] NJ GW [ ] _____

EDDs: [ ] Excel Summary [ ] Equis [ ] Custom

Sample Disposal: Lab [ ] Special [ ]

EDDS: Format Type

State Samples Collected In: [ ] NY [ ] NJ [ ] PA [ ] WV [ ] FL [ ] other

* G=Grab; C=Composite **Matrix - A=Air; D=Drinking Water; GW=Groundwater; O=Oil; LW=Liquid Waste; S=Solid/Soil/Sludge; SW=Surface Water; WP=Wipe; WW=Wastewater

ALS SHIPPING ADDRESS: 301 Fulling Mill Road, Suite A, Middletown, PA 17057

Rev 11.14.22

3 4 4 A A 2 K A 3

301 Fulling Mill Rd, Suite A
Middletown, PA 17057
P. 717-944-5541

CHAIN OF CUSTODY/ REQUEST FOR ANALYSIS

ALL SHADED AREAS MUST BE COMPLETED BY THE CLIENT / SAMPLER. INSTRUCTIONS ON THE BACK.

COC #: 3304367 — 3 of 3
ALS Quote #:

Client Name: WSP
Address: 13530 Dulles Technology Dr Suite 300 Herndon VA 20171
Contact: Eric Johnson
Phone#:
Project Name/#: 31495608.010
Bill To:
Purchase Order #:
TAT: ☐ Normal-Standard TAT is 10-12 business days. ☐ Rush-Subject to ALS approval and surcharges.
Date Required: Approved?
Email? ☐

	Sample Description/Location (as it will appear on the lab report)	Date Collected mm/dd/yy	Time hh:mm	SDWA Sample Type (see key)	*G or C	**Matrix (See bottom of COC)	VOCs									
	Container Type															
	Container Size															
	Preservative															
1	Trip Blank A					W	2									
2	Trip Blank B					W	2									
3						W	3									
4							5/22/23									
5																
6																
7																
8																
9																
10																

Orthophosphate Filtered? Y N NA Hexavalent Chromium Filtered? Y N NA

ANALYSIS / METHOD REQUESTED

Enter Number of Containers Per Sample or Field Results Below.

Circle Sample Collector: ALS Tech / Client
Name: ID:

Comments:

Date:	Time	Relinquished By / Company Name	Received By / Company Name
5/22/23	1505	1 WSP	2
5/22/23	1615	3	4
		5	6
		7	8
		9	10

Receipt Information (completed by Receiving Lab)
Temp Taken By: Therm ID: WO Temp (°C)
Receipt Info completed by:_____ WV Containers 0-6°C Y N NA

Cooler Custody Seals Intact	Y	N	NA	Deviations? NO YES
Sample Custody Seal Intact	Y	N	NA	If YES, llist below:
Received on Ice	Y	N	NA	
Coolers & Samples Intact	Y	N		
Correct Containers Provided	Y	N		
Sample Label/COC Agree	Y	N		
Adequate Sample Volumes	Y	N		
VOA only: Headspace Present	Y	N	NA	
VOA only: Trip Blank	Y	N	NA	Client contact:

NJ ≤ 4 days? Y N
Courier/Tracking #:_____ Date/Tech:

Sample(s) for Radiation testing? Y N Rad Screen (uCi)_____
Reportable SDWA Sample(s)? Y N New Source? Y N
SDWA State of Origin?_____ New Source Contact:
PWSID #_____
PWS Contact:_____ PWS Phone #:_____

SDWA Sample Type Key: D=Distribution E=Entry Point R=Raw P=Plant C=Check S=Special A=Annual Startup

Contains Short Hold Testing YES NO
Internal Use: If less than 48 hours - notify lab upon receipt

Data Deliverables: ☐ Standard Lvl 1 ☐ Standard Lvl 2 ☐ Standard Lvl 3 ☐ Standard Lvl 4 ☐ CLP-like ☐ DOD ☐ NJ RED ☐ NJ Full ☐ HSCA ☐ Landfill ☐ NJ GW ☐ _____

EDDs: ☐ Excel Summary ☐ Equis ☐ Custom

Sample Disposal: Lab ☐ Special ☐

EDDS: Format Type

State Samples Collected In: ☐ NY ☐ NJ ☐ PA ☐ WV ☐ FL ☐ other

* G=Grab; C=Composite **Matrix - A=Air; D=Drinking Water; GW=Groundwater; O=Oil; LW=Liquid Waste; S=Solid/Soil/Sludge; SW=Surface Water; WP=Wipe; WW=Wastewater

ALS SHIPPING ADDRESS: 301 Fulling Mill Road, Suite A, Middletown, PA 17057

Rev 11.14.22

Main Site: 301 Fulling Mill Road | Middletown, PA 17057 | Phone: 717-944-5541 | Fax: 717-944-1430 | www.alsglobal.com
Associated Site: 20 Riverside Drive | Spring City, PA 19475 | Phone: 610-948-4903 | Fax: 717-944-1430 |

NELAP Certifications: NJ PA010 , NY 11759 , PA 22-293 DoD ELAP: PJLA 74618
State Certifications: FL E871113 , WA C999 , MD 128 , VA 460157 , WV DW 9961-C , WV 343

Analytical Results Report For **WSP USA Inc.**

Project	Former KOP-Flex Facility Onsit
Workorder	3335523
Report ID	288688 on 12/13/2023

Certificate of Analysis

Enclosed are the analytical results for samples received by the laboratory on Dec 04, 2023.

The ALS Environmental laboratory in Middletown, Pennsylvania is a National Environmental Laboratory Accreditation Program (NELAP) accredited laboratory and as such, certifies that all applicable test results meet the requirements of NELAP.

If you have any questions regarding this certificate of analysis, please contact Susan Scherer (Project Coordinator) at (717) 944-5541.

Analyses were performed according to our laboratory's NELAP-approved quality assurance program and any applicable state requirements. The test results meet requirements of the current NELAP standards or state requirements, where applicable. For a specific list of accredited analytes, refer to the certifications section of the ALS website at www.alsglobal.com/en/Our-Services/Life-Sciences/Environmental/Downloads.

This laboratory report may not be reproduced, except in full, without the written approval of ALS Global.
ALS Middletown: 301 Fulling Mill Road, Middletown, PA 17057 : 717-944-5541.

Recipient(s):
Elliott Martynkiewicz - WSP USA Inc.
Eric Johnson - WSP USA INC

This page is included as part of the Analytical Report and must be retained as a permanent record thereof.

Susan Scherer

Susan Scherer *(ALS Digital Signature)*
Project Coordinator

Sample Summary

Lab ID	Sample ID	Matrix	Date Collected	Date Received	Collector	Collection Company
3335523001	RW-1S	Ground Water	12/03/2023 11:10	12/04/2023 18:15	CBC	Collected By Client
3335523002	RW-2S	Ground Water	12/03/2023 12:15	12/04/2023 18:15	CBC	Collected By Client
3335523003	RW-1D	Ground Water	12/03/2023 13:45	12/04/2023 18:15	CBC	Collected By Client
3335523004	RW-2D	Ground Water	12/03/2023 14:15	12/04/2023 18:15	CBC	Collected By Client

Reference

Notes

- Samples collected by ALS personnel are done so in accordance with the procedures set forth in the ALS Field Sampling Plan (20 - Field Services Sampling Plan).
- Except as qualified, Clean Water Act sample analyses are consistent with methodology requirements in 40 CFR Part 136, including but not limited to the following EPA Method reference revisions:
  EPA 300.1 Rev. 1.0-1997
  EPA 300.0 Rev. 2.1-1993
  EPA 353.2 Rev. 2.0-1993
  EPA 410.4 Rev. 1.0-1993
  EPA 420.4 Rev. 1.0-1993
  EPA 365.1 Rev. 2.0-1993
  EPA 200.7 Rev. 4.4-1994
  EPA 200.8 Rev. 5.4-1994
  EPA 245.1 Rev. 3.0-1994
- Except as qualified, Safe Drinking Water Act sample analyses are consistent with methodology requirements in 40 CFR Part 141.
- The Chain of Custody document is included as part of this report.
- All Library Search analytes should be regarded as tentative identifications based on the presumptive evidence of the mass spectra. Concentrations reported are estimated values.
- Parameters identified as "analyze immediately" require analysis within 15 minutes of collection. Any "analyze immediately" parameters not listed under the header "Field Parameters" are preformed in the laboratory and are therefore analyzed out of hold time.
- Method references listed on this report beginning with the prefix “S” followed by a method number (such as S2310B-97) refer to methods from “Standard Methods for the Examination of Water and Wastewater”.
- For microbiological analyses, the "Prepared" value is the date/time into the incubator and the "Analyzed" value is the date/time out the incubator.
- An Analysis-Prep Method Cross Reference Table is included after Analytical Results & Qualifiers section in this report.
- Unless otherwise noted, all quantitative results for soils are reported on a dry weight basis.

Standard Acronyms/Flags

J	Indicates an estimated value between the Method Detection Limit (MDL) and the Practical Quantitation Limit (PQL) for the analyte
U	Indicates that the analyte was Not Detected (ND) above the MDL
N	Indicates presumptive evidence of the presence of a compound
MDL	Method Detection Limit
PQL	Practical Quantitation Limit
RDL	Practical Quantitation Limit for this Project
ND	Not Detected - indicates that the analyte was Not Detected
Cntr	Analysis was performed using this container
RegLmt	Regulatory Limit
LCS	Laboratory Control Sample
MS	Matrix Spike
MSD	Matrix Spike Duplicate
DUP	Sample Duplicate
%Rec	Percent Recovery
RPD	Relative Percent Difference
LOD	DoD Limit of Detection
LOQ	DoD Limit of Quantitation
DL	DoD Detection Limit
I	Indicates reported value is greater than or equal to the Method Detection Limit (MDL) but less than the Report Detection Limit (RDL)
(S)	Surrogate Compound
NC	Not Calculated
*	Result outside of QC limits
#	Please reference the result in the Results Section for analyte-level flags.

Project Notations

Sample Notations

Lab ID	Sample ID

Result Notations

Notation Ref.	
1	The initial calibration verification for method SW846 8260D was outside the control limits for the analyte chloroethane. The % Recovery was reported as 51% and the control limits were 70 to 130%.
2	The QC sample type LCS for method SW846 8260D was outside the control limits for the analyte Chloroethane. The % Recovery was reported as 49.9 and the control limits were 51 to 142.
3	The surrogate 2-Methylnapthalene-d10 for method SW846 8270E SIM was outside of control limits. The % Recovery was reported as 0 and the control limits were 29 to 112. This result was reported at a dilution of 40.
4	The surrogate Fluoranthene-d10 for method SW846 8270E SIM was outside of control limits. The % Recovery was reported as 0 and the control limits were 45 to 130. This result was reported at a dilution of 40.

Detected Results Summary

Client Sample ID	RW-1S	Collected	12/03/2023 11:10
Lab Sample ID	3335523001	Lab Receipt	12/04/2023 18:15

Compound	Result	Units	RDL	Method	Flag
SEMIVOLATILE SIM					
1,4-Dioxane	133	ug/L	40.0	SW846 8270E SIM	#
VOLATILE ORGANICS					
1,1,1-Trichloroethane	39.4	ug/L	5.0	SW846 8260D	#
1,1-Dichloroethane	180	ug/L	5.0	SW846 8260D	#
1,1-Dichloroethene	775	ug/L	5.0	SW846 8260D	#
Chloroethane	22.4	ug/L	5.0	SW846 8260D	#
Vinyl Chloride	6.4	ug/L	5.0	SW846 8260D	#

Detected Results Summary

Client Sample ID	RW-2S	Collected	12/03/2023 12:15
Lab Sample ID	3335523002	Lab Receipt	12/04/2023 18:15

Compound	Result	Units	RDL	Method	Flag
SEMIVOLATILE SIM					
1,4-Dioxane	139	ug/L	40.0	SW846 8270E SIM	#
VOLATILE ORGANICS					
1,1,1-Trichloroethane	301	ug/L	5.0	SW846 8260D	#
1,1-Dichloroethane	72.4	ug/L	5.0	SW846 8260D	#
1,1-Dichloroethene	517	ug/L	5.0	SW846 8260D	#

Detected Results Summary

Client Sample ID	RW-1D	Collected	12/03/2023 13:45
Lab Sample ID	3335523003	Lab Receipt	12/04/2023 18:15

Compound	Result	Units	RDL	Method	Flag
SEMIVOLATILE SIM					
1,4-Dioxane	34.0	ug/L	10.0	SW846 8270E SIM	#
VOLATILE ORGANICS					
1,1,1-Trichloroethane	12.9	ug/L	5.0	SW846 8260D	#
1,1-Dichloroethane	87.3	ug/L	5.0	SW846 8260D	#
1,1-Dichloroethene	431	ug/L	5.0	SW846 8260D	#
Chloroethane	15.2	ug/L	5.0	SW846 8260D	#

Detected Results Summary

Client Sample ID	RW-2D	Collected	12/03/2023 14:15
Lab Sample ID	3335523004	Lab Receipt	12/04/2023 18:15

Compound	Result	Units	RDL	Method	Flag
SEMIVOLATILE SIM					
1,4-Dioxane	29.5	ug/L	10.2	SW846 8270E SIM	#
VOLATILE ORGANICS					
1,1,1-Trichloroethane	3.9	ug/L	1.0	SW846 8260D	#
1,1-Dichloroethane	22.8	ug/L	1.0	SW846 8260D	#
1,1-Dichloroethene	154	ug/L	1.0	SW846 8260D	#
1,2-Dichloroethane	1.3	ug/L	1.0	SW846 8260D	#

Results

Client Sample ID	RW-1S	Collected	12/03/2023 11:10
Lab Sample ID	3335523001	Lab Receipt	12/04/2023 18:15

SEMIVOLATILE SIM

Compound	Result	Flag	Units	RDL	Method	Dilution	Analysis Date/Time	By	Cntr
1,4-Dioxane	133		ug/L	40.0	SW846 8270E SIM	40	12/12/2023 05:31	S7M	C

SURROGATES

Compound	CAS No	Recovery	Limits(%)	Analysis Date/Time	Qualifiers
2-Methylnapthalene-d10	7297-45-2	63.1%	29 – 112	12/06/2023 19:39	
2-Methylnapthalene-d10	7297-45-2	0*%	29 – 112	12/12/2023 05:31	3
Fluoranthene-d10	93951-69-0	80.8%	45 – 130	12/06/2023 19:39	
Fluoranthene-d10	93951-69-0	0*%	45 – 130	12/12/2023 05:31	4

VOLATILE ORGANICS

Compound	Result	Flag	Units	RDL	Method	Dilution	Analysis Date/Time	By	Cntr
1,1,1,2-Tetrachloroethane	5.0 U	U	ug/L	5.0	SW846 8260D	5	12/07/2023 17:19	AHI	A
1,1,1-Trichloroethane	39.4		ug/L	5.0	SW846 8260D	5	12/07/2023 17:19	AHI	A
1,1,2,2-Tetrachloroethane	5.0 U	U	ug/L	5.0	SW846 8260D	5	12/07/2023 17:19	AHI	A
1,1,2-Trichloroethane	5.0 U	U	ug/L	5.0	SW846 8260D	5	12/07/2023 17:19	AHI	A
1,1-Dichloroethane	180		ug/L	5.0	SW846 8260D	5	12/07/2023 17:19	AHI	A
1,1-Dichloroethene	775		ug/L	5.0	SW846 8260D	5	12/07/2023 17:19	AHI	A
1,1-Dichloropropene	5.0 U	U	ug/L	5.0	SW846 8260D	5	12/07/2023 17:19	AHI	A
1,2,3-Trichlorobenzene	10.0 U	U	ug/L	10.0	SW846 8260D	5	12/07/2023 17:19	AHI	A
1,2,3-Trichloropropane	10.0 U	U	ug/L	10.0	SW846 8260D	5	12/07/2023 17:19	AHI	A
1,2,4-Trichlorobenzene	10.0 U	U	ug/L	10.0	SW846 8260D	5	12/07/2023 17:19	AHI	A
1,2-Dibromo-3-chloropropane	35.0 U	U	ug/L	35.0	SW846 8260D	5	12/07/2023 17:19	AHI	A
1,2-Dibromoethane	5.0 U	U	ug/L	5.0	SW846 8260D	5	12/07/2023 17:19	AHI	A
1,2-Dichlorobenzene	5.0 U	U	ug/L	5.0	SW846 8260D	5	12/07/2023 17:19	AHI	A
1,2-Dichloroethane	5.0 U	U	ug/L	5.0	SW846 8260D	5	12/07/2023 17:19	AHI	A
1,2-Dichloropropane	5.0 U	U	ug/L	5.0	SW846 8260D	5	12/07/2023 17:19	AHI	A
1,3-Dichlorobenzene	5.0 U	U	ug/L	5.0	SW846 8260D	5	12/07/2023 17:19	AHI	A
1,3-Dichloropropane	5.0 U	U	ug/L	5.0	SW846 8260D	5	12/07/2023 17:19	AHI	A
1,4-Dichlorobenzene	5.0 U	U	ug/L	5.0	SW846 8260D	5	12/07/2023 17:19	AHI	A
2,2-Dichloropropane	5.0 U	U	ug/L	5.0	SW846 8260D	5	12/07/2023 17:19	AHI	A
2-Butanone	50.0 U	U	ug/L	50.0	SW846 8260D	5	12/07/2023 17:19	AHI	A
2-Hexanone	25.0 U	U	ug/L	25.0	SW846 8260D	5	12/07/2023 17:19	AHI	A
4-Methyl-2-Pentanone(MIBK)	25.0 U	U	ug/L	25.0	SW846 8260D	5	12/07/2023 17:19	AHI	A
Acetone	50.0 U	U	ug/L	50.0	SW846 8260D	5	12/07/2023 17:19	AHI	A
Benzene	5.0 U	U	ug/L	5.0	SW846 8260D	5	12/07/2023 17:19	AHI	A
Bromobenzene	5.0 U	U	ug/L	5.0	SW846 8260D	5	12/07/2023 17:19	AHI	A
Bromochloromethane	5.0 U	U	ug/L	5.0	SW846 8260D	5	12/07/2023 17:19	AHI	A
Bromodichloromethane	5.0 U	U	ug/L	5.0	SW846 8260D	5	12/07/2023 17:19	AHI	A
Bromoform	5.0 U	U	ug/L	5.0	SW846 8260D	5	12/07/2023 17:19	AHI	A
Bromomethane	5.0 U	U	ug/L	5.0	SW846 8260D	5	12/07/2023 17:19	AHI	A
Carbon Tetrachloride	5.0 U	U	ug/L	5.0	SW846 8260D	5	12/07/2023 17:19	AHI	A
Chlorobenzene	5.0 U	U	ug/L	5.0	SW846 8260D	5	12/07/2023 17:19	AHI	A
Chlorodibromomethane	5.0 U	U	ug/L	5.0	SW846 8260D	5	12/07/2023 17:19	AHI	A
Chloroethane	22.4	1,2	ug/L	5.0	SW846 8260D	5	12/07/2023 17:19	AHI	A

Results

Client Sample ID	RW-1S	Collected	12/03/2023 11:10
Lab Sample ID	3335523001	Lab Receipt	12/04/2023 18:15

VOLATILE ORGANICS (cont.)

Compound	Result	Flag	Units	RDL	Method	Dilution	Analysis Date/Time	By	Cntr
Chloroform	5.0 U	U	ug/L	5.0	SW846 8260D	5	12/07/2023 17:19	AHI	A
Chloromethane	5.0 U	U	ug/L	5.0	SW846 8260D	5	12/07/2023 17:19	AHI	A
cis-1,2-Dichloroethene	5.0 U	U	ug/L	5.0	SW846 8260D	5	12/07/2023 17:19	AHI	A
cis-1,3-Dichloropropene	5.0 U	U	ug/L	5.0	SW846 8260D	5	12/07/2023 17:19	AHI	A
Dibromomethane	5.0 U	U	ug/L	5.0	SW846 8260D	5	12/07/2023 17:19	AHI	A
Dichlorodifluoromethane	5.0 U	U	ug/L	5.0	SW846 8260D	5	12/07/2023 17:19	AHI	A
Diisopropyl ether	5.0 U	U	ug/L	5.0	SW846 8260D	5	12/07/2023 17:19	AHI	A
Ethylbenzene	5.0 U	U	ug/L	5.0	SW846 8260D	5	12/07/2023 17:19	AHI	A
Hexachlorobutadiene	25.0 U	U	ug/L	25.0	SW846 8260D	5	12/07/2023 17:19	AHI	A
Methyl t-Butyl Ether	5.0 U	U	ug/L	5.0	SW846 8260D	5	12/07/2023 17:19	AHI	A
Methylene Chloride	5.0 U	U	ug/L	5.0	SW846 8260D	5	12/07/2023 17:19	AHI	A
mp-Xylene	10.0 U	U	ug/L	10.0	SW846 8260D	5	12/07/2023 17:19	AHI	A
Naphthalene	10.0 U	U	ug/L	10.0	SW846 8260D	5	12/07/2023 17:19	AHI	A
o-Chlorotoluene	5.0 U	U	ug/L	5.0	SW846 8260D	5	12/07/2023 17:19	AHI	A
o-Xylene	5.0 U	U	ug/L	5.0	SW846 8260D	5	12/07/2023 17:19	AHI	A
p-Chlorotoluene	5.0 U	U	ug/L	5.0	SW846 8260D	5	12/07/2023 17:19	AHI	A
p-Isopropyltoluene	5.0 U	U	ug/L	5.0	SW846 8260D	5	12/07/2023 17:19	AHI	A
Styrene	5.0 U	U	ug/L	5.0	SW846 8260D	5	12/07/2023 17:19	AHI	A
Tetrachloroethene	5.0 U	U	ug/L	5.0	SW846 8260D	5	12/07/2023 17:19	AHI	A
Toluene	5.0 U	U	ug/L	5.0	SW846 8260D	5	12/07/2023 17:19	AHI	A
Total Xylenes	15.0 U	U	ug/L	15.0	SW846 8260D	5	12/07/2023 17:19	AHI	A
trans-1,2-Dichloroethene	5.0 U	U	ug/L	5.0	SW846 8260D	5	12/07/2023 17:19	AHI	A
trans-1,3-Dichloropropene	5.0 U	U	ug/L	5.0	SW846 8260D	5	12/07/2023 17:19	AHI	A
Trichloroethene	5.0 U	U	ug/L	5.0	SW846 8260D	5	12/07/2023 17:19	AHI	A
Trichlorofluoromethane	5.0 U	U	ug/L	5.0	SW846 8260D	5	12/07/2023 17:19	AHI	A
Vinyl Acetate	25.0 U	U	ug/L	25.0	SW846 8260D	5	12/07/2023 17:19	AHI	A
Vinyl Chloride	6.4		ug/L	5.0	SW846 8260D	5	12/07/2023 17:19	AHI	A

SURROGATES

Compound	CAS No	Recovery	Limits(%)	Analysis Date/Time	Qualifiers
1,2-Dichloroethane-d4	17060-07-0	103%	62 – 133	12/07/2023 17:19	
4-Bromofluorobenzene	460-00-4	101%	79 – 114	12/07/2023 17:19	
Dibromofluoromethane	1868-53-7	103%	78 – 116	12/07/2023 17:19	
Toluene-d8	2037-26-5	104%	76 – 127	12/07/2023 17:19	

Results

Client Sample ID	RW-2S	Collected	12/03/2023 12:15
Lab Sample ID	3335523002	Lab Receipt	12/04/2023 18:15

SEMIVOLATILE SIM

Compound	Result	Flag	Units	RDL	Method	Dilution	Analysis Date/Time	By	Cntr
1,4-Dioxane	139		ug/L	40.0	SW846 8270E SIM	40	12/12/2023 05:57	S7M	C

SURROGATES

Compound	CAS No	Recovery	Limits(%)	Analysis Date/Time	Qualifiers
2-Methylnapthalene-d10	7297-45-2	59.1%	29 – 112	12/06/2023 20:05	
2-Methylnapthalene-d10	7297-45-2	0*%	29 – 112	12/12/2023 05:57	3
Fluoranthene-d10	93951-69-0	81.3%	45 – 130	12/06/2023 20:05	
Fluoranthene-d10	93951-69-0	0*%	45 – 130	12/12/2023 05:57	4

VOLATILE ORGANICS

Compound	Result	Flag	Units	RDL	Method	Dilution	Analysis Date/Time	By	Cntr
1,1,1,2-Tetrachloroethane	5.0 U	U	ug/L	5.0	SW846 8260D	5	12/07/2023 17:42	AHI	A
1,1,1-Trichloroethane	301		ug/L	5.0	SW846 8260D	5	12/07/2023 17:42	AHI	A
1,1,2,2-Tetrachloroethane	5.0 U	U	ug/L	5.0	SW846 8260D	5	12/07/2023 17:42	AHI	A
1,1,2-Trichloroethane	5.0 U	U	ug/L	5.0	SW846 8260D	5	12/07/2023 17:42	AHI	A
1,1-Dichloroethane	72.4		ug/L	5.0	SW846 8260D	5	12/07/2023 17:42	AHI	A
1,1-Dichloroethene	517		ug/L	5.0	SW846 8260D	5	12/07/2023 17:42	AHI	A
1,1-Dichloropropene	5.0 U	U	ug/L	5.0	SW846 8260D	5	12/07/2023 17:42	AHI	A
1,2,3-Trichlorobenzene	10.0 U	U	ug/L	10.0	SW846 8260D	5	12/07/2023 17:42	AHI	A
1,2,3-Trichloropropane	10.0 U	U	ug/L	10.0	SW846 8260D	5	12/07/2023 17:42	AHI	A
1,2,4-Trichlorobenzene	10.0 U	U	ug/L	10.0	SW846 8260D	5	12/07/2023 17:42	AHI	A
1,2-Dibromo-3-chloropropane	35.0 U	U	ug/L	35.0	SW846 8260D	5	12/07/2023 17:42	AHI	A
1,2-Dibromoethane	5.0 U	U	ug/L	5.0	SW846 8260D	5	12/07/2023 17:42	AHI	A
1,2-Dichlorobenzene	5.0 U	U	ug/L	5.0	SW846 8260D	5	12/07/2023 17:42	AHI	A
1,2-Dichloroethane	5.0 U	U	ug/L	5.0	SW846 8260D	5	12/07/2023 17:42	AHI	A
1,2-Dichloropropane	5.0 U	U	ug/L	5.0	SW846 8260D	5	12/07/2023 17:42	AHI	A
1,3-Dichlorobenzene	5.0 U	U	ug/L	5.0	SW846 8260D	5	12/07/2023 17:42	AHI	A
1,3-Dichloropropane	5.0 U	U	ug/L	5.0	SW846 8260D	5	12/07/2023 17:42	AHI	A
1,4-Dichlorobenzene	5.0 U	U	ug/L	5.0	SW846 8260D	5	12/07/2023 17:42	AHI	A
2,2-Dichloropropane	5.0 U	U	ug/L	5.0	SW846 8260D	5	12/07/2023 17:42	AHI	A
2-Butanone	50.0 U	U	ug/L	50.0	SW846 8260D	5	12/07/2023 17:42	AHI	A
2-Hexanone	25.0 U	U	ug/L	25.0	SW846 8260D	5	12/07/2023 17:42	AHI	A
4-Methyl-2-Pentanone(MIBK)	25.0 U	U	ug/L	25.0	SW846 8260D	5	12/07/2023 17:42	AHI	A
Acetone	50.0 U	U	ug/L	50.0	SW846 8260D	5	12/07/2023 17:42	AHI	A
Benzene	5.0 U	U	ug/L	5.0	SW846 8260D	5	12/07/2023 17:42	AHI	A
Bromobenzene	5.0 U	U	ug/L	5.0	SW846 8260D	5	12/07/2023 17:42	AHI	A
Bromochloromethane	5.0 U	U	ug/L	5.0	SW846 8260D	5	12/07/2023 17:42	AHI	A
Bromodichloromethane	5.0 U	U	ug/L	5.0	SW846 8260D	5	12/07/2023 17:42	AHI	A
Bromoform	5.0 U	U	ug/L	5.0	SW846 8260D	5	12/07/2023 17:42	AHI	A
Bromomethane	5.0 U	U	ug/L	5.0	SW846 8260D	5	12/07/2023 17:42	AHI	A
Carbon Tetrachloride	5.0 U	U	ug/L	5.0	SW846 8260D	5	12/07/2023 17:42	AHI	A
Chlorobenzene	5.0 U	U	ug/L	5.0	SW846 8260D	5	12/07/2023 17:42	AHI	A
Chlorodibromomethane	5.0 U	U	ug/L	5.0	SW846 8260D	5	12/07/2023 17:42	AHI	A
Chloroethane	5.0 U	U,1,2	ug/L	5.0	SW846 8260D	5	12/07/2023 17:42	AHI	A

Results

Client Sample ID	RW-2S	Collected	12/03/2023 12:15
Lab Sample ID	3335523002	Lab Receipt	12/04/2023 18:15

VOLATILE ORGANICS (cont.)

Compound	Result	Flag	Units	RDL	Method	Dilution	Analysis Date/Time	By	Cntr
Chloroform	5.0 U	U	ug/L	5.0	SW846 8260D	5	12/07/2023 17:42	AHI	A
Chloromethane	5.0 U	U	ug/L	5.0	SW846 8260D	5	12/07/2023 17:42	AHI	A
cis-1,2-Dichloroethene	5.0 U	U	ug/L	5.0	SW846 8260D	5	12/07/2023 17:42	AHI	A
cis-1,3-Dichloropropene	5.0 U	U	ug/L	5.0	SW846 8260D	5	12/07/2023 17:42	AHI	A
Dibromomethane	5.0 U	U	ug/L	5.0	SW846 8260D	5	12/07/2023 17:42	AHI	A
Dichlorodifluoromethane	5.0 U	U	ug/L	5.0	SW846 8260D	5	12/07/2023 17:42	AHI	A
Diisopropyl ether	5.0 U	U	ug/L	5.0	SW846 8260D	5	12/07/2023 17:42	AHI	A
Ethylbenzene	5.0 U	U	ug/L	5.0	SW846 8260D	5	12/07/2023 17:42	AHI	A
Hexachlorobutadiene	25.0 U	U	ug/L	25.0	SW846 8260D	5	12/07/2023 17:42	AHI	A
Methyl t-Butyl Ether	5.0 U	U	ug/L	5.0	SW846 8260D	5	12/07/2023 17:42	AHI	A
Methylene Chloride	5.0 U	U	ug/L	5.0	SW846 8260D	5	12/07/2023 17:42	AHI	A
mp-Xylene	10.0 U	U	ug/L	10.0	SW846 8260D	5	12/07/2023 17:42	AHI	A
Naphthalene	10.0 U	U	ug/L	10.0	SW846 8260D	5	12/07/2023 17:42	AHI	A
o-Chlorotoluene	5.0 U	U	ug/L	5.0	SW846 8260D	5	12/07/2023 17:42	AHI	A
o-Xylene	5.0 U	U	ug/L	5.0	SW846 8260D	5	12/07/2023 17:42	AHI	A
p-Chlorotoluene	5.0 U	U	ug/L	5.0	SW846 8260D	5	12/07/2023 17:42	AHI	A
p-Isopropyltoluene	5.0 U	U	ug/L	5.0	SW846 8260D	5	12/07/2023 17:42	AHI	A
Styrene	5.0 U	U	ug/L	5.0	SW846 8260D	5	12/07/2023 17:42	AHI	A
Tetrachloroethene	5.0 U	U	ug/L	5.0	SW846 8260D	5	12/07/2023 17:42	AHI	A
Toluene	5.0 U	U	ug/L	5.0	SW846 8260D	5	12/07/2023 17:42	AHI	A
Total Xylenes	15.0 U	U	ug/L	15.0	SW846 8260D	5	12/07/2023 17:42	AHI	A
trans-1,2-Dichloroethene	5.0 U	U	ug/L	5.0	SW846 8260D	5	12/07/2023 17:42	AHI	A
trans-1,3-Dichloropropene	5.0 U	U	ug/L	5.0	SW846 8260D	5	12/07/2023 17:42	AHI	A
Trichloroethene	5.0 U	U	ug/L	5.0	SW846 8260D	5	12/07/2023 17:42	AHI	A
Trichlorofluoromethane	5.0 U	U	ug/L	5.0	SW846 8260D	5	12/07/2023 17:42	AHI	A
Vinyl Acetate	25.0 U	U	ug/L	25.0	SW846 8260D	5	12/07/2023 17:42	AHI	A
Vinyl Chloride	5.0 U	U	ug/L	5.0	SW846 8260D	5	12/07/2023 17:42	AHI	A

SURROGATES

Compound	CAS No	Recovery	Limits(%)	Analysis Date/Time	Qualifiers
1,2-Dichloroethane-d4	17060-07-0	103%	62 – 133	12/07/2023 17:42	
4-Bromofluorobenzene	460-00-4	101%	79 – 114	12/07/2023 17:42	
Dibromofluoromethane	1868-53-7	104%	78 – 116	12/07/2023 17:42	
Toluene-d8	2037-26-5	103%	76 – 127	12/07/2023 17:42	

Results

Client Sample ID	RW-1D	Collected	12/03/2023 13:45
Lab Sample ID	3335523003	Lab Receipt	12/04/2023 18:15

SEMIVOLATILE SIM

Compound	Result	Flag	Units	RDL	Method	Dilution	Analysis Date/Time	By	Cntr
1,4-Dioxane	34.0		ug/L	10.0	SW846 8270E SIM	10	12/12/2023 06:23	S7M	C

SURROGATES

Compound	CAS No	Recovery	Limits(%)	Analysis Date/Time	Qualifiers
2-Methylnapthalene-d10	7297-45-2	64.5%	29 – 112	12/06/2023 20:32	
2-Methylnapthalene-d10	7297-45-2	64.9%	29 – 112	12/12/2023 06:23	
Fluoranthene-d10	93951-69-0	87%	45 – 130	12/06/2023 20:32	
Fluoranthene-d10	93951-69-0	78.1%	45 – 130	12/12/2023 06:23	

VOLATILE ORGANICS

Compound	Result	Flag	Units	RDL	Method	Dilution	Analysis Date/Time	By	Cntr
1,1,1,2-Tetrachloroethane	5.0 U	U	ug/L	5.0	SW846 8260D	5	12/07/2023 18:05	AHI	A
1,1,1-Trichloroethane	12.9		ug/L	5.0	SW846 8260D	5	12/07/2023 18:05	AHI	A
1,1,2,2-Tetrachloroethane	5.0 U	U	ug/L	5.0	SW846 8260D	5	12/07/2023 18:05	AHI	A
1,1,2-Trichloroethane	5.0 U	U	ug/L	5.0	SW846 8260D	5	12/07/2023 18:05	AHI	A
1,1-Dichloroethane	87.3		ug/L	5.0	SW846 8260D	5	12/07/2023 18:05	AHI	A
1,1-Dichloroethene	431		ug/L	5.0	SW846 8260D	5	12/07/2023 18:05	AHI	A
1,1-Dichloropropene	5.0 U	U	ug/L	5.0	SW846 8260D	5	12/07/2023 18:05	AHI	A
1,2,3-Trichlorobenzene	10.0 U	U	ug/L	10.0	SW846 8260D	5	12/07/2023 18:05	AHI	A
1,2,3-Trichloropropane	10.0 U	U	ug/L	10.0	SW846 8260D	5	12/07/2023 18:05	AHI	A
1,2,4-Trichlorobenzene	10.0 U	U	ug/L	10.0	SW846 8260D	5	12/07/2023 18:05	AHI	A
1,2-Dibromo-3-chloropropane	35.0 U	U	ug/L	35.0	SW846 8260D	5	12/07/2023 18:05	AHI	A
1,2-Dibromoethane	5.0 U	U	ug/L	5.0	SW846 8260D	5	12/07/2023 18:05	AHI	A
1,2-Dichlorobenzene	5.0 U	U	ug/L	5.0	SW846 8260D	5	12/07/2023 18:05	AHI	A
1,2-Dichloroethane	5.0 U	U	ug/L	5.0	SW846 8260D	5	12/07/2023 18:05	AHI	A
1,2-Dichloropropane	5.0 U	U	ug/L	5.0	SW846 8260D	5	12/07/2023 18:05	AHI	A
1,3-Dichlorobenzene	5.0 U	U	ug/L	5.0	SW846 8260D	5	12/07/2023 18:05	AHI	A
1,3-Dichloropropane	5.0 U	U	ug/L	5.0	SW846 8260D	5	12/07/2023 18:05	AHI	A
1,4-Dichlorobenzene	5.0 U	U	ug/L	5.0	SW846 8260D	5	12/07/2023 18:05	AHI	A
2,2-Dichloropropane	5.0 U	U	ug/L	5.0	SW846 8260D	5	12/07/2023 18:05	AHI	A
2-Butanone	50.0 U	U	ug/L	50.0	SW846 8260D	5	12/07/2023 18:05	AHI	A
2-Hexanone	25.0 U	U	ug/L	25.0	SW846 8260D	5	12/07/2023 18:05	AHI	A
4-Methyl-2-Pentanone(MIBK)	25.0 U	U	ug/L	25.0	SW846 8260D	5	12/07/2023 18:05	AHI	A
Acetone	50.0 U	U	ug/L	50.0	SW846 8260D	5	12/07/2023 18:05	AHI	A
Benzene	5.0 U	U	ug/L	5.0	SW846 8260D	5	12/07/2023 18:05	AHI	A
Bromobenzene	5.0 U	U	ug/L	5.0	SW846 8260D	5	12/07/2023 18:05	AHI	A
Bromochloromethane	5.0 U	U	ug/L	5.0	SW846 8260D	5	12/07/2023 18:05	AHI	A
Bromodichloromethane	5.0 U	U	ug/L	5.0	SW846 8260D	5	12/07/2023 18:05	AHI	A
Bromoform	5.0 U	U	ug/L	5.0	SW846 8260D	5	12/07/2023 18:05	AHI	A
Bromomethane	5.0 U	U	ug/L	5.0	SW846 8260D	5	12/07/2023 18:05	AHI	A
Carbon Tetrachloride	5.0 U	U	ug/L	5.0	SW846 8260D	5	12/07/2023 18:05	AHI	A
Chlorobenzene	5.0 U	U	ug/L	5.0	SW846 8260D	5	12/07/2023 18:05	AHI	A
Chlorodibromomethane	5.0 U	U	ug/L	5.0	SW846 8260D	5	12/07/2023 18:05	AHI	A
Chloroethane	15.2	1,2	ug/L	5.0	SW846 8260D	5	12/07/2023 18:05	AHI	A

Results

Client Sample ID	RW-1D	Collected	12/03/2023 13:45
Lab Sample ID	3335523003	Lab Receipt	12/04/2023 18:15

VOLATILE ORGANICS (cont.)

Compound	Result	Flag	Units	RDL	Method	Dilution	Analysis Date/Time	By	Cntr
Chloroform	5.0 U	U	ug/L	5.0	SW846 8260D	5	12/07/2023 18:05	AHI	A
Chloromethane	5.0 U	U	ug/L	5.0	SW846 8260D	5	12/07/2023 18:05	AHI	A
cis-1,2-Dichloroethene	5.0 U	U	ug/L	5.0	SW846 8260D	5	12/07/2023 18:05	AHI	A
cis-1,3-Dichloropropene	5.0 U	U	ug/L	5.0	SW846 8260D	5	12/07/2023 18:05	AHI	A
Dibromomethane	5.0 U	U	ug/L	5.0	SW846 8260D	5	12/07/2023 18:05	AHI	A
Dichlorodifluoromethane	5.0 U	U	ug/L	5.0	SW846 8260D	5	12/07/2023 18:05	AHI	A
Diisopropyl ether	5.0 U	U	ug/L	5.0	SW846 8260D	5	12/07/2023 18:05	AHI	A
Ethylbenzene	5.0 U	U	ug/L	5.0	SW846 8260D	5	12/07/2023 18:05	AHI	A
Hexachlorobutadiene	25.0 U	U	ug/L	25.0	SW846 8260D	5	12/07/2023 18:05	AHI	A
Methyl t-Butyl Ether	5.0 U	U	ug/L	5.0	SW846 8260D	5	12/07/2023 18:05	AHI	A
Methylene Chloride	5.0 U	U	ug/L	5.0	SW846 8260D	5	12/07/2023 18:05	AHI	A
mp-Xylene	10.0 U	U	ug/L	10.0	SW846 8260D	5	12/07/2023 18:05	AHI	A
Naphthalene	10.0 U	U	ug/L	10.0	SW846 8260D	5	12/07/2023 18:05	AHI	A
o-Chlorotoluene	5.0 U	U	ug/L	5.0	SW846 8260D	5	12/07/2023 18:05	AHI	A
o-Xylene	5.0 U	U	ug/L	5.0	SW846 8260D	5	12/07/2023 18:05	AHI	A
p-Chlorotoluene	5.0 U	U	ug/L	5.0	SW846 8260D	5	12/07/2023 18:05	AHI	A
p-Isopropyltoluene	5.0 U	U	ug/L	5.0	SW846 8260D	5	12/07/2023 18:05	AHI	A
Styrene	5.0 U	U	ug/L	5.0	SW846 8260D	5	12/07/2023 18:05	AHI	A
Tetrachloroethene	5.0 U	U	ug/L	5.0	SW846 8260D	5	12/07/2023 18:05	AHI	A
Toluene	5.0 U	U	ug/L	5.0	SW846 8260D	5	12/07/2023 18:05	AHI	A
Total Xylenes	15.0 U	U	ug/L	15.0	SW846 8260D	5	12/07/2023 18:05	AHI	A
trans-1,2-Dichloroethene	5.0 U	U	ug/L	5.0	SW846 8260D	5	12/07/2023 18:05	AHI	A
trans-1,3-Dichloropropene	5.0 U	U	ug/L	5.0	SW846 8260D	5	12/07/2023 18:05	AHI	A
Trichloroethene	5.0 U	U	ug/L	5.0	SW846 8260D	5	12/07/2023 18:05	AHI	A
Trichlorofluoromethane	5.0 U	U	ug/L	5.0	SW846 8260D	5	12/07/2023 18:05	AHI	A
Vinyl Acetate	25.0 U	U	ug/L	25.0	SW846 8260D	5	12/07/2023 18:05	AHI	A
Vinyl Chloride	5.0 U	U	ug/L	5.0	SW846 8260D	5	12/07/2023 18:05	AHI	A

SURROGATES

Compound	CAS No	Recovery	Limits(%)	Analysis Date/Time	Qualifiers
1,2-Dichloroethane-d4	17060-07-0	103%	62 – 133	12/07/2023 18:05	
4-Bromofluorobenzene	460-00-4	102%	79 – 114	12/07/2023 18:05	
Dibromofluoromethane	1868-53-7	103%	78 – 116	12/07/2023 18:05	
Toluene-d8	2037-26-5	102%	76 – 127	12/07/2023 18:05	

Results

Client Sample ID	RW-2D	Collected	12/03/2023 14:15
Lab Sample ID	3335523004	Lab Receipt	12/04/2023 18:15

SEMIVOLATILE SIM

Compound	Result	Flag	Units	RDL	Method	Dilution	Analysis Date/Time	By	Cntr
1,4-Dioxane	29.5		ug/L	10.2	SW846 8270E SIM	10	12/12/2023 06:49	S7M	C

SURROGATES

Compound	CAS No	Recovery	Limits(%)	Analysis Date/Time	Qualifiers
2-Methylnapthalene-d10	7297-45-2	61.8%	29 – 112	12/06/2023 20:58	
2-Methylnapthalene-d10	7297-45-2	66%	29 – 112	12/12/2023 06:49	
Fluoranthene-d10	93951-69-0	82.5%	45 – 130	12/06/2023 20:58	
Fluoranthene-d10	93951-69-0	76.5%	45 – 130	12/12/2023 06:49	

VOLATILE ORGANICS

Compound	Result	Flag	Units	RDL	Method	Dilution	Analysis Date/Time	By	Cntr
1,1,1,2-Tetrachloroethane	1.0 U	U	ug/L	1.0	SW846 8260D	1	12/07/2023 12:38	AHI	A
1,1,1-Trichloroethane	3.9		ug/L	1.0	SW846 8260D	1	12/07/2023 12:38	AHI	A
1,1,2,2-Tetrachloroethane	1.0 U	U	ug/L	1.0	SW846 8260D	1	12/07/2023 12:38	AHI	A
1,1,2-Trichloroethane	1.0 U	U	ug/L	1.0	SW846 8260D	1	12/07/2023 12:38	AHI	A
1,1-Dichloroethane	22.8		ug/L	1.0	SW846 8260D	1	12/07/2023 12:38	AHI	A
1,1-Dichloroethene	154		ug/L	1.0	SW846 8260D	1	12/07/2023 12:38	AHI	A
1,1-Dichloropropene	1.0 U	U	ug/L	1.0	SW846 8260D	1	12/07/2023 12:38	AHI	A
1,2,3-Trichlorobenzene	2.0 U	U	ug/L	2.0	SW846 8260D	1	12/07/2023 12:38	AHI	A
1,2,3-Trichloropropane	2.0 U	U	ug/L	2.0	SW846 8260D	1	12/07/2023 12:38	AHI	A
1,2,4-Trichlorobenzene	2.0 U	U	ug/L	2.0	SW846 8260D	1	12/07/2023 12:38	AHI	A
1,2-Dibromo-3-chloropropane	7.0 U	U	ug/L	7.0	SW846 8260D	1	12/07/2023 12:38	AHI	A
1,2-Dibromoethane	1.0 U	U	ug/L	1.0	SW846 8260D	1	12/07/2023 12:38	AHI	A
1,2-Dichlorobenzene	1.0 U	U	ug/L	1.0	SW846 8260D	1	12/07/2023 12:38	AHI	A
1,2-Dichloroethane	1.3		ug/L	1.0	SW846 8260D	1	12/07/2023 12:38	AHI	A
1,2-Dichloropropane	1.0 U	U	ug/L	1.0	SW846 8260D	1	12/07/2023 12:38	AHI	A
1,3-Dichlorobenzene	1.0 U	U	ug/L	1.0	SW846 8260D	1	12/07/2023 12:38	AHI	A
1,3-Dichloropropane	1.0 U	U	ug/L	1.0	SW846 8260D	1	12/07/2023 12:38	AHI	A
1,4-Dichlorobenzene	1.0 U	U	ug/L	1.0	SW846 8260D	1	12/07/2023 12:38	AHI	A
2,2-Dichloropropane	1.0 U	U	ug/L	1.0	SW846 8260D	1	12/07/2023 12:38	AHI	A
2-Butanone	10.0 U	U	ug/L	10.0	SW846 8260D	1	12/07/2023 12:38	AHI	A
2-Hexanone	5.0 U	U	ug/L	5.0	SW846 8260D	1	12/07/2023 12:38	AHI	A
4-Methyl-2-Pentanone(MIBK)	5.0 U	U	ug/L	5.0	SW846 8260D	1	12/07/2023 12:38	AHI	A
Acetone	10.0 U	U	ug/L	10.0	SW846 8260D	1	12/07/2023 12:38	AHI	A
Benzene	1.0 U	U	ug/L	1.0	SW846 8260D	1	12/07/2023 12:38	AHI	A
Bromobenzene	1.0 U	U	ug/L	1.0	SW846 8260D	1	12/07/2023 12:38	AHI	A
Bromochloromethane	1.0 U	U	ug/L	1.0	SW846 8260D	1	12/07/2023 12:38	AHI	A
Bromodichloromethane	1.0 U	U	ug/L	1.0	SW846 8260D	1	12/07/2023 12:38	AHI	A
Bromoform	1.0 U	U	ug/L	1.0	SW846 8260D	1	12/07/2023 12:38	AHI	A
Bromomethane	1.0 U	U	ug/L	1.0	SW846 8260D	1	12/07/2023 12:38	AHI	A
Carbon Tetrachloride	1.0 U	U	ug/L	1.0	SW846 8260D	1	12/07/2023 12:38	AHI	A
Chlorobenzene	1.0 U	U	ug/L	1.0	SW846 8260D	1	12/07/2023 12:38	AHI	A
Chlorodibromomethane	1.0 U	U	ug/L	1.0	SW846 8260D	1	12/07/2023 12:38	AHI	A
Chloroethane	1.0 U	U,1,2	ug/L	1.0	SW846 8260D	1	12/07/2023 12:38	AHI	A

Results

Client Sample ID	RW-2D	Collected	12/03/2023 14:15
Lab Sample ID	3335523004	Lab Receipt	12/04/2023 18:15

VOLATILE ORGANICS (cont.)

Compound	Result	Flag	Units	RDL	Method	Dilution	Analysis Date/Time	By	Cntr
Chloroform	1.0 U	U	ug/L	1.0	SW846 8260D	1	12/07/2023 12:38	AHI	A
Chloromethane	1.0 U	U	ug/L	1.0	SW846 8260D	1	12/07/2023 12:38	AHI	A
cis-1,2-Dichloroethene	1.0 U	U	ug/L	1.0	SW846 8260D	1	12/07/2023 12:38	AHI	A
cis-1,3-Dichloropropene	1.0 U	U	ug/L	1.0	SW846 8260D	1	12/07/2023 12:38	AHI	A
Dibromomethane	1.0 U	U	ug/L	1.0	SW846 8260D	1	12/07/2023 12:38	AHI	A
Dichlorodifluoromethane	1.0 U	U	ug/L	1.0	SW846 8260D	1	12/07/2023 12:38	AHI	A
Diisopropyl ether	1.0 U	U	ug/L	1.0	SW846 8260D	1	12/07/2023 12:38	AHI	A
Ethylbenzene	1.0 U	U	ug/L	1.0	SW846 8260D	1	12/07/2023 12:38	AHI	A
Hexachlorobutadiene	5.0 U	U	ug/L	5.0	SW846 8260D	1	12/07/2023 12:38	AHI	A
Methyl t-Butyl Ether	1.0 U	U	ug/L	1.0	SW846 8260D	1	12/07/2023 12:38	AHI	A
Methylene Chloride	1.0 U	U	ug/L	1.0	SW846 8260D	1	12/07/2023 12:38	AHI	A
mp-Xylene	2.0 U	U	ug/L	2.0	SW846 8260D	1	12/07/2023 12:38	AHI	A
Naphthalene	2.0 U	U	ug/L	2.0	SW846 8260D	1	12/07/2023 12:38	AHI	A
o-Chlorotoluene	1.0 U	U	ug/L	1.0	SW846 8260D	1	12/07/2023 12:38	AHI	A
o-Xylene	1.0 U	U	ug/L	1.0	SW846 8260D	1	12/07/2023 12:38	AHI	A
p-Chlorotoluene	1.0 U	U	ug/L	1.0	SW846 8260D	1	12/07/2023 12:38	AHI	A
p-Isopropyltoluene	1.0 U	U	ug/L	1.0	SW846 8260D	1	12/07/2023 12:38	AHI	A
Styrene	1.0 U	U	ug/L	1.0	SW846 8260D	1	12/07/2023 12:38	AHI	A
Tetrachloroethene	1.0 U	U	ug/L	1.0	SW846 8260D	1	12/07/2023 12:38	AHI	A
Toluene	1.0 U	U	ug/L	1.0	SW846 8260D	1	12/07/2023 12:38	AHI	A
Total Xylenes	3.0 U	U	ug/L	3.0	SW846 8260D	1	12/07/2023 12:38	AHI	A
trans-1,2-Dichloroethene	1.0 U	U	ug/L	1.0	SW846 8260D	1	12/07/2023 12:38	AHI	A
trans-1,3-Dichloropropene	1.0 U	U	ug/L	1.0	SW846 8260D	1	12/07/2023 12:38	AHI	A
Trichloroethene	1.0 U	U	ug/L	1.0	SW846 8260D	1	12/07/2023 12:38	AHI	A
Trichlorofluoromethane	1.0 U	U	ug/L	1.0	SW846 8260D	1	12/07/2023 12:38	AHI	A
Vinyl Acetate	5.0 U	U	ug/L	5.0	SW846 8260D	1	12/07/2023 12:38	AHI	A
Vinyl Chloride	1.0 U	U	ug/L	1.0	SW846 8260D	1	12/07/2023 12:38	AHI	A

SURROGATES

Compound	CAS No	Recovery	Limits(%)	Analysis Date/Time	Qualifiers
1,2-Dichloroethane-d4	17060-07-0	103%	62 – 133	12/07/2023 12:38	
4-Bromofluorobenzene	460-00-4	108%	79 – 114	12/07/2023 12:38	
Dibromofluoromethane	1868-53-7	102%	78 – 116	12/07/2023 12:38	
Toluene-d8	2037-26-5	103%	76 – 127	12/07/2023 12:38	

Sample - Method Cross Reference Table

Lab ID	Sample ID	Analysis Method	Preparation Method	Leachate Method
3335523001	RW-1S	SW846 8270E SIM	SW846 3510C	
		SW846 8260D	N/A	
3335523002	RW-2S	SW846 8270E SIM	SW846 3510C	
		SW846 8260D	N/A	
3335523003	RW-1D	SW846 8270E SIM	SW846 3510C	
		SW846 8260D	N/A	
3335523004	RW-2D	SW846 8270E SIM	SW846 3510C	
		SW846 8260D	N/A	

QUALITY CONTROL SAMPLES

SEMIVOLATILE SIM

QC Batch

QC Batch	1096958	Prep Method	SW846 3510C
Date	12/06/2023 09:00	Analysis Method	SW846 8270E SIM
Tech.	SRL		

Associated Samples

3335523001 3335523002 3335523003 3335523004

Matrix Spike 3758525 (MS) 3335524003 (non-Project Sample) For QC Batch 1096958

****NOTE - The Original Result shown below is a raw result and is only used for the purpose of calculating Matrix Spike percent recoveries. This result is not a final value and cannot be used as such.

Matrix Spike Duplicate 3758526 (MSD) 3335524003 (non-Project Sample) For QC Batch 1096958

RESULTS

Compound	CAS No		Result (ug/L)	Orig. Result (ug/L)	Spk Added (ug/L)	Rec. (%)	Limits (%)	RPD Limit (%)	Qualifiers
1,4-Dioxane	123-91-1	MS	11.70	9.40	5	46	22 - 75		
1,4-Dioxane	123-91-1	MSD	10.50	9.40	5	21.5*	22 - 75	RPD 11.10 (Max-30)	

SURROGATES

Compound	CAS No		Result (ug/L)	Expected (ug/L)	Rec. (%)	Limits (%)	Qualifiers
2-Methylnapthalene-d10	7297-45-2	MS	3	5	59.6	29 - 112	
2-Methylnapthalene-d10	7297-45-2	MSD	3	5	59.9	29 - 112	
Fluoranthene-d10	93951-69-0	MS	3.60	5	71.9	45 - 130	
Fluoranthene-d10	93951-69-0	MSD	3.50	5	69.5	45 - 130	

Method Blank 3758523 (MB) Created on 12/05/2023 12:07 For QC Batch 1096958

RESULTS

Compound	CAS No		Result	Units	RDL	Qualifiers
1,4-Dioxane	123-91-1	BLK	1.0 U	ug/L	1.0	U

SURROGATES

Compound	CAS No		Result (ug/L)	Expected (ug/L)	Rec. (%)	Limits (%)	Qualifiers
2-Methylnapthalene-d10	7297-45-2	BLK	0.71	1	71.3	29 - 112	
Fluoranthene-d10	93951-69-0	BLK	0.83	1	83	45 - 130	

Lab Control Standard 3758524 (LCS) Created on 12/05/2023 12:07 For QC Batch 1096958

RESULTS

Compound	CAS No		Result (ug/L)	Orig. Result (ug/L)	Spk Added (ug/L)	Rec. (%)	Limits (%)	RPD Limit (%)	Qualifiers
1,4-Dioxane	123-91-1	LCS	0.57		1	56.8	22 - 75		U

QUALITY CONTROL SAMPLES

SEMIVOLATILE SIM (cont.)

SURROGATES

Compound	CAS No		Result (ug/L)	Expected (ug/L)	Rec. (%)	Limits (%)	Qualifiers
2-Methylnapthalene-d10	7297-45-2	LCS	0.65	1	64.5	29 - 112	
Fluoranthene-d10	93951-69-0	LCS	0.83	1	82.7	45 - 130	

QUALITY CONTROL SAMPLES

VOLATILE ORGANICS

QC Batch

QC Batch	1097850	Prep Method	N/A
Date	N/A	Analysis Method	SW846 8260D
Tech.			

Associated Samples

3335523001 3335523002 3335523003 3335523004

Matrix Spike 3759545 (MS) 3335524003 (non-Project Sample) For QC Batch 1097850

****NOTE - The Original Result shown below is a raw result and is only used for the purpose of calculating Matrix Spike percent recoveries. This result is not a final value and cannot be used as such.

Matrix Spike Duplicate 3759546 (MSD) 3335524003 (non-Project Sample) For QC Batch 1097850

RESULTS

Compound	CAS No		Result (ug/L)	Orig. Result (ug/L)	Spk Added (ug/L)	Rec. (%)	Limits (%)	RPD Limit (%)	Qualifiers
1,1,1,2-Tetrachloroethane	630-20-6	MS	22.80	0	20	114	78 - 121		
1,1,1,2-Tetrachloroethane	630-20-6	MSD	22.30	0	20	112	78 - 121	RPD 2.31 (Max-16)	
1,1,1-Trichloroethane	71-55-6	MS	29.20	3.90	20	126	66 - 130		
1,1,1-Trichloroethane	71-55-6	MSD	27.90	3.90	20	120	66 - 130	RPD 4.33 (Max-20)	
1,1,2,2-Tetrachloroethane	79-34-5	MS	24.20	0	20	121	74 - 135		
1,1,2,2-Tetrachloroethane	79-34-5	MSD	24.10	0	20	120	74 - 135	RPD 0.40 (Max-16)	
1,1,2-Trichloroethane	79-00-5	MS	22.70	0	20	114	82 - 126		
1,1,2-Trichloroethane	79-00-5	MSD	21.90	0	20	110	82 - 126	RPD 3.71 (Max-15)	
1,1-Dichloroethane	75-34-3	MS	33.70	8.40	20	126*	78 - 124		
1,1-Dichloroethane	75-34-3	MSD	31.60	8.40	20	116	78 - 124	RPD 6.44 (Max-15)	
1,1-Dichloroethene	75-35-4	MS	63.70	37	20	136*	63 - 128		
1,1-Dichloroethene	75-35-4	MSD	59.80	37	20	116	63 - 128	RPD 6.25 (Max-21)	
1,1-Dichloropropene	563-58-6	MS	25.70	0	20	128*	76 - 126		
1,1-Dichloropropene	563-58-6	MSD	24.50	0	20	123	76 - 126	RPD 4.63 (Max-16)	
1,2,3-Trichlorobenzene	87-61-6	MS	21.80	0	20	109	61 - 126		
1,2,3-Trichlorobenzene	87-61-6	MSD	21.80	0	20	109	61 - 126	RPD 0.12 (Max-36)	
1,2,3-Trichloropropane	96-18-4	MS	22.80	0	20	114	75 - 132		
1,2,3-Trichloropropane	96-18-4	MSD	23.10	0	20	116	75 - 132	RPD 1.41 (Max-19)	
1,2,4-Trichlorobenzene	120-82-1	MS	22.20	0	20	111	67 - 123		
1,2,4-Trichlorobenzene	120-82-1	MSD	22.30	0	20	112	67 - 123	RPD 0.69 (Max-22)	
1,2-Dibromo-3-chloropropane	96-12-8	MS	21.60	0	20	108	59 - 133		
1,2-Dibromo-3-chloropropane	96-12-8	MSD	21.70	0	20	109	59 - 133	RPD 0.63 (Max-26)	
1,2-Dibromoethane	106-93-4	MS	22.40	0	20	112	80 - 124		
1,2-Dibromoethane	106-93-4	MSD	21.80	0	20	109	80 - 124	RPD 2.77 (Max-19)	
1,2-Dichlorobenzene	95-50-1	MS	22.80	0	20	114	82 - 118		
1,2-Dichlorobenzene	95-50-1	MSD	23.20	0	20	116	82 - 118	RPD 1.88 (Max-15)	
1,2-Dichloroethane	107-06-2	MS	23.20	0.41	20	114	70 - 133		
1,2-Dichloroethane	107-06-2	MSD	22.30	0.41	20	110	70 - 133	RPD 3.56 (Max-19)	
1,2-Dichloropropane	78-87-5	MS	24	0	20	120	81 - 127		
1,2-Dichloropropane	78-87-5	MSD	23.20	0	20	116	81 - 127	RPD 3.46 (Max-15)	
1,3-Dichlorobenzene	541-73-1	MS	22.70	0	20	114	81 - 118		
1,3-Dichlorobenzene	541-73-1	MSD	23	0	20	115	81 - 118	RPD 1.24 (Max-16)	
1,3-Dichloropropane	142-28-9	MS	23.30	0	20	116	82 - 126		
1,3-Dichloropropane	142-28-9	MSD	22.80	0	20	114	82 - 126	RPD 2.15 (Max-15)	
1,4-Dichlorobenzene	106-46-7	MS	22.60	0	20	113	81 - 116		

QUALITY CONTROL SAMPLES

VOLATILE ORGANICS (cont.)

RESULTS

Compound	CAS No		Result (ug/L)	Orig. Result (ug/L)	Spk Added (ug/L)	Rec. (%)	Limits (%)	RPD Limit (%)	Qualifiers
1,4-Dichlorobenzene	106-46-7	MSD	22.80	0	20	114	81 - 116	RPD 0.75 (Max-15)	
2,2-Dichloropropane	594-20-7	MS	22.30	0	20	112	64 - 129		
2,2-Dichloropropane	594-20-7	MSD	21.10	0	20	105	64 - 129	RPD 5.86 (Max-18)	
2-Butanone	78-93-3	MS	123	0	100	123	50 - 152		
2-Butanone	78-93-3	MSD	127	0	100	127	50 - 152	RPD 3.51 (Max-16)	
2-Hexanone	591-78-6	MS	111	0	100	111	65 - 154		
2-Hexanone	591-78-6	MSD	111	0	100	111	65 - 154	RPD 0.22 (Max-17)	
4-Methyl-2-Pentanone(MIBK)	108-10-1	MS	123	0	100	123	71 - 146		
4-Methyl-2-Pentanone(MIBK)	108-10-1	MSD	123	0	100	123	71 - 146	RPD 0.16 (Max-16)	
Acetone	67-64-1	MS	105	0	100	105	40 - 151		
Acetone	67-64-1	MSD	105	0	100	105	40 - 151	RPD 0.67 (Max-40)	
Benzene	71-43-2	MS	24.80	0	20	124	80 - 124		
Benzene	71-43-2	MSD	23.60	0	20	118	80 - 124	RPD 5.10 (Max-26)	
Bromobenzene	108-86-1	MS	23.10	0	20	116	81 - 119		
Bromobenzene	108-86-1	MSD	22.60	0	20	113	81 - 119	RPD 2.15 (Max-17)	
Bromochloromethane	74-97-5	MS	23.60	0	20	118*	73 - 117		
Bromochloromethane	74-97-5	MSD	23.30	0	20	117	73 - 117	RPD 1.23 (Max-19)	
Bromodichloromethane	75-27-4	MS	23.80	0	20	119	79 - 126		
Bromodichloromethane	75-27-4	MSD	22.70	0	20	114	79 - 126	RPD 4.89 (Max-16)	
Bromoform	75-25-2	MS	20.90	0	20	105	70 - 123		
Bromoform	75-25-2	MSD	20.30	0	20	101	70 - 123	RPD 2.99 (Max-16)	
Bromomethane	74-83-9	MS	22	0	20	110	45 - 148		
Bromomethane	74-83-9	MSD	20.30	0	20	101	45 - 148	RPD 8.30 (Max-26)	
Carbon Tetrachloride	56-23-5	MS	24.30	0	20	122	62 - 132		
Carbon Tetrachloride	56-23-5	MSD	23.70	0	20	118	62 - 132	RPD 2.77 (Max-17)	
Chlorobenzene	108-90-7	MS	22.20	0	20	111	85 - 117		
Chlorobenzene	108-90-7	MSD	21.70	0	20	109	85 - 117	RPD 2.31 (Max-15)	
Chlorodibromomethane	124-48-1	MS	21.50	0	20	108	77 - 122		
Chlorodibromomethane	124-48-1	MSD	21.50	0	20	107	77 - 122	RPD 0.26 (Max-15)	
Chloroethane	75-00-3	MS	13	0	20	64.8	51 - 142		
Chloroethane	75-00-3	MSD	10.90	0	20	54.6	51 - 142	RPD 17.10 (Max-24)	
Chloroform	67-66-3	MS	23.10	0	20	115	78 - 122		
Chloroform	67-66-3	MSD	22.50	0	20	112	78 - 122	RPD 2.63 (Max-16)	
Chloromethane	74-87-3	MS	16.50	0	20	82.5	38 - 156		
Chloromethane	74-87-3	MSD	16.50	0	20	82.4	38 - 156	RPD 0.07 (Max-27)	
cis-1,2-Dichloroethene	156-59-2	MS	25.30	0	20	126*	78 - 125		
cis-1,2-Dichloroethene	156-59-2	MSD	24.40	0	20	122	78 - 125	RPD 3.63 (Max-21)	
cis-1,3-Dichloropropene	10061-01-5	MS	21.80	0	20	109	81 - 121		
cis-1,3-Dichloropropene	10061-01-5	MSD	21.20	0	20	106	81 - 121	RPD 2.44 (Max-16)	
Dibromomethane	74-95-3	MS	23.50	0	20	117	81 - 125		
Dibromomethane	74-95-3	MSD	22.80	0	20	114	81 - 125	RPD 2.68 (Max-16)	
Dichlorodifluoromethane	75-71-8	MS	15.60	0	20	78.1	17 - 166		
Dichlorodifluoromethane	75-71-8	MSD	15	0	20	75.1	17 - 166	RPD 3.92 (Max-24)	
Diisopropyl ether	108-20-3	MS	24.70	0	20	123	74 - 131		
Diisopropyl ether	108-20-3	MSD	24.20	0	20	121	74 - 131	RPD 2.04 (Max-15)	
Ethylbenzene	100-41-4	MS	23.60	0	20	118	80 - 124		
Ethylbenzene	100-41-4	MSD	23.30	0	20	116	80 - 124	RPD 1.48 (Max-19)	
Hexachlorobutadiene	87-68-3	MS	23.40	0	20	117	55 - 128		
Hexachlorobutadiene	87-68-3	MSD	21.10	0	20	106	55 - 128	RPD 10.30 (Max-35)	

QUALITY CONTROL SAMPLES

VOLATILE ORGANICS (cont.)

RESULTS

Compound	CAS No		Result (ug/L)	Orig. Result (ug/L)	Spk Added (ug/L)	Rec. (%)	Limits (%)	RPD Limit (%)	Qualifiers
Methyl t-Butyl Ether	1634-04-4	MS	25	1.20	20	119*	69 - 115		
Methyl t-Butyl Ether	1634-04-4	MSD	24.70	1.20	20	117*	69 - 115	RPD 1.27 (Max-20)	
Methylene Chloride	75-09-2	MS	24	0	20	120	76 - 121		
Methylene Chloride	75-09-2	MSD	22.90	0	20	114	76 - 121	RPD 4.83 (Max-17)	
mp-Xylene	108383/106423	MS	47.30	0	40	118	79 - 125		
mp-Xylene	108383/106423	MSD	46.50	0	40	116	79 - 125	RPD 1.69 (Max-21)	
Naphthalene	91-20-3	MS	18.90	0	20	94.6	56 - 134		
Naphthalene	91-20-3	MSD	20.10	0	20	100	56 - 134	RPD 5.79 (Max-40)	
o-Chlorotoluene	95-49-8	MS	21.90	0	20	109	78 - 126		
o-Chlorotoluene	95-49-8	MSD	22.20	0	20	111	78 - 126	RPD 1.28 (Max-17)	
o-Xylene	95-47-6	MS	20.60	0	20	103	79 - 124		
o-Xylene	95-47-6	MSD	20.50	0	20	102	79 - 124	RPD 0.71 (Max-19)	
p-Chlorotoluene	106-43-4	MS	21.10	0	20	106	78 - 125		
p-Chlorotoluene	106-43-4	MSD	21.50	0	20	107	78 - 125	RPD 1.70 (Max-16)	
p-Isopropyltoluene	99-87-6	MS	20.90	0	20	105	72 - 123		
p-Isopropyltoluene	99-87-6	MSD	21	0	20	105	72 - 123	RPD 0.60 (Max-17)	
Styrene	100-42-5	MS	21.70	0	20	108	79 - 123		
Styrene	100-42-5	MSD	21.60	0	20	108	79 - 123	RPD 0.35 (Max-16)	
Tetrachloroethene	127-18-4	MS	21.10	0	20	106	72 - 124		
Tetrachloroethene	127-18-4	MSD	21.10	0	20	106	72 - 124	RPD 0.10 (Max-38)	
Toluene	108-88-3	MS	22	0	20	110	80 - 125		
Toluene	108-88-3	MSD	21.40	0	20	107	80 - 125	RPD 2.64 (Max-20)	
Total Xylenes	1330-20-7	MS	67.90	0	60	113	79 - 125		
Total Xylenes	1330-20-7	MSD	67	0	60	112	79 - 125	RPD 1.39 (Max-35)	
trans-1,2-Dichloroethene	156-60-5	MS	25.70	0	20	129*	71 - 122		
trans-1,2-Dichloroethene	156-60-5	MSD	23.90	0	20	120	71 - 122	RPD 7.25 (Max-22)	
trans-1,3-Dichloropropene	10061-02-6	MS	22.10	0	20	110	78 - 126		
trans-1,3-Dichloropropene	10061-02-6	MSD	21.90	0	20	109	78 - 126	RPD 0.92 (Max-18)	
Trichloroethene	79-01-6	MS	23.80	0	20	119	77 - 124		
Trichloroethene	79-01-6	MSD	22.70	0	20	113	77 - 124	RPD 5.09 (Max-18)	
Trichlorofluoromethane	75-69-4	MS	19.70	0	20	98.6	38 - 123		
Trichlorofluoromethane	75-69-4	MSD	17.40	0	20	87.2	38 - 123	RPD 12.30 (Max-23)	
Vinyl Acetate	108-05-4	MS	18.30	0	20	91.6	58 - 136		
Vinyl Acetate	108-05-4	MSD	18.50	0	20	92.4	58 - 136	RPD 0.89 (Max-17)	
Vinyl Chloride	75-01-4	MS	19.50	0	20	97.6	27 - 138		
Vinyl Chloride	75-01-4	MSD	17.60	0	20	87.9	27 - 138	RPD 10.50 (Max-40)	

SURROGATES

Compound	CAS No		Result (ug/L)	Expected (ug/L)	Rec. (%)	Limits (%)	Qualifiers
1,2-Dichloroethane-d4	17060-07-0	MS	30.40	30	101	62 - 133	
1,2-Dichloroethane-d4	17060-07-0	MSD	31.90	30	106	62 - 133	
4-Bromofluorobenzene	460-00-4	MS	30.20	30	101	79 - 114	
4-Bromofluorobenzene	460-00-4	MSD	29.90	30	99.5	79 - 114	
Dibromofluoromethane	1868-53-7	MS	29.60	30	98.6	78 - 116	
Dibromofluoromethane	1868-53-7	MSD	29.70	30	99	78 - 116	
Toluene-d8	2037-26-5	MS	29.20	30	97.4	76 - 127	
Toluene-d8	2037-26-5	MSD	28.90	30	96.5	76 - 127	

QUALITY CONTROL SAMPLES

VOLATILE ORGANICS (cont.)

Method Blank 3759543 (MB) Created on 12/07/2023 10:47 For QC Batch 1097850

RESULTS

Compound	CAS No		Result	Units	RDL	Qualifiers
1,1,1,2-Tetrachloroethane	630-20-6	BLK	1.0 U	ug/L	1.0	U
1,1,1-Trichloroethane	71-55-6	BLK	1.0 U	ug/L	1.0	U
1,1,2,2-Tetrachloroethane	79-34-5	BLK	1.0 U	ug/L	1.0	U
1,1,2-Trichloroethane	79-00-5	BLK	1.0 U	ug/L	1.0	U
1,1-Dichloroethane	75-34-3	BLK	1.0 U	ug/L	1.0	U
1,1-Dichloroethene	75-35-4	BLK	1.0 U	ug/L	1.0	U
1,1-Dichloropropene	563-58-6	BLK	1.0 U	ug/L	1.0	U
1,2,3-Trichlorobenzene	87-61-6	BLK	2.0 U	ug/L	2.0	U
1,2,3-Trichloropropane	96-18-4	BLK	2.0 U	ug/L	2.0	U
1,2,4-Trichlorobenzene	120-82-1	BLK	2.0 U	ug/L	2.0	U
1,2-Dibromo-3-chloropropane	96-12-8	BLK	7.0 U	ug/L	7.0	U
1,2-Dibromoethane	106-93-4	BLK	1.0 U	ug/L	1.0	U
1,2-Dichlorobenzene	95-50-1	BLK	1.0 U	ug/L	1.0	U
1,2-Dichloroethane	107-06-2	BLK	1.0 U	ug/L	1.0	U
1,2-Dichloropropane	78-87-5	BLK	1.0 U	ug/L	1.0	U
1,3-Dichlorobenzene	541-73-1	BLK	1.0 U	ug/L	1.0	U
1,3-Dichloropropane	142-28-9	BLK	1.0 U	ug/L	1.0	U
1,4-Dichlorobenzene	106-46-7	BLK	1.0 U	ug/L	1.0	U
2,2-Dichloropropane	594-20-7	BLK	1.0 U	ug/L	1.0	U
2-Butanone	78-93-3	BLK	10.0 U	ug/L	10.0	U
2-Hexanone	591-78-6	BLK	5.0 U	ug/L	5.0	U
4-Methyl-2-Pentanone(MIBK)	108-10-1	BLK	5.0 U	ug/L	5.0	U
Acetone	67-64-1	BLK	10.0 U	ug/L	10.0	U
Benzene	71-43-2	BLK	1.0 U	ug/L	1.0	U
Bromobenzene	108-86-1	BLK	1.0 U	ug/L	1.0	U
Bromochloromethane	74-97-5	BLK	1.0 U	ug/L	1.0	U
Bromodichloromethane	75-27-4	BLK	1.0 U	ug/L	1.0	U
Bromoform	75-25-2	BLK	1.0 U	ug/L	1.0	U
Bromomethane	74-83-9	BLK	1.0 U	ug/L	1.0	U
Carbon Tetrachloride	56-23-5	BLK	1.0 U	ug/L	1.0	U
Chlorobenzene	108-90-7	BLK	1.0 U	ug/L	1.0	U
Chlorodibromomethane	124-48-1	BLK	1.0 U	ug/L	1.0	U
Chloroethane	75-00-3	BLK	1.0 U	ug/L	1.0	U
Chloroform	67-66-3	BLK	1.0 U	ug/L	1.0	U
Chloromethane	74-87-3	BLK	1.0 U	ug/L	1.0	U
cis-1,2-Dichloroethene	156-59-2	BLK	1.0 U	ug/L	1.0	U
cis-1,3-Dichloropropene	10061-01-5	BLK	1.0 U	ug/L	1.0	U
Dibromomethane	74-95-3	BLK	1.0 U	ug/L	1.0	U
Dichlorodifluoromethane	75-71-8	BLK	1.0 U	ug/L	1.0	U
Diisopropyl ether	108-20-3	BLK	1.0 U	ug/L	1.0	U
Ethylbenzene	100-41-4	BLK	1.0 U	ug/L	1.0	U
Hexachlorobutadiene	87-68-3	BLK	5.0 U	ug/L	5.0	U
Methyl t-Butyl Ether	1634-04-4	BLK	1.0 U	ug/L	1.0	U
Methylene Chloride	75-09-2	BLK	1.0 U	ug/L	1.0	U
mp-Xylene	108383/106423	BLK	2.0 U	ug/L	2.0	U

QUALITY CONTROL SAMPLES

VOLATILE ORGANICS (cont.)

RESULTS

Compound	CAS No		Result	Units	RDL	Qualifiers
Naphthalene	91-20-3	BLK	2.0 U	ug/L	2.0	U
o-Chlorotoluene	95-49-8	BLK	1.0 U	ug/L	1.0	U
o-Xylene	95-47-6	BLK	1.0 U	ug/L	1.0	U
p-Chlorotoluene	106-43-4	BLK	1.0 U	ug/L	1.0	U
p-Isopropyltoluene	99-87-6	BLK	1.0 U	ug/L	1.0	U
Styrene	100-42-5	BLK	1.0 U	ug/L	1.0	U
Tetrachloroethene	127-18-4	BLK	1.0 U	ug/L	1.0	U
Toluene	108-88-3	BLK	1.0 U	ug/L	1.0	U
Total Xylenes	1330-20-7	BLK	3.0 U	ug/L	3.0	U
trans-1,2-Dichloroethene	156-60-5	BLK	1.0 U	ug/L	1.0	U
trans-1,3-Dichloropropene	10061-02-6	BLK	1.0 U	ug/L	1.0	U
Trichloroethene	79-01-6	BLK	1.0 U	ug/L	1.0	U
Trichlorofluoromethane	75-69-4	BLK	1.0 U	ug/L	1.0	U
Vinyl Acetate	108-05-4	BLK	5.0 U	ug/L	5.0	U
Vinyl Chloride	75-01-4	BLK	1.0 U	ug/L	1.0	U

SURROGATES

Compound	CAS No		Result (ug/L)	Expected (ug/L)	Rec. (%)	Limits (%)	Qualifiers
1,2-Dichloroethane-d4	17060-07-0	BLK	30	30	100	62 - 133	
4-Bromofluorobenzene	460-00-4	BLK	31.20	30	104	79 - 114	
Dibromofluoromethane	1868-53-7	BLK	29.50	30	98.3	78 - 116	
Toluene-d8	2037-26-5	BLK	30.80	30	103	76 - 127	

Lab Control Standard 3759544 (LCS) Created on 12/07/2023 10:47 For QC Batch 1097850

RESULTS

Compound	CAS No		Result (ug/L)	Orig. Result (ug/L)	Spk Added (ug/L)	Rec. (%)	Limits (%)	RPD Limit (%)	Qualifiers
1,1,1,2-Tetrachloroethane	630-20-6	LCS	20.40		20	102	78 - 121		
1,1,1-Trichloroethane	71-55-6	LCS	21.70		20	108	66 - 130		
1,1,2,2-Tetrachloroethane	79-34-5	LCS	20.60		20	103	74 - 135		
1,1,2-Trichloroethane	79-00-5	LCS	19.60		20	98.2	82 - 126		
1,1-Dichloroethane	75-34-3	LCS	21.10		20	105	78 - 124		
1,1-Dichloroethene	75-35-4	LCS	22		20	110	63 - 128		
1,1-Dichloropropene	563-58-6	LCS	21.80		20	109	76 - 126		
1,2,3-Trichlorobenzene	87-61-6	LCS	22.80		20	114	61 - 126		
1,2,3-Trichloropropane	96-18-4	LCS	20.50		20	102	75 - 132		
1,2,4-Trichlorobenzene	120-82-1	LCS	23.40		20	117	67 - 123		
1,2-Dibromo-3-chloropropane	96-12-8	LCS	20.20		20	101	59 - 133		
1,2-Dibromoethane	106-93-4	LCS	20		20	99.8	80 - 124		
1,2-Dichlorobenzene	95-50-1	LCS	21		20	105	82 - 118		
1,2-Dichloroethane	107-06-2	LCS	19.80		20	99.1	70 - 133		
1,2-Dichloropropane	78-87-5	LCS	20.80		20	104	81 - 127		
1,3-Dichlorobenzene	541-73-1	LCS	21		20	105	81 - 118		
1,3-Dichloropropane	142-28-9	LCS	20.20		20	101	82 - 126		

QUALITY CONTROL SAMPLES

VOLATILE ORGANICS (cont.)

RESULTS

Compound	CAS No		Result (ug/L)	Orig. Result (ug/L)	Spk Added (ug/L)	Rec. (%)	Limits (%)	RPD Limit (%)	Qualifiers
1,4-Dichlorobenzene	106-46-7	LCS	20.80		20	104	81 - 116		
2,2-Dichloropropane	594-20-7	LCS	22.80		20	114	64 - 129		
2-Butanone	78-93-3	LCS	117		100	117	50 - 152		
2-Hexanone	591-78-6	LCS	101		100	101	65 - 154		
4-Methyl-2-Pentanone(MIBK)	108-10-1	LCS	109		100	109	71 - 146		
Acetone	67-64-1	LCS	112		100	112	40 - 151		
Benzene	71-43-2	LCS	21.30		20	107	80 - 124		
Bromobenzene	108-86-1	LCS	20		20	99.9	81 - 119		
Bromochloromethane	74-97-5	LCS	20.50		20	102	73 - 117		
Bromodichloromethane	75-27-4	LCS	20.90		20	104	79 - 126		
Bromoform	75-25-2	LCS	20.30		20	101	70 - 123		
Bromomethane	74-83-9	LCS	20.60		20	103	45 - 148		
Carbon Tetrachloride	56-23-5	LCS	21.50		20	108	62 - 132		
Chlorobenzene	108-90-7	LCS	19.70		20	98.7	85 - 117		
Chlorodibromomethane	124-48-1	LCS	19.80		20	99	77 - 122		
Chloroethane	75-00-3	LCS	10		20	49.9*	51 - 142		
Chloroform	67-66-3	LCS	21.20		20	106	78 - 122		
Chloromethane	74-87-3	LCS	15.90		20	79.4	38 - 156		
cis-1,2-Dichloroethene	156-59-2	LCS	22.10		20	110	78 - 125		
cis-1,3-Dichloropropene	10061-01-5	LCS	20.70		20	104	81 - 121		
Dibromomethane	74-95-3	LCS	20.50		20	103	81 - 125		
Dichlorodifluoromethane	75-71-8	LCS	13.40		20	67	17 - 166		
Diisopropyl ether	108-20-3	LCS	21.30		20	106	74 - 131		
Ethylbenzene	100-41-4	LCS	20.90		20	105	80 - 124		
Hexachlorobutadiene	87-68-3	LCS	25.50		20	128	55 - 128		
Methyl t-Butyl Ether	1634-04-4	LCS	21		20	105	69 - 115		
Methylene Chloride	75-09-2	LCS	20.60		20	103	76 - 121		
mp-Xylene	108383/106423	LCS	41.70		40	104	79 - 125		
Naphthalene	91-20-3	LCS	19.10		20	95.3	56 - 134		
o-Chlorotoluene	95-49-8	LCS	19.40		20	97	78 - 126		
o-Xylene	95-47-6	LCS	18.30		20	91.6	79 - 124		
p-Chlorotoluene	106-43-4	LCS	19		20	95	78 - 125		
p-Isopropyltoluene	99-87-6	LCS	20.60		20	103	72 - 123		
Styrene	100-42-5	LCS	19.30		20	96.7	79 - 123		
Tetrachloroethene	127-18-4	LCS	19.60		20	98.1	72 - 124		
Toluene	108-88-3	LCS	19.50		20	97.6	80 - 125		
Total Xylenes	1330-20-7	LCS	60.10		60	100	79 - 125		
trans-1,2-Dichloroethene	156-60-5	LCS	22.20		20	111	71 - 122		
trans-1,3-Dichloropropene	10061-02-6	LCS	20.70		20	103	78 - 126		
Trichloroethene	79-01-6	LCS	20.70		20	103	77 - 124		
Trichlorofluoromethane	75-69-4	LCS	12.80		20	64.2	38 - 123		
Vinyl Acetate	108-05-4	LCS	20.60		20	103	58 - 136		
Vinyl Chloride	75-01-4	LCS	15		20	75.1	27 - 138		

QUALITY CONTROL SAMPLES

VOLATILE ORGANICS (cont.)

SURROGATES

Compound	CAS No		Result (ug/L)	Expected (ug/L)	Rec. (%)	Limits (%)	Qualifiers
1,2-Dichloroethane-d4	17060-07-0	LCS	30.90	30	103	62 - 133	
4-Bromofluorobenzene	460-00-4	LCS	29.70	30	99.1	79 - 114	
Dibromofluoromethane	1868-53-7	LCS	29.60	30	98.8	78 - 116	
Toluene-d8	2037-26-5	LCS	29.60	30	98.7	76 - 127	

QUALITY CONTROL DATA CROSS REFERENCE TABLE

Lab ID	Sample ID	Preparation Method	Prep Batch	Prep Date/Time	By	Analysis Method	Anly Batch
3335523001	RW-1S	SW846 3510C	1096958	12/06/2023 09:00	SRL	SW846 8270E SIM	1097498
		SW846 3510C	1096958	12/06/2023 09:00	SRL	SW846 8270E SIM	1100662
		N/A	N/A	N/A		SW846 8260D	1097850
3335523002	RW-2S	SW846 3510C	1096958	12/06/2023 09:00	SRL	SW846 8270E SIM	1097498
		SW846 3510C	1096958	12/06/2023 09:00	SRL	SW846 8270E SIM	1100662
		N/A	N/A	N/A		SW846 8260D	1097850
3335523003	RW-1D	SW846 3510C	1096958	12/06/2023 09:00	SRL	SW846 8270E SIM	1097498
		SW846 3510C	1096958	12/06/2023 09:00	SRL	SW846 8270E SIM	1100662
		N/A	N/A	N/A		SW846 8260D	1097850
3335523004	RW-2D	SW846 3510C	1096958	12/06/2023 09:00	SRL	SW846 8270E SIM	1097498
		SW846 3510C	1096958	12/06/2023 09:00	SRL	SW846 8270E SIM	1100662
		N/A	N/A	N/A		SW846 8260D	1097850

301 Fulling Mill Rd, Suite A
Middletown, PA 17057
P. 717-944-5541

CHAIN OF CUSTODY/ REQUEST FOR ANALYSIS

ALL SHADED AREAS MUST BE COMPLETED BY THE CLIENT / SAMPLER. INSTRUCTIONS ON THE BACK.

3335523

Logged By: SLS
PM: SJB

3335523 of

Client Name: WSP USA

Address: 13530 Dulles Technology Dr
Suite 300
Herndon VA ~~22351~~ 20171

Contact: Eric Johnson

Phone#: (703) 709-6500

Project Name/#: Kap Flex Onsite / 31405608.010

Bill To:

Purchase Order #:

TAT: [X] Normal-Standard TAT is 10-12 business days. [ ] Rush-Subject to ALS approval and surcharges.

Date Required: Approved?

Email? [ ]

	Container Type	Container Size	Preservative
	CG	AG	
	VOA	250	
	HCl	None	

Orthophosphate Filtered? Yes No Hexavalent Chromium Filtered? Yes No

ANALYSIS / METHOD REQUESTED

	Sample Description/Location (as it will appear on the lab report)	Date Collected mm/dd/yy	Time hh:mm	SDWA Sample Type (see key)	*G or C	**Matrix (See bottom of COC)	VOCs 8260	1,4 Dioxane 8270	
C	1 RW-1S	12/03/23	1110		G	GW	2X	2X	
C	2 RW-2S	12/03/23	1215		G	GW	2X	2X	
C	3 RW-1D	12/03/23	1345		G	GW	2X	2X	
C	4 RW-2D	12/05/23	1415		G	GW	2X	2X	
	5								
	6								
	7								
	8								
	9								
	10								

Enter Number of Containers Per Sample or Field Results Below.

Circle Sample Collector: ALS Tech / Client

Name: ID:

Comments:

Date:	Time		Relinquished By / Company Name		Received By / Company Name
12/4/23	1605	1	[signature] WSP	2	1616
12-4-23	1815	3	ALS Exeter	4	ALS Exeter
		5		6	
		7		8	
		9		10	

* G=Grab; C=Composite **Matrix - A=Air; D=Drinking Water; GW=Groundwater; O=Oil; LW=Liquid Waste; S=Solid/Soil/Sludge; SW=Surface Water; WP=Wipe; WW=Wastewater

ALS SHIPPING ADDRESS: 301 Fulling Mill Road, Suite A, Middletown, PA 17057

Temp Taken By: RW Therm ID: 570 WO Temp (°C) 3C (by Receiving Lab)

Receipt Info completed by: RW

WV Containers 0-6°C Y N NA

Cooler Custody Seals Intact	Y	N	NA
Sample Custody Seal Intact	Y	N	NA
Received on Ice	Y	N	NA
Coolers & Samples Intact	Y	N	
Correct Containers Provided	Y	N	
Sample Label/COC Agree	Y	N	
Adequate Sample Volumes	Y	N	
VOA only: Trip Blank	Y	N	NA
NJ ≤ 4 days?	Y	N	

Courier/Tracking #

Deviations? NO YES

If YES, list below:

Client contact:

Date/Tech:

Sample(s) for Radiation testing? Y N

Reportable SDWA Sample(s)? Y N

Rad Screen (uCi)

New Source? Y N

SDWA State of Origin?

New Source Contact:

PWSID #

PWS Contact: PWS Phone #:

SDWA Sample Type Key: D=Distribution E=Entry Point R=Raw P=Plant C=Check S=Special A=Annual Startup

Sample/COC Remarks

Contains Short Hold Testing YES NO

Internal Use: If less than 48 hours - notify lab upon receipt

Data Deliverables: [ ] Standard Lvl 1 [X] Standard Lvl 2 [ ] Standard Lvl 3 [ ] Standard Lvl 4 [ ] CLP-like [ ] DOD [ ] NJ RED [ ] NJ Full [ ] HSCA [ ] Landfill [ ] NJ GW [ ]

EDDs: [X] Excel Summary [ ] Equis [ ] Custom

Sample Disposal: [ ] Lab [ ] Special

EDDS: Format Type

State Samples Collected In: [ ] NY [ ] NJ [ ] PA [ ] WV [ ] FL [ ] other

Main Site: 301 Fulling Mill Road | Middletown, PA 17057 | Phone: 717-944-5541 | Fax: 717-944-1430 | www.alsglobal.com
Associated Site: 20 Riverside Drive | Spring City, PA 19475 | Phone: 610-948-4903 | Fax: 717-944-1430 |

NELAP Certifications: NJ PA010 , NY 11759 , PA 22-293 DoD ELAP: PJLA 74618
State Certifications: FL E871113 , WA C999 , MD 128 , VA 460157 , WV DW 9961-C , WV 343

Analytical Results Report For **WSP USA Inc.**

Project	Former KOP-Flex Facility Onsit
Workorder	3335533
Report ID	288683 on 12/13/2023

Certificate of Analysis

Enclosed are the analytical results for samples received by the laboratory on Dec 04, 2023.

The ALS Environmental laboratory in Middletown, Pennsylvania is a National Environmental Laboratory Accreditation Program (NELAP) accredited laboratory and as such, certifies that all applicable test results meet the requirements of NELAP.

If you have any questions regarding this certificate of analysis, please contact Susan Scherer (Project Coordinator) at (717) 944-5541.

Analyses were performed according to our laboratory's NELAP-approved quality assurance program and any applicable state requirements. The test results meet requirements of the current NELAP standards or state requirements, where applicable. For a specific list of accredited analytes, refer to the certifications section of the ALS website at www.alsglobal.com/en/Our-Services/Life-Sciences/Environmental/Downloads.

This laboratory report may not be reproduced, except in full, without the written approval of ALS Global.
ALS Middletown: 301 Fulling Mill Road, Middletown, PA 17057 : 717-944-5541.

Recipient(s):
Elliott Martynkiewicz - WSP USA Inc.
Eric Johnson - WSP USA INC

This page is included as part of the Analytical Report and must be retained as a permanent record thereof.

Susan Scherer

Susan Scherer *(ALS Digital Signature)*
Project Coordinator

Sample Summary

Lab ID	Sample ID	Matrix	Date Collected	Date Received	Collector	Collection Company
3335533001	MW-01	Ground Water	12/03/2023 14:25	12/04/2023 18:15	CBC	Collected By Client
3335533002	MW-03	Ground Water	12/03/2023 09:50	12/04/2023 18:15	CBC	Collected By Client
3335533003	MW-04R	Ground Water	12/03/2023 15:10	12/04/2023 18:15	CBC	Collected By Client
3335533004	MW-05R	Ground Water	12/03/2023 12:05	12/04/2023 18:15	CBC	Collected By Client
3335533005	MW-09	Ground Water	12/03/2023 15:30	12/04/2023 18:15	CBC	Collected By Client
3335533006	MW-16	Ground Water	12/03/2023 16:05	12/04/2023 18:15	CBC	Collected By Client
3335533007	MW-18	Ground Water	12/03/2023 11:40	12/04/2023 18:15	CBC	Collected By Client
3335533008	MW-20	Ground Water	12/03/2023 15:15	12/04/2023 18:15	CBC	Collected By Client
3335533009	MW-38R	Ground Water	12/03/2023 11:20	12/04/2023 18:15	CBC	Collected By Client
3335533010	MW-42	Ground Water	12/03/2023 11:35	12/04/2023 18:15	CBC	Collected By Client
3335533011	MW-43	Ground Water	12/03/2023 10:50	12/04/2023 18:15	CBC	Collected By Client
3335533012	MW-44	Ground Water	12/03/2023 13:30	12/04/2023 18:15	CBC	Collected By Client
3335533013	MW-45	Ground Water	12/04/2023 13:30	12/04/2023 18:15	CBC	Collected By Client
3335533014	MW-01D	Ground Water	12/03/2023 14:30	12/04/2023 18:15	CBC	Collected By Client
3335533015	MW-16D	Ground Water	12/03/2023 16:15	12/04/2023 18:15	CBC	Collected By Client
3335533016	MW-21D	Ground Water	12/03/2023 13:55	12/04/2023 18:15	CBC	Collected By Client
3335533017	MW-22D	Ground Water	12/03/2023 14:55	12/04/2023 18:15	CBC	Collected By Client
3335533018	MW-23D	Ground Water	12/03/2023 15:40	12/04/2023 18:15	CBC	Collected By Client
3335533019	MW-27D	Ground Water	12/03/2023 10:00	12/04/2023 18:15	CBC	Collected By Client
3335533020	MW-40D	Ground Water	12/03/2023 11:50	12/04/2023 18:15	CBC	Collected By Client
3335533021	MW-41D	Ground Water	12/03/2023 14:05	12/04/2023 18:15	CBC	Collected By Client
3335533022	MW-46D	Ground Water	12/03/2023 10:35	12/04/2023 18:15	CBC	Collected By Client
3335533023	DUP-120323	Ground Water	12/03/2023 12:30	12/04/2023 18:15	CBC	Collected By Client
3335533024	Trip Blank A	Ground Water	12/03/2023 00:00	12/04/2023 18:15	CBC	Collected By Client
3335533025	Trip Blank B	Ground Water	12/03/2023 00:00	12/04/2023 18:15	CBC	Collected By Client
3335533026	Trip Blank C	Ground Water	12/03/2023 00:00	12/04/2023 18:15	CBC	Collected By Client

Reference

Notes

- Samples collected by ALS personnel are done so in accordance with the procedures set forth in the ALS Field Sampling Plan (20 - Field Services Sampling Plan).
- Except as qualified, Clean Water Act sample analyses are consistent with methodology requirements in 40 CFR Part 136, including but not limited to the following EPA Method reference revisions:
  EPA 300.1 Rev. 1.0-1997
  EPA 300.0 Rev. 2.1-1993
  EPA 353.2 Rev. 2.0-1993
  EPA 410.4 Rev. 1.0-1993
  EPA 420.4 Rev. 1.0-1993
  EPA 365.1 Rev. 2.0-1993
  EPA 200.7 Rev. 4.4-1994
  EPA 200.8 Rev. 5.4-1994
  EPA 245.1 Rev. 3.0-1994
- Except as qualified, Safe Drinking Water Act sample analyses are consistent with methodology requirements in 40 CFR Part 141.
- The Chain of Custody document is included as part of this report.
- All Library Search analytes should be regarded as tentative identifications based on the presumptive evidence of the mass spectra. Concentrations reported are estimated values.
- Parameters identified as "analyze immediately" require analysis within 15 minutes of collection. Any "analyze immediately" parameters not listed under the header "Field Parameters" are preformed in the laboratory and are therefore analyzed out of hold time.
- Method references listed on this report beginning with the prefix “S” followed by a method number (such as S2310B-97) refer to methods from “Standard Methods for the Examination of Water and Wastewater”.
- For microbiological analyses, the "Prepared" value is the date/time into the incubator and the "Analyzed" value is the date/time out the incubator.
- An Analysis-Prep Method Cross Reference Table is included after Analytical Results & Qualifiers section in this report.
- Unless otherwise noted, all quantitative results for soils are reported on a dry weight basis.

Standard Acronyms/Flags

J	Indicates an estimated value between the Method Detection Limit (MDL) and the Practical Quantitation Limit (PQL) for the analyte
U	Indicates that the analyte was Not Detected (ND) above the MDL
N	Indicates presumptive evidence of the presence of a compound
MDL	Method Detection Limit
PQL	Practical Quantitation Limit
RDL	Practical Quantitation Limit for this Project
ND	Not Detected - indicates that the analyte was Not Detected
Cntr	Analysis was performed using this container
RegLmt	Regulatory Limit
LCS	Laboratory Control Sample
MS	Matrix Spike
MSD	Matrix Spike Duplicate
DUP	Sample Duplicate
%Rec	Percent Recovery
RPD	Relative Percent Difference
LOD	DoD Limit of Detection
LOQ	DoD Limit of Quantitation
DL	DoD Detection Limit
I	Indicates reported value is greater than or equal to the Method Detection Limit (MDL) but less than the Report Detection Limit (RDL)
(S)	Surrogate Compound
NC	Not Calculated
*	Result outside of QC limits
#	Please reference the result in the Results Section for analyte-level flags.

Project Notations

Sample Notations

Lab ID	Sample ID

Result Notations

Notation Ref.	
1	The Initial Calibration Verification recovery was outside limits for method SW846 8260D for the analyte Chloroethane.
2	The QC sample type LCS for method SW846 8260D was outside the control limits for the analyte Hexachlorobutadiene. The % Recovery was reported as 129 and the control limits were 55 to 128.
3	The Method Blank for method SW846 8270E SIM reported a value greater than the reporting level for the analyte 1,4-Dioxane. The concentration was 0.115 ug/L.
4	The surrogate 2-Methylnapthalene-d10 for method SW846 8270E SIM was outside of control limits. The % Recovery was reported as 0 and the control limits were 29 to 112. This result was reported at a dilution of 50.
5	The surrogate Fluoranthene-d10 for method SW846 8270E SIM was outside of control limits. The % Recovery was reported as 0 and the control limits were 45 to 130. This result was reported at a dilution of 50.
6	The surrogate 2-Methylnapthalene-d10 for method SW846 8270E SIM was outside of control limits. The % Recovery was reported as 0 and the control limits were 29 to 112. This result was reported at a dilution of 100.
7	The surrogate Fluoranthene-d10 for method SW846 8270E SIM was outside of control limits. The % Recovery was reported as 0 and the control limits were 45 to 130. This result was reported at a dilution of 100.
8	The QC sample type DUP for method SW846 8270E SIM was outside the control limits for the analyte 1,4-Dioxane. The RPD was reported as 53.5 and the upper control limit is 30.
9	The QC sample type MS for method SW846 8260D was outside the control limits for the analyte Benzene. The % Recovery was reported as 126 and the control limits were 80 to 124.
10	The QC sample type MS for method SW846 8260D was outside the control limits for the analyte Bromochloromethane. The % Recovery was reported as 120 and the control limits were 73 to 117.
11	The QC sample type MS for method SW846 8260D was outside the control limits for the analyte 1,1-Dichloroethane. The % Recovery was reported as 129 and the control limits were 78 to 124.
12	The QC sample type MS for method SW846 8260D was outside the control limits for the analyte 1,1-Dichloroethene. The % Recovery was reported as 131 and the control limits were 63 to 128.
13	The QC sample type MS for method SW846 8260D was outside the control limits for the analyte cis-1,2-Dichloroethene. The % Recovery was reported as 130 and the control limits were 78 to 125.
14	The QC sample type MS for method SW846 8260D was outside the control limits for the analyte trans-1,2-Dichloroethene. The % Recovery was reported as 134 and the control limits were 71 to 122.
15	The QC sample type MSD for method SW846 8260D was outside the control limits for the analyte trans-1,2-Dichloroethene. The % Recovery was reported as 127 and the control limits were 71 to 122.
16	The QC sample type MS for method SW846 8260D was outside the control limits for the analyte 1,1-Dichloropropene. The % Recovery was reported as 131 and the control limits were 76 to 126.
17	The QC sample type MS for method SW846 8260D was outside the control limits for the analyte Methyl t-Butyl Ether. The % Recovery was reported as 121 and the control limits were 69 to 115.
18	The QC sample type MSD for method SW846 8260D was outside the control limits for the analyte Methyl t-Butyl Ether. The % Recovery was reported as 119 and the control limits were 69 to 115.
19	The QC sample type MS for method SW846 8260D was outside the control limits for the analyte Methylene Chloride. The % Recovery was reported as 122 and the control limits were 76 to 121.
20	The Method Blank for method SW846 8270E SIM reported a value greater than the reporting level for the analyte 1,4-Dioxane. The concentration was 0.257 ug/L.

Detected Results Summary

Client Sample ID	MW-04R	Collected	12/03/2023 15:10
Lab Sample ID	3335533003	Lab Receipt	12/04/2023 18:15

Compound	Result	Units	RDL	Method	Flag
SEMIVOLATILE SIM					
1,4-Dioxane	35.9	ug/L	10.2	SW846 8270E SIM	#
VOLATILE ORGANICS					
1,1-Dichloroethane	31.3	ug/L	5.0	SW846 8260D	#
1,1-Dichloroethene	65.8	ug/L	5.0	SW846 8260D	#

Detected Results Summary

Client Sample ID	MW-05R	Collected	12/03/2023 12:05
Lab Sample ID	3335533004	Lab Receipt	12/04/2023 18:15

Compound	Result	Units	RDL	Method	Flag
SEMIVOLATILE SIM					
1,4-Dioxane	2.5	ug/L	1.0	SW846 8270E SIM	#
VOLATILE ORGANICS					
1,1,1-Trichloroethane	1.5	ug/L	1.0	SW846 8260D	#

Detected Results Summary

Client Sample ID	MW-09	Collected	12/03/2023 15:30
Lab Sample ID	3335533005	Lab Receipt	12/04/2023 18:15

Compound	Result	Units	RDL	Method	Flag
SEMIVOLATILE SIM					
1,4-Dioxane	6.4	ug/L	1.0	SW846 8270E SIM	#
VOLATILE ORGANICS					
1,1-Dichloroethane	2.6	ug/L	1.0	SW846 8260D	#
1,1-Dichloroethene	53.4	ug/L	1.0	SW846 8260D	#

Detected Results Summary

Client Sample ID	MW-16	Collected	12/03/2023 16:05
Lab Sample ID	3335533006	Lab Receipt	12/04/2023 18:15

Compound	Result	Units	RDL	Method	Flag
SEMIVOLATILE SIM					
1,4-Dioxane	96.3	ug/L	50.4	SW846 8270E SIM	#
VOLATILE ORGANICS					
1,1,1-Trichloroethane	2200	ug/L	20.0	SW846 8260D	#
1,1-Dichloroethane	3040	ug/L	20.0	SW846 8260D	#
1,1-Dichloroethene	3990	ug/L	20.0	SW846 8260D	#
Chloroethane	124	ug/L	20.0	SW846 8260D	#
Trichloroethene	20.5	ug/L	20.0	SW846 8260D	#

Detected Results Summary

Client Sample ID	MW-20	Collected	12/03/2023 15:15
Lab Sample ID	3335533008	Lab Receipt	12/04/2023 18:15

Compound	Result	Units	RDL	Method	Flag
SEMIVOLATILE SIM					
1,4-Dioxane	404	ug/L	102	SW846 8270E SIM	#
VOLATILE ORGANICS					
1,1-Dichloroethane	432	ug/L	5.0	SW846 8260D	#
1,1-Dichloroethene	631	ug/L	5.0	SW846 8260D	#
1,2-Dichloroethane	13.1	ug/L	5.0	SW846 8260D	#
Trichloroethene	5.9	ug/L	5.0	SW846 8260D	#

Detected Results Summary

Client Sample ID	MW-38R	Collected	12/03/2023 11:20
Lab Sample ID	3335533009	Lab Receipt	12/04/2023 18:15

Compound	Result	Units	RDL	Method	Flag
SEMIVOLATILE SIM					
1,4-Dioxane	18.2	ug/L	10.5	SW846 8270E SIM	#
VOLATILE ORGANICS					
1,1-Dichloroethane	4.2	ug/L	1.0	SW846 8260D	#

Detected Results Summary

Client Sample ID	MW-42	Collected	12/03/2023 11:35
Lab Sample ID	3335533010	Lab Receipt	12/04/2023 18:15

Compound	Result	Units	RDL	Method	Flag
SEMIVOLATILE SIM					
1,4-Dioxane	4.1	ug/L	1.0	SW846 8270E SIM	#

Detected Results Summary

Client Sample ID	MW-43	Collected	12/03/2023 10:50
Lab Sample ID	3335533011	Lab Receipt	12/04/2023 18:15

Compound	Result	Units	RDL	Method	Flag
SEMIVOLATILE SIM					
1,4-Dioxane	8.5	ug/L	1.1	SW846 8270E SIM	#
VOLATILE ORGANICS					
1,1-Dichloroethane	1.6	ug/L	1.0	SW846 8260D	#
1,1-Dichloroethene	19.9	ug/L	1.0	SW846 8260D	#
Methyl t-Butyl Ether	1.8	ug/L	1.0	SW846 8260D	#

Detected Results Summary

Client Sample ID	MW-44	Collected	12/03/2023 13:30
Lab Sample ID	3335533012	Lab Receipt	12/04/2023 18:15

Compound	Result	Units	RDL	Method	Flag
SEMIVOLATILE SIM					
1,4-Dioxane	2.6	ug/L	1.0	SW846 8270E SIM	#
VOLATILE ORGANICS					
1,1,1-Trichloroethane	9.4	ug/L	1.0	SW846 8260D	#
1,1-Dichloroethane	3.9	ug/L	1.0	SW846 8260D	#
1,1-Dichloroethene	6.8	ug/L	1.0	SW846 8260D	#

Detected Results Summary

Client Sample ID	MW-01D	Collected	12/03/2023 14:30
Lab Sample ID	3335533014	Lab Receipt	12/04/2023 18:15

Compound	Result	Units	RDL	Method	Flag
SEMIVOLATILE SIM					
1,4-Dioxane	6.5	ug/L	1.0	SW846 8270E SIM	#
VOLATILE ORGANICS					
1,1,1-Trichloroethane	1.0	ug/L	1.0	SW846 8260D	#
1,1-Dichloroethane	3.8	ug/L	1.0	SW846 8260D	#
1,1-Dichloroethene	21.3	ug/L	1.0	SW846 8260D	#

Detected Results Summary

Client Sample ID	MW-16D	Collected	12/03/2023 16:15
Lab Sample ID	3335533015	Lab Receipt	12/04/2023 18:15

Compound	Result	Units	RDL	Method	Flag
SEMIVOLATILE SIM					
1,4-Dioxane	34.5	ug/L	10.4	SW846 8270E SIM	#
VOLATILE ORGANICS					
1,1,1-Trichloroethane	5.2	ug/L	1.0	SW846 8260D	#
1,1-Dichloroethane	21.8	ug/L	1.0	SW846 8260D	#
1,1-Dichloroethene	103	ug/L	1.0	SW846 8260D	#
1,2-Dichloroethane	1.1	ug/L	1.0	SW846 8260D	#
Methyl t-Butyl Ether	1.0	ug/L	1.0	SW846 8260D	#

Detected Results Summary

Client Sample ID	MW-21D	Collected	12/03/2023 13:55
Lab Sample ID	3335533016	Lab Receipt	12/04/2023 18:15

Compound	Result	Units	RDL	Method	Flag
SEMIVOLATILE SIM					
1,4-Dioxane	7.7	ug/L	1.0	SW846 8270E SIM	#
VOLATILE ORGANICS					
1,1-Dichloroethene	30.8	ug/L	1.0	SW846 8260D	#

Detected Results Summary

Client Sample ID	MW-22D	Collected	12/03/2023 14:55
Lab Sample ID	3335533017	Lab Receipt	12/04/2023 18:15

Compound	Result	Units	RDL	Method	Flag
SEMIVOLATILE SIM					
1,4-Dioxane	2.0	ug/L	1.0	SW846 8270E SIM	#
VOLATILE ORGANICS					
1,1-Dichloroethene	8.5	ug/L	1.0	SW846 8260D	#

Detected Results Summary

Client Sample ID	MW-23D	Collected	12/03/2023 15:40
Lab Sample ID	3335533018	Lab Receipt	12/04/2023 18:15

Compound	Result	Units	RDL	Method	Flag
SEMIVOLATILE SIM					
1,4-Dioxane	56.1	ug/L	10.4	SW846 8270E SIM	#
VOLATILE ORGANICS					
1,1,1-Trichloroethane	9.3	ug/L	1.0	SW846 8260D	#
1,1-Dichloroethane	41.2	ug/L	1.0	SW846 8260D	#
1,1-Dichloroethene	177	ug/L	1.0	SW846 8260D	#
1,2-Dichloroethane	1.7	ug/L	1.0	SW846 8260D	#

Detected Results Summary

Client Sample ID	MW-46D	Collected	12/03/2023 10:35
Lab Sample ID	3335533022	Lab Receipt	12/04/2023 18:15

Compound	Result	Units	RDL	Method	Flag
SEMIVOLATILE SIM					
1,4-Dioxane	27.3	ug/L	10.2	SW846 8270E SIM	#
VOLATILE ORGANICS					
1,1,1-Trichloroethane	1.6	ug/L	1.0	SW846 8260D	#
1,1-Dichloroethane	8.7	ug/L	1.0	SW846 8260D	#
1,1-Dichloroethene	51.5	ug/L	1.0	SW846 8260D	#

Detected Results Summary

Client Sample ID	DUP-120323	Collected	12/03/2023 12:30
Lab Sample ID	3335533023	Lab Receipt	12/04/2023 18:15

Compound	Result	Units	RDL	Method	Flag
SEMIVOLATILE SIM					
1,4-Dioxane	27.0	ug/L	10.2	SW846 8270E SIM	#
VOLATILE ORGANICS					
1,1,1-Trichloroethane	4.7	ug/L	1.0	SW846 8260D	#
1,1-Dichloroethane	19.7	ug/L	1.0	SW846 8260D	#
1,1-Dichloroethene	98.3	ug/L	1.0	SW846 8260D	#

Results

Client Sample ID	MW-01	Collected	12/03/2023 14:25
Lab Sample ID	3335533001	Lab Receipt	12/04/2023 18:15

SEMIVOLATILE SIM

Compound	Result	Flag	Units	RDL	Method	Dilution	Analysis Date/Time	By	Cntr
1,4-Dioxane	1.0 U	U,3	ug/L	1.0	SW846 8270E SIM	1	12/08/2023 09:21	S7M	C

SURROGATES

Compound	CAS No	Recovery	Limits(%)	Analysis Date/Time	Qualifiers
2-Methylnapthalene-d10	7297-45-2	73.5%	29 – 112	12/08/2023 09:21	
Fluoranthene-d10	93951-69-0	72.4%	45 – 130	12/08/2023 09:21	

VOLATILE ORGANICS

Compound	Result	Flag	Units	RDL	Method	Dilution	Analysis Date/Time	By	Cntr
1,1,1,2-Tetrachloroethane	1.0 U	U	ug/L	1.0	SW846 8260D	1	12/12/2023 13:50	ILY	A
1,1,1-Trichloroethane	1.0 U	U	ug/L	1.0	SW846 8260D	1	12/12/2023 13:50	ILY	A
1,1,2,2-Tetrachloroethane	1.0 U	U	ug/L	1.0	SW846 8260D	1	12/12/2023 13:50	ILY	A
1,1,2-Trichloroethane	1.0 U	U	ug/L	1.0	SW846 8260D	1	12/12/2023 13:50	ILY	A
1,1-Dichloroethane	1.0 U	U	ug/L	1.0	SW846 8260D	1	12/12/2023 13:50	ILY	A
1,1-Dichloroethene	1.0 U	U	ug/L	1.0	SW846 8260D	1	12/12/2023 13:50	ILY	A
1,1-Dichloropropene	1.0 U	U	ug/L	1.0	SW846 8260D	1	12/12/2023 13:50	ILY	A
1,2,3-Trichlorobenzene	2.0 U	U	ug/L	2.0	SW846 8260D	1	12/12/2023 13:50	ILY	A
1,2,3-Trichloropropane	2.0 U	U	ug/L	2.0	SW846 8260D	1	12/12/2023 13:50	ILY	A
1,2,4-Trichlorobenzene	2.0 U	U	ug/L	2.0	SW846 8260D	1	12/12/2023 13:50	ILY	A
1,2-Dibromo-3-chloropropane	7.0 U	U	ug/L	7.0	SW846 8260D	1	12/12/2023 13:50	ILY	A
1,2-Dibromoethane	1.0 U	U	ug/L	1.0	SW846 8260D	1	12/12/2023 13:50	ILY	A
1,2-Dichlorobenzene	1.0 U	U	ug/L	1.0	SW846 8260D	1	12/12/2023 13:50	ILY	A
1,2-Dichloroethane	1.0 U	U	ug/L	1.0	SW846 8260D	1	12/12/2023 13:50	ILY	A
1,2-Dichloropropane	1.0 U	U	ug/L	1.0	SW846 8260D	1	12/12/2023 13:50	ILY	A
1,3-Dichlorobenzene	1.0 U	U	ug/L	1.0	SW846 8260D	1	12/12/2023 13:50	ILY	A
1,3-Dichloropropane	1.0 U	U	ug/L	1.0	SW846 8260D	1	12/12/2023 13:50	ILY	A
1,4-Dichlorobenzene	1.0 U	U	ug/L	1.0	SW846 8260D	1	12/12/2023 13:50	ILY	A
2,2-Dichloropropane	1.0 U	U	ug/L	1.0	SW846 8260D	1	12/12/2023 13:50	ILY	A
2-Butanone	10.0 U	U	ug/L	10.0	SW846 8260D	1	12/12/2023 13:50	ILY	A
2-Hexanone	5.0 U	U	ug/L	5.0	SW846 8260D	1	12/12/2023 13:50	ILY	A
4-Methyl-2-Pentanone(MIBK)	5.0 U	U	ug/L	5.0	SW846 8260D	1	12/12/2023 13:50	ILY	A
Acetone	10.0 U	U	ug/L	10.0	SW846 8260D	1	12/12/2023 13:50	ILY	A
Benzene	1.0 U	U	ug/L	1.0	SW846 8260D	1	12/12/2023 13:50	ILY	A
Bromobenzene	1.0 U	U	ug/L	1.0	SW846 8260D	1	12/12/2023 13:50	ILY	A
Bromochloromethane	1.0 U	U	ug/L	1.0	SW846 8260D	1	12/12/2023 13:50	ILY	A
Bromodichloromethane	1.0 U	U	ug/L	1.0	SW846 8260D	1	12/12/2023 13:50	ILY	A
Bromoform	1.0 U	U	ug/L	1.0	SW846 8260D	1	12/12/2023 13:50	ILY	A
Bromomethane	1.0 U	U	ug/L	1.0	SW846 8260D	1	12/12/2023 13:50	ILY	A
Carbon Tetrachloride	1.0 U	U	ug/L	1.0	SW846 8260D	1	12/12/2023 13:50	ILY	A
Chlorobenzene	1.0 U	U	ug/L	1.0	SW846 8260D	1	12/12/2023 13:50	ILY	A
Chlorodibromomethane	1.0 U	U	ug/L	1.0	SW846 8260D	1	12/12/2023 13:50	ILY	A
Chloroethane	1.0 U	U,1	ug/L	1.0	SW846 8260D	1	12/12/2023 13:50	ILY	A
Chloroform	1.0 U	U	ug/L	1.0	SW846 8260D	1	12/12/2023 13:50	ILY	A
Chloromethane	1.0 U	U	ug/L	1.0	SW846 8260D	1	12/12/2023 13:50	ILY	A

Results

Client Sample ID	MW-01	Collected	12/03/2023 14:25
Lab Sample ID	3335533001	Lab Receipt	12/04/2023 18:15

VOLATILE ORGANICS (cont.)

Compound	Result	Flag	Units	RDL	Method	Dilution	Analysis Date/Time	By	Cntr
cis-1,2-Dichloroethene	1.0 U	U	ug/L	1.0	SW846 8260D	1	12/12/2023 13:50	ILY	A
cis-1,3-Dichloropropene	1.0 U	U	ug/L	1.0	SW846 8260D	1	12/12/2023 13:50	ILY	A
Dibromomethane	1.0 U	U	ug/L	1.0	SW846 8260D	1	12/12/2023 13:50	ILY	A
Dichlorodifluoromethane	1.0 U	U	ug/L	1.0	SW846 8260D	1	12/12/2023 13:50	ILY	A
Diisopropyl ether	1.0 U	U	ug/L	1.0	SW846 8260D	1	12/12/2023 13:50	ILY	A
Ethylbenzene	1.0 U	U	ug/L	1.0	SW846 8260D	1	12/12/2023 13:50	ILY	A
Hexachlorobutadiene	5.0 U	U,2	ug/L	5.0	SW846 8260D	1	12/12/2023 13:50	ILY	A
Methyl t-Butyl Ether	1.0 U	U	ug/L	1.0	SW846 8260D	1	12/12/2023 13:50	ILY	A
Methylene Chloride	1.0 U	U	ug/L	1.0	SW846 8260D	1	12/12/2023 13:50	ILY	A
mp-Xylene	2.0 U	U	ug/L	2.0	SW846 8260D	1	12/12/2023 13:50	ILY	A
Naphthalene	2.0 U	U	ug/L	2.0	SW846 8260D	1	12/12/2023 13:50	ILY	A
o-Chlorotoluene	1.0 U	U	ug/L	1.0	SW846 8260D	1	12/12/2023 13:50	ILY	A
o-Xylene	1.0 U	U	ug/L	1.0	SW846 8260D	1	12/12/2023 13:50	ILY	A
p-Chlorotoluene	1.0 U	U	ug/L	1.0	SW846 8260D	1	12/12/2023 13:50	ILY	A
p-Isopropyltoluene	1.0 U	U	ug/L	1.0	SW846 8260D	1	12/12/2023 13:50	ILY	A
Styrene	1.0 U	U	ug/L	1.0	SW846 8260D	1	12/12/2023 13:50	ILY	A
Tetrachloroethene	1.0 U	U	ug/L	1.0	SW846 8260D	1	12/12/2023 13:50	ILY	A
Toluene	1.0 U	U	ug/L	1.0	SW846 8260D	1	12/12/2023 13:50	ILY	A
Total Xylenes	3.0 U	U	ug/L	3.0	SW846 8260D	1	12/12/2023 13:50	ILY	A
trans-1,2-Dichloroethene	1.0 U	U	ug/L	1.0	SW846 8260D	1	12/12/2023 13:50	ILY	A
trans-1,3-Dichloropropene	1.0 U	U	ug/L	1.0	SW846 8260D	1	12/12/2023 13:50	ILY	A
Trichloroethene	1.0 U	U	ug/L	1.0	SW846 8260D	1	12/12/2023 13:50	ILY	A
Trichlorofluoromethane	1.0 U	U	ug/L	1.0	SW846 8260D	1	12/12/2023 13:50	ILY	A
Vinyl Acetate	5.0 U	U	ug/L	5.0	SW846 8260D	1	12/12/2023 13:50	ILY	A
Vinyl Chloride	1.0 U	U	ug/L	1.0	SW846 8260D	1	12/12/2023 13:50	ILY	A

SURROGATES

Compound	CAS No	Recovery	Limits(%)	Analysis Date/Time	Qualifiers
1,2-Dichloroethane-d4	17060-07-0	94.6%	62 – 133	12/12/2023 13:50	
4-Bromofluorobenzene	460-00-4	104%	79 – 114	12/12/2023 13:50	
Dibromofluoromethane	1868-53-7	102%	78 – 116	12/12/2023 13:50	
Toluene-d8	2037-26-5	103%	76 – 127	12/12/2023 13:50	

Results

Client Sample ID	MW-03	Collected	12/03/2023 09:50
Lab Sample ID	3335533002	Lab Receipt	12/04/2023 18:15

SEMIVOLATILE SIM

Compound	Result	Flag	Units	RDL	Method	Dilution	Analysis Date/Time	By	Cntr
1,4-Dioxane	1.1 U	U,3	ug/L	1.1	SW846 8270E SIM	1	12/08/2023 09:47	S7M	C

SURROGATES

Compound	CAS No	Recovery	Limits(%)	Analysis Date/Time	Qualifiers
2-Methylnapthalene-d10	7297-45-2	59.7%	29 – 112	12/08/2023 09:47	
Fluoranthene-d10	93951-69-0	81.7%	45 – 130	12/08/2023 09:47	

VOLATILE ORGANICS

Compound	Result	Flag	Units	RDL	Method	Dilution	Analysis Date/Time	By	Cntr
1,1,1,2-Tetrachloroethane	1.0 U	U	ug/L	1.0	SW846 8260D	1	12/12/2023 14:13	ILY	A
1,1,1-Trichloroethane	1.0 U	U	ug/L	1.0	SW846 8260D	1	12/12/2023 14:13	ILY	A
1,1,2,2-Tetrachloroethane	1.0 U	U	ug/L	1.0	SW846 8260D	1	12/12/2023 14:13	ILY	A
1,1,2-Trichloroethane	1.0 U	U	ug/L	1.0	SW846 8260D	1	12/12/2023 14:13	ILY	A
1,1-Dichloroethane	1.0 U	U	ug/L	1.0	SW846 8260D	1	12/12/2023 14:13	ILY	A
1,1-Dichloroethene	1.0 U	U	ug/L	1.0	SW846 8260D	1	12/12/2023 14:13	ILY	A
1,1-Dichloropropene	1.0 U	U	ug/L	1.0	SW846 8260D	1	12/12/2023 14:13	ILY	A
1,2,3-Trichlorobenzene	2.0 U	U	ug/L	2.0	SW846 8260D	1	12/12/2023 14:13	ILY	A
1,2,3-Trichloropropane	2.0 U	U	ug/L	2.0	SW846 8260D	1	12/12/2023 14:13	ILY	A
1,2,4-Trichlorobenzene	2.0 U	U	ug/L	2.0	SW846 8260D	1	12/12/2023 14:13	ILY	A
1,2-Dibromo-3-chloropropane	7.0 U	U	ug/L	7.0	SW846 8260D	1	12/12/2023 14:13	ILY	A
1,2-Dibromoethane	1.0 U	U	ug/L	1.0	SW846 8260D	1	12/12/2023 14:13	ILY	A
1,2-Dichlorobenzene	1.0 U	U	ug/L	1.0	SW846 8260D	1	12/12/2023 14:13	ILY	A
1,2-Dichloroethane	1.0 U	U	ug/L	1.0	SW846 8260D	1	12/12/2023 14:13	ILY	A
1,2-Dichloropropane	1.0 U	U	ug/L	1.0	SW846 8260D	1	12/12/2023 14:13	ILY	A
1,3-Dichlorobenzene	1.0 U	U	ug/L	1.0	SW846 8260D	1	12/12/2023 14:13	ILY	A
1,3-Dichloropropane	1.0 U	U	ug/L	1.0	SW846 8260D	1	12/12/2023 14:13	ILY	A
1,4-Dichlorobenzene	1.0 U	U	ug/L	1.0	SW846 8260D	1	12/12/2023 14:13	ILY	A
2,2-Dichloropropane	1.0 U	U	ug/L	1.0	SW846 8260D	1	12/12/2023 14:13	ILY	A
2-Butanone	10.0 U	U	ug/L	10.0	SW846 8260D	1	12/12/2023 14:13	ILY	A
2-Hexanone	5.0 U	U	ug/L	5.0	SW846 8260D	1	12/12/2023 14:13	ILY	A
4-Methyl-2-Pentanone(MIBK)	5.0 U	U	ug/L	5.0	SW846 8260D	1	12/12/2023 14:13	ILY	A
Acetone	10.0 U	U	ug/L	10.0	SW846 8260D	1	12/12/2023 14:13	ILY	A
Benzene	1.0 U	U	ug/L	1.0	SW846 8260D	1	12/12/2023 14:13	ILY	A
Bromobenzene	1.0 U	U	ug/L	1.0	SW846 8260D	1	12/12/2023 14:13	ILY	A
Bromochloromethane	1.0 U	U	ug/L	1.0	SW846 8260D	1	12/12/2023 14:13	ILY	A
Bromodichloromethane	1.0 U	U	ug/L	1.0	SW846 8260D	1	12/12/2023 14:13	ILY	A
Bromoform	1.0 U	U	ug/L	1.0	SW846 8260D	1	12/12/2023 14:13	ILY	A
Bromomethane	1.0 U	U	ug/L	1.0	SW846 8260D	1	12/12/2023 14:13	ILY	A
Carbon Tetrachloride	1.0 U	U	ug/L	1.0	SW846 8260D	1	12/12/2023 14:13	ILY	A
Chlorobenzene	1.0 U	U	ug/L	1.0	SW846 8260D	1	12/12/2023 14:13	ILY	A
Chlorodibromomethane	1.0 U	U	ug/L	1.0	SW846 8260D	1	12/12/2023 14:13	ILY	A
Chloroethane	1.0 U	U,1	ug/L	1.0	SW846 8260D	1	12/12/2023 14:13	ILY	A
Chloroform	1.0 U	U	ug/L	1.0	SW846 8260D	1	12/12/2023 14:13	ILY	A
Chloromethane	1.0 U	U	ug/L	1.0	SW846 8260D	1	12/12/2023 14:13	ILY	A

Results

Client Sample ID	MW-03	Collected	12/03/2023 09:50
Lab Sample ID	3335533002	Lab Receipt	12/04/2023 18:15

VOLATILE ORGANICS (cont.)

Compound	Result	Flag	Units	RDL	Method	Dilution	Analysis Date/Time	By	Cntr
cis-1,2-Dichloroethene	1.0 U	U	ug/L	1.0	SW846 8260D	1	12/12/2023 14:13	ILY	A
cis-1,3-Dichloropropene	1.0 U	U	ug/L	1.0	SW846 8260D	1	12/12/2023 14:13	ILY	A
Dibromomethane	1.0 U	U	ug/L	1.0	SW846 8260D	1	12/12/2023 14:13	ILY	A
Dichlorodifluoromethane	1.0 U	U	ug/L	1.0	SW846 8260D	1	12/12/2023 14:13	ILY	A
Diisopropyl ether	1.0 U	U	ug/L	1.0	SW846 8260D	1	12/12/2023 14:13	ILY	A
Ethylbenzene	1.0 U	U	ug/L	1.0	SW846 8260D	1	12/12/2023 14:13	ILY	A
Hexachlorobutadiene	5.0 U	U,2	ug/L	5.0	SW846 8260D	1	12/12/2023 14:13	ILY	A
Methyl t-Butyl Ether	1.0 U	U	ug/L	1.0	SW846 8260D	1	12/12/2023 14:13	ILY	A
Methylene Chloride	1.0 U	U	ug/L	1.0	SW846 8260D	1	12/12/2023 14:13	ILY	A
mp-Xylene	2.0 U	U	ug/L	2.0	SW846 8260D	1	12/12/2023 14:13	ILY	A
Naphthalene	2.0 U	U	ug/L	2.0	SW846 8260D	1	12/12/2023 14:13	ILY	A
o-Chlorotoluene	1.0 U	U	ug/L	1.0	SW846 8260D	1	12/12/2023 14:13	ILY	A
o-Xylene	1.0 U	U	ug/L	1.0	SW846 8260D	1	12/12/2023 14:13	ILY	A
p-Chlorotoluene	1.0 U	U	ug/L	1.0	SW846 8260D	1	12/12/2023 14:13	ILY	A
p-Isopropyltoluene	1.0 U	U	ug/L	1.0	SW846 8260D	1	12/12/2023 14:13	ILY	A
Styrene	1.0 U	U	ug/L	1.0	SW846 8260D	1	12/12/2023 14:13	ILY	A
Tetrachloroethene	1.0 U	U	ug/L	1.0	SW846 8260D	1	12/12/2023 14:13	ILY	A
Toluene	1.0 U	U	ug/L	1.0	SW846 8260D	1	12/12/2023 14:13	ILY	A
Total Xylenes	3.0 U	U	ug/L	3.0	SW846 8260D	1	12/12/2023 14:13	ILY	A
trans-1,2-Dichloroethene	1.0 U	U	ug/L	1.0	SW846 8260D	1	12/12/2023 14:13	ILY	A
trans-1,3-Dichloropropene	1.0 U	U	ug/L	1.0	SW846 8260D	1	12/12/2023 14:13	ILY	A
Trichloroethene	1.0 U	U	ug/L	1.0	SW846 8260D	1	12/12/2023 14:13	ILY	A
Trichlorofluoromethane	1.0 U	U	ug/L	1.0	SW846 8260D	1	12/12/2023 14:13	ILY	A
Vinyl Acetate	5.0 U	U	ug/L	5.0	SW846 8260D	1	12/12/2023 14:13	ILY	A
Vinyl Chloride	1.0 U	U	ug/L	1.0	SW846 8260D	1	12/12/2023 14:13	ILY	A

SURROGATES

Compound	CAS No	Recovery	Limits(%)	Analysis Date/Time	Qualifiers
1,2-Dichloroethane-d4	17060-07-0	95.3%	62 – 133	12/12/2023 14:13	
4-Bromofluorobenzene	460-00-4	106%	79 – 114	12/12/2023 14:13	
Dibromofluoromethane	1868-53-7	102%	78 – 116	12/12/2023 14:13	
Toluene-d8	2037-26-5	103%	76 – 127	12/12/2023 14:13	

Results

Client Sample ID	MW-04R	Collected	12/03/2023 15:10
Lab Sample ID	3335533003	Lab Receipt	12/04/2023 18:15

SEMIVOLATILE SIM

Compound	Result	Flag	Units	RDL	Method	Dilution	Analysis Date/Time	By	Cntr
1,4-Dioxane	35.9	3	ug/L	10.2	SW846 8270E SIM	10	12/12/2023 08:07	S7M	C

SURROGATES

Compound	CAS No	Recovery	Limits(%)	Analysis Date/Time	Qualifiers
2-Methylnapthalene-d10	7297-45-2	89.3%	29 – 112	12/12/2023 08:07	
2-Methylnapthalene-d10	7297-45-2	73.2%	29 – 112	12/08/2023 10:13	
Fluoranthene-d10	93951-69-0	87.1%	45 – 130	12/08/2023 10:13	
Fluoranthene-d10	93951-69-0	98.1%	45 – 130	12/12/2023 08:07	

VOLATILE ORGANICS

Compound	Result	Flag	Units	RDL	Method	Dilution	Analysis Date/Time	By	Cntr
1,1,1,2-Tetrachloroethane	5.0 U	U	ug/L	5.0	SW846 8260D	5	12/12/2023 20:26	ILY	A
1,1,1-Trichloroethane	5.0 U	U	ug/L	5.0	SW846 8260D	5	12/12/2023 20:26	ILY	A
1,1,2,2-Tetrachloroethane	5.0 U	U	ug/L	5.0	SW846 8260D	5	12/12/2023 20:26	ILY	A
1,1,2-Trichloroethane	5.0 U	U	ug/L	5.0	SW846 8260D	5	12/12/2023 20:26	ILY	A
1,1-Dichloroethane	31.3		ug/L	5.0	SW846 8260D	5	12/12/2023 20:26	ILY	A
1,1-Dichloroethene	65.8		ug/L	5.0	SW846 8260D	5	12/12/2023 20:26	ILY	A
1,1-Dichloropropene	5.0 U	U	ug/L	5.0	SW846 8260D	5	12/12/2023 20:26	ILY	A
1,2,3-Trichlorobenzene	10.0 U	U	ug/L	10.0	SW846 8260D	5	12/12/2023 20:26	ILY	A
1,2,3-Trichloropropane	10.0 U	U	ug/L	10.0	SW846 8260D	5	12/12/2023 20:26	ILY	A
1,2,4-Trichlorobenzene	10.0 U	U	ug/L	10.0	SW846 8260D	5	12/12/2023 20:26	ILY	A
1,2-Dibromo-3-chloropropane	35.0 U	U	ug/L	35.0	SW846 8260D	5	12/12/2023 20:26	ILY	A
1,2-Dibromoethane	5.0 U	U	ug/L	5.0	SW846 8260D	5	12/12/2023 20:26	ILY	A
1,2-Dichlorobenzene	5.0 U	U	ug/L	5.0	SW846 8260D	5	12/12/2023 20:26	ILY	A
1,2-Dichloroethane	5.0 U	U	ug/L	5.0	SW846 8260D	5	12/12/2023 20:26	ILY	A
1,2-Dichloropropane	5.0 U	U	ug/L	5.0	SW846 8260D	5	12/12/2023 20:26	ILY	A
1,3-Dichlorobenzene	5.0 U	U	ug/L	5.0	SW846 8260D	5	12/12/2023 20:26	ILY	A
1,3-Dichloropropane	5.0 U	U	ug/L	5.0	SW846 8260D	5	12/12/2023 20:26	ILY	A
1,4-Dichlorobenzene	5.0 U	U	ug/L	5.0	SW846 8260D	5	12/12/2023 20:26	ILY	A
2,2-Dichloropropane	5.0 U	U	ug/L	5.0	SW846 8260D	5	12/12/2023 20:26	ILY	A
2-Butanone	50.0 U	U	ug/L	50.0	SW846 8260D	5	12/12/2023 20:26	ILY	A
2-Hexanone	25.0 U	U	ug/L	25.0	SW846 8260D	5	12/12/2023 20:26	ILY	A
4-Methyl-2-Pentanone(MIBK)	25.0 U	U	ug/L	25.0	SW846 8260D	5	12/12/2023 20:26	ILY	A
Acetone	50.0 U	U	ug/L	50.0	SW846 8260D	5	12/12/2023 20:26	ILY	A
Benzene	5.0 U	U	ug/L	5.0	SW846 8260D	5	12/12/2023 20:26	ILY	A
Bromobenzene	5.0 U	U	ug/L	5.0	SW846 8260D	5	12/12/2023 20:26	ILY	A
Bromochloromethane	5.0 U	U	ug/L	5.0	SW846 8260D	5	12/12/2023 20:26	ILY	A
Bromodichloromethane	5.0 U	U	ug/L	5.0	SW846 8260D	5	12/12/2023 20:26	ILY	A
Bromoform	5.0 U	U	ug/L	5.0	SW846 8260D	5	12/12/2023 20:26	ILY	A
Bromomethane	5.0 U	U	ug/L	5.0	SW846 8260D	5	12/12/2023 20:26	ILY	A
Carbon Tetrachloride	5.0 U	U	ug/L	5.0	SW846 8260D	5	12/12/2023 20:26	ILY	A
Chlorobenzene	5.0 U	U	ug/L	5.0	SW846 8260D	5	12/12/2023 20:26	ILY	A
Chlorodibromomethane	5.0 U	U	ug/L	5.0	SW846 8260D	5	12/12/2023 20:26	ILY	A
Chloroethane	5.0 U	U,1	ug/L	5.0	SW846 8260D	5	12/12/2023 20:26	ILY	A

Results

Client Sample ID	MW-04R	Collected	12/03/2023 15:10
Lab Sample ID	3335533003	Lab Receipt	12/04/2023 18:15

VOLATILE ORGANICS (cont.)

Compound	Result	Flag	Units	RDL	Method	Dilution	Analysis Date/Time	By	Cntr
Chloroform	5.0 U	U	ug/L	5.0	SW846 8260D	5	12/12/2023 20:26	ILY	A
Chloromethane	5.0 U	U	ug/L	5.0	SW846 8260D	5	12/12/2023 20:26	ILY	A
cis-1,2-Dichloroethene	5.0 U	U	ug/L	5.0	SW846 8260D	5	12/12/2023 20:26	ILY	A
cis-1,3-Dichloropropene	5.0 U	U	ug/L	5.0	SW846 8260D	5	12/12/2023 20:26	ILY	A
Dibromomethane	5.0 U	U	ug/L	5.0	SW846 8260D	5	12/12/2023 20:26	ILY	A
Dichlorodifluoromethane	5.0 U	U	ug/L	5.0	SW846 8260D	5	12/12/2023 20:26	ILY	A
Diisopropyl ether	5.0 U	U	ug/L	5.0	SW846 8260D	5	12/12/2023 20:26	ILY	A
Ethylbenzene	5.0 U	U	ug/L	5.0	SW846 8260D	5	12/12/2023 20:26	ILY	A
Hexachlorobutadiene	25.0 U	U,2	ug/L	25.0	SW846 8260D	5	12/12/2023 20:26	ILY	A
Methyl t-Butyl Ether	5.0 U	U	ug/L	5.0	SW846 8260D	5	12/12/2023 20:26	ILY	A
Methylene Chloride	5.0 U	U	ug/L	5.0	SW846 8260D	5	12/12/2023 20:26	ILY	A
mp-Xylene	10.0 U	U	ug/L	10.0	SW846 8260D	5	12/12/2023 20:26	ILY	A
Naphthalene	10.0 U	U	ug/L	10.0	SW846 8260D	5	12/12/2023 20:26	ILY	A
o-Chlorotoluene	5.0 U	U	ug/L	5.0	SW846 8260D	5	12/12/2023 20:26	ILY	A
o-Xylene	5.0 U	U	ug/L	5.0	SW846 8260D	5	12/12/2023 20:26	ILY	A
p-Chlorotoluene	5.0 U	U	ug/L	5.0	SW846 8260D	5	12/12/2023 20:26	ILY	A
p-Isopropyltoluene	5.0 U	U	ug/L	5.0	SW846 8260D	5	12/12/2023 20:26	ILY	A
Styrene	5.0 U	U	ug/L	5.0	SW846 8260D	5	12/12/2023 20:26	ILY	A
Tetrachloroethene	5.0 U	U	ug/L	5.0	SW846 8260D	5	12/12/2023 20:26	ILY	A
Toluene	5.0 U	U	ug/L	5.0	SW846 8260D	5	12/12/2023 20:26	ILY	A
Total Xylenes	15.0 U	U	ug/L	15.0	SW846 8260D	5	12/12/2023 20:26	ILY	A
trans-1,2-Dichloroethene	5.0 U	U	ug/L	5.0	SW846 8260D	5	12/12/2023 20:26	ILY	A
trans-1,3-Dichloropropene	5.0 U	U	ug/L	5.0	SW846 8260D	5	12/12/2023 20:26	ILY	A
Trichloroethene	5.0 U	U	ug/L	5.0	SW846 8260D	5	12/12/2023 20:26	ILY	A
Trichlorofluoromethane	5.0 U	U	ug/L	5.0	SW846 8260D	5	12/12/2023 20:26	ILY	A
Vinyl Acetate	25.0 U	U	ug/L	25.0	SW846 8260D	5	12/12/2023 20:26	ILY	A
Vinyl Chloride	5.0 U	U	ug/L	5.0	SW846 8260D	5	12/12/2023 20:26	ILY	A

SURROGATES

Compound	CAS No	Recovery	Limits(%)	Analysis Date/Time	Qualifiers
1,2-Dichloroethane-d4	17060-07-0	105%	62 – 133	12/12/2023 20:26	
4-Bromofluorobenzene	460-00-4	101%	79 – 114	12/12/2023 20:26	
Dibromofluoromethane	1868-53-7	100%	78 – 116	12/12/2023 20:26	
Toluene-d8	2037-26-5	98.4%	76 – 127	12/12/2023 20:26	

Results

Client Sample ID	MW-05R	Collected	12/03/2023 12:05
Lab Sample ID	3335533004	Lab Receipt	12/04/2023 18:15

SEMIVOLATILE SIM

Compound	Result	Flag	Units	RDL	Method	Dilution	Analysis Date/Time	By	Cntr
1,4-Dioxane	2.5	3	ug/L	1.0	SW846 8270E SIM	1	12/08/2023 10:39	S7M	C

SURROGATES

Compound	CAS No	Recovery	Limits(%)	Analysis Date/Time	Qualifiers
2-Methylnapthalene-d10	7297-45-2	60.3%	29 – 112	12/08/2023 10:39	
Fluoranthene-d10	93951-69-0	84.3%	45 – 130	12/08/2023 10:39	

VOLATILE ORGANICS

Compound	Result	Flag	Units	RDL	Method	Dilution	Analysis Date/Time	By	Cntr
1,1,1,2-Tetrachloroethane	1.0 U	U	ug/L	1.0	SW846 8260D	1	12/12/2023 14:36	ILY	A
1,1,1-Trichloroethane	1.5		ug/L	1.0	SW846 8260D	1	12/12/2023 14:36	ILY	A
1,1,2,2-Tetrachloroethane	1.0 U	U	ug/L	1.0	SW846 8260D	1	12/12/2023 14:36	ILY	A
1,1,2-Trichloroethane	1.0 U	U	ug/L	1.0	SW846 8260D	1	12/12/2023 14:36	ILY	A
1,1-Dichloroethane	1.0 U	U	ug/L	1.0	SW846 8260D	1	12/12/2023 14:36	ILY	A
1,1-Dichloroethene	1.0 U	U	ug/L	1.0	SW846 8260D	1	12/12/2023 14:36	ILY	A
1,1-Dichloropropene	1.0 U	U	ug/L	1.0	SW846 8260D	1	12/12/2023 14:36	ILY	A
1,2,3-Trichlorobenzene	2.0 U	U	ug/L	2.0	SW846 8260D	1	12/12/2023 14:36	ILY	A
1,2,3-Trichloropropane	2.0 U	U	ug/L	2.0	SW846 8260D	1	12/12/2023 14:36	ILY	A
1,2,4-Trichlorobenzene	2.0 U	U	ug/L	2.0	SW846 8260D	1	12/12/2023 14:36	ILY	A
1,2-Dibromo-3-chloropropane	7.0 U	U	ug/L	7.0	SW846 8260D	1	12/12/2023 14:36	ILY	A
1,2-Dibromoethane	1.0 U	U	ug/L	1.0	SW846 8260D	1	12/12/2023 14:36	ILY	A
1,2-Dichlorobenzene	1.0 U	U	ug/L	1.0	SW846 8260D	1	12/12/2023 14:36	ILY	A
1,2-Dichloroethane	1.0 U	U	ug/L	1.0	SW846 8260D	1	12/12/2023 14:36	ILY	A
1,2-Dichloropropane	1.0 U	U	ug/L	1.0	SW846 8260D	1	12/12/2023 14:36	ILY	A
1,3-Dichlorobenzene	1.0 U	U	ug/L	1.0	SW846 8260D	1	12/12/2023 14:36	ILY	A
1,3-Dichloropropane	1.0 U	U	ug/L	1.0	SW846 8260D	1	12/12/2023 14:36	ILY	A
1,4-Dichlorobenzene	1.0 U	U	ug/L	1.0	SW846 8260D	1	12/12/2023 14:36	ILY	A
2,2-Dichloropropane	1.0 U	U	ug/L	1.0	SW846 8260D	1	12/12/2023 14:36	ILY	A
2-Butanone	10.0 U	U	ug/L	10.0	SW846 8260D	1	12/12/2023 14:36	ILY	A
2-Hexanone	5.0 U	U	ug/L	5.0	SW846 8260D	1	12/12/2023 14:36	ILY	A
4-Methyl-2-Pentanone(MIBK)	5.0 U	U	ug/L	5.0	SW846 8260D	1	12/12/2023 14:36	ILY	A
Acetone	10.0 U	U	ug/L	10.0	SW846 8260D	1	12/12/2023 14:36	ILY	A
Benzene	1.0 U	U	ug/L	1.0	SW846 8260D	1	12/12/2023 14:36	ILY	A
Bromobenzene	1.0 U	U	ug/L	1.0	SW846 8260D	1	12/12/2023 14:36	ILY	A
Bromochloromethane	1.0 U	U	ug/L	1.0	SW846 8260D	1	12/12/2023 14:36	ILY	A
Bromodichloromethane	1.0 U	U	ug/L	1.0	SW846 8260D	1	12/12/2023 14:36	ILY	A
Bromoform	1.0 U	U	ug/L	1.0	SW846 8260D	1	12/12/2023 14:36	ILY	A
Bromomethane	1.0 U	U	ug/L	1.0	SW846 8260D	1	12/12/2023 14:36	ILY	A
Carbon Tetrachloride	1.0 U	U	ug/L	1.0	SW846 8260D	1	12/12/2023 14:36	ILY	A
Chlorobenzene	1.0 U	U	ug/L	1.0	SW846 8260D	1	12/12/2023 14:36	ILY	A
Chlorodibromomethane	1.0 U	U	ug/L	1.0	SW846 8260D	1	12/12/2023 14:36	ILY	A
Chloroethane	1.0 U	U,1	ug/L	1.0	SW846 8260D	1	12/12/2023 14:36	ILY	A
Chloroform	1.0 U	U	ug/L	1.0	SW846 8260D	1	12/12/2023 14:36	ILY	A
Chloromethane	1.0 U	U	ug/L	1.0	SW846 8260D	1	12/12/2023 14:36	ILY	A

Results

Client Sample ID	MW-05R	Collected	12/03/2023 12:05
Lab Sample ID	3335533004	Lab Receipt	12/04/2023 18:15

VOLATILE ORGANICS (cont.)

Compound	Result	Flag	Units	RDL	Method	Dilution	Analysis Date/Time	By	Cntr
cis-1,2-Dichloroethene	1.0 U	U	ug/L	1.0	SW846 8260D	1	12/12/2023 14:36	ILY	A
cis-1,3-Dichloropropene	1.0 U	U	ug/L	1.0	SW846 8260D	1	12/12/2023 14:36	ILY	A
Dibromomethane	1.0 U	U	ug/L	1.0	SW846 8260D	1	12/12/2023 14:36	ILY	A
Dichlorodifluoromethane	1.0 U	U	ug/L	1.0	SW846 8260D	1	12/12/2023 14:36	ILY	A
Diisopropyl ether	1.0 U	U	ug/L	1.0	SW846 8260D	1	12/12/2023 14:36	ILY	A
Ethylbenzene	1.0 U	U	ug/L	1.0	SW846 8260D	1	12/12/2023 14:36	ILY	A
Hexachlorobutadiene	5.0 U	U,2	ug/L	5.0	SW846 8260D	1	12/12/2023 14:36	ILY	A
Methyl t-Butyl Ether	1.0 U	U	ug/L	1.0	SW846 8260D	1	12/12/2023 14:36	ILY	A
Methylene Chloride	1.0 U	U	ug/L	1.0	SW846 8260D	1	12/12/2023 14:36	ILY	A
mp-Xylene	2.0 U	U	ug/L	2.0	SW846 8260D	1	12/12/2023 14:36	ILY	A
Naphthalene	2.0 U	U	ug/L	2.0	SW846 8260D	1	12/12/2023 14:36	ILY	A
o-Chlorotoluene	1.0 U	U	ug/L	1.0	SW846 8260D	1	12/12/2023 14:36	ILY	A
o-Xylene	1.0 U	U	ug/L	1.0	SW846 8260D	1	12/12/2023 14:36	ILY	A
p-Chlorotoluene	1.0 U	U	ug/L	1.0	SW846 8260D	1	12/12/2023 14:36	ILY	A
p-Isopropyltoluene	1.0 U	U	ug/L	1.0	SW846 8260D	1	12/12/2023 14:36	ILY	A
Styrene	1.0 U	U	ug/L	1.0	SW846 8260D	1	12/12/2023 14:36	ILY	A
Tetrachloroethene	1.0 U	U	ug/L	1.0	SW846 8260D	1	12/12/2023 14:36	ILY	A
Toluene	1.0 U	U	ug/L	1.0	SW846 8260D	1	12/12/2023 14:36	ILY	A
Total Xylenes	3.0 U	U	ug/L	3.0	SW846 8260D	1	12/12/2023 14:36	ILY	A
trans-1,2-Dichloroethene	1.0 U	U	ug/L	1.0	SW846 8260D	1	12/12/2023 14:36	ILY	A
trans-1,3-Dichloropropene	1.0 U	U	ug/L	1.0	SW846 8260D	1	12/12/2023 14:36	ILY	A
Trichloroethene	1.0 U	U	ug/L	1.0	SW846 8260D	1	12/12/2023 14:36	ILY	A
Trichlorofluoromethane	1.0 U	U	ug/L	1.0	SW846 8260D	1	12/12/2023 14:36	ILY	A
Vinyl Acetate	5.0 U	U	ug/L	5.0	SW846 8260D	1	12/12/2023 14:36	ILY	A
Vinyl Chloride	1.0 U	U	ug/L	1.0	SW846 8260D	1	12/12/2023 14:36	ILY	A

SURROGATES

Compound	CAS No	Recovery	Limits(%)	Analysis Date/Time	Qualifiers
1,2-Dichloroethane-d4	17060-07-0	97.9%	62 – 133	12/12/2023 14:36	
4-Bromofluorobenzene	460-00-4	106%	79 – 114	12/12/2023 14:36	
Dibromofluoromethane	1868-53-7	104%	78 – 116	12/12/2023 14:36	
Toluene-d8	2037-26-5	105%	76 – 127	12/12/2023 14:36	

Results

Client Sample ID	MW-09	Collected	12/03/2023 15:30
Lab Sample ID	3335533005	Lab Receipt	12/04/2023 18:15

SEMIVOLATILE SIM

Compound	Result	Flag	Units	RDL	Method	Dilution	Analysis Date/Time	By	Cntr
1,4-Dioxane	6.4	3	ug/L	1.0	SW846 8270E SIM	1	12/08/2023 11:05	S7M	C

SURROGATES

Compound	CAS No	Recovery	Limits(%)	Analysis Date/Time	Qualifiers
2-Methylnapthalene-d10	7297-45-2	65.5%	29 – 112	12/08/2023 11:05	
Fluoranthene-d10	93951-69-0	79%	45 – 130	12/08/2023 11:05	

VOLATILE ORGANICS

Compound	Result	Flag	Units	RDL	Method	Dilution	Analysis Date/Time	By	Cntr
1,1,1,2-Tetrachloroethane	1.0 U	U	ug/L	1.0	SW846 8260D	1	12/12/2023 15:00	ILY	A
1,1,1-Trichloroethane	1.0 U	U	ug/L	1.0	SW846 8260D	1	12/12/2023 15:00	ILY	A
1,1,2,2-Tetrachloroethane	1.0 U	U	ug/L	1.0	SW846 8260D	1	12/12/2023 15:00	ILY	A
1,1,2-Trichloroethane	1.0 U	U	ug/L	1.0	SW846 8260D	1	12/12/2023 15:00	ILY	A
1,1-Dichloroethane	2.6		ug/L	1.0	SW846 8260D	1	12/12/2023 15:00	ILY	A
1,1-Dichloroethene	53.4		ug/L	1.0	SW846 8260D	1	12/12/2023 15:00	ILY	A
1,1-Dichloropropene	1.0 U	U	ug/L	1.0	SW846 8260D	1	12/12/2023 15:00	ILY	A
1,2,3-Trichlorobenzene	2.0 U	U	ug/L	2.0	SW846 8260D	1	12/12/2023 15:00	ILY	A
1,2,3-Trichloropropane	2.0 U	U	ug/L	2.0	SW846 8260D	1	12/12/2023 15:00	ILY	A
1,2,4-Trichlorobenzene	2.0 U	U	ug/L	2.0	SW846 8260D	1	12/12/2023 15:00	ILY	A
1,2-Dibromo-3-chloropropane	7.0 U	U	ug/L	7.0	SW846 8260D	1	12/12/2023 15:00	ILY	A
1,2-Dibromoethane	1.0 U	U	ug/L	1.0	SW846 8260D	1	12/12/2023 15:00	ILY	A
1,2-Dichlorobenzene	1.0 U	U	ug/L	1.0	SW846 8260D	1	12/12/2023 15:00	ILY	A
1,2-Dichloroethane	1.0 U	U	ug/L	1.0	SW846 8260D	1	12/12/2023 15:00	ILY	A
1,2-Dichloropropane	1.0 U	U	ug/L	1.0	SW846 8260D	1	12/12/2023 15:00	ILY	A
1,3-Dichlorobenzene	1.0 U	U	ug/L	1.0	SW846 8260D	1	12/12/2023 15:00	ILY	A
1,3-Dichloropropane	1.0 U	U	ug/L	1.0	SW846 8260D	1	12/12/2023 15:00	ILY	A
1,4-Dichlorobenzene	1.0 U	U	ug/L	1.0	SW846 8260D	1	12/12/2023 15:00	ILY	A
2,2-Dichloropropane	1.0 U	U	ug/L	1.0	SW846 8260D	1	12/12/2023 15:00	ILY	A
2-Butanone	10.0 U	U	ug/L	10.0	SW846 8260D	1	12/12/2023 15:00	ILY	A
2-Hexanone	5.0 U	U	ug/L	5.0	SW846 8260D	1	12/12/2023 15:00	ILY	A
4-Methyl-2-Pentanone(MIBK)	5.0 U	U	ug/L	5.0	SW846 8260D	1	12/12/2023 15:00	ILY	A
Acetone	10.0 U	U	ug/L	10.0	SW846 8260D	1	12/12/2023 15:00	ILY	A
Benzene	1.0 U	U	ug/L	1.0	SW846 8260D	1	12/12/2023 15:00	ILY	A
Bromobenzene	1.0 U	U	ug/L	1.0	SW846 8260D	1	12/12/2023 15:00	ILY	A
Bromochloromethane	1.0 U	U	ug/L	1.0	SW846 8260D	1	12/12/2023 15:00	ILY	A
Bromodichloromethane	1.0 U	U	ug/L	1.0	SW846 8260D	1	12/12/2023 15:00	ILY	A
Bromoform	1.0 U	U	ug/L	1.0	SW846 8260D	1	12/12/2023 15:00	ILY	A
Bromomethane	1.0 U	U	ug/L	1.0	SW846 8260D	1	12/12/2023 15:00	ILY	A
Carbon Tetrachloride	1.0 U	U	ug/L	1.0	SW846 8260D	1	12/12/2023 15:00	ILY	A
Chlorobenzene	1.0 U	U	ug/L	1.0	SW846 8260D	1	12/12/2023 15:00	ILY	A
Chlorodibromomethane	1.0 U	U	ug/L	1.0	SW846 8260D	1	12/12/2023 15:00	ILY	A
Chloroethane	1.0 U	U,1	ug/L	1.0	SW846 8260D	1	12/12/2023 15:00	ILY	A
Chloroform	1.0 U	U	ug/L	1.0	SW846 8260D	1	12/12/2023 15:00	ILY	A
Chloromethane	1.0 U	U	ug/L	1.0	SW846 8260D	1	12/12/2023 15:00	ILY	A

Results

Client Sample ID	MW-09	Collected	12/03/2023 15:30
Lab Sample ID	3335533005	Lab Receipt	12/04/2023 18:15

VOLATILE ORGANICS (cont.)

Compound	Result	Flag	Units	RDL	Method	Dilution	Analysis Date/Time	By	Cntr
cis-1,2-Dichloroethene	1.0 U	U	ug/L	1.0	SW846 8260D	1	12/12/2023 15:00	ILY	A
cis-1,3-Dichloropropene	1.0 U	U	ug/L	1.0	SW846 8260D	1	12/12/2023 15:00	ILY	A
Dibromomethane	1.0 U	U	ug/L	1.0	SW846 8260D	1	12/12/2023 15:00	ILY	A
Dichlorodifluoromethane	1.0 U	U	ug/L	1.0	SW846 8260D	1	12/12/2023 15:00	ILY	A
Diisopropyl ether	1.0 U	U	ug/L	1.0	SW846 8260D	1	12/12/2023 15:00	ILY	A
Ethylbenzene	1.0 U	U	ug/L	1.0	SW846 8260D	1	12/12/2023 15:00	ILY	A
Hexachlorobutadiene	5.0 U	U,2	ug/L	5.0	SW846 8260D	1	12/12/2023 15:00	ILY	A
Methyl t-Butyl Ether	1.0 U	U	ug/L	1.0	SW846 8260D	1	12/12/2023 15:00	ILY	A
Methylene Chloride	1.0 U	U	ug/L	1.0	SW846 8260D	1	12/12/2023 15:00	ILY	A
mp-Xylene	2.0 U	U	ug/L	2.0	SW846 8260D	1	12/12/2023 15:00	ILY	A
Naphthalene	2.0 U	U	ug/L	2.0	SW846 8260D	1	12/12/2023 15:00	ILY	A
o-Chlorotoluene	1.0 U	U	ug/L	1.0	SW846 8260D	1	12/12/2023 15:00	ILY	A
o-Xylene	1.0 U	U	ug/L	1.0	SW846 8260D	1	12/12/2023 15:00	ILY	A
p-Chlorotoluene	1.0 U	U	ug/L	1.0	SW846 8260D	1	12/12/2023 15:00	ILY	A
p-Isopropyltoluene	1.0 U	U	ug/L	1.0	SW846 8260D	1	12/12/2023 15:00	ILY	A
Styrene	1.0 U	U	ug/L	1.0	SW846 8260D	1	12/12/2023 15:00	ILY	A
Tetrachloroethene	1.0 U	U	ug/L	1.0	SW846 8260D	1	12/12/2023 15:00	ILY	A
Toluene	1.0 U	U	ug/L	1.0	SW846 8260D	1	12/12/2023 15:00	ILY	A
Total Xylenes	3.0 U	U	ug/L	3.0	SW846 8260D	1	12/12/2023 15:00	ILY	A
trans-1,2-Dichloroethene	1.0 U	U	ug/L	1.0	SW846 8260D	1	12/12/2023 15:00	ILY	A
trans-1,3-Dichloropropene	1.0 U	U	ug/L	1.0	SW846 8260D	1	12/12/2023 15:00	ILY	A
Trichloroethene	1.0 U	U	ug/L	1.0	SW846 8260D	1	12/12/2023 15:00	ILY	A
Trichlorofluoromethane	1.0 U	U	ug/L	1.0	SW846 8260D	1	12/12/2023 15:00	ILY	A
Vinyl Acetate	5.0 U	U	ug/L	5.0	SW846 8260D	1	12/12/2023 15:00	ILY	A
Vinyl Chloride	1.0 U	U	ug/L	1.0	SW846 8260D	1	12/12/2023 15:00	ILY	A

SURROGATES

Compound	CAS No	Recovery	Limits(%)	Analysis Date/Time	Qualifiers
1,2-Dichloroethane-d4	17060-07-0	97.8%	62 – 133	12/12/2023 15:00	
4-Bromofluorobenzene	460-00-4	107%	79 – 114	12/12/2023 15:00	
Dibromofluoromethane	1868-53-7	103%	78 – 116	12/12/2023 15:00	
Toluene-d8	2037-26-5	105%	76 – 127	12/12/2023 15:00	

Results

Client Sample ID	MW-16	Collected	12/03/2023 16:05
Lab Sample ID	3335533006	Lab Receipt	12/04/2023 18:15

SEMIVOLATILE SIM

Compound	Result	Flag	Units	RDL	Method	Dilution	Analysis Date/Time	By	Cntr
1,4-Dioxane	96.3	3	ug/L	50.4	SW846 8270E SIM	50	12/12/2023 08:33	S7M	C

SURROGATES

Compound	CAS No	Recovery	Limits(%)	Analysis Date/Time	Qualifiers
2-Methylnapthalene-d10	7297-45-2	65.7%	29 – 112	12/08/2023 11:31	
2-Methylnapthalene-d10	7297-45-2	0*%	29 – 112	12/12/2023 08:33	4
Fluoranthene-d10	93951-69-0	71.2%	45 – 130	12/08/2023 11:31	
Fluoranthene-d10	93951-69-0	0*%	45 – 130	12/12/2023 08:33	5

VOLATILE ORGANICS

Compound	Result	Flag	Units	RDL	Method	Dilution	Analysis Date/Time	By	Cntr
1,1,1,2-Tetrachloroethane	20.0 U	U	ug/L	20.0	SW846 8260D	20	12/12/2023 21:13	ILY	A
1,1,1-Trichloroethane	2200		ug/L	20.0	SW846 8260D	20	12/12/2023 21:13	ILY	A
1,1,2,2-Tetrachloroethane	20.0 U	U	ug/L	20.0	SW846 8260D	20	12/12/2023 21:13	ILY	A
1,1,2-Trichloroethane	20.0 U	U	ug/L	20.0	SW846 8260D	20	12/12/2023 21:13	ILY	A
1,1-Dichloroethane	3040		ug/L	20.0	SW846 8260D	20	12/12/2023 21:13	ILY	A
1,1-Dichloroethene	3990		ug/L	20.0	SW846 8260D	20	12/12/2023 21:13	ILY	A
1,1-Dichloropropene	20.0 U	U	ug/L	20.0	SW846 8260D	20	12/12/2023 21:13	ILY	A
1,2,3-Trichlorobenzene	40.0 U	U	ug/L	40.0	SW846 8260D	20	12/12/2023 21:13	ILY	A
1,2,3-Trichloropropane	40.0 U	U	ug/L	40.0	SW846 8260D	20	12/12/2023 21:13	ILY	A
1,2,4-Trichlorobenzene	40.0 U	U	ug/L	40.0	SW846 8260D	20	12/12/2023 21:13	ILY	A
1,2-Dibromo-3-chloropropane	140 U	U	ug/L	140	SW846 8260D	20	12/12/2023 21:13	ILY	A
1,2-Dibromoethane	20.0 U	U	ug/L	20.0	SW846 8260D	20	12/12/2023 21:13	ILY	A
1,2-Dichlorobenzene	20.0 U	U	ug/L	20.0	SW846 8260D	20	12/12/2023 21:13	ILY	A
1,2-Dichloroethane	20.0 U	U	ug/L	20.0	SW846 8260D	20	12/12/2023 21:13	ILY	A
1,2-Dichloropropane	20.0 U	U	ug/L	20.0	SW846 8260D	20	12/12/2023 21:13	ILY	A
1,3-Dichlorobenzene	20.0 U	U	ug/L	20.0	SW846 8260D	20	12/12/2023 21:13	ILY	A
1,3-Dichloropropane	20.0 U	U	ug/L	20.0	SW846 8260D	20	12/12/2023 21:13	ILY	A
1,4-Dichlorobenzene	20.0 U	U	ug/L	20.0	SW846 8260D	20	12/12/2023 21:13	ILY	A
2,2-Dichloropropane	20.0 U	U	ug/L	20.0	SW846 8260D	20	12/12/2023 21:13	ILY	A
2-Butanone	200 U	U	ug/L	200	SW846 8260D	20	12/12/2023 21:13	ILY	A
2-Hexanone	100 U	U	ug/L	100	SW846 8260D	20	12/12/2023 21:13	ILY	A
4-Methyl-2-Pentanone(MIBK)	100 U	U	ug/L	100	SW846 8260D	20	12/12/2023 21:13	ILY	A
Acetone	200 U	U	ug/L	200	SW846 8260D	20	12/12/2023 21:13	ILY	A
Benzene	20.0 U	U	ug/L	20.0	SW846 8260D	20	12/12/2023 21:13	ILY	A
Bromobenzene	20.0 U	U	ug/L	20.0	SW846 8260D	20	12/12/2023 21:13	ILY	A
Bromochloromethane	20.0 U	U	ug/L	20.0	SW846 8260D	20	12/12/2023 21:13	ILY	A
Bromodichloromethane	20.0 U	U	ug/L	20.0	SW846 8260D	20	12/12/2023 21:13	ILY	A
Bromoform	20.0 U	U	ug/L	20.0	SW846 8260D	20	12/12/2023 21:13	ILY	A
Bromomethane	20.0 U	U	ug/L	20.0	SW846 8260D	20	12/12/2023 21:13	ILY	A
Carbon Tetrachloride	20.0 U	U	ug/L	20.0	SW846 8260D	20	12/12/2023 21:13	ILY	A
Chlorobenzene	20.0 U	U	ug/L	20.0	SW846 8260D	20	12/12/2023 21:13	ILY	A
Chlorodibromomethane	20.0 U	U	ug/L	20.0	SW846 8260D	20	12/12/2023 21:13	ILY	A
Chloroethane	124	1	ug/L	20.0	SW846 8260D	20	12/12/2023 21:13	ILY	A

Results

Client Sample ID	MW-16	Collected	12/03/2023 16:05
Lab Sample ID	3335533006	Lab Receipt	12/04/2023 18:15

VOLATILE ORGANICS (cont.)

Compound	Result	Flag	Units	RDL	Method	Dilution	Analysis Date/Time	By	Cntr
Chloroform	20.0 U	U	ug/L	20.0	SW846 8260D	20	12/12/2023 21:13	ILY	A
Chloromethane	20.0 U	U	ug/L	20.0	SW846 8260D	20	12/12/2023 21:13	ILY	A
cis-1,2-Dichloroethene	20.0 U	U	ug/L	20.0	SW846 8260D	20	12/12/2023 21:13	ILY	A
cis-1,3-Dichloropropene	20.0 U	U	ug/L	20.0	SW846 8260D	20	12/12/2023 21:13	ILY	A
Dibromomethane	20.0 U	U	ug/L	20.0	SW846 8260D	20	12/12/2023 21:13	ILY	A
Dichlorodifluoromethane	20.0 U	U	ug/L	20.0	SW846 8260D	20	12/12/2023 21:13	ILY	A
Diisopropyl ether	20.0 U	U	ug/L	20.0	SW846 8260D	20	12/12/2023 21:13	ILY	A
Ethylbenzene	20.0 U	U	ug/L	20.0	SW846 8260D	20	12/12/2023 21:13	ILY	A
Hexachlorobutadiene	100 U	U,2	ug/L	100	SW846 8260D	20	12/12/2023 21:13	ILY	A
Methyl t-Butyl Ether	20.0 U	U	ug/L	20.0	SW846 8260D	20	12/12/2023 21:13	ILY	A
Methylene Chloride	20.0 U	U	ug/L	20.0	SW846 8260D	20	12/12/2023 21:13	ILY	A
mp-Xylene	40.0 U	U	ug/L	40.0	SW846 8260D	20	12/12/2023 21:13	ILY	A
Naphthalene	40.0 U	U	ug/L	40.0	SW846 8260D	20	12/12/2023 21:13	ILY	A
o-Chlorotoluene	20.0 U	U	ug/L	20.0	SW846 8260D	20	12/12/2023 21:13	ILY	A
o-Xylene	20.0 U	U	ug/L	20.0	SW846 8260D	20	12/12/2023 21:13	ILY	A
p-Chlorotoluene	20.0 U	U	ug/L	20.0	SW846 8260D	20	12/12/2023 21:13	ILY	A
p-Isopropyltoluene	20.0 U	U	ug/L	20.0	SW846 8260D	20	12/12/2023 21:13	ILY	A
Styrene	20.0 U	U	ug/L	20.0	SW846 8260D	20	12/12/2023 21:13	ILY	A
Tetrachloroethene	20.0 U	U	ug/L	20.0	SW846 8260D	20	12/12/2023 21:13	ILY	A
Toluene	20.0 U	U	ug/L	20.0	SW846 8260D	20	12/12/2023 21:13	ILY	A
Total Xylenes	60.0 U	U	ug/L	60.0	SW846 8260D	20	12/12/2023 21:13	ILY	A
trans-1,2-Dichloroethene	20.0 U	U	ug/L	20.0	SW846 8260D	20	12/12/2023 21:13	ILY	A
trans-1,3-Dichloropropene	20.0 U	U	ug/L	20.0	SW846 8260D	20	12/12/2023 21:13	ILY	A
Trichloroethene	20.5		ug/L	20.0	SW846 8260D	20	12/12/2023 21:13	ILY	A
Trichlorofluoromethane	20.0 U	U	ug/L	20.0	SW846 8260D	20	12/12/2023 21:13	ILY	A
Vinyl Acetate	100 U	U	ug/L	100	SW846 8260D	20	12/12/2023 21:13	ILY	A
Vinyl Chloride	20.0 U	U	ug/L	20.0	SW846 8260D	20	12/12/2023 21:13	ILY	A

SURROGATES

Compound	CAS No	Recovery	Limits(%)	Analysis Date/Time	Qualifiers
1,2-Dichloroethane-d4	17060-07-0	106%	62 – 133	12/12/2023 21:13	
4-Bromofluorobenzene	460-00-4	101%	79 – 114	12/12/2023 21:13	
Dibromofluoromethane	1868-53-7	101%	78 – 116	12/12/2023 21:13	
Toluene-d8	2037-26-5	99.9%	76 – 127	12/12/2023 21:13	

Results

Client Sample ID	MW-18	Collected	12/03/2023 11:40
Lab Sample ID	3335533007	Lab Receipt	12/04/2023 18:15

SEMIVOLATILE SIM

Compound	Result	Flag	Units	RDL	Method	Dilution	Analysis Date/Time	By	Cntr
1,4-Dioxane	1.0 U	U,3	ug/L	1.0	SW846 8270E SIM	1	12/08/2023 12:24	S7M	C

SURROGATES

Compound	CAS No	Recovery	Limits(%)	Analysis Date/Time	Qualifiers
2-Methylnapthalene-d10	7297-45-2	61.6%	29 – 112	12/08/2023 12:24	
Fluoranthene-d10	93951-69-0	86.8%	45 – 130	12/08/2023 12:24	

VOLATILE ORGANICS

Compound	Result	Flag	Units	RDL	Method	Dilution	Analysis Date/Time	By	Cntr
1,1,1,2-Tetrachloroethane	1.0 U	U	ug/L	1.0	SW846 8260D	1	12/12/2023 15:23	ILY	A
1,1,1-Trichloroethane	1.0 U	U	ug/L	1.0	SW846 8260D	1	12/12/2023 15:23	ILY	A
1,1,2,2-Tetrachloroethane	1.0 U	U	ug/L	1.0	SW846 8260D	1	12/12/2023 15:23	ILY	A
1,1,2-Trichloroethane	1.0 U	U	ug/L	1.0	SW846 8260D	1	12/12/2023 15:23	ILY	A
1,1-Dichloroethane	1.0 U	U	ug/L	1.0	SW846 8260D	1	12/12/2023 15:23	ILY	A
1,1-Dichloroethene	1.0 U	U	ug/L	1.0	SW846 8260D	1	12/12/2023 15:23	ILY	A
1,1-Dichloropropene	1.0 U	U	ug/L	1.0	SW846 8260D	1	12/12/2023 15:23	ILY	A
1,2,3-Trichlorobenzene	2.0 U	U	ug/L	2.0	SW846 8260D	1	12/12/2023 15:23	ILY	A
1,2,3-Trichloropropane	2.0 U	U	ug/L	2.0	SW846 8260D	1	12/12/2023 15:23	ILY	A
1,2,4-Trichlorobenzene	2.0 U	U	ug/L	2.0	SW846 8260D	1	12/12/2023 15:23	ILY	A
1,2-Dibromo-3-chloropropane	7.0 U	U	ug/L	7.0	SW846 8260D	1	12/12/2023 15:23	ILY	A
1,2-Dibromoethane	1.0 U	U	ug/L	1.0	SW846 8260D	1	12/12/2023 15:23	ILY	A
1,2-Dichlorobenzene	1.0 U	U	ug/L	1.0	SW846 8260D	1	12/12/2023 15:23	ILY	A
1,2-Dichloroethane	1.0 U	U	ug/L	1.0	SW846 8260D	1	12/12/2023 15:23	ILY	A
1,2-Dichloropropane	1.0 U	U	ug/L	1.0	SW846 8260D	1	12/12/2023 15:23	ILY	A
1,3-Dichlorobenzene	1.0 U	U	ug/L	1.0	SW846 8260D	1	12/12/2023 15:23	ILY	A
1,3-Dichloropropane	1.0 U	U	ug/L	1.0	SW846 8260D	1	12/12/2023 15:23	ILY	A
1,4-Dichlorobenzene	1.0 U	U	ug/L	1.0	SW846 8260D	1	12/12/2023 15:23	ILY	A
2,2-Dichloropropane	1.0 U	U	ug/L	1.0	SW846 8260D	1	12/12/2023 15:23	ILY	A
2-Butanone	10.0 U	U	ug/L	10.0	SW846 8260D	1	12/12/2023 15:23	ILY	A
2-Hexanone	5.0 U	U	ug/L	5.0	SW846 8260D	1	12/12/2023 15:23	ILY	A
4-Methyl-2-Pentanone(MIBK)	5.0 U	U	ug/L	5.0	SW846 8260D	1	12/12/2023 15:23	ILY	A
Acetone	10.0 U	U	ug/L	10.0	SW846 8260D	1	12/12/2023 15:23	ILY	A
Benzene	1.0 U	U	ug/L	1.0	SW846 8260D	1	12/12/2023 15:23	ILY	A
Bromobenzene	1.0 U	U	ug/L	1.0	SW846 8260D	1	12/12/2023 15:23	ILY	A
Bromochloromethane	1.0 U	U	ug/L	1.0	SW846 8260D	1	12/12/2023 15:23	ILY	A
Bromodichloromethane	1.0 U	U	ug/L	1.0	SW846 8260D	1	12/12/2023 15:23	ILY	A
Bromoform	1.0 U	U	ug/L	1.0	SW846 8260D	1	12/12/2023 15:23	ILY	A
Bromomethane	1.0 U	U	ug/L	1.0	SW846 8260D	1	12/12/2023 15:23	ILY	A
Carbon Tetrachloride	1.0 U	U	ug/L	1.0	SW846 8260D	1	12/12/2023 15:23	ILY	A
Chlorobenzene	1.0 U	U	ug/L	1.0	SW846 8260D	1	12/12/2023 15:23	ILY	A
Chlorodibromomethane	1.0 U	U	ug/L	1.0	SW846 8260D	1	12/12/2023 15:23	ILY	A
Chloroethane	1.0 U	U,1	ug/L	1.0	SW846 8260D	1	12/12/2023 15:23	ILY	A
Chloroform	1.0 U	U	ug/L	1.0	SW846 8260D	1	12/12/2023 15:23	ILY	A
Chloromethane	1.0 U	U	ug/L	1.0	SW846 8260D	1	12/12/2023 15:23	ILY	A

Results

Client Sample ID	MW-18	Collected	12/03/2023 11:40
Lab Sample ID	3335533007	Lab Receipt	12/04/2023 18:15

VOLATILE ORGANICS (cont.)

Compound	Result	Flag	Units	RDL	Method	Dilution	Analysis Date/Time	By	Cntr
cis-1,2-Dichloroethene	1.0 U	U	ug/L	1.0	SW846 8260D	1	12/12/2023 15:23	ILY	A
cis-1,3-Dichloropropene	1.0 U	U	ug/L	1.0	SW846 8260D	1	12/12/2023 15:23	ILY	A
Dibromomethane	1.0 U	U	ug/L	1.0	SW846 8260D	1	12/12/2023 15:23	ILY	A
Dichlorodifluoromethane	1.0 U	U	ug/L	1.0	SW846 8260D	1	12/12/2023 15:23	ILY	A
Diisopropyl ether	1.0 U	U	ug/L	1.0	SW846 8260D	1	12/12/2023 15:23	ILY	A
Ethylbenzene	1.0 U	U	ug/L	1.0	SW846 8260D	1	12/12/2023 15:23	ILY	A
Hexachlorobutadiene	5.0 U	U,2	ug/L	5.0	SW846 8260D	1	12/12/2023 15:23	ILY	A
Methyl t-Butyl Ether	1.0 U	U	ug/L	1.0	SW846 8260D	1	12/12/2023 15:23	ILY	A
Methylene Chloride	1.0 U	U	ug/L	1.0	SW846 8260D	1	12/12/2023 15:23	ILY	A
mp-Xylene	2.0 U	U	ug/L	2.0	SW846 8260D	1	12/12/2023 15:23	ILY	A
Naphthalene	2.0 U	U	ug/L	2.0	SW846 8260D	1	12/12/2023 15:23	ILY	A
o-Chlorotoluene	1.0 U	U	ug/L	1.0	SW846 8260D	1	12/12/2023 15:23	ILY	A
o-Xylene	1.0 U	U	ug/L	1.0	SW846 8260D	1	12/12/2023 15:23	ILY	A
p-Chlorotoluene	1.0 U	U	ug/L	1.0	SW846 8260D	1	12/12/2023 15:23	ILY	A
p-Isopropyltoluene	1.0 U	U	ug/L	1.0	SW846 8260D	1	12/12/2023 15:23	ILY	A
Styrene	1.0 U	U	ug/L	1.0	SW846 8260D	1	12/12/2023 15:23	ILY	A
Tetrachloroethene	1.0 U	U	ug/L	1.0	SW846 8260D	1	12/12/2023 15:23	ILY	A
Toluene	1.0 U	U	ug/L	1.0	SW846 8260D	1	12/12/2023 15:23	ILY	A
Total Xylenes	3.0 U	U	ug/L	3.0	SW846 8260D	1	12/12/2023 15:23	ILY	A
trans-1,2-Dichloroethene	1.0 U	U	ug/L	1.0	SW846 8260D	1	12/12/2023 15:23	ILY	A
trans-1,3-Dichloropropene	1.0 U	U	ug/L	1.0	SW846 8260D	1	12/12/2023 15:23	ILY	A
Trichloroethene	1.0 U	U	ug/L	1.0	SW846 8260D	1	12/12/2023 15:23	ILY	A
Trichlorofluoromethane	1.0 U	U	ug/L	1.0	SW846 8260D	1	12/12/2023 15:23	ILY	A
Vinyl Acetate	5.0 U	U	ug/L	5.0	SW846 8260D	1	12/12/2023 15:23	ILY	A
Vinyl Chloride	1.0 U	U	ug/L	1.0	SW846 8260D	1	12/12/2023 15:23	ILY	A

SURROGATES

Compound	CAS No	Recovery	Limits(%)	Analysis Date/Time	Qualifiers
1,2-Dichloroethane-d4	17060-07-0	99%	62 – 133	12/12/2023 15:23	
4-Bromofluorobenzene	460-00-4	105%	79 – 114	12/12/2023 15:23	
Dibromofluoromethane	1868-53-7	103%	78 – 116	12/12/2023 15:23	
Toluene-d8	2037-26-5	103%	76 – 127	12/12/2023 15:23	

Results

Client Sample ID	MW-20	Collected	12/03/2023 15:15
Lab Sample ID	3335533008	Lab Receipt	12/04/2023 18:15

SEMIVOLATILE SIM

Compound	Result	Flag	Units	RDL	Method	Dilution	Analysis Date/Time	By	Cntr
1,4-Dioxane	404	3	ug/L	102	SW846 8270E SIM	100	12/12/2023 08:59	S7M	C

SURROGATES

Compound	CAS No	Recovery	Limits(%)	Analysis Date/Time	Qualifiers
2-Methylnapthalene-d10	7297-45-2	70.7%	29 – 112	12/08/2023 12:50	
2-Methylnapthalene-d10	7297-45-2	0*%	29 – 112	12/12/2023 08:59	6
Fluoranthene-d10	93951-69-0	73%	45 – 130	12/08/2023 12:50	
Fluoranthene-d10	93951-69-0	0*%	45 – 130	12/12/2023 08:59	7

VOLATILE ORGANICS

Compound	Result	Flag	Units	RDL	Method	Dilution	Analysis Date/Time	By	Cntr
1,1,1,2-Tetrachloroethane	5.0 U	U	ug/L	5.0	SW846 8260D	5	12/12/2023 20:50	ILY	A
1,1,1-Trichloroethane	5.0 U	U	ug/L	5.0	SW846 8260D	5	12/12/2023 20:50	ILY	A
1,1,2,2-Tetrachloroethane	5.0 U	U	ug/L	5.0	SW846 8260D	5	12/12/2023 20:50	ILY	A
1,1,2-Trichloroethane	5.0 U	U	ug/L	5.0	SW846 8260D	5	12/12/2023 20:50	ILY	A
1,1-Dichloroethane	432		ug/L	5.0	SW846 8260D	5	12/12/2023 20:50	ILY	A
1,1-Dichloroethene	631		ug/L	5.0	SW846 8260D	5	12/12/2023 20:50	ILY	A
1,1-Dichloropropene	5.0 U	U	ug/L	5.0	SW846 8260D	5	12/12/2023 20:50	ILY	A
1,2,3-Trichlorobenzene	10.0 U	U	ug/L	10.0	SW846 8260D	5	12/12/2023 20:50	ILY	A
1,2,3-Trichloropropane	10.0 U	U	ug/L	10.0	SW846 8260D	5	12/12/2023 20:50	ILY	A
1,2,4-Trichlorobenzene	10.0 U	U	ug/L	10.0	SW846 8260D	5	12/12/2023 20:50	ILY	A
1,2-Dibromo-3-chloropropane	35.0 U	U	ug/L	35.0	SW846 8260D	5	12/12/2023 20:50	ILY	A
1,2-Dibromoethane	5.0 U	U	ug/L	5.0	SW846 8260D	5	12/12/2023 20:50	ILY	A
1,2-Dichlorobenzene	5.0 U	U	ug/L	5.0	SW846 8260D	5	12/12/2023 20:50	ILY	A
1,2-Dichloroethane	13.1		ug/L	5.0	SW846 8260D	5	12/12/2023 20:50	ILY	A
1,2-Dichloropropane	5.0 U	U	ug/L	5.0	SW846 8260D	5	12/12/2023 20:50	ILY	A
1,3-Dichlorobenzene	5.0 U	U	ug/L	5.0	SW846 8260D	5	12/12/2023 20:50	ILY	A
1,3-Dichloropropane	5.0 U	U	ug/L	5.0	SW846 8260D	5	12/12/2023 20:50	ILY	A
1,4-Dichlorobenzene	5.0 U	U	ug/L	5.0	SW846 8260D	5	12/12/2023 20:50	ILY	A
2,2-Dichloropropane	5.0 U	U	ug/L	5.0	SW846 8260D	5	12/12/2023 20:50	ILY	A
2-Butanone	50.0 U	U	ug/L	50.0	SW846 8260D	5	12/12/2023 20:50	ILY	A
2-Hexanone	25.0 U	U	ug/L	25.0	SW846 8260D	5	12/12/2023 20:50	ILY	A
4-Methyl-2-Pentanone(MIBK)	25.0 U	U	ug/L	25.0	SW846 8260D	5	12/12/2023 20:50	ILY	A
Acetone	50.0 U	U	ug/L	50.0	SW846 8260D	5	12/12/2023 20:50	ILY	A
Benzene	5.0 U	U	ug/L	5.0	SW846 8260D	5	12/12/2023 20:50	ILY	A
Bromobenzene	5.0 U	U	ug/L	5.0	SW846 8260D	5	12/12/2023 20:50	ILY	A
Bromochloromethane	5.0 U	U	ug/L	5.0	SW846 8260D	5	12/12/2023 20:50	ILY	A
Bromodichloromethane	5.0 U	U	ug/L	5.0	SW846 8260D	5	12/12/2023 20:50	ILY	A
Bromoform	5.0 U	U	ug/L	5.0	SW846 8260D	5	12/12/2023 20:50	ILY	A
Bromomethane	5.0 U	U	ug/L	5.0	SW846 8260D	5	12/12/2023 20:50	ILY	A
Carbon Tetrachloride	5.0 U	U	ug/L	5.0	SW846 8260D	5	12/12/2023 20:50	ILY	A
Chlorobenzene	5.0 U	U	ug/L	5.0	SW846 8260D	5	12/12/2023 20:50	ILY	A
Chlorodibromomethane	5.0 U	U	ug/L	5.0	SW846 8260D	5	12/12/2023 20:50	ILY	A
Chloroethane	5.0 U	U,1	ug/L	5.0	SW846 8260D	5	12/12/2023 20:50	ILY	A

Results

Client Sample ID	MW-20	Collected	12/03/2023 15:15
Lab Sample ID	3335533008	Lab Receipt	12/04/2023 18:15

VOLATILE ORGANICS (cont.)

Compound	Result	Flag	Units	RDL	Method	Dilution	Analysis Date/Time	By	Cntr
Chloroform	5.0 U	U	ug/L	5.0	SW846 8260D	5	12/12/2023 20:50	ILY	A
Chloromethane	5.0 U	U	ug/L	5.0	SW846 8260D	5	12/12/2023 20:50	ILY	A
cis-1,2-Dichloroethene	5.0 U	U	ug/L	5.0	SW846 8260D	5	12/12/2023 20:50	ILY	A
cis-1,3-Dichloropropene	5.0 U	U	ug/L	5.0	SW846 8260D	5	12/12/2023 20:50	ILY	A
Dibromomethane	5.0 U	U	ug/L	5.0	SW846 8260D	5	12/12/2023 20:50	ILY	A
Dichlorodifluoromethane	5.0 U	U	ug/L	5.0	SW846 8260D	5	12/12/2023 20:50	ILY	A
Diisopropyl ether	5.0 U	U	ug/L	5.0	SW846 8260D	5	12/12/2023 20:50	ILY	A
Ethylbenzene	5.0 U	U	ug/L	5.0	SW846 8260D	5	12/12/2023 20:50	ILY	A
Hexachlorobutadiene	25.0 U	U,2	ug/L	25.0	SW846 8260D	5	12/12/2023 20:50	ILY	A
Methyl t-Butyl Ether	5.0 U	U	ug/L	5.0	SW846 8260D	5	12/12/2023 20:50	ILY	A
Methylene Chloride	5.0 U	U	ug/L	5.0	SW846 8260D	5	12/12/2023 20:50	ILY	A
mp-Xylene	10.0 U	U	ug/L	10.0	SW846 8260D	5	12/12/2023 20:50	ILY	A
Naphthalene	10.0 U	U	ug/L	10.0	SW846 8260D	5	12/12/2023 20:50	ILY	A
o-Chlorotoluene	5.0 U	U	ug/L	5.0	SW846 8260D	5	12/12/2023 20:50	ILY	A
o-Xylene	5.0 U	U	ug/L	5.0	SW846 8260D	5	12/12/2023 20:50	ILY	A
p-Chlorotoluene	5.0 U	U	ug/L	5.0	SW846 8260D	5	12/12/2023 20:50	ILY	A
p-Isopropyltoluene	5.0 U	U	ug/L	5.0	SW846 8260D	5	12/12/2023 20:50	ILY	A
Styrene	5.0 U	U	ug/L	5.0	SW846 8260D	5	12/12/2023 20:50	ILY	A
Tetrachloroethene	5.0 U	U	ug/L	5.0	SW846 8260D	5	12/12/2023 20:50	ILY	A
Toluene	5.0 U	U	ug/L	5.0	SW846 8260D	5	12/12/2023 20:50	ILY	A
Total Xylenes	15.0 U	U	ug/L	15.0	SW846 8260D	5	12/12/2023 20:50	ILY	A
trans-1,2-Dichloroethene	5.0 U	U	ug/L	5.0	SW846 8260D	5	12/12/2023 20:50	ILY	A
trans-1,3-Dichloropropene	5.0 U	U	ug/L	5.0	SW846 8260D	5	12/12/2023 20:50	ILY	A
Trichloroethene	5.9		ug/L	5.0	SW846 8260D	5	12/12/2023 20:50	ILY	A
Trichlorofluoromethane	5.0 U	U	ug/L	5.0	SW846 8260D	5	12/12/2023 20:50	ILY	A
Vinyl Acetate	25.0 U	U	ug/L	25.0	SW846 8260D	5	12/12/2023 20:50	ILY	A
Vinyl Chloride	5.0 U	U	ug/L	5.0	SW846 8260D	5	12/12/2023 20:50	ILY	A

SURROGATES

Compound	CAS No	Recovery	Limits(%)	Analysis Date/Time	Qualifiers
1,2-Dichloroethane-d4	17060-07-0	106%	62 – 133	12/12/2023 20:50	
4-Bromofluorobenzene	460-00-4	99.4%	79 – 114	12/12/2023 20:50	
Dibromofluoromethane	1868-53-7	102%	78 – 116	12/12/2023 20:50	
Toluene-d8	2037-26-5	99.4%	76 – 127	12/12/2023 20:50	

Results

Client Sample ID	MW-38R	Collected	12/03/2023 11:20
Lab Sample ID	3335533009	Lab Receipt	12/04/2023 18:15

SEMIVOLATILE SIM

Compound	Result	Flag	Units	RDL	Method	Dilution	Analysis Date/Time	By	Cntr
1,4-Dioxane	18.2	3	ug/L	10.5	SW846 8270E SIM	10	12/12/2023 09:26	S7M	C

SURROGATES

Compound	CAS No	Recovery	Limits(%)	Analysis Date/Time	Qualifiers
2-Methylnapthalene-d10	7297-45-2	63.4%	29 – 112	12/08/2023 13:17	
2-Methylnapthalene-d10	7297-45-2	84%	29 – 112	12/12/2023 09:26	
Fluoranthene-d10	93951-69-0	91.2%	45 – 130	12/08/2023 13:17	
Fluoranthene-d10	93951-69-0	101%	45 – 130	12/12/2023 09:26	

VOLATILE ORGANICS

Compound	Result	Flag	Units	RDL	Method	Dilution	Analysis Date/Time	By	Cntr
1,1,1,2-Tetrachloroethane	1.0 U	U	ug/L	1.0	SW846 8260D	1	12/12/2023 15:47	ILY	A
1,1,1-Trichloroethane	1.0 U	U	ug/L	1.0	SW846 8260D	1	12/12/2023 15:47	ILY	A
1,1,2,2-Tetrachloroethane	1.0 U	U	ug/L	1.0	SW846 8260D	1	12/12/2023 15:47	ILY	A
1,1,2-Trichloroethane	1.0 U	U	ug/L	1.0	SW846 8260D	1	12/12/2023 15:47	ILY	A
1,1-Dichloroethane	4.2		ug/L	1.0	SW846 8260D	1	12/12/2023 15:47	ILY	A
1,1-Dichloroethene	1.0 U	U	ug/L	1.0	SW846 8260D	1	12/12/2023 15:47	ILY	A
1,1-Dichloropropene	1.0 U	U	ug/L	1.0	SW846 8260D	1	12/12/2023 15:47	ILY	A
1,2,3-Trichlorobenzene	2.0 U	U	ug/L	2.0	SW846 8260D	1	12/12/2023 15:47	ILY	A
1,2,3-Trichloropropane	2.0 U	U	ug/L	2.0	SW846 8260D	1	12/12/2023 15:47	ILY	A
1,2,4-Trichlorobenzene	2.0 U	U	ug/L	2.0	SW846 8260D	1	12/12/2023 15:47	ILY	A
1,2-Dibromo-3-chloropropane	7.0 U	U	ug/L	7.0	SW846 8260D	1	12/12/2023 15:47	ILY	A
1,2-Dibromoethane	1.0 U	U	ug/L	1.0	SW846 8260D	1	12/12/2023 15:47	ILY	A
1,2-Dichlorobenzene	1.0 U	U	ug/L	1.0	SW846 8260D	1	12/12/2023 15:47	ILY	A
1,2-Dichloroethane	1.0 U	U	ug/L	1.0	SW846 8260D	1	12/12/2023 15:47	ILY	A
1,2-Dichloropropane	1.0 U	U	ug/L	1.0	SW846 8260D	1	12/12/2023 15:47	ILY	A
1,3-Dichlorobenzene	1.0 U	U	ug/L	1.0	SW846 8260D	1	12/12/2023 15:47	ILY	A
1,3-Dichloropropane	1.0 U	U	ug/L	1.0	SW846 8260D	1	12/12/2023 15:47	ILY	A
1,4-Dichlorobenzene	1.0 U	U	ug/L	1.0	SW846 8260D	1	12/12/2023 15:47	ILY	A
2,2-Dichloropropane	1.0 U	U	ug/L	1.0	SW846 8260D	1	12/12/2023 15:47	ILY	A
2-Butanone	10.0 U	U	ug/L	10.0	SW846 8260D	1	12/12/2023 15:47	ILY	A
2-Hexanone	5.0 U	U	ug/L	5.0	SW846 8260D	1	12/12/2023 15:47	ILY	A
4-Methyl-2-Pentanone(MIBK)	5.0 U	U	ug/L	5.0	SW846 8260D	1	12/12/2023 15:47	ILY	A
Acetone	10.0 U	U	ug/L	10.0	SW846 8260D	1	12/12/2023 15:47	ILY	A
Benzene	1.0 U	U	ug/L	1.0	SW846 8260D	1	12/12/2023 15:47	ILY	A
Bromobenzene	1.0 U	U	ug/L	1.0	SW846 8260D	1	12/12/2023 15:47	ILY	A
Bromochloromethane	1.0 U	U	ug/L	1.0	SW846 8260D	1	12/12/2023 15:47	ILY	A
Bromodichloromethane	1.0 U	U	ug/L	1.0	SW846 8260D	1	12/12/2023 15:47	ILY	A
Bromoform	1.0 U	U	ug/L	1.0	SW846 8260D	1	12/12/2023 15:47	ILY	A
Bromomethane	1.0 U	U	ug/L	1.0	SW846 8260D	1	12/12/2023 15:47	ILY	A
Carbon Tetrachloride	1.0 U	U	ug/L	1.0	SW846 8260D	1	12/12/2023 15:47	ILY	A
Chlorobenzene	1.0 U	U	ug/L	1.0	SW846 8260D	1	12/12/2023 15:47	ILY	A
Chlorodibromomethane	1.0 U	U	ug/L	1.0	SW846 8260D	1	12/12/2023 15:47	ILY	A
Chloroethane	1.0 U	U,1	ug/L	1.0	SW846 8260D	1	12/12/2023 15:47	ILY	A

Results

Client Sample ID	MW-38R	Collected	12/03/2023 11:20
Lab Sample ID	3335533009	Lab Receipt	12/04/2023 18:15

VOLATILE ORGANICS (cont.)

Compound	Result	Flag	Units	RDL	Method	Dilution	Analysis Date/Time	By	Cntr
Chloroform	1.0 U	U	ug/L	1.0	SW846 8260D	1	12/12/2023 15:47	ILY	A
Chloromethane	1.0 U	U	ug/L	1.0	SW846 8260D	1	12/12/2023 15:47	ILY	A
cis-1,2-Dichloroethene	1.0 U	U	ug/L	1.0	SW846 8260D	1	12/12/2023 15:47	ILY	A
cis-1,3-Dichloropropene	1.0 U	U	ug/L	1.0	SW846 8260D	1	12/12/2023 15:47	ILY	A
Dibromomethane	1.0 U	U	ug/L	1.0	SW846 8260D	1	12/12/2023 15:47	ILY	A
Dichlorodifluoromethane	1.0 U	U	ug/L	1.0	SW846 8260D	1	12/12/2023 15:47	ILY	A
Diisopropyl ether	1.0 U	U	ug/L	1.0	SW846 8260D	1	12/12/2023 15:47	ILY	A
Ethylbenzene	1.0 U	U	ug/L	1.0	SW846 8260D	1	12/12/2023 15:47	ILY	A
Hexachlorobutadiene	5.0 U	U,2	ug/L	5.0	SW846 8260D	1	12/12/2023 15:47	ILY	A
Methyl t-Butyl Ether	1.0 U	U	ug/L	1.0	SW846 8260D	1	12/12/2023 15:47	ILY	A
Methylene Chloride	1.0 U	U	ug/L	1.0	SW846 8260D	1	12/12/2023 15:47	ILY	A
mp-Xylene	2.0 U	U	ug/L	2.0	SW846 8260D	1	12/12/2023 15:47	ILY	A
Naphthalene	2.0 U	U	ug/L	2.0	SW846 8260D	1	12/12/2023 15:47	ILY	A
o-Chlorotoluene	1.0 U	U	ug/L	1.0	SW846 8260D	1	12/12/2023 15:47	ILY	A
o-Xylene	1.0 U	U	ug/L	1.0	SW846 8260D	1	12/12/2023 15:47	ILY	A
p-Chlorotoluene	1.0 U	U	ug/L	1.0	SW846 8260D	1	12/12/2023 15:47	ILY	A
p-Isopropyltoluene	1.0 U	U	ug/L	1.0	SW846 8260D	1	12/12/2023 15:47	ILY	A
Styrene	1.0 U	U	ug/L	1.0	SW846 8260D	1	12/12/2023 15:47	ILY	A
Tetrachloroethene	1.0 U	U	ug/L	1.0	SW846 8260D	1	12/12/2023 15:47	ILY	A
Toluene	1.0 U	U	ug/L	1.0	SW846 8260D	1	12/12/2023 15:47	ILY	A
Total Xylenes	3.0 U	U	ug/L	3.0	SW846 8260D	1	12/12/2023 15:47	ILY	A
trans-1,2-Dichloroethene	1.0 U	U	ug/L	1.0	SW846 8260D	1	12/12/2023 15:47	ILY	A
trans-1,3-Dichloropropene	1.0 U	U	ug/L	1.0	SW846 8260D	1	12/12/2023 15:47	ILY	A
Trichloroethene	1.0 U	U	ug/L	1.0	SW846 8260D	1	12/12/2023 15:47	ILY	A
Trichlorofluoromethane	1.0 U	U	ug/L	1.0	SW846 8260D	1	12/12/2023 15:47	ILY	A
Vinyl Acetate	5.0 U	U	ug/L	5.0	SW846 8260D	1	12/12/2023 15:47	ILY	A
Vinyl Chloride	1.0 U	U	ug/L	1.0	SW846 8260D	1	12/12/2023 15:47	ILY	A

SURROGATES

Compound	CAS No	Recovery	Limits(%)	Analysis Date/Time	Qualifiers
1,2-Dichloroethane-d4	17060-07-0	98.4%	62 – 133	12/12/2023 15:47	
4-Bromofluorobenzene	460-00-4	104%	79 – 114	12/12/2023 15:47	
Dibromofluoromethane	1868-53-7	102%	78 – 116	12/12/2023 15:47	
Toluene-d8	2037-26-5	104%	76 – 127	12/12/2023 15:47	

Results

Client Sample ID	MW-42	Collected	12/03/2023 11:35
Lab Sample ID	3335533010	Lab Receipt	12/04/2023 18:15

SEMIVOLATILE SIM

Compound	Result	Flag	Units	RDL	Method	Dilution	Analysis Date/Time	By	Cntr
1,4-Dioxane	4.1	3	ug/L	1.0	SW846 8270E SIM	1	12/08/2023 13:43	S7M	C

SURROGATES

Compound	CAS No	Recovery	Limits(%)	Analysis Date/Time	Qualifiers
2-Methylnapthalene-d10	7297-45-2	64.2%	29 – 112	12/08/2023 13:43	
Fluoranthene-d10	93951-69-0	83.6%	45 – 130	12/08/2023 13:43	

VOLATILE ORGANICS

Compound	Result	Flag	Units	RDL	Method	Dilution	Analysis Date/Time	By	Cntr
1,1,1,2-Tetrachloroethane	1.0 U	U	ug/L	1.0	SW846 8260D	1	12/12/2023 16:10	ILY	A
1,1,1-Trichloroethane	1.0 U	U	ug/L	1.0	SW846 8260D	1	12/12/2023 16:10	ILY	A
1,1,2,2-Tetrachloroethane	1.0 U	U	ug/L	1.0	SW846 8260D	1	12/12/2023 16:10	ILY	A
1,1,2-Trichloroethane	1.0 U	U	ug/L	1.0	SW846 8260D	1	12/12/2023 16:10	ILY	A
1,1-Dichloroethane	1.0 U	U	ug/L	1.0	SW846 8260D	1	12/12/2023 16:10	ILY	A
1,1-Dichloroethene	1.0 U	U	ug/L	1.0	SW846 8260D	1	12/12/2023 16:10	ILY	A
1,1-Dichloropropene	1.0 U	U	ug/L	1.0	SW846 8260D	1	12/12/2023 16:10	ILY	A
1,2,3-Trichlorobenzene	2.0 U	U	ug/L	2.0	SW846 8260D	1	12/12/2023 16:10	ILY	A
1,2,3-Trichloropropane	2.0 U	U	ug/L	2.0	SW846 8260D	1	12/12/2023 16:10	ILY	A
1,2,4-Trichlorobenzene	2.0 U	U	ug/L	2.0	SW846 8260D	1	12/12/2023 16:10	ILY	A
1,2-Dibromo-3-chloropropane	7.0 U	U	ug/L	7.0	SW846 8260D	1	12/12/2023 16:10	ILY	A
1,2-Dibromoethane	1.0 U	U	ug/L	1.0	SW846 8260D	1	12/12/2023 16:10	ILY	A
1,2-Dichlorobenzene	1.0 U	U	ug/L	1.0	SW846 8260D	1	12/12/2023 16:10	ILY	A
1,2-Dichloroethane	1.0 U	U	ug/L	1.0	SW846 8260D	1	12/12/2023 16:10	ILY	A
1,2-Dichloropropane	1.0 U	U	ug/L	1.0	SW846 8260D	1	12/12/2023 16:10	ILY	A
1,3-Dichlorobenzene	1.0 U	U	ug/L	1.0	SW846 8260D	1	12/12/2023 16:10	ILY	A
1,3-Dichloropropane	1.0 U	U	ug/L	1.0	SW846 8260D	1	12/12/2023 16:10	ILY	A
1,4-Dichlorobenzene	1.0 U	U	ug/L	1.0	SW846 8260D	1	12/12/2023 16:10	ILY	A
2,2-Dichloropropane	1.0 U	U	ug/L	1.0	SW846 8260D	1	12/12/2023 16:10	ILY	A
2-Butanone	10.0 U	U	ug/L	10.0	SW846 8260D	1	12/12/2023 16:10	ILY	A
2-Hexanone	5.0 U	U	ug/L	5.0	SW846 8260D	1	12/12/2023 16:10	ILY	A
4-Methyl-2-Pentanone(MIBK)	5.0 U	U	ug/L	5.0	SW846 8260D	1	12/12/2023 16:10	ILY	A
Acetone	10.0 U	U	ug/L	10.0	SW846 8260D	1	12/12/2023 16:10	ILY	A
Benzene	1.0 U	U	ug/L	1.0	SW846 8260D	1	12/12/2023 16:10	ILY	A
Bromobenzene	1.0 U	U	ug/L	1.0	SW846 8260D	1	12/12/2023 16:10	ILY	A
Bromochloromethane	1.0 U	U	ug/L	1.0	SW846 8260D	1	12/12/2023 16:10	ILY	A
Bromodichloromethane	1.0 U	U	ug/L	1.0	SW846 8260D	1	12/12/2023 16:10	ILY	A
Bromoform	1.0 U	U	ug/L	1.0	SW846 8260D	1	12/12/2023 16:10	ILY	A
Bromomethane	1.0 U	U	ug/L	1.0	SW846 8260D	1	12/12/2023 16:10	ILY	A
Carbon Tetrachloride	1.0 U	U	ug/L	1.0	SW846 8260D	1	12/12/2023 16:10	ILY	A
Chlorobenzene	1.0 U	U	ug/L	1.0	SW846 8260D	1	12/12/2023 16:10	ILY	A
Chlorodibromomethane	1.0 U	U	ug/L	1.0	SW846 8260D	1	12/12/2023 16:10	ILY	A
Chloroethane	1.0 U	U,1	ug/L	1.0	SW846 8260D	1	12/12/2023 16:10	ILY	A
Chloroform	1.0 U	U	ug/L	1.0	SW846 8260D	1	12/12/2023 16:10	ILY	A
Chloromethane	1.0 U	U	ug/L	1.0	SW846 8260D	1	12/12/2023 16:10	ILY	A

Results

Client Sample ID	MW-42	Collected	12/03/2023 11:35
Lab Sample ID	3335533010	Lab Receipt	12/04/2023 18:15

VOLATILE ORGANICS (cont.)

Compound	Result	Flag	Units	RDL	Method	Dilution	Analysis Date/Time	By	Cntr
cis-1,2-Dichloroethene	1.0 U	U	ug/L	1.0	SW846 8260D	1	12/12/2023 16:10	ILY	A
cis-1,3-Dichloropropene	1.0 U	U	ug/L	1.0	SW846 8260D	1	12/12/2023 16:10	ILY	A
Dibromomethane	1.0 U	U	ug/L	1.0	SW846 8260D	1	12/12/2023 16:10	ILY	A
Dichlorodifluoromethane	1.0 U	U	ug/L	1.0	SW846 8260D	1	12/12/2023 16:10	ILY	A
Diisopropyl ether	1.0 U	U	ug/L	1.0	SW846 8260D	1	12/12/2023 16:10	ILY	A
Ethylbenzene	1.0 U	U	ug/L	1.0	SW846 8260D	1	12/12/2023 16:10	ILY	A
Hexachlorobutadiene	5.0 U	U,2	ug/L	5.0	SW846 8260D	1	12/12/2023 16:10	ILY	A
Methyl t-Butyl Ether	1.0 U	U	ug/L	1.0	SW846 8260D	1	12/12/2023 16:10	ILY	A
Methylene Chloride	1.0 U	U	ug/L	1.0	SW846 8260D	1	12/12/2023 16:10	ILY	A
mp-Xylene	2.0 U	U	ug/L	2.0	SW846 8260D	1	12/12/2023 16:10	ILY	A
Naphthalene	2.0 U	U	ug/L	2.0	SW846 8260D	1	12/12/2023 16:10	ILY	A
o-Chlorotoluene	1.0 U	U	ug/L	1.0	SW846 8260D	1	12/12/2023 16:10	ILY	A
o-Xylene	1.0 U	U	ug/L	1.0	SW846 8260D	1	12/12/2023 16:10	ILY	A
p-Chlorotoluene	1.0 U	U	ug/L	1.0	SW846 8260D	1	12/12/2023 16:10	ILY	A
p-Isopropyltoluene	1.0 U	U	ug/L	1.0	SW846 8260D	1	12/12/2023 16:10	ILY	A
Styrene	1.0 U	U	ug/L	1.0	SW846 8260D	1	12/12/2023 16:10	ILY	A
Tetrachloroethene	1.0 U	U	ug/L	1.0	SW846 8260D	1	12/12/2023 16:10	ILY	A
Toluene	1.0 U	U	ug/L	1.0	SW846 8260D	1	12/12/2023 16:10	ILY	A
Total Xylenes	3.0 U	U	ug/L	3.0	SW846 8260D	1	12/12/2023 16:10	ILY	A
trans-1,2-Dichloroethene	1.0 U	U	ug/L	1.0	SW846 8260D	1	12/12/2023 16:10	ILY	A
trans-1,3-Dichloropropene	1.0 U	U	ug/L	1.0	SW846 8260D	1	12/12/2023 16:10	ILY	A
Trichloroethene	1.0 U	U	ug/L	1.0	SW846 8260D	1	12/12/2023 16:10	ILY	A
Trichlorofluoromethane	1.0 U	U	ug/L	1.0	SW846 8260D	1	12/12/2023 16:10	ILY	A
Vinyl Acetate	5.0 U	U	ug/L	5.0	SW846 8260D	1	12/12/2023 16:10	ILY	A
Vinyl Chloride	1.0 U	U	ug/L	1.0	SW846 8260D	1	12/12/2023 16:10	ILY	A

SURROGATES

Compound	CAS No	Recovery	Limits(%)	Analysis Date/Time	Qualifiers
1,2-Dichloroethane-d4	17060-07-0	102%	62 – 133	12/12/2023 16:10	
4-Bromofluorobenzene	460-00-4	104%	79 – 114	12/12/2023 16:10	
Dibromofluoromethane	1868-53-7	101%	78 – 116	12/12/2023 16:10	
Toluene-d8	2037-26-5	103%	76 – 127	12/12/2023 16:10	

Results

Client Sample ID	MW-43	Collected	12/03/2023 10:50
Lab Sample ID	3335533011	Lab Receipt	12/04/2023 18:15

SEMIVOLATILE SIM

Compound	Result	Flag	Units	RDL	Method	Dilution	Analysis Date/Time	By	Cntr
1,4-Dioxane	8.5	3	ug/L	1.1	SW846 8270E SIM	1	12/08/2023 14:09	S7M	C

SURROGATES

Compound	CAS No	Recovery	Limits(%)	Analysis Date/Time	Qualifiers
2-Methylnapthalene-d10	7297-45-2	69%	29 – 112	12/08/2023 14:09	
Fluoranthene-d10	93951-69-0	82.2%	45 – 130	12/08/2023 14:09	

VOLATILE ORGANICS

Compound	Result	Flag	Units	RDL	Method	Dilution	Analysis Date/Time	By	Cntr
1,1,1,2-Tetrachloroethane	1.0 U	U	ug/L	1.0	SW846 8260D	1	12/12/2023 16:33	ILY	A
1,1,1-Trichloroethane	1.0 U	U	ug/L	1.0	SW846 8260D	1	12/12/2023 16:33	ILY	A
1,1,2,2-Tetrachloroethane	1.0 U	U	ug/L	1.0	SW846 8260D	1	12/12/2023 16:33	ILY	A
1,1,2-Trichloroethane	1.0 U	U	ug/L	1.0	SW846 8260D	1	12/12/2023 16:33	ILY	A
1,1-Dichloroethane	1.6		ug/L	1.0	SW846 8260D	1	12/12/2023 16:33	ILY	A
1,1-Dichloroethene	19.9		ug/L	1.0	SW846 8260D	1	12/12/2023 16:33	ILY	A
1,1-Dichloropropene	1.0 U	U	ug/L	1.0	SW846 8260D	1	12/12/2023 16:33	ILY	A
1,2,3-Trichlorobenzene	2.0 U	U	ug/L	2.0	SW846 8260D	1	12/12/2023 16:33	ILY	A
1,2,3-Trichloropropane	2.0 U	U	ug/L	2.0	SW846 8260D	1	12/12/2023 16:33	ILY	A
1,2,4-Trichlorobenzene	2.0 U	U	ug/L	2.0	SW846 8260D	1	12/12/2023 16:33	ILY	A
1,2-Dibromo-3-chloropropane	7.0 U	U	ug/L	7.0	SW846 8260D	1	12/12/2023 16:33	ILY	A
1,2-Dibromoethane	1.0 U	U	ug/L	1.0	SW846 8260D	1	12/12/2023 16:33	ILY	A
1,2-Dichlorobenzene	1.0 U	U	ug/L	1.0	SW846 8260D	1	12/12/2023 16:33	ILY	A
1,2-Dichloroethane	1.0 U	U	ug/L	1.0	SW846 8260D	1	12/12/2023 16:33	ILY	A
1,2-Dichloropropane	1.0 U	U	ug/L	1.0	SW846 8260D	1	12/12/2023 16:33	ILY	A
1,3-Dichlorobenzene	1.0 U	U	ug/L	1.0	SW846 8260D	1	12/12/2023 16:33	ILY	A
1,3-Dichloropropane	1.0 U	U	ug/L	1.0	SW846 8260D	1	12/12/2023 16:33	ILY	A
1,4-Dichlorobenzene	1.0 U	U	ug/L	1.0	SW846 8260D	1	12/12/2023 16:33	ILY	A
2,2-Dichloropropane	1.0 U	U	ug/L	1.0	SW846 8260D	1	12/12/2023 16:33	ILY	A
2-Butanone	10.0 U	U	ug/L	10.0	SW846 8260D	1	12/12/2023 16:33	ILY	A
2-Hexanone	5.0 U	U	ug/L	5.0	SW846 8260D	1	12/12/2023 16:33	ILY	A
4-Methyl-2-Pentanone(MIBK)	5.0 U	U	ug/L	5.0	SW846 8260D	1	12/12/2023 16:33	ILY	A
Acetone	10.0 U	U	ug/L	10.0	SW846 8260D	1	12/12/2023 16:33	ILY	A
Benzene	1.0 U	U	ug/L	1.0	SW846 8260D	1	12/12/2023 16:33	ILY	A
Bromobenzene	1.0 U	U	ug/L	1.0	SW846 8260D	1	12/12/2023 16:33	ILY	A
Bromochloromethane	1.0 U	U	ug/L	1.0	SW846 8260D	1	12/12/2023 16:33	ILY	A
Bromodichloromethane	1.0 U	U	ug/L	1.0	SW846 8260D	1	12/12/2023 16:33	ILY	A
Bromoform	1.0 U	U	ug/L	1.0	SW846 8260D	1	12/12/2023 16:33	ILY	A
Bromomethane	1.0 U	U	ug/L	1.0	SW846 8260D	1	12/12/2023 16:33	ILY	A
Carbon Tetrachloride	1.0 U	U	ug/L	1.0	SW846 8260D	1	12/12/2023 16:33	ILY	A
Chlorobenzene	1.0 U	U	ug/L	1.0	SW846 8260D	1	12/12/2023 16:33	ILY	A
Chlorodibromomethane	1.0 U	U	ug/L	1.0	SW846 8260D	1	12/12/2023 16:33	ILY	A
Chloroethane	1.0 U	U,1	ug/L	1.0	SW846 8260D	1	12/12/2023 16:33	ILY	A
Chloroform	1.0 U	U	ug/L	1.0	SW846 8260D	1	12/12/2023 16:33	ILY	A
Chloromethane	1.0 U	U	ug/L	1.0	SW846 8260D	1	12/12/2023 16:33	ILY	A

Results

Client Sample ID	MW-43	Collected	12/03/2023 10:50
Lab Sample ID	3335533011	Lab Receipt	12/04/2023 18:15

VOLATILE ORGANICS (cont.)

Compound	Result	Flag	Units	RDL	Method	Dilution	Analysis Date/Time	By	Cntr
cis-1,2-Dichloroethene	1.0 U	U	ug/L	1.0	SW846 8260D	1	12/12/2023 16:33	ILY	A
cis-1,3-Dichloropropene	1.0 U	U	ug/L	1.0	SW846 8260D	1	12/12/2023 16:33	ILY	A
Dibromomethane	1.0 U	U	ug/L	1.0	SW846 8260D	1	12/12/2023 16:33	ILY	A
Dichlorodifluoromethane	1.0 U	U	ug/L	1.0	SW846 8260D	1	12/12/2023 16:33	ILY	A
Diisopropyl ether	1.0 U	U	ug/L	1.0	SW846 8260D	1	12/12/2023 16:33	ILY	A
Ethylbenzene	1.0 U	U	ug/L	1.0	SW846 8260D	1	12/12/2023 16:33	ILY	A
Hexachlorobutadiene	5.0 U	U,2	ug/L	5.0	SW846 8260D	1	12/12/2023 16:33	ILY	A
Methyl t-Butyl Ether	1.8		ug/L	1.0	SW846 8260D	1	12/12/2023 16:33	ILY	A
Methylene Chloride	1.0 U	U	ug/L	1.0	SW846 8260D	1	12/12/2023 16:33	ILY	A
mp-Xylene	2.0 U	U	ug/L	2.0	SW846 8260D	1	12/12/2023 16:33	ILY	A
Naphthalene	2.0 U	U	ug/L	2.0	SW846 8260D	1	12/12/2023 16:33	ILY	A
o-Chlorotoluene	1.0 U	U	ug/L	1.0	SW846 8260D	1	12/12/2023 16:33	ILY	A
o-Xylene	1.0 U	U	ug/L	1.0	SW846 8260D	1	12/12/2023 16:33	ILY	A
p-Chlorotoluene	1.0 U	U	ug/L	1.0	SW846 8260D	1	12/12/2023 16:33	ILY	A
p-Isopropyltoluene	1.0 U	U	ug/L	1.0	SW846 8260D	1	12/12/2023 16:33	ILY	A
Styrene	1.0 U	U	ug/L	1.0	SW846 8260D	1	12/12/2023 16:33	ILY	A
Tetrachloroethene	1.0 U	U	ug/L	1.0	SW846 8260D	1	12/12/2023 16:33	ILY	A
Toluene	1.0 U	U	ug/L	1.0	SW846 8260D	1	12/12/2023 16:33	ILY	A
Total Xylenes	3.0 U	U	ug/L	3.0	SW846 8260D	1	12/12/2023 16:33	ILY	A
trans-1,2-Dichloroethene	1.0 U	U	ug/L	1.0	SW846 8260D	1	12/12/2023 16:33	ILY	A
trans-1,3-Dichloropropene	1.0 U	U	ug/L	1.0	SW846 8260D	1	12/12/2023 16:33	ILY	A
Trichloroethene	1.0 U	U	ug/L	1.0	SW846 8260D	1	12/12/2023 16:33	ILY	A
Trichlorofluoromethane	1.0 U	U	ug/L	1.0	SW846 8260D	1	12/12/2023 16:33	ILY	A
Vinyl Acetate	5.0 U	U	ug/L	5.0	SW846 8260D	1	12/12/2023 16:33	ILY	A
Vinyl Chloride	1.0 U	U	ug/L	1.0	SW846 8260D	1	12/12/2023 16:33	ILY	A

SURROGATES

Compound	CAS No	Recovery	Limits(%)	Analysis Date/Time	Qualifiers
1,2-Dichloroethane-d4	17060-07-0	102%	62 – 133	12/12/2023 16:33	
4-Bromofluorobenzene	460-00-4	101%	79 – 114	12/12/2023 16:33	
Dibromofluoromethane	1868-53-7	101%	78 – 116	12/12/2023 16:33	
Toluene-d8	2037-26-5	101%	76 – 127	12/12/2023 16:33	

Results

Client Sample ID	MW-44	Collected	12/03/2023 13:30
Lab Sample ID	3335533012	Lab Receipt	12/04/2023 18:15

SEMIVOLATILE SIM

Compound	Result	Flag	Units	RDL	Method	Dilution	Analysis Date/Time	By	Cntr
1,4-Dioxane	2.6	3,8	ug/L	1.0	SW846 8270E SIM	1	12/08/2023 14:36	S7M	C

SURROGATES

Compound	CAS No	Recovery	Limits(%)	Analysis Date/Time	Qualifiers
2-Methylnapthalene-d10	7297-45-2	62%	29 – 112	12/08/2023 14:36	
Fluoranthene-d10	93951-69-0	76.5%	45 – 130	12/08/2023 14:36	

VOLATILE ORGANICS

Compound	Result	Flag	Units	RDL	Method	Dilution	Analysis Date/Time	By	Cntr
1,1,1,2-Tetrachloroethane	1.0 U	U	ug/L	1.0	SW846 8260D	1	12/12/2023 16:56	ILY	A
1,1,1-Trichloroethane	9.4		ug/L	1.0	SW846 8260D	1	12/12/2023 16:56	ILY	A
1,1,2,2-Tetrachloroethane	1.0 U	U	ug/L	1.0	SW846 8260D	1	12/12/2023 16:56	ILY	A
1,1,2-Trichloroethane	1.0 U	U	ug/L	1.0	SW846 8260D	1	12/12/2023 16:56	ILY	A
1,1-Dichloroethane	3.9		ug/L	1.0	SW846 8260D	1	12/12/2023 16:56	ILY	A
1,1-Dichloroethene	6.8		ug/L	1.0	SW846 8260D	1	12/12/2023 16:56	ILY	A
1,1-Dichloropropene	1.0 U	U	ug/L	1.0	SW846 8260D	1	12/12/2023 16:56	ILY	A
1,2,3-Trichlorobenzene	2.0 U	U	ug/L	2.0	SW846 8260D	1	12/12/2023 16:56	ILY	A
1,2,3-Trichloropropane	2.0 U	U	ug/L	2.0	SW846 8260D	1	12/12/2023 16:56	ILY	A
1,2,4-Trichlorobenzene	2.0 U	U	ug/L	2.0	SW846 8260D	1	12/12/2023 16:56	ILY	A
1,2-Dibromo-3-chloropropane	7.0 U	U	ug/L	7.0	SW846 8260D	1	12/12/2023 16:56	ILY	A
1,2-Dibromoethane	1.0 U	U	ug/L	1.0	SW846 8260D	1	12/12/2023 16:56	ILY	A
1,2-Dichlorobenzene	1.0 U	U	ug/L	1.0	SW846 8260D	1	12/12/2023 16:56	ILY	A
1,2-Dichloroethane	1.0 U	U	ug/L	1.0	SW846 8260D	1	12/12/2023 16:56	ILY	A
1,2-Dichloropropane	1.0 U	U	ug/L	1.0	SW846 8260D	1	12/12/2023 16:56	ILY	A
1,3-Dichlorobenzene	1.0 U	U	ug/L	1.0	SW846 8260D	1	12/12/2023 16:56	ILY	A
1,3-Dichloropropane	1.0 U	U	ug/L	1.0	SW846 8260D	1	12/12/2023 16:56	ILY	A
1,4-Dichlorobenzene	1.0 U	U	ug/L	1.0	SW846 8260D	1	12/12/2023 16:56	ILY	A
2,2-Dichloropropane	1.0 U	U	ug/L	1.0	SW846 8260D	1	12/12/2023 16:56	ILY	A
2-Butanone	10.0 U	U	ug/L	10.0	SW846 8260D	1	12/12/2023 16:56	ILY	A
2-Hexanone	5.0 U	U	ug/L	5.0	SW846 8260D	1	12/12/2023 16:56	ILY	A
4-Methyl-2-Pentanone(MIBK)	5.0 U	U	ug/L	5.0	SW846 8260D	1	12/12/2023 16:56	ILY	A
Acetone	10.0 U	U	ug/L	10.0	SW846 8260D	1	12/12/2023 16:56	ILY	A
Benzene	1.0 U	U	ug/L	1.0	SW846 8260D	1	12/12/2023 16:56	ILY	A
Bromobenzene	1.0 U	U	ug/L	1.0	SW846 8260D	1	12/12/2023 16:56	ILY	A
Bromochloromethane	1.0 U	U	ug/L	1.0	SW846 8260D	1	12/12/2023 16:56	ILY	A
Bromodichloromethane	1.0 U	U	ug/L	1.0	SW846 8260D	1	12/12/2023 16:56	ILY	A
Bromoform	1.0 U	U	ug/L	1.0	SW846 8260D	1	12/12/2023 16:56	ILY	A
Bromomethane	1.0 U	U	ug/L	1.0	SW846 8260D	1	12/12/2023 16:56	ILY	A
Carbon Tetrachloride	1.0 U	U	ug/L	1.0	SW846 8260D	1	12/12/2023 16:56	ILY	A
Chlorobenzene	1.0 U	U	ug/L	1.0	SW846 8260D	1	12/12/2023 16:56	ILY	A
Chlorodibromomethane	1.0 U	U	ug/L	1.0	SW846 8260D	1	12/12/2023 16:56	ILY	A
Chloroethane	1.0 U	U,1	ug/L	1.0	SW846 8260D	1	12/12/2023 16:56	ILY	A
Chloroform	1.0 U	U	ug/L	1.0	SW846 8260D	1	12/12/2023 16:56	ILY	A
Chloromethane	1.0 U	U	ug/L	1.0	SW846 8260D	1	12/12/2023 16:56	ILY	A

Results

Client Sample ID	MW-44	Collected	12/03/2023 13:30
Lab Sample ID	3335533012	Lab Receipt	12/04/2023 18:15

VOLATILE ORGANICS (cont.)

Compound	Result	Flag	Units	RDL	Method	Dilution	Analysis Date/Time	By	Cntr
cis-1,2-Dichloroethene	1.0 U	U	ug/L	1.0	SW846 8260D	1	12/12/2023 16:56	ILY	A
cis-1,3-Dichloropropene	1.0 U	U	ug/L	1.0	SW846 8260D	1	12/12/2023 16:56	ILY	A
Dibromomethane	1.0 U	U	ug/L	1.0	SW846 8260D	1	12/12/2023 16:56	ILY	A
Dichlorodifluoromethane	1.0 U	U	ug/L	1.0	SW846 8260D	1	12/12/2023 16:56	ILY	A
Diisopropyl ether	1.0 U	U	ug/L	1.0	SW846 8260D	1	12/12/2023 16:56	ILY	A
Ethylbenzene	1.0 U	U	ug/L	1.0	SW846 8260D	1	12/12/2023 16:56	ILY	A
Hexachlorobutadiene	5.0 U	U,2	ug/L	5.0	SW846 8260D	1	12/12/2023 16:56	ILY	A
Methyl t-Butyl Ether	1.0 U	U	ug/L	1.0	SW846 8260D	1	12/12/2023 16:56	ILY	A
Methylene Chloride	1.0 U	U	ug/L	1.0	SW846 8260D	1	12/12/2023 16:56	ILY	A
mp-Xylene	2.0 U	U	ug/L	2.0	SW846 8260D	1	12/12/2023 16:56	ILY	A
Naphthalene	2.0 U	U	ug/L	2.0	SW846 8260D	1	12/12/2023 16:56	ILY	A
o-Chlorotoluene	1.0 U	U	ug/L	1.0	SW846 8260D	1	12/12/2023 16:56	ILY	A
o-Xylene	1.0 U	U	ug/L	1.0	SW846 8260D	1	12/12/2023 16:56	ILY	A
p-Chlorotoluene	1.0 U	U	ug/L	1.0	SW846 8260D	1	12/12/2023 16:56	ILY	A
p-Isopropyltoluene	1.0 U	U	ug/L	1.0	SW846 8260D	1	12/12/2023 16:56	ILY	A
Styrene	1.0 U	U	ug/L	1.0	SW846 8260D	1	12/12/2023 16:56	ILY	A
Tetrachloroethene	1.0 U	U	ug/L	1.0	SW846 8260D	1	12/12/2023 16:56	ILY	A
Toluene	1.0 U	U	ug/L	1.0	SW846 8260D	1	12/12/2023 16:56	ILY	A
Total Xylenes	3.0 U	U	ug/L	3.0	SW846 8260D	1	12/12/2023 16:56	ILY	A
trans-1,2-Dichloroethene	1.0 U	U	ug/L	1.0	SW846 8260D	1	12/12/2023 16:56	ILY	A
trans-1,3-Dichloropropene	1.0 U	U	ug/L	1.0	SW846 8260D	1	12/12/2023 16:56	ILY	A
Trichloroethene	1.0 U	U	ug/L	1.0	SW846 8260D	1	12/12/2023 16:56	ILY	A
Trichlorofluoromethane	1.0 U	U	ug/L	1.0	SW846 8260D	1	12/12/2023 16:56	ILY	A
Vinyl Acetate	5.0 U	U	ug/L	5.0	SW846 8260D	1	12/12/2023 16:56	ILY	A
Vinyl Chloride	1.0 U	U	ug/L	1.0	SW846 8260D	1	12/12/2023 16:56	ILY	A

SURROGATES

Compound	CAS No	Recovery	Limits(%)	Analysis Date/Time	Qualifiers
1,2-Dichloroethane-d4	17060-07-0	103%	62 – 133	12/12/2023 16:56	
4-Bromofluorobenzene	460-00-4	101%	79 – 114	12/12/2023 16:56	
Dibromofluoromethane	1868-53-7	100%	78 – 116	12/12/2023 16:56	
Toluene-d8	2037-26-5	101%	76 – 127	12/12/2023 16:56	

Results

Client Sample ID	MW-45	Collected	12/04/2023 13:30
Lab Sample ID	3335533013	Lab Receipt	12/04/2023 18:15

SEMIVOLATILE SIM

Compound	Result	Flag	Units	RDL	Method	Dilution	Analysis Date/Time	By	Cntr
1,4-Dioxane	1.0 U	U,3	ug/L	1.0	SW846 8270E SIM	1	12/08/2023 15:28	S7M	C

SURROGATES

Compound	CAS No	Recovery	Limits(%)	Analysis Date/Time	Qualifiers
2-Methylnapthalene-d10	7297-45-2	65%	29 – 112	12/08/2023 15:28	
Fluoranthene-d10	93951-69-0	78%	45 – 130	12/08/2023 15:28	

VOLATILE ORGANICS

Compound	Result	Flag	Units	RDL	Method	Dilution	Analysis Date/Time	By	Cntr
1,1,1,2-Tetrachloroethane	1.0 U	U	ug/L	1.0	SW846 8260D	1	12/12/2023 17:20	ILY	A
1,1,1-Trichloroethane	1.0 U	U	ug/L	1.0	SW846 8260D	1	12/12/2023 17:20	ILY	A
1,1,2,2-Tetrachloroethane	1.0 U	U	ug/L	1.0	SW846 8260D	1	12/12/2023 17:20	ILY	A
1,1,2-Trichloroethane	1.0 U	U	ug/L	1.0	SW846 8260D	1	12/12/2023 17:20	ILY	A
1,1-Dichloroethane	1.0 U	U	ug/L	1.0	SW846 8260D	1	12/12/2023 17:20	ILY	A
1,1-Dichloroethene	1.0 U	U	ug/L	1.0	SW846 8260D	1	12/12/2023 17:20	ILY	A
1,1-Dichloropropene	1.0 U	U	ug/L	1.0	SW846 8260D	1	12/12/2023 17:20	ILY	A
1,2,3-Trichlorobenzene	2.0 U	U	ug/L	2.0	SW846 8260D	1	12/12/2023 17:20	ILY	A
1,2,3-Trichloropropane	2.0 U	U	ug/L	2.0	SW846 8260D	1	12/12/2023 17:20	ILY	A
1,2,4-Trichlorobenzene	2.0 U	U	ug/L	2.0	SW846 8260D	1	12/12/2023 17:20	ILY	A
1,2-Dibromo-3-chloropropane	7.0 U	U	ug/L	7.0	SW846 8260D	1	12/12/2023 17:20	ILY	A
1,2-Dibromoethane	1.0 U	U	ug/L	1.0	SW846 8260D	1	12/12/2023 17:20	ILY	A
1,2-Dichlorobenzene	1.0 U	U	ug/L	1.0	SW846 8260D	1	12/12/2023 17:20	ILY	A
1,2-Dichloroethane	1.0 U	U	ug/L	1.0	SW846 8260D	1	12/12/2023 17:20	ILY	A
1,2-Dichloropropane	1.0 U	U	ug/L	1.0	SW846 8260D	1	12/12/2023 17:20	ILY	A
1,3-Dichlorobenzene	1.0 U	U	ug/L	1.0	SW846 8260D	1	12/12/2023 17:20	ILY	A
1,3-Dichloropropane	1.0 U	U	ug/L	1.0	SW846 8260D	1	12/12/2023 17:20	ILY	A
1,4-Dichlorobenzene	1.0 U	U	ug/L	1.0	SW846 8260D	1	12/12/2023 17:20	ILY	A
2,2-Dichloropropane	1.0 U	U	ug/L	1.0	SW846 8260D	1	12/12/2023 17:20	ILY	A
2-Butanone	10.0 U	U	ug/L	10.0	SW846 8260D	1	12/12/2023 17:20	ILY	A
2-Hexanone	5.0 U	U	ug/L	5.0	SW846 8260D	1	12/12/2023 17:20	ILY	A
4-Methyl-2-Pentanone(MIBK)	5.0 U	U	ug/L	5.0	SW846 8260D	1	12/12/2023 17:20	ILY	A
Acetone	10.0 U	U	ug/L	10.0	SW846 8260D	1	12/12/2023 17:20	ILY	A
Benzene	1.0 U	U	ug/L	1.0	SW846 8260D	1	12/12/2023 17:20	ILY	A
Bromobenzene	1.0 U	U	ug/L	1.0	SW846 8260D	1	12/12/2023 17:20	ILY	A
Bromochloromethane	1.0 U	U	ug/L	1.0	SW846 8260D	1	12/12/2023 17:20	ILY	A
Bromodichloromethane	1.0 U	U	ug/L	1.0	SW846 8260D	1	12/12/2023 17:20	ILY	A
Bromoform	1.0 U	U	ug/L	1.0	SW846 8260D	1	12/12/2023 17:20	ILY	A
Bromomethane	1.0 U	U	ug/L	1.0	SW846 8260D	1	12/12/2023 17:20	ILY	A
Carbon Tetrachloride	1.0 U	U	ug/L	1.0	SW846 8260D	1	12/12/2023 17:20	ILY	A
Chlorobenzene	1.0 U	U	ug/L	1.0	SW846 8260D	1	12/12/2023 17:20	ILY	A
Chlorodibromomethane	1.0 U	U	ug/L	1.0	SW846 8260D	1	12/12/2023 17:20	ILY	A
Chloroethane	1.0 U	U,1	ug/L	1.0	SW846 8260D	1	12/12/2023 17:20	ILY	A
Chloroform	1.0 U	U	ug/L	1.0	SW846 8260D	1	12/12/2023 17:20	ILY	A
Chloromethane	1.0 U	U	ug/L	1.0	SW846 8260D	1	12/12/2023 17:20	ILY	A

Results

Client Sample ID	MW-45	Collected	12/04/2023 13:30
Lab Sample ID	3335533013	Lab Receipt	12/04/2023 18:15

VOLATILE ORGANICS (cont.)

Compound	Result	Flag	Units	RDL	Method	Dilution	Analysis Date/Time	By	Cntr
cis-1,2-Dichloroethene	1.0 U	U	ug/L	1.0	SW846 8260D	1	12/12/2023 17:20	ILY	A
cis-1,3-Dichloropropene	1.0 U	U	ug/L	1.0	SW846 8260D	1	12/12/2023 17:20	ILY	A
Dibromomethane	1.0 U	U	ug/L	1.0	SW846 8260D	1	12/12/2023 17:20	ILY	A
Dichlorodifluoromethane	1.0 U	U	ug/L	1.0	SW846 8260D	1	12/12/2023 17:20	ILY	A
Diisopropyl ether	1.0 U	U	ug/L	1.0	SW846 8260D	1	12/12/2023 17:20	ILY	A
Ethylbenzene	1.0 U	U	ug/L	1.0	SW846 8260D	1	12/12/2023 17:20	ILY	A
Hexachlorobutadiene	5.0 U	U,2	ug/L	5.0	SW846 8260D	1	12/12/2023 17:20	ILY	A
Methyl t-Butyl Ether	1.0 U	U	ug/L	1.0	SW846 8260D	1	12/12/2023 17:20	ILY	A
Methylene Chloride	1.0 U	U	ug/L	1.0	SW846 8260D	1	12/12/2023 17:20	ILY	A
mp-Xylene	2.0 U	U	ug/L	2.0	SW846 8260D	1	12/12/2023 17:20	ILY	A
Naphthalene	2.0 U	U	ug/L	2.0	SW846 8260D	1	12/12/2023 17:20	ILY	A
o-Chlorotoluene	1.0 U	U	ug/L	1.0	SW846 8260D	1	12/12/2023 17:20	ILY	A
o-Xylene	1.0 U	U	ug/L	1.0	SW846 8260D	1	12/12/2023 17:20	ILY	A
p-Chlorotoluene	1.0 U	U	ug/L	1.0	SW846 8260D	1	12/12/2023 17:20	ILY	A
p-Isopropyltoluene	1.0 U	U	ug/L	1.0	SW846 8260D	1	12/12/2023 17:20	ILY	A
Styrene	1.0 U	U	ug/L	1.0	SW846 8260D	1	12/12/2023 17:20	ILY	A
Tetrachloroethene	1.0 U	U	ug/L	1.0	SW846 8260D	1	12/12/2023 17:20	ILY	A
Toluene	1.0 U	U	ug/L	1.0	SW846 8260D	1	12/12/2023 17:20	ILY	A
Total Xylenes	3.0 U	U	ug/L	3.0	SW846 8260D	1	12/12/2023 17:20	ILY	A
trans-1,2-Dichloroethene	1.0 U	U	ug/L	1.0	SW846 8260D	1	12/12/2023 17:20	ILY	A
trans-1,3-Dichloropropene	1.0 U	U	ug/L	1.0	SW846 8260D	1	12/12/2023 17:20	ILY	A
Trichloroethene	1.0 U	U	ug/L	1.0	SW846 8260D	1	12/12/2023 17:20	ILY	A
Trichlorofluoromethane	1.0 U	U	ug/L	1.0	SW846 8260D	1	12/12/2023 17:20	ILY	A
Vinyl Acetate	5.0 U	U	ug/L	5.0	SW846 8260D	1	12/12/2023 17:20	ILY	A
Vinyl Chloride	1.0 U	U	ug/L	1.0	SW846 8260D	1	12/12/2023 17:20	ILY	A

SURROGATES

Compound	CAS No	Recovery	Limits(%)	Analysis Date/Time	Qualifiers
1,2-Dichloroethane-d4	17060-07-0	104%	62 – 133	12/12/2023 17:20	
4-Bromofluorobenzene	460-00-4	105%	79 – 114	12/12/2023 17:20	
Dibromofluoromethane	1868-53-7	102%	78 – 116	12/12/2023 17:20	
Toluene-d8	2037-26-5	102%	76 – 127	12/12/2023 17:20	

Results

Client Sample ID	MW-01D	Collected	12/03/2023 14:30
Lab Sample ID	3335533014	Lab Receipt	12/04/2023 18:15

SEMIVOLATILE SIM

Compound	Result	Flag	Units	RDL	Method	Dilution	Analysis Date/Time	By	Cntr
1,4-Dioxane	6.5	3	ug/L	1.0	SW846 8270E SIM	1	12/08/2023 15:55	S7M	C

SURROGATES

Compound	CAS No	Recovery	Limits(%)	Analysis Date/Time	Qualifiers
2-Methylnapthalene-d10	7297-45-2	74.2%	29 – 112	12/08/2023 15:55	
Fluoranthene-d10	93951-69-0	83%	45 – 130	12/08/2023 15:55	

VOLATILE ORGANICS

Compound	Result	Flag	Units	RDL	Method	Dilution	Analysis Date/Time	By	Cntr
1,1,1,2-Tetrachloroethane	1.0 U	U	ug/L	1.0	SW846 8260D	1	12/12/2023 17:43	ILY	A
1,1,1-Trichloroethane	1.0		ug/L	1.0	SW846 8260D	1	12/12/2023 17:43	ILY	A
1,1,2,2-Tetrachloroethane	1.0 U	U	ug/L	1.0	SW846 8260D	1	12/12/2023 17:43	ILY	A
1,1,2-Trichloroethane	1.0 U	U	ug/L	1.0	SW846 8260D	1	12/12/2023 17:43	ILY	A
1,1-Dichloroethane	3.8		ug/L	1.0	SW846 8260D	1	12/12/2023 17:43	ILY	A
1,1-Dichloroethene	21.3		ug/L	1.0	SW846 8260D	1	12/12/2023 17:43	ILY	A
1,1-Dichloropropene	1.0 U	U	ug/L	1.0	SW846 8260D	1	12/12/2023 17:43	ILY	A
1,2,3-Trichlorobenzene	2.0 U	U	ug/L	2.0	SW846 8260D	1	12/12/2023 17:43	ILY	A
1,2,3-Trichloropropane	2.0 U	U	ug/L	2.0	SW846 8260D	1	12/12/2023 17:43	ILY	A
1,2,4-Trichlorobenzene	2.0 U	U	ug/L	2.0	SW846 8260D	1	12/12/2023 17:43	ILY	A
1,2-Dibromo-3-chloropropane	7.0 U	U	ug/L	7.0	SW846 8260D	1	12/12/2023 17:43	ILY	A
1,2-Dibromoethane	1.0 U	U	ug/L	1.0	SW846 8260D	1	12/12/2023 17:43	ILY	A
1,2-Dichlorobenzene	1.0 U	U	ug/L	1.0	SW846 8260D	1	12/12/2023 17:43	ILY	A
1,2-Dichloroethane	1.0 U	U	ug/L	1.0	SW846 8260D	1	12/12/2023 17:43	ILY	A
1,2-Dichloropropane	1.0 U	U	ug/L	1.0	SW846 8260D	1	12/12/2023 17:43	ILY	A
1,3-Dichlorobenzene	1.0 U	U	ug/L	1.0	SW846 8260D	1	12/12/2023 17:43	ILY	A
1,3-Dichloropropane	1.0 U	U	ug/L	1.0	SW846 8260D	1	12/12/2023 17:43	ILY	A
1,4-Dichlorobenzene	1.0 U	U	ug/L	1.0	SW846 8260D	1	12/12/2023 17:43	ILY	A
2,2-Dichloropropane	1.0 U	U	ug/L	1.0	SW846 8260D	1	12/12/2023 17:43	ILY	A
2-Butanone	10.0 U	U	ug/L	10.0	SW846 8260D	1	12/12/2023 17:43	ILY	A
2-Hexanone	5.0 U	U	ug/L	5.0	SW846 8260D	1	12/12/2023 17:43	ILY	A
4-Methyl-2-Pentanone(MIBK)	5.0 U	U	ug/L	5.0	SW846 8260D	1	12/12/2023 17:43	ILY	A
Acetone	10.0 U	U	ug/L	10.0	SW846 8260D	1	12/12/2023 17:43	ILY	A
Benzene	1.0 U	U	ug/L	1.0	SW846 8260D	1	12/12/2023 17:43	ILY	A
Bromobenzene	1.0 U	U	ug/L	1.0	SW846 8260D	1	12/12/2023 17:43	ILY	A
Bromochloromethane	1.0 U	U	ug/L	1.0	SW846 8260D	1	12/12/2023 17:43	ILY	A
Bromodichloromethane	1.0 U	U	ug/L	1.0	SW846 8260D	1	12/12/2023 17:43	ILY	A
Bromoform	1.0 U	U	ug/L	1.0	SW846 8260D	1	12/12/2023 17:43	ILY	A
Bromomethane	1.0 U	U	ug/L	1.0	SW846 8260D	1	12/12/2023 17:43	ILY	A
Carbon Tetrachloride	1.0 U	U	ug/L	1.0	SW846 8260D	1	12/12/2023 17:43	ILY	A
Chlorobenzene	1.0 U	U	ug/L	1.0	SW846 8260D	1	12/12/2023 17:43	ILY	A
Chlorodibromomethane	1.0 U	U	ug/L	1.0	SW846 8260D	1	12/12/2023 17:43	ILY	A
Chloroethane	1.0 U	U,1	ug/L	1.0	SW846 8260D	1	12/12/2023 17:43	ILY	A
Chloroform	1.0 U	U	ug/L	1.0	SW846 8260D	1	12/12/2023 17:43	ILY	A
Chloromethane	1.0 U	U	ug/L	1.0	SW846 8260D	1	12/12/2023 17:43	ILY	A

Results

Client Sample ID	MW-01D	Collected	12/03/2023 14:30
Lab Sample ID	3335533014	Lab Receipt	12/04/2023 18:15

VOLATILE ORGANICS (cont.)

Compound	Result	Flag	Units	RDL	Method	Dilution	Analysis Date/Time	By	Cntr
cis-1,2-Dichloroethene	1.0 U	U	ug/L	1.0	SW846 8260D	1	12/12/2023 17:43	ILY	A
cis-1,3-Dichloropropene	1.0 U	U	ug/L	1.0	SW846 8260D	1	12/12/2023 17:43	ILY	A
Dibromomethane	1.0 U	U	ug/L	1.0	SW846 8260D	1	12/12/2023 17:43	ILY	A
Dichlorodifluoromethane	1.0 U	U	ug/L	1.0	SW846 8260D	1	12/12/2023 17:43	ILY	A
Diisopropyl ether	1.0 U	U	ug/L	1.0	SW846 8260D	1	12/12/2023 17:43	ILY	A
Ethylbenzene	1.0 U	U	ug/L	1.0	SW846 8260D	1	12/12/2023 17:43	ILY	A
Hexachlorobutadiene	5.0 U	U,2	ug/L	5.0	SW846 8260D	1	12/12/2023 17:43	ILY	A
Methyl t-Butyl Ether	1.0 U	U	ug/L	1.0	SW846 8260D	1	12/12/2023 17:43	ILY	A
Methylene Chloride	1.0 U	U	ug/L	1.0	SW846 8260D	1	12/12/2023 17:43	ILY	A
mp-Xylene	2.0 U	U	ug/L	2.0	SW846 8260D	1	12/12/2023 17:43	ILY	A
Naphthalene	2.0 U	U	ug/L	2.0	SW846 8260D	1	12/12/2023 17:43	ILY	A
o-Chlorotoluene	1.0 U	U	ug/L	1.0	SW846 8260D	1	12/12/2023 17:43	ILY	A
o-Xylene	1.0 U	U	ug/L	1.0	SW846 8260D	1	12/12/2023 17:43	ILY	A
p-Chlorotoluene	1.0 U	U	ug/L	1.0	SW846 8260D	1	12/12/2023 17:43	ILY	A
p-Isopropyltoluene	1.0 U	U	ug/L	1.0	SW846 8260D	1	12/12/2023 17:43	ILY	A
Styrene	1.0 U	U	ug/L	1.0	SW846 8260D	1	12/12/2023 17:43	ILY	A
Tetrachloroethene	1.0 U	U	ug/L	1.0	SW846 8260D	1	12/12/2023 17:43	ILY	A
Toluene	1.0 U	U	ug/L	1.0	SW846 8260D	1	12/12/2023 17:43	ILY	A
Total Xylenes	3.0 U	U	ug/L	3.0	SW846 8260D	1	12/12/2023 17:43	ILY	A
trans-1,2-Dichloroethene	1.0 U	U	ug/L	1.0	SW846 8260D	1	12/12/2023 17:43	ILY	A
trans-1,3-Dichloropropene	1.0 U	U	ug/L	1.0	SW846 8260D	1	12/12/2023 17:43	ILY	A
Trichloroethene	1.0 U	U	ug/L	1.0	SW846 8260D	1	12/12/2023 17:43	ILY	A
Trichlorofluoromethane	1.0 U	U	ug/L	1.0	SW846 8260D	1	12/12/2023 17:43	ILY	A
Vinyl Acetate	5.0 U	U	ug/L	5.0	SW846 8260D	1	12/12/2023 17:43	ILY	A
Vinyl Chloride	1.0 U	U	ug/L	1.0	SW846 8260D	1	12/12/2023 17:43	ILY	A

SURROGATES

Compound	CAS No	Recovery	Limits(%)	Analysis Date/Time	Qualifiers
1,2-Dichloroethane-d4	17060-07-0	104%	62 – 133	12/12/2023 17:43	
4-Bromofluorobenzene	460-00-4	100%	79 – 114	12/12/2023 17:43	
Dibromofluoromethane	1868-53-7	99.3%	78 – 116	12/12/2023 17:43	
Toluene-d8	2037-26-5	99.5%	76 – 127	12/12/2023 17:43	

Results

Client Sample ID	MW-16D	Collected	12/03/2023 16:15
Lab Sample ID	3335533015	Lab Receipt	12/04/2023 18:15

SEMIVOLATILE SIM

Compound	Result	Flag	Units	RDL	Method	Dilution	Analysis Date/Time	By	Cntr
1,4-Dioxane	34.5	3	ug/L	10.4	SW846 8270E SIM	10	12/12/2023 09:52	S7M	C

SURROGATES

Compound	CAS No	Recovery	Limits(%)	Analysis Date/Time	Qualifiers
2-Methylnapthalene-d10	7297-45-2	69.9%	29 – 112	12/08/2023 16:21	
2-Methylnapthalene-d10	7297-45-2	86.4%	29 – 112	12/12/2023 09:52	
Fluoranthene-d10	93951-69-0	84.9%	45 – 130	12/08/2023 16:21	
Fluoranthene-d10	93951-69-0	85.9%	45 – 130	12/12/2023 09:52	

VOLATILE ORGANICS

Compound	Result	Flag	Units	RDL	Method	Dilution	Analysis Date/Time	By	Cntr
1,1,1,2-Tetrachloroethane	1.0 U	U	ug/L	1.0	SW846 8260D	1	12/12/2023 18:06	ILY	A
1,1,1-Trichloroethane	5.2		ug/L	1.0	SW846 8260D	1	12/12/2023 18:06	ILY	A
1,1,2,2-Tetrachloroethane	1.0 U	U	ug/L	1.0	SW846 8260D	1	12/12/2023 18:06	ILY	A
1,1,2-Trichloroethane	1.0 U	U	ug/L	1.0	SW846 8260D	1	12/12/2023 18:06	ILY	A
1,1-Dichloroethane	21.8		ug/L	1.0	SW846 8260D	1	12/12/2023 18:06	ILY	A
1,1-Dichloroethene	103		ug/L	1.0	SW846 8260D	1	12/12/2023 18:06	ILY	A
1,1-Dichloropropene	1.0 U	U	ug/L	1.0	SW846 8260D	1	12/12/2023 18:06	ILY	A
1,2,3-Trichlorobenzene	2.0 U	U	ug/L	2.0	SW846 8260D	1	12/12/2023 18:06	ILY	A
1,2,3-Trichloropropane	2.0 U	U	ug/L	2.0	SW846 8260D	1	12/12/2023 18:06	ILY	A
1,2,4-Trichlorobenzene	2.0 U	U	ug/L	2.0	SW846 8260D	1	12/12/2023 18:06	ILY	A
1,2-Dibromo-3-chloropropane	7.0 U	U	ug/L	7.0	SW846 8260D	1	12/12/2023 18:06	ILY	A
1,2-Dibromoethane	1.0 U	U	ug/L	1.0	SW846 8260D	1	12/12/2023 18:06	ILY	A
1,2-Dichlorobenzene	1.0 U	U	ug/L	1.0	SW846 8260D	1	12/12/2023 18:06	ILY	A
1,2-Dichloroethane	1.1		ug/L	1.0	SW846 8260D	1	12/12/2023 18:06	ILY	A
1,2-Dichloropropane	1.0 U	U	ug/L	1.0	SW846 8260D	1	12/12/2023 18:06	ILY	A
1,3-Dichlorobenzene	1.0 U	U	ug/L	1.0	SW846 8260D	1	12/12/2023 18:06	ILY	A
1,3-Dichloropropane	1.0 U	U	ug/L	1.0	SW846 8260D	1	12/12/2023 18:06	ILY	A
1,4-Dichlorobenzene	1.0 U	U	ug/L	1.0	SW846 8260D	1	12/12/2023 18:06	ILY	A
2,2-Dichloropropane	1.0 U	U	ug/L	1.0	SW846 8260D	1	12/12/2023 18:06	ILY	A
2-Butanone	10.0 U	U	ug/L	10.0	SW846 8260D	1	12/12/2023 18:06	ILY	A
2-Hexanone	5.0 U	U	ug/L	5.0	SW846 8260D	1	12/12/2023 18:06	ILY	A
4-Methyl-2-Pentanone(MIBK)	5.0 U	U	ug/L	5.0	SW846 8260D	1	12/12/2023 18:06	ILY	A
Acetone	10.0 U	U	ug/L	10.0	SW846 8260D	1	12/12/2023 18:06	ILY	A
Benzene	1.0 U	U	ug/L	1.0	SW846 8260D	1	12/12/2023 18:06	ILY	A
Bromobenzene	1.0 U	U	ug/L	1.0	SW846 8260D	1	12/12/2023 18:06	ILY	A
Bromochloromethane	1.0 U	U	ug/L	1.0	SW846 8260D	1	12/12/2023 18:06	ILY	A
Bromodichloromethane	1.0 U	U	ug/L	1.0	SW846 8260D	1	12/12/2023 18:06	ILY	A
Bromoform	1.0 U	U	ug/L	1.0	SW846 8260D	1	12/12/2023 18:06	ILY	A
Bromomethane	1.0 U	U	ug/L	1.0	SW846 8260D	1	12/12/2023 18:06	ILY	A
Carbon Tetrachloride	1.0 U	U	ug/L	1.0	SW846 8260D	1	12/12/2023 18:06	ILY	A
Chlorobenzene	1.0 U	U	ug/L	1.0	SW846 8260D	1	12/12/2023 18:06	ILY	A
Chlorodibromomethane	1.0 U	U	ug/L	1.0	SW846 8260D	1	12/12/2023 18:06	ILY	A
Chloroethane	1.0 U	U,1	ug/L	1.0	SW846 8260D	1	12/12/2023 18:06	ILY	A

Results

Client Sample ID	MW-16D	Collected	12/03/2023 16:15
Lab Sample ID	3335533015	Lab Receipt	12/04/2023 18:15

VOLATILE ORGANICS (cont.)

Compound	Result	Flag	Units	RDL	Method	Dilution	Analysis Date/Time	By	Cntr
Chloroform	1.0 U	U	ug/L	1.0	SW846 8260D	1	12/12/2023 18:06	ILY	A
Chloromethane	1.0 U	U	ug/L	1.0	SW846 8260D	1	12/12/2023 18:06	ILY	A
cis-1,2-Dichloroethene	1.0 U	U	ug/L	1.0	SW846 8260D	1	12/12/2023 18:06	ILY	A
cis-1,3-Dichloropropene	1.0 U	U	ug/L	1.0	SW846 8260D	1	12/12/2023 18:06	ILY	A
Dibromomethane	1.0 U	U	ug/L	1.0	SW846 8260D	1	12/12/2023 18:06	ILY	A
Dichlorodifluoromethane	1.0 U	U	ug/L	1.0	SW846 8260D	1	12/12/2023 18:06	ILY	A
Diisopropyl ether	1.0 U	U	ug/L	1.0	SW846 8260D	1	12/12/2023 18:06	ILY	A
Ethylbenzene	1.0 U	U	ug/L	1.0	SW846 8260D	1	12/12/2023 18:06	ILY	A
Hexachlorobutadiene	5.0 U	U,2	ug/L	5.0	SW846 8260D	1	12/12/2023 18:06	ILY	A
Methyl t-Butyl Ether	1.0		ug/L	1.0	SW846 8260D	1	12/12/2023 18:06	ILY	A
Methylene Chloride	1.0 U	U	ug/L	1.0	SW846 8260D	1	12/12/2023 18:06	ILY	A
mp-Xylene	2.0 U	U	ug/L	2.0	SW846 8260D	1	12/12/2023 18:06	ILY	A
Naphthalene	2.0 U	U	ug/L	2.0	SW846 8260D	1	12/12/2023 18:06	ILY	A
o-Chlorotoluene	1.0 U	U	ug/L	1.0	SW846 8260D	1	12/12/2023 18:06	ILY	A
o-Xylene	1.0 U	U	ug/L	1.0	SW846 8260D	1	12/12/2023 18:06	ILY	A
p-Chlorotoluene	1.0 U	U	ug/L	1.0	SW846 8260D	1	12/12/2023 18:06	ILY	A
p-Isopropyltoluene	1.0 U	U	ug/L	1.0	SW846 8260D	1	12/12/2023 18:06	ILY	A
Styrene	1.0 U	U	ug/L	1.0	SW846 8260D	1	12/12/2023 18:06	ILY	A
Tetrachloroethene	1.0 U	U	ug/L	1.0	SW846 8260D	1	12/12/2023 18:06	ILY	A
Toluene	1.0 U	U	ug/L	1.0	SW846 8260D	1	12/12/2023 18:06	ILY	A
Total Xylenes	3.0 U	U	ug/L	3.0	SW846 8260D	1	12/12/2023 18:06	ILY	A
trans-1,2-Dichloroethene	1.0 U	U	ug/L	1.0	SW846 8260D	1	12/12/2023 18:06	ILY	A
trans-1,3-Dichloropropene	1.0 U	U	ug/L	1.0	SW846 8260D	1	12/12/2023 18:06	ILY	A
Trichloroethene	1.0 U	U	ug/L	1.0	SW846 8260D	1	12/12/2023 18:06	ILY	A
Trichlorofluoromethane	1.0 U	U	ug/L	1.0	SW846 8260D	1	12/12/2023 18:06	ILY	A
Vinyl Acetate	5.0 U	U	ug/L	5.0	SW846 8260D	1	12/12/2023 18:06	ILY	A
Vinyl Chloride	1.0 U	U	ug/L	1.0	SW846 8260D	1	12/12/2023 18:06	ILY	A

SURROGATES

Compound	CAS No	Recovery	Limits(%)	Analysis Date/Time	Qualifiers
1,2-Dichloroethane-d4	17060-07-0	104%	62 – 133	12/12/2023 18:06	
4-Bromofluorobenzene	460-00-4	100%	79 – 114	12/12/2023 18:06	
Dibromofluoromethane	1868-53-7	101%	78 – 116	12/12/2023 18:06	
Toluene-d8	2037-26-5	99.8%	76 – 127	12/12/2023 18:06	

Results

Client Sample ID	MW-21D	Collected	12/03/2023 13:55
Lab Sample ID	3335533016	Lab Receipt	12/04/2023 18:15

SEMIVOLATILE SIM

Compound	Result	Flag	Units	RDL	Method	Dilution	Analysis Date/Time	By	Cntr
1,4-Dioxane	7.7	3	ug/L	1.0	SW846 8270E SIM	1	12/08/2023 16:47	S7M	C

SURROGATES

Compound	CAS No	Recovery	Limits(%)	Analysis Date/Time	Qualifiers
2-Methylnapthalene-d10	7297-45-2	68.6%	29 – 112	12/08/2023 16:47	
Fluoranthene-d10	93951-69-0	80.1%	45 – 130	12/08/2023 16:47	

VOLATILE ORGANICS

Compound	Result	Flag	Units	RDL	Method	Dilution	Analysis Date/Time	By	Cntr
1,1,1,2-Tetrachloroethane	1.0 U	U	ug/L	1.0	SW846 8260D	1	12/12/2023 18:30	ILY	A
1,1,1-Trichloroethane	1.0 U	U	ug/L	1.0	SW846 8260D	1	12/12/2023 18:30	ILY	A
1,1,2,2-Tetrachloroethane	1.0 U	U	ug/L	1.0	SW846 8260D	1	12/12/2023 18:30	ILY	A
1,1,2-Trichloroethane	1.0 U	U	ug/L	1.0	SW846 8260D	1	12/12/2023 18:30	ILY	A
1,1-Dichloroethane	1.0 U	U,11	ug/L	1.0	SW846 8260D	1	12/12/2023 18:30	ILY	A
1,1-Dichloroethene	30.8	12	ug/L	1.0	SW846 8260D	1	12/12/2023 18:30	ILY	A
1,1-Dichloropropene	1.0 U	U,16	ug/L	1.0	SW846 8260D	1	12/12/2023 18:30	ILY	A
1,2,3-Trichlorobenzene	2.0 U	U	ug/L	2.0	SW846 8260D	1	12/12/2023 18:30	ILY	A
1,2,3-Trichloropropane	2.0 U	U	ug/L	2.0	SW846 8260D	1	12/12/2023 18:30	ILY	A
1,2,4-Trichlorobenzene	2.0 U	U	ug/L	2.0	SW846 8260D	1	12/12/2023 18:30	ILY	A
1,2-Dibromo-3-chloropropane	7.0 U	U	ug/L	7.0	SW846 8260D	1	12/12/2023 18:30	ILY	A
1,2-Dibromoethane	1.0 U	U	ug/L	1.0	SW846 8260D	1	12/12/2023 18:30	ILY	A
1,2-Dichlorobenzene	1.0 U	U	ug/L	1.0	SW846 8260D	1	12/12/2023 18:30	ILY	A
1,2-Dichloroethane	1.0 U	U	ug/L	1.0	SW846 8260D	1	12/12/2023 18:30	ILY	A
1,2-Dichloropropane	1.0 U	U	ug/L	1.0	SW846 8260D	1	12/12/2023 18:30	ILY	A
1,3-Dichlorobenzene	1.0 U	U	ug/L	1.0	SW846 8260D	1	12/12/2023 18:30	ILY	A
1,3-Dichloropropane	1.0 U	U	ug/L	1.0	SW846 8260D	1	12/12/2023 18:30	ILY	A
1,4-Dichlorobenzene	1.0 U	U	ug/L	1.0	SW846 8260D	1	12/12/2023 18:30	ILY	A
2,2-Dichloropropane	1.0 U	U	ug/L	1.0	SW846 8260D	1	12/12/2023 18:30	ILY	A
2-Butanone	10.0 U	U	ug/L	10.0	SW846 8260D	1	12/12/2023 18:30	ILY	A
2-Hexanone	5.0 U	U	ug/L	5.0	SW846 8260D	1	12/12/2023 18:30	ILY	A
4-Methyl-2-Pentanone(MIBK)	5.0 U	U	ug/L	5.0	SW846 8260D	1	12/12/2023 18:30	ILY	A
Acetone	10.0 U	U	ug/L	10.0	SW846 8260D	1	12/12/2023 18:30	ILY	A
Benzene	1.0 U	U,9	ug/L	1.0	SW846 8260D	1	12/12/2023 18:30	ILY	A
Bromobenzene	1.0 U	U	ug/L	1.0	SW846 8260D	1	12/12/2023 18:30	ILY	A
Bromochloromethane	1.0 U	U,10	ug/L	1.0	SW846 8260D	1	12/12/2023 18:30	ILY	A
Bromodichloromethane	1.0 U	U	ug/L	1.0	SW846 8260D	1	12/12/2023 18:30	ILY	A
Bromoform	1.0 U	U	ug/L	1.0	SW846 8260D	1	12/12/2023 18:30	ILY	A
Bromomethane	1.0 U	U	ug/L	1.0	SW846 8260D	1	12/12/2023 18:30	ILY	A
Carbon Tetrachloride	1.0 U	U	ug/L	1.0	SW846 8260D	1	12/12/2023 18:30	ILY	A
Chlorobenzene	1.0 U	U	ug/L	1.0	SW846 8260D	1	12/12/2023 18:30	ILY	A
Chlorodibromomethane	1.0 U	U	ug/L	1.0	SW846 8260D	1	12/12/2023 18:30	ILY	A
Chloroethane	1.0 U	U,1	ug/L	1.0	SW846 8260D	1	12/12/2023 18:30	ILY	A
Chloroform	1.0 U	U	ug/L	1.0	SW846 8260D	1	12/12/2023 18:30	ILY	A
Chloromethane	1.0 U	U	ug/L	1.0	SW846 8260D	1	12/12/2023 18:30	ILY	A

Results

Client Sample ID	MW-21D	Collected	12/03/2023 13:55
Lab Sample ID	3335533016	Lab Receipt	12/04/2023 18:15

VOLATILE ORGANICS (cont.)

Compound	Result	Flag	Units	RDL	Method	Dilution	Analysis Date/Time	By	Cntr
cis-1,2-Dichloroethene	1.0 U	U,13	ug/L	1.0	SW846 8260D	1	12/12/2023 18:30	ILY	A
cis-1,3-Dichloropropene	1.0 U	U	ug/L	1.0	SW846 8260D	1	12/12/2023 18:30	ILY	A
Dibromomethane	1.0 U	U	ug/L	1.0	SW846 8260D	1	12/12/2023 18:30	ILY	A
Dichlorodifluoromethane	1.0 U	U	ug/L	1.0	SW846 8260D	1	12/12/2023 18:30	ILY	A
Diisopropyl ether	1.0 U	U	ug/L	1.0	SW846 8260D	1	12/12/2023 18:30	ILY	A
Ethylbenzene	1.0 U	U	ug/L	1.0	SW846 8260D	1	12/12/2023 18:30	ILY	A
Hexachlorobutadiene	5.0 U	U,2	ug/L	5.0	SW846 8260D	1	12/12/2023 18:30	ILY	A
Methyl t-Butyl Ether	1.0 U	U,17,18	ug/L	1.0	SW846 8260D	1	12/12/2023 18:30	ILY	A
Methylene Chloride	1.0 U	U,19	ug/L	1.0	SW846 8260D	1	12/12/2023 18:30	ILY	A
mp-Xylene	2.0 U	U	ug/L	2.0	SW846 8260D	1	12/12/2023 18:30	ILY	A
Naphthalene	2.0 U	U	ug/L	2.0	SW846 8260D	1	12/12/2023 18:30	ILY	A
o-Chlorotoluene	1.0 U	U	ug/L	1.0	SW846 8260D	1	12/12/2023 18:30	ILY	A
o-Xylene	1.0 U	U	ug/L	1.0	SW846 8260D	1	12/12/2023 18:30	ILY	A
p-Chlorotoluene	1.0 U	U	ug/L	1.0	SW846 8260D	1	12/12/2023 18:30	ILY	A
p-Isopropyltoluene	1.0 U	U	ug/L	1.0	SW846 8260D	1	12/12/2023 18:30	ILY	A
Styrene	1.0 U	U	ug/L	1.0	SW846 8260D	1	12/12/2023 18:30	ILY	A
Tetrachloroethene	1.0 U	U	ug/L	1.0	SW846 8260D	1	12/12/2023 18:30	ILY	A
Toluene	1.0 U	U	ug/L	1.0	SW846 8260D	1	12/12/2023 18:30	ILY	A
Total Xylenes	3.0 U	U	ug/L	3.0	SW846 8260D	1	12/12/2023 18:30	ILY	A
trans-1,2-Dichloroethene	1.0 U	U,14,15	ug/L	1.0	SW846 8260D	1	12/12/2023 18:30	ILY	A
trans-1,3-Dichloropropene	1.0 U	U	ug/L	1.0	SW846 8260D	1	12/12/2023 18:30	ILY	A
Trichloroethene	1.0 U	U	ug/L	1.0	SW846 8260D	1	12/12/2023 18:30	ILY	A
Trichlorofluoromethane	1.0 U	U	ug/L	1.0	SW846 8260D	1	12/12/2023 18:30	ILY	A
Vinyl Acetate	5.0 U	U	ug/L	5.0	SW846 8260D	1	12/12/2023 18:30	ILY	A
Vinyl Chloride	1.0 U	U	ug/L	1.0	SW846 8260D	1	12/12/2023 18:30	ILY	A

SURROGATES

Compound	CAS No	Recovery	Limits(%)	Analysis Date/Time	Qualifiers
1,2-Dichloroethane-d4	17060-07-0	104%	62 – 133	12/12/2023 18:30	
4-Bromofluorobenzene	460-00-4	103%	79 – 114	12/12/2023 18:30	
Dibromofluoromethane	1868-53-7	99.3%	78 – 116	12/12/2023 18:30	
Toluene-d8	2037-26-5	100%	76 – 127	12/12/2023 18:30	

Results

Client Sample ID	MW-22D	Collected	12/03/2023 14:55
Lab Sample ID	3335533017	Lab Receipt	12/04/2023 18:15

SEMIVOLATILE SIM

Compound	Result	Flag	Units	RDL	Method	Dilution	Analysis Date/Time	By	Cntr
1,4-Dioxane	2.0	3	ug/L	1.0	SW846 8270E SIM	1	12/08/2023 17:14	S7M	C

SURROGATES

Compound	CAS No	Recovery	Limits(%)	Analysis Date/Time	Qualifiers
2-Methylnapthalene-d10	7297-45-2	62.9%	29 – 112	12/08/2023 17:14	
Fluoranthene-d10	93951-69-0	79.8%	45 – 130	12/08/2023 17:14	

VOLATILE ORGANICS

Compound	Result	Flag	Units	RDL	Method	Dilution	Analysis Date/Time	By	Cntr
1,1,1,2-Tetrachloroethane	1.0 U	U	ug/L	1.0	SW846 8260D	1	12/12/2023 18:53	ILY	A
1,1,1-Trichloroethane	1.0 U	U	ug/L	1.0	SW846 8260D	1	12/12/2023 18:53	ILY	A
1,1,2,2-Tetrachloroethane	1.0 U	U	ug/L	1.0	SW846 8260D	1	12/12/2023 18:53	ILY	A
1,1,2-Trichloroethane	1.0 U	U	ug/L	1.0	SW846 8260D	1	12/12/2023 18:53	ILY	A
1,1-Dichloroethane	1.0 U	U	ug/L	1.0	SW846 8260D	1	12/12/2023 18:53	ILY	A
1,1-Dichloroethene	8.5		ug/L	1.0	SW846 8260D	1	12/12/2023 18:53	ILY	A
1,1-Dichloropropene	1.0 U	U	ug/L	1.0	SW846 8260D	1	12/12/2023 18:53	ILY	A
1,2,3-Trichlorobenzene	2.0 U	U	ug/L	2.0	SW846 8260D	1	12/12/2023 18:53	ILY	A
1,2,3-Trichloropropane	2.0 U	U	ug/L	2.0	SW846 8260D	1	12/12/2023 18:53	ILY	A
1,2,4-Trichlorobenzene	2.0 U	U	ug/L	2.0	SW846 8260D	1	12/12/2023 18:53	ILY	A
1,2-Dibromo-3-chloropropane	7.0 U	U	ug/L	7.0	SW846 8260D	1	12/12/2023 18:53	ILY	A
1,2-Dibromoethane	1.0 U	U	ug/L	1.0	SW846 8260D	1	12/12/2023 18:53	ILY	A
1,2-Dichlorobenzene	1.0 U	U	ug/L	1.0	SW846 8260D	1	12/12/2023 18:53	ILY	A
1,2-Dichloroethane	1.0 U	U	ug/L	1.0	SW846 8260D	1	12/12/2023 18:53	ILY	A
1,2-Dichloropropane	1.0 U	U	ug/L	1.0	SW846 8260D	1	12/12/2023 18:53	ILY	A
1,3-Dichlorobenzene	1.0 U	U	ug/L	1.0	SW846 8260D	1	12/12/2023 18:53	ILY	A
1,3-Dichloropropane	1.0 U	U	ug/L	1.0	SW846 8260D	1	12/12/2023 18:53	ILY	A
1,4-Dichlorobenzene	1.0 U	U	ug/L	1.0	SW846 8260D	1	12/12/2023 18:53	ILY	A
2,2-Dichloropropane	1.0 U	U	ug/L	1.0	SW846 8260D	1	12/12/2023 18:53	ILY	A
2-Butanone	10.0 U	U	ug/L	10.0	SW846 8260D	1	12/12/2023 18:53	ILY	A
2-Hexanone	5.0 U	U	ug/L	5.0	SW846 8260D	1	12/12/2023 18:53	ILY	A
4-Methyl-2-Pentanone(MIBK)	5.0 U	U	ug/L	5.0	SW846 8260D	1	12/12/2023 18:53	ILY	A
Acetone	10.0 U	U	ug/L	10.0	SW846 8260D	1	12/12/2023 18:53	ILY	A
Benzene	1.0 U	U	ug/L	1.0	SW846 8260D	1	12/12/2023 18:53	ILY	A
Bromobenzene	1.0 U	U	ug/L	1.0	SW846 8260D	1	12/12/2023 18:53	ILY	A
Bromochloromethane	1.0 U	U	ug/L	1.0	SW846 8260D	1	12/12/2023 18:53	ILY	A
Bromodichloromethane	1.0 U	U	ug/L	1.0	SW846 8260D	1	12/12/2023 18:53	ILY	A
Bromoform	1.0 U	U	ug/L	1.0	SW846 8260D	1	12/12/2023 18:53	ILY	A
Bromomethane	1.0 U	U	ug/L	1.0	SW846 8260D	1	12/12/2023 18:53	ILY	A
Carbon Tetrachloride	1.0 U	U	ug/L	1.0	SW846 8260D	1	12/12/2023 18:53	ILY	A
Chlorobenzene	1.0 U	U	ug/L	1.0	SW846 8260D	1	12/12/2023 18:53	ILY	A
Chlorodibromomethane	1.0 U	U	ug/L	1.0	SW846 8260D	1	12/12/2023 18:53	ILY	A
Chloroethane	1.0 U	U,1	ug/L	1.0	SW846 8260D	1	12/12/2023 18:53	ILY	A
Chloroform	1.0 U	U	ug/L	1.0	SW846 8260D	1	12/12/2023 18:53	ILY	A
Chloromethane	1.0 U	U	ug/L	1.0	SW846 8260D	1	12/12/2023 18:53	ILY	A

Results

Client Sample ID	MW-22D	Collected	12/03/2023 14:55
Lab Sample ID	3335533017	Lab Receipt	12/04/2023 18:15

VOLATILE ORGANICS (cont.)

Compound	Result	Flag	Units	RDL	Method	Dilution	Analysis Date/Time	By	Cntr
cis-1,2-Dichloroethene	1.0 U	U	ug/L	1.0	SW846 8260D	1	12/12/2023 18:53	ILY	A
cis-1,3-Dichloropropene	1.0 U	U	ug/L	1.0	SW846 8260D	1	12/12/2023 18:53	ILY	A
Dibromomethane	1.0 U	U	ug/L	1.0	SW846 8260D	1	12/12/2023 18:53	ILY	A
Dichlorodifluoromethane	1.0 U	U	ug/L	1.0	SW846 8260D	1	12/12/2023 18:53	ILY	A
Diisopropyl ether	1.0 U	U	ug/L	1.0	SW846 8260D	1	12/12/2023 18:53	ILY	A
Ethylbenzene	1.0 U	U	ug/L	1.0	SW846 8260D	1	12/12/2023 18:53	ILY	A
Hexachlorobutadiene	5.0 U	U,2	ug/L	5.0	SW846 8260D	1	12/12/2023 18:53	ILY	A
Methyl t-Butyl Ether	1.0 U	U	ug/L	1.0	SW846 8260D	1	12/12/2023 18:53	ILY	A
Methylene Chloride	1.0 U	U	ug/L	1.0	SW846 8260D	1	12/12/2023 18:53	ILY	A
mp-Xylene	2.0 U	U	ug/L	2.0	SW846 8260D	1	12/12/2023 18:53	ILY	A
Naphthalene	2.0 U	U	ug/L	2.0	SW846 8260D	1	12/12/2023 18:53	ILY	A
o-Chlorotoluene	1.0 U	U	ug/L	1.0	SW846 8260D	1	12/12/2023 18:53	ILY	A
o-Xylene	1.0 U	U	ug/L	1.0	SW846 8260D	1	12/12/2023 18:53	ILY	A
p-Chlorotoluene	1.0 U	U	ug/L	1.0	SW846 8260D	1	12/12/2023 18:53	ILY	A
p-Isopropyltoluene	1.0 U	U	ug/L	1.0	SW846 8260D	1	12/12/2023 18:53	ILY	A
Styrene	1.0 U	U	ug/L	1.0	SW846 8260D	1	12/12/2023 18:53	ILY	A
Tetrachloroethene	1.0 U	U	ug/L	1.0	SW846 8260D	1	12/12/2023 18:53	ILY	A
Toluene	1.0 U	U	ug/L	1.0	SW846 8260D	1	12/12/2023 18:53	ILY	A
Total Xylenes	3.0 U	U	ug/L	3.0	SW846 8260D	1	12/12/2023 18:53	ILY	A
trans-1,2-Dichloroethene	1.0 U	U	ug/L	1.0	SW846 8260D	1	12/12/2023 18:53	ILY	A
trans-1,3-Dichloropropene	1.0 U	U	ug/L	1.0	SW846 8260D	1	12/12/2023 18:53	ILY	A
Trichloroethene	1.0 U	U	ug/L	1.0	SW846 8260D	1	12/12/2023 18:53	ILY	A
Trichlorofluoromethane	1.0 U	U	ug/L	1.0	SW846 8260D	1	12/12/2023 18:53	ILY	A
Vinyl Acetate	5.0 U	U	ug/L	5.0	SW846 8260D	1	12/12/2023 18:53	ILY	A
Vinyl Chloride	1.0 U	U	ug/L	1.0	SW846 8260D	1	12/12/2023 18:53	ILY	A

SURROGATES

Compound	CAS No	Recovery	Limits(%)	Analysis Date/Time	Qualifiers
1,2-Dichloroethane-d4	17060-07-0	105%	62 – 133	12/12/2023 18:53	
4-Bromofluorobenzene	460-00-4	103%	79 – 114	12/12/2023 18:53	
Dibromofluoromethane	1868-53-7	99.7%	78 – 116	12/12/2023 18:53	
Toluene-d8	2037-26-5	99.7%	76 – 127	12/12/2023 18:53	

Results

Client Sample ID	MW-23D	Collected	12/03/2023 15:40
Lab Sample ID	3335533018	Lab Receipt	12/04/2023 18:15

SEMIVOLATILE SIM

Compound	Result	Flag	Units	RDL	Method	Dilution	Analysis Date/Time	By	Cntr
1,4-Dioxane	56.1	3	ug/L	10.4	SW846 8270E SIM	10	12/12/2023 10:19	S7M	C

SURROGATES

Compound	CAS No	Recovery	Limits(%)	Analysis Date/Time	Qualifiers
2-Methylnapthalene-d10	7297-45-2	70.2%	29 – 112	12/08/2023 17:40	
2-Methylnapthalene-d10	7297-45-2	77.7%	29 – 112	12/12/2023 10:19	
Fluoranthene-d10	93951-69-0	86.5%	45 – 130	12/08/2023 17:40	
Fluoranthene-d10	93951-69-0	81.8%	45 – 130	12/12/2023 10:19	

VOLATILE ORGANICS

Compound	Result	Flag	Units	RDL	Method	Dilution	Analysis Date/Time	By	Cntr
1,1,1,2-Tetrachloroethane	1.0 U	U	ug/L	1.0	SW846 8260D	1	12/12/2023 19:16	ILY	A
1,1,1-Trichloroethane	9.3		ug/L	1.0	SW846 8260D	1	12/12/2023 19:16	ILY	A
1,1,2,2-Tetrachloroethane	1.0 U	U	ug/L	1.0	SW846 8260D	1	12/12/2023 19:16	ILY	A
1,1,2-Trichloroethane	1.0 U	U	ug/L	1.0	SW846 8260D	1	12/12/2023 19:16	ILY	A
1,1-Dichloroethane	41.2		ug/L	1.0	SW846 8260D	1	12/12/2023 19:16	ILY	A
1,1-Dichloroethene	177		ug/L	1.0	SW846 8260D	1	12/12/2023 19:16	ILY	A
1,1-Dichloropropene	1.0 U	U	ug/L	1.0	SW846 8260D	1	12/12/2023 19:16	ILY	A
1,2,3-Trichlorobenzene	2.0 U	U	ug/L	2.0	SW846 8260D	1	12/12/2023 19:16	ILY	A
1,2,3-Trichloropropane	2.0 U	U	ug/L	2.0	SW846 8260D	1	12/12/2023 19:16	ILY	A
1,2,4-Trichlorobenzene	2.0 U	U	ug/L	2.0	SW846 8260D	1	12/12/2023 19:16	ILY	A
1,2-Dibromo-3-chloropropane	7.0 U	U	ug/L	7.0	SW846 8260D	1	12/12/2023 19:16	ILY	A
1,2-Dibromoethane	1.0 U	U	ug/L	1.0	SW846 8260D	1	12/12/2023 19:16	ILY	A
1,2-Dichlorobenzene	1.0 U	U	ug/L	1.0	SW846 8260D	1	12/12/2023 19:16	ILY	A
1,2-Dichloroethane	1.7		ug/L	1.0	SW846 8260D	1	12/12/2023 19:16	ILY	A
1,2-Dichloropropane	1.0 U	U	ug/L	1.0	SW846 8260D	1	12/12/2023 19:16	ILY	A
1,3-Dichlorobenzene	1.0 U	U	ug/L	1.0	SW846 8260D	1	12/12/2023 19:16	ILY	A
1,3-Dichloropropane	1.0 U	U	ug/L	1.0	SW846 8260D	1	12/12/2023 19:16	ILY	A
1,4-Dichlorobenzene	1.0 U	U	ug/L	1.0	SW846 8260D	1	12/12/2023 19:16	ILY	A
2,2-Dichloropropane	1.0 U	U	ug/L	1.0	SW846 8260D	1	12/12/2023 19:16	ILY	A
2-Butanone	10.0 U	U	ug/L	10.0	SW846 8260D	1	12/12/2023 19:16	ILY	A
2-Hexanone	5.0 U	U	ug/L	5.0	SW846 8260D	1	12/12/2023 19:16	ILY	A
4-Methyl-2-Pentanone(MIBK)	5.0 U	U	ug/L	5.0	SW846 8260D	1	12/12/2023 19:16	ILY	A
Acetone	10.0 U	U	ug/L	10.0	SW846 8260D	1	12/12/2023 19:16	ILY	A
Benzene	1.0 U	U	ug/L	1.0	SW846 8260D	1	12/12/2023 19:16	ILY	A
Bromobenzene	1.0 U	U	ug/L	1.0	SW846 8260D	1	12/12/2023 19:16	ILY	A
Bromochloromethane	1.0 U	U	ug/L	1.0	SW846 8260D	1	12/12/2023 19:16	ILY	A
Bromodichloromethane	1.0 U	U	ug/L	1.0	SW846 8260D	1	12/12/2023 19:16	ILY	A
Bromoform	1.0 U	U	ug/L	1.0	SW846 8260D	1	12/12/2023 19:16	ILY	A
Bromomethane	1.0 U	U	ug/L	1.0	SW846 8260D	1	12/12/2023 19:16	ILY	A
Carbon Tetrachloride	1.0 U	U	ug/L	1.0	SW846 8260D	1	12/12/2023 19:16	ILY	A
Chlorobenzene	1.0 U	U	ug/L	1.0	SW846 8260D	1	12/12/2023 19:16	ILY	A
Chlorodibromomethane	1.0 U	U	ug/L	1.0	SW846 8260D	1	12/12/2023 19:16	ILY	A
Chloroethane	1.0 U	U,1	ug/L	1.0	SW846 8260D	1	12/12/2023 19:16	ILY	A

Results

Client Sample ID	MW-23D	Collected	12/03/2023 15:40
Lab Sample ID	3335533018	Lab Receipt	12/04/2023 18:15

VOLATILE ORGANICS (cont.)

Compound	Result	Flag	Units	RDL	Method	Dilution	Analysis Date/Time	By	Cntr
Chloroform	1.0 U	U	ug/L	1.0	SW846 8260D	1	12/12/2023 19:16	ILY	A
Chloromethane	1.0 U	U	ug/L	1.0	SW846 8260D	1	12/12/2023 19:16	ILY	A
cis-1,2-Dichloroethene	1.0 U	U	ug/L	1.0	SW846 8260D	1	12/12/2023 19:16	ILY	A
cis-1,3-Dichloropropene	1.0 U	U	ug/L	1.0	SW846 8260D	1	12/12/2023 19:16	ILY	A
Dibromomethane	1.0 U	U	ug/L	1.0	SW846 8260D	1	12/12/2023 19:16	ILY	A
Dichlorodifluoromethane	1.0 U	U	ug/L	1.0	SW846 8260D	1	12/12/2023 19:16	ILY	A
Diisopropyl ether	1.0 U	U	ug/L	1.0	SW846 8260D	1	12/12/2023 19:16	ILY	A
Ethylbenzene	1.0 U	U	ug/L	1.0	SW846 8260D	1	12/12/2023 19:16	ILY	A
Hexachlorobutadiene	5.0 U	U,2	ug/L	5.0	SW846 8260D	1	12/12/2023 19:16	ILY	A
Methyl t-Butyl Ether	1.0 U	U	ug/L	1.0	SW846 8260D	1	12/12/2023 19:16	ILY	A
Methylene Chloride	1.0 U	U	ug/L	1.0	SW846 8260D	1	12/12/2023 19:16	ILY	A
mp-Xylene	2.0 U	U	ug/L	2.0	SW846 8260D	1	12/12/2023 19:16	ILY	A
Naphthalene	2.0 U	U	ug/L	2.0	SW846 8260D	1	12/12/2023 19:16	ILY	A
o-Chlorotoluene	1.0 U	U	ug/L	1.0	SW846 8260D	1	12/12/2023 19:16	ILY	A
o-Xylene	1.0 U	U	ug/L	1.0	SW846 8260D	1	12/12/2023 19:16	ILY	A
p-Chlorotoluene	1.0 U	U	ug/L	1.0	SW846 8260D	1	12/12/2023 19:16	ILY	A
p-Isopropyltoluene	1.0 U	U	ug/L	1.0	SW846 8260D	1	12/12/2023 19:16	ILY	A
Styrene	1.0 U	U	ug/L	1.0	SW846 8260D	1	12/12/2023 19:16	ILY	A
Tetrachloroethene	1.0 U	U	ug/L	1.0	SW846 8260D	1	12/12/2023 19:16	ILY	A
Toluene	1.0 U	U	ug/L	1.0	SW846 8260D	1	12/12/2023 19:16	ILY	A
Total Xylenes	3.0 U	U	ug/L	3.0	SW846 8260D	1	12/12/2023 19:16	ILY	A
trans-1,2-Dichloroethene	1.0 U	U	ug/L	1.0	SW846 8260D	1	12/12/2023 19:16	ILY	A
trans-1,3-Dichloropropene	1.0 U	U	ug/L	1.0	SW846 8260D	1	12/12/2023 19:16	ILY	A
Trichloroethene	1.0 U	U	ug/L	1.0	SW846 8260D	1	12/12/2023 19:16	ILY	A
Trichlorofluoromethane	1.0 U	U	ug/L	1.0	SW846 8260D	1	12/12/2023 19:16	ILY	A
Vinyl Acetate	5.0 U	U	ug/L	5.0	SW846 8260D	1	12/12/2023 19:16	ILY	A
Vinyl Chloride	1.0 U	U	ug/L	1.0	SW846 8260D	1	12/12/2023 19:16	ILY	A

SURROGATES

Compound	CAS No	Recovery	Limits(%)	Analysis Date/Time	Qualifiers
1,2-Dichloroethane-d4	17060-07-0	104%	62 – 133	12/12/2023 19:16	
4-Bromofluorobenzene	460-00-4	103%	79 – 114	12/12/2023 19:16	
Dibromofluoromethane	1868-53-7	100%	78 – 116	12/12/2023 19:16	
Toluene-d8	2037-26-5	99.8%	76 – 127	12/12/2023 19:16	

Results

Client Sample ID	MW-27D	Collected	12/03/2023 10:00
Lab Sample ID	3335533019	Lab Receipt	12/04/2023 18:15

SEMIVOLATILE SIM

Compound	Result	Flag	Units	RDL	Method	Dilution	Analysis Date/Time	By	Cntr
1,4-Dioxane	1.0 U	U,3	ug/L	1.0	SW846 8270E SIM	1	12/08/2023 18:07	S7M	C

SURROGATES

Compound	CAS No	Recovery	Limits(%)	Analysis Date/Time	Qualifiers
2-Methylnapthalene-d10	7297-45-2	74.5%	29 – 112	12/08/2023 18:07	
Fluoranthene-d10	93951-69-0	85.3%	45 – 130	12/08/2023 18:07	

VOLATILE ORGANICS

Compound	Result	Flag	Units	RDL	Method	Dilution	Analysis Date/Time	By	Cntr
1,1,1,2-Tetrachloroethane	1.0 U	U	ug/L	1.0	SW846 8260D	1	12/12/2023 19:40	ILY	A
1,1,1-Trichloroethane	1.0 U	U	ug/L	1.0	SW846 8260D	1	12/12/2023 19:40	ILY	A
1,1,2,2-Tetrachloroethane	1.0 U	U	ug/L	1.0	SW846 8260D	1	12/12/2023 19:40	ILY	A
1,1,2-Trichloroethane	1.0 U	U	ug/L	1.0	SW846 8260D	1	12/12/2023 19:40	ILY	A
1,1-Dichloroethane	1.0 U	U	ug/L	1.0	SW846 8260D	1	12/12/2023 19:40	ILY	A
1,1-Dichloroethene	1.0 U	U	ug/L	1.0	SW846 8260D	1	12/12/2023 19:40	ILY	A
1,1-Dichloropropene	1.0 U	U	ug/L	1.0	SW846 8260D	1	12/12/2023 19:40	ILY	A
1,2,3-Trichlorobenzene	2.0 U	U	ug/L	2.0	SW846 8260D	1	12/12/2023 19:40	ILY	A
1,2,3-Trichloropropane	2.0 U	U	ug/L	2.0	SW846 8260D	1	12/12/2023 19:40	ILY	A
1,2,4-Trichlorobenzene	2.0 U	U	ug/L	2.0	SW846 8260D	1	12/12/2023 19:40	ILY	A
1,2-Dibromo-3-chloropropane	7.0 U	U	ug/L	7.0	SW846 8260D	1	12/12/2023 19:40	ILY	A
1,2-Dibromoethane	1.0 U	U	ug/L	1.0	SW846 8260D	1	12/12/2023 19:40	ILY	A
1,2-Dichlorobenzene	1.0 U	U	ug/L	1.0	SW846 8260D	1	12/12/2023 19:40	ILY	A
1,2-Dichloroethane	1.0 U	U	ug/L	1.0	SW846 8260D	1	12/12/2023 19:40	ILY	A
1,2-Dichloropropane	1.0 U	U	ug/L	1.0	SW846 8260D	1	12/12/2023 19:40	ILY	A
1,3-Dichlorobenzene	1.0 U	U	ug/L	1.0	SW846 8260D	1	12/12/2023 19:40	ILY	A
1,3-Dichloropropane	1.0 U	U	ug/L	1.0	SW846 8260D	1	12/12/2023 19:40	ILY	A
1,4-Dichlorobenzene	1.0 U	U	ug/L	1.0	SW846 8260D	1	12/12/2023 19:40	ILY	A
2,2-Dichloropropane	1.0 U	U	ug/L	1.0	SW846 8260D	1	12/12/2023 19:40	ILY	A
2-Butanone	10.0 U	U	ug/L	10.0	SW846 8260D	1	12/12/2023 19:40	ILY	A
2-Hexanone	5.0 U	U	ug/L	5.0	SW846 8260D	1	12/12/2023 19:40	ILY	A
4-Methyl-2-Pentanone(MIBK)	5.0 U	U	ug/L	5.0	SW846 8260D	1	12/12/2023 19:40	ILY	A
Acetone	10.0 U	U	ug/L	10.0	SW846 8260D	1	12/12/2023 19:40	ILY	A
Benzene	1.0 U	U	ug/L	1.0	SW846 8260D	1	12/12/2023 19:40	ILY	A
Bromobenzene	1.0 U	U	ug/L	1.0	SW846 8260D	1	12/12/2023 19:40	ILY	A
Bromochloromethane	1.0 U	U	ug/L	1.0	SW846 8260D	1	12/12/2023 19:40	ILY	A
Bromodichloromethane	1.0 U	U	ug/L	1.0	SW846 8260D	1	12/12/2023 19:40	ILY	A
Bromoform	1.0 U	U	ug/L	1.0	SW846 8260D	1	12/12/2023 19:40	ILY	A
Bromomethane	1.0 U	U	ug/L	1.0	SW846 8260D	1	12/12/2023 19:40	ILY	A
Carbon Tetrachloride	1.0 U	U	ug/L	1.0	SW846 8260D	1	12/12/2023 19:40	ILY	A
Chlorobenzene	1.0 U	U	ug/L	1.0	SW846 8260D	1	12/12/2023 19:40	ILY	A
Chlorodibromomethane	1.0 U	U	ug/L	1.0	SW846 8260D	1	12/12/2023 19:40	ILY	A
Chloroethane	1.0 U	U,1	ug/L	1.0	SW846 8260D	1	12/12/2023 19:40	ILY	A
Chloroform	1.0 U	U	ug/L	1.0	SW846 8260D	1	12/12/2023 19:40	ILY	A
Chloromethane	1.0 U	U	ug/L	1.0	SW846 8260D	1	12/12/2023 19:40	ILY	A

Results

Client Sample ID	MW-27D	Collected	12/03/2023 10:00
Lab Sample ID	3335533019	Lab Receipt	12/04/2023 18:15

VOLATILE ORGANICS (cont.)

Compound	Result	Flag	Units	RDL	Method	Dilution	Analysis Date/Time	By	Cntr
cis-1,2-Dichloroethene	1.0 U	U	ug/L	1.0	SW846 8260D	1	12/12/2023 19:40	ILY	A
cis-1,3-Dichloropropene	1.0 U	U	ug/L	1.0	SW846 8260D	1	12/12/2023 19:40	ILY	A
Dibromomethane	1.0 U	U	ug/L	1.0	SW846 8260D	1	12/12/2023 19:40	ILY	A
Dichlorodifluoromethane	1.0 U	U	ug/L	1.0	SW846 8260D	1	12/12/2023 19:40	ILY	A
Diisopropyl ether	1.0 U	U	ug/L	1.0	SW846 8260D	1	12/12/2023 19:40	ILY	A
Ethylbenzene	1.0 U	U	ug/L	1.0	SW846 8260D	1	12/12/2023 19:40	ILY	A
Hexachlorobutadiene	5.0 U	U,2	ug/L	5.0	SW846 8260D	1	12/12/2023 19:40	ILY	A
Methyl t-Butyl Ether	1.0 U	U	ug/L	1.0	SW846 8260D	1	12/12/2023 19:40	ILY	A
Methylene Chloride	1.0 U	U	ug/L	1.0	SW846 8260D	1	12/12/2023 19:40	ILY	A
mp-Xylene	2.0 U	U	ug/L	2.0	SW846 8260D	1	12/12/2023 19:40	ILY	A
Naphthalene	2.0 U	U	ug/L	2.0	SW846 8260D	1	12/12/2023 19:40	ILY	A
o-Chlorotoluene	1.0 U	U	ug/L	1.0	SW846 8260D	1	12/12/2023 19:40	ILY	A
o-Xylene	1.0 U	U	ug/L	1.0	SW846 8260D	1	12/12/2023 19:40	ILY	A
p-Chlorotoluene	1.0 U	U	ug/L	1.0	SW846 8260D	1	12/12/2023 19:40	ILY	A
p-Isopropyltoluene	1.0 U	U	ug/L	1.0	SW846 8260D	1	12/12/2023 19:40	ILY	A
Styrene	1.0 U	U	ug/L	1.0	SW846 8260D	1	12/12/2023 19:40	ILY	A
Tetrachloroethene	1.0 U	U	ug/L	1.0	SW846 8260D	1	12/12/2023 19:40	ILY	A
Toluene	1.0 U	U	ug/L	1.0	SW846 8260D	1	12/12/2023 19:40	ILY	A
Total Xylenes	3.0 U	U	ug/L	3.0	SW846 8260D	1	12/12/2023 19:40	ILY	A
trans-1,2-Dichloroethene	1.0 U	U	ug/L	1.0	SW846 8260D	1	12/12/2023 19:40	ILY	A
trans-1,3-Dichloropropene	1.0 U	U	ug/L	1.0	SW846 8260D	1	12/12/2023 19:40	ILY	A
Trichloroethene	1.0 U	U	ug/L	1.0	SW846 8260D	1	12/12/2023 19:40	ILY	A
Trichlorofluoromethane	1.0 U	U	ug/L	1.0	SW846 8260D	1	12/12/2023 19:40	ILY	A
Vinyl Acetate	5.0 U	U	ug/L	5.0	SW846 8260D	1	12/12/2023 19:40	ILY	A
Vinyl Chloride	1.0 U	U	ug/L	1.0	SW846 8260D	1	12/12/2023 19:40	ILY	A

SURROGATES

Compound	CAS No	Recovery	Limits(%)	Analysis Date/Time	Qualifiers
1,2-Dichloroethane-d4	17060-07-0	106%	62 – 133	12/12/2023 19:40	
4-Bromofluorobenzene	460-00-4	103%	79 – 114	12/12/2023 19:40	
Dibromofluoromethane	1868-53-7	101%	78 – 116	12/12/2023 19:40	
Toluene-d8	2037-26-5	101%	76 – 127	12/12/2023 19:40	

Results

Client Sample ID	MW-40D	Collected	12/03/2023 11:50
Lab Sample ID	3335533020	Lab Receipt	12/04/2023 18:15

SEMIVOLATILE SIM

Compound	Result	Flag	Units	RDL	Method	Dilution	Analysis Date/Time	By	Cntr
1,4-Dioxane	1.0 U	U,3	ug/L	1.0	SW846 8270E SIM	1	12/08/2023 18:34	S7M	C

SURROGATES

Compound	CAS No	Recovery	Limits(%)	Analysis Date/Time	Qualifiers
2-Methylnapthalene-d10	7297-45-2	69.7%	29 – 112	12/08/2023 18:34	
Fluoranthene-d10	93951-69-0	90.6%	45 – 130	12/08/2023 18:34	

VOLATILE ORGANICS

Compound	Result	Flag	Units	RDL	Method	Dilution	Analysis Date/Time	By	Cntr
1,1,1,2-Tetrachloroethane	1.0 U	U	ug/L	1.0	SW846 8260D	1	12/12/2023 20:03	ILY	A
1,1,1-Trichloroethane	1.0 U	U	ug/L	1.0	SW846 8260D	1	12/12/2023 20:03	ILY	A
1,1,2,2-Tetrachloroethane	1.0 U	U	ug/L	1.0	SW846 8260D	1	12/12/2023 20:03	ILY	A
1,1,2-Trichloroethane	1.0 U	U	ug/L	1.0	SW846 8260D	1	12/12/2023 20:03	ILY	A
1,1-Dichloroethane	1.0 U	U	ug/L	1.0	SW846 8260D	1	12/12/2023 20:03	ILY	A
1,1-Dichloroethene	1.0 U	U	ug/L	1.0	SW846 8260D	1	12/12/2023 20:03	ILY	A
1,1-Dichloropropene	1.0 U	U	ug/L	1.0	SW846 8260D	1	12/12/2023 20:03	ILY	A
1,2,3-Trichlorobenzene	2.0 U	U	ug/L	2.0	SW846 8260D	1	12/12/2023 20:03	ILY	A
1,2,3-Trichloropropane	2.0 U	U	ug/L	2.0	SW846 8260D	1	12/12/2023 20:03	ILY	A
1,2,4-Trichlorobenzene	2.0 U	U	ug/L	2.0	SW846 8260D	1	12/12/2023 20:03	ILY	A
1,2-Dibromo-3-chloropropane	7.0 U	U	ug/L	7.0	SW846 8260D	1	12/12/2023 20:03	ILY	A
1,2-Dibromoethane	1.0 U	U	ug/L	1.0	SW846 8260D	1	12/12/2023 20:03	ILY	A
1,2-Dichlorobenzene	1.0 U	U	ug/L	1.0	SW846 8260D	1	12/12/2023 20:03	ILY	A
1,2-Dichloroethane	1.0 U	U	ug/L	1.0	SW846 8260D	1	12/12/2023 20:03	ILY	A
1,2-Dichloropropane	1.0 U	U	ug/L	1.0	SW846 8260D	1	12/12/2023 20:03	ILY	A
1,3-Dichlorobenzene	1.0 U	U	ug/L	1.0	SW846 8260D	1	12/12/2023 20:03	ILY	A
1,3-Dichloropropane	1.0 U	U	ug/L	1.0	SW846 8260D	1	12/12/2023 20:03	ILY	A
1,4-Dichlorobenzene	1.0 U	U	ug/L	1.0	SW846 8260D	1	12/12/2023 20:03	ILY	A
2,2-Dichloropropane	1.0 U	U	ug/L	1.0	SW846 8260D	1	12/12/2023 20:03	ILY	A
2-Butanone	10.0 U	U	ug/L	10.0	SW846 8260D	1	12/12/2023 20:03	ILY	A
2-Hexanone	5.0 U	U	ug/L	5.0	SW846 8260D	1	12/12/2023 20:03	ILY	A
4-Methyl-2-Pentanone(MIBK)	5.0 U	U	ug/L	5.0	SW846 8260D	1	12/12/2023 20:03	ILY	A
Acetone	10.0 U	U	ug/L	10.0	SW846 8260D	1	12/12/2023 20:03	ILY	A
Benzene	1.0 U	U	ug/L	1.0	SW846 8260D	1	12/12/2023 20:03	ILY	A
Bromobenzene	1.0 U	U	ug/L	1.0	SW846 8260D	1	12/12/2023 20:03	ILY	A
Bromochloromethane	1.0 U	U	ug/L	1.0	SW846 8260D	1	12/12/2023 20:03	ILY	A
Bromodichloromethane	1.0 U	U	ug/L	1.0	SW846 8260D	1	12/12/2023 20:03	ILY	A
Bromoform	1.0 U	U	ug/L	1.0	SW846 8260D	1	12/12/2023 20:03	ILY	A
Bromomethane	1.0 U	U	ug/L	1.0	SW846 8260D	1	12/12/2023 20:03	ILY	A
Carbon Tetrachloride	1.0 U	U	ug/L	1.0	SW846 8260D	1	12/12/2023 20:03	ILY	A
Chlorobenzene	1.0 U	U	ug/L	1.0	SW846 8260D	1	12/12/2023 20:03	ILY	A
Chlorodibromomethane	1.0 U	U	ug/L	1.0	SW846 8260D	1	12/12/2023 20:03	ILY	A
Chloroethane	1.0 U	U,1	ug/L	1.0	SW846 8260D	1	12/12/2023 20:03	ILY	A
Chloroform	1.0 U	U	ug/L	1.0	SW846 8260D	1	12/12/2023 20:03	ILY	A
Chloromethane	1.0 U	U	ug/L	1.0	SW846 8260D	1	12/12/2023 20:03	ILY	A

Results

Client Sample ID	MW-40D	Collected	12/03/2023 11:50
Lab Sample ID	3335533020	Lab Receipt	12/04/2023 18:15

VOLATILE ORGANICS (cont.)

Compound	Result	Flag	Units	RDL	Method	Dilution	Analysis Date/Time	By	Cntr
cis-1,2-Dichloroethene	1.0 U	U	ug/L	1.0	SW846 8260D	1	12/12/2023 20:03	ILY	A
cis-1,3-Dichloropropene	1.0 U	U	ug/L	1.0	SW846 8260D	1	12/12/2023 20:03	ILY	A
Dibromomethane	1.0 U	U	ug/L	1.0	SW846 8260D	1	12/12/2023 20:03	ILY	A
Dichlorodifluoromethane	1.0 U	U	ug/L	1.0	SW846 8260D	1	12/12/2023 20:03	ILY	A
Diisopropyl ether	1.0 U	U	ug/L	1.0	SW846 8260D	1	12/12/2023 20:03	ILY	A
Ethylbenzene	1.0 U	U	ug/L	1.0	SW846 8260D	1	12/12/2023 20:03	ILY	A
Hexachlorobutadiene	5.0 U	U,2	ug/L	5.0	SW846 8260D	1	12/12/2023 20:03	ILY	A
Methyl t-Butyl Ether	1.0 U	U	ug/L	1.0	SW846 8260D	1	12/12/2023 20:03	ILY	A
Methylene Chloride	1.0 U	U	ug/L	1.0	SW846 8260D	1	12/12/2023 20:03	ILY	A
mp-Xylene	2.0 U	U	ug/L	2.0	SW846 8260D	1	12/12/2023 20:03	ILY	A
Naphthalene	2.0 U	U	ug/L	2.0	SW846 8260D	1	12/12/2023 20:03	ILY	A
o-Chlorotoluene	1.0 U	U	ug/L	1.0	SW846 8260D	1	12/12/2023 20:03	ILY	A
o-Xylene	1.0 U	U	ug/L	1.0	SW846 8260D	1	12/12/2023 20:03	ILY	A
p-Chlorotoluene	1.0 U	U	ug/L	1.0	SW846 8260D	1	12/12/2023 20:03	ILY	A
p-Isopropyltoluene	1.0 U	U	ug/L	1.0	SW846 8260D	1	12/12/2023 20:03	ILY	A
Styrene	1.0 U	U	ug/L	1.0	SW846 8260D	1	12/12/2023 20:03	ILY	A
Tetrachloroethene	1.0 U	U	ug/L	1.0	SW846 8260D	1	12/12/2023 20:03	ILY	A
Toluene	1.0 U	U	ug/L	1.0	SW846 8260D	1	12/12/2023 20:03	ILY	A
Total Xylenes	3.0 U	U	ug/L	3.0	SW846 8260D	1	12/12/2023 20:03	ILY	A
trans-1,2-Dichloroethene	1.0 U	U	ug/L	1.0	SW846 8260D	1	12/12/2023 20:03	ILY	A
trans-1,3-Dichloropropene	1.0 U	U	ug/L	1.0	SW846 8260D	1	12/12/2023 20:03	ILY	A
Trichloroethene	1.0 U	U	ug/L	1.0	SW846 8260D	1	12/12/2023 20:03	ILY	A
Trichlorofluoromethane	1.0 U	U	ug/L	1.0	SW846 8260D	1	12/12/2023 20:03	ILY	A
Vinyl Acetate	5.0 U	U	ug/L	5.0	SW846 8260D	1	12/12/2023 20:03	ILY	A
Vinyl Chloride	1.0 U	U	ug/L	1.0	SW846 8260D	1	12/12/2023 20:03	ILY	A

SURROGATES

Compound	CAS No	Recovery	Limits(%)	Analysis Date/Time	Qualifiers
1,2-Dichloroethane-d4	17060-07-0	105%	62 – 133	12/12/2023 20:03	
4-Bromofluorobenzene	460-00-4	100%	79 – 114	12/12/2023 20:03	
Dibromofluoromethane	1868-53-7	99.6%	78 – 116	12/12/2023 20:03	
Toluene-d8	2037-26-5	99.1%	76 – 127	12/12/2023 20:03	

Results

Client Sample ID	MW-41D	Collected	12/03/2023 14:05
Lab Sample ID	3335533021	Lab Receipt	12/04/2023 18:15

SEMIVOLATILE SIM

Compound	Result	Flag	Units	RDL	Method	Dilution	Analysis Date/Time	By	Cntr
1,4-Dioxane	1.0 U	U	ug/L	1.0	SW846 8270E SIM	1	12/11/2023 07:28	S7M	C

SURROGATES

Compound	CAS No	Recovery	Limits(%)	Analysis Date/Time	Qualifiers
2-Methylnapthalene-d10	7297-45-2	64.4%	29 – 112	12/11/2023 07:28	
Fluoranthene-d10	93951-69-0	78%	45 – 130	12/11/2023 07:28	

VOLATILE ORGANICS

Compound	Result	Flag	Units	RDL	Method	Dilution	Analysis Date/Time	By	Cntr
1,1,1,2-Tetrachloroethane	1.0 U	U	ug/L	1.0	SW846 8260D	1	12/12/2023 15:34	ILY	A
1,1,1-Trichloroethane	1.0 U	U	ug/L	1.0	SW846 8260D	1	12/12/2023 15:34	ILY	A
1,1,2,2-Tetrachloroethane	1.0 U	U	ug/L	1.0	SW846 8260D	1	12/12/2023 15:34	ILY	A
1,1,2-Trichloroethane	1.0 U	U	ug/L	1.0	SW846 8260D	1	12/12/2023 15:34	ILY	A
1,1-Dichloroethane	1.0 U	U	ug/L	1.0	SW846 8260D	1	12/12/2023 15:34	ILY	A
1,1-Dichloroethene	1.0 U	U	ug/L	1.0	SW846 8260D	1	12/12/2023 15:34	ILY	A
1,1-Dichloropropene	1.0 U	U	ug/L	1.0	SW846 8260D	1	12/12/2023 15:34	ILY	A
1,2,3-Trichlorobenzene	2.0 U	U	ug/L	2.0	SW846 8260D	1	12/12/2023 15:34	ILY	A
1,2,3-Trichloropropane	2.0 U	U	ug/L	2.0	SW846 8260D	1	12/12/2023 15:34	ILY	A
1,2,4-Trichlorobenzene	2.0 U	U	ug/L	2.0	SW846 8260D	1	12/12/2023 15:34	ILY	A
1,2-Dibromo-3-chloropropane	7.0 U	U	ug/L	7.0	SW846 8260D	1	12/12/2023 15:34	ILY	A
1,2-Dibromoethane	1.0 U	U	ug/L	1.0	SW846 8260D	1	12/12/2023 15:34	ILY	A
1,2-Dichlorobenzene	1.0 U	U	ug/L	1.0	SW846 8260D	1	12/12/2023 15:34	ILY	A
1,2-Dichloroethane	1.0 U	U	ug/L	1.0	SW846 8260D	1	12/12/2023 15:34	ILY	A
1,2-Dichloropropane	1.0 U	U	ug/L	1.0	SW846 8260D	1	12/12/2023 15:34	ILY	A
1,3-Dichlorobenzene	1.0 U	U	ug/L	1.0	SW846 8260D	1	12/12/2023 15:34	ILY	A
1,3-Dichloropropane	1.0 U	U	ug/L	1.0	SW846 8260D	1	12/12/2023 15:34	ILY	A
1,4-Dichlorobenzene	1.0 U	U	ug/L	1.0	SW846 8260D	1	12/12/2023 15:34	ILY	A
2,2-Dichloropropane	1.0 U	U	ug/L	1.0	SW846 8260D	1	12/12/2023 15:34	ILY	A
2-Butanone	10.0 U	U	ug/L	10.0	SW846 8260D	1	12/12/2023 15:34	ILY	A
2-Hexanone	5.0 U	U	ug/L	5.0	SW846 8260D	1	12/12/2023 15:34	ILY	A
4-Methyl-2-Pentanone(MIBK)	5.0 U	U	ug/L	5.0	SW846 8260D	1	12/12/2023 15:34	ILY	A
Acetone	10.0 U	U	ug/L	10.0	SW846 8260D	1	12/12/2023 15:34	ILY	A
Benzene	1.0 U	U	ug/L	1.0	SW846 8260D	1	12/12/2023 15:34	ILY	A
Bromobenzene	1.0 U	U	ug/L	1.0	SW846 8260D	1	12/12/2023 15:34	ILY	A
Bromochloromethane	1.0 U	U	ug/L	1.0	SW846 8260D	1	12/12/2023 15:34	ILY	A
Bromodichloromethane	1.0 U	U	ug/L	1.0	SW846 8260D	1	12/12/2023 15:34	ILY	A
Bromoform	1.0 U	U	ug/L	1.0	SW846 8260D	1	12/12/2023 15:34	ILY	A
Bromomethane	1.0 U	U	ug/L	1.0	SW846 8260D	1	12/12/2023 15:34	ILY	A
Carbon Tetrachloride	1.0 U	U	ug/L	1.0	SW846 8260D	1	12/12/2023 15:34	ILY	A
Chlorobenzene	1.0 U	U	ug/L	1.0	SW846 8260D	1	12/12/2023 15:34	ILY	A
Chlorodibromomethane	1.0 U	U	ug/L	1.0	SW846 8260D	1	12/12/2023 15:34	ILY	A
Chloroethane	1.0 U	U	ug/L	1.0	SW846 8260D	1	12/12/2023 15:34	ILY	A
Chloroform	1.0 U	U	ug/L	1.0	SW846 8260D	1	12/12/2023 15:34	ILY	A
Chloromethane	1.0 U	U	ug/L	1.0	SW846 8260D	1	12/12/2023 15:34	ILY	A

Results

Client Sample ID	MW-41D	Collected	12/03/2023 14:05
Lab Sample ID	3335533021	Lab Receipt	12/04/2023 18:15

VOLATILE ORGANICS (cont.)

Compound	Result	Flag	Units	RDL	Method	Dilution	Analysis Date/Time	By	Cntr
cis-1,2-Dichloroethene	1.0 U	U	ug/L	1.0	SW846 8260D	1	12/12/2023 15:34	ILY	A
cis-1,3-Dichloropropene	1.0 U	U	ug/L	1.0	SW846 8260D	1	12/12/2023 15:34	ILY	A
Dibromomethane	1.0 U	U	ug/L	1.0	SW846 8260D	1	12/12/2023 15:34	ILY	A
Dichlorodifluoromethane	1.0 U	U	ug/L	1.0	SW846 8260D	1	12/12/2023 15:34	ILY	A
Diisopropyl ether	1.0 U	U	ug/L	1.0	SW846 8260D	1	12/12/2023 15:34	ILY	A
Ethylbenzene	1.0 U	U	ug/L	1.0	SW846 8260D	1	12/12/2023 15:34	ILY	A
Hexachlorobutadiene	5.0 U	U	ug/L	5.0	SW846 8260D	1	12/12/2023 15:34	ILY	A
Methyl t-Butyl Ether	1.0 U	U	ug/L	1.0	SW846 8260D	1	12/12/2023 15:34	ILY	A
Methylene Chloride	1.0 U	U	ug/L	1.0	SW846 8260D	1	12/12/2023 15:34	ILY	A
mp-Xylene	2.0 U	U	ug/L	2.0	SW846 8260D	1	12/12/2023 15:34	ILY	A
Naphthalene	2.0 U	U	ug/L	2.0	SW846 8260D	1	12/12/2023 15:34	ILY	A
o-Chlorotoluene	1.0 U	U	ug/L	1.0	SW846 8260D	1	12/12/2023 15:34	ILY	A
o-Xylene	1.0 U	U	ug/L	1.0	SW846 8260D	1	12/12/2023 15:34	ILY	A
p-Chlorotoluene	1.0 U	U	ug/L	1.0	SW846 8260D	1	12/12/2023 15:34	ILY	A
p-Isopropyltoluene	1.0 U	U	ug/L	1.0	SW846 8260D	1	12/12/2023 15:34	ILY	A
Styrene	1.0 U	U	ug/L	1.0	SW846 8260D	1	12/12/2023 15:34	ILY	A
Tetrachloroethene	1.0 U	U	ug/L	1.0	SW846 8260D	1	12/12/2023 15:34	ILY	A
Toluene	1.0 U	U	ug/L	1.0	SW846 8260D	1	12/12/2023 15:34	ILY	A
Total Xylenes	3.0 U	U	ug/L	3.0	SW846 8260D	1	12/12/2023 15:34	ILY	A
trans-1,2-Dichloroethene	1.0 U	U	ug/L	1.0	SW846 8260D	1	12/12/2023 15:34	ILY	A
trans-1,3-Dichloropropene	1.0 U	U	ug/L	1.0	SW846 8260D	1	12/12/2023 15:34	ILY	A
Trichloroethene	1.0 U	U	ug/L	1.0	SW846 8260D	1	12/12/2023 15:34	ILY	A
Trichlorofluoromethane	1.0 U	U	ug/L	1.0	SW846 8260D	1	12/12/2023 15:34	ILY	A
Vinyl Acetate	5.0 U	U	ug/L	5.0	SW846 8260D	1	12/12/2023 15:34	ILY	A
Vinyl Chloride	1.0 U	U	ug/L	1.0	SW846 8260D	1	12/12/2023 15:34	ILY	A

SURROGATES

Compound	CAS No	Recovery	Limits(%)	Analysis Date/Time	Qualifiers
1,2-Dichloroethane-d4	17060-07-0	105%	62 – 133	12/12/2023 15:34	
4-Bromofluorobenzene	460-00-4	94%	79 – 114	12/12/2023 15:34	
Dibromofluoromethane	1868-53-7	98.4%	78 – 116	12/12/2023 15:34	
Toluene-d8	2037-26-5	97.3%	76 – 127	12/12/2023 15:34	

Results

Client Sample ID	MW-46D	Collected	12/03/2023 10:35
Lab Sample ID	3335533022	Lab Receipt	12/04/2023 18:15

SEMIVOLATILE SIM

Compound	Result	Flag	Units	RDL	Method	Dilution	Analysis Date/Time	By	Cntr
1,4-Dioxane	27.3	20	ug/L	10.2	SW846 8270E SIM	10	12/12/2023 10:45	S7M	C

SURROGATES

Compound	CAS No	Recovery	Limits(%)	Analysis Date/Time	Qualifiers
2-Methylnapthalene-d10	7297-45-2	67.9%	29 – 112	12/11/2023 07:54	
2-Methylnapthalene-d10	7297-45-2	68.3%	29 – 112	12/12/2023 10:45	
Fluoranthene-d10	93951-69-0	90.8%	45 – 130	12/11/2023 07:54	
Fluoranthene-d10	93951-69-0	82.5%	45 – 130	12/12/2023 10:45	

VOLATILE ORGANICS

Compound	Result	Flag	Units	RDL	Method	Dilution	Analysis Date/Time	By	Cntr
1,1,1,2-Tetrachloroethane	1.0 U	U	ug/L	1.0	SW846 8260D	1	12/12/2023 15:54	ILY	A
1,1,1-Trichloroethane	1.6		ug/L	1.0	SW846 8260D	1	12/12/2023 15:54	ILY	A
1,1,2,2-Tetrachloroethane	1.0 U	U	ug/L	1.0	SW846 8260D	1	12/12/2023 15:54	ILY	A
1,1,2-Trichloroethane	1.0 U	U	ug/L	1.0	SW846 8260D	1	12/12/2023 15:54	ILY	A
1,1-Dichloroethane	8.7		ug/L	1.0	SW846 8260D	1	12/12/2023 15:54	ILY	A
1,1-Dichloroethene	51.5		ug/L	1.0	SW846 8260D	1	12/12/2023 15:54	ILY	A
1,1-Dichloropropene	1.0 U	U	ug/L	1.0	SW846 8260D	1	12/12/2023 15:54	ILY	A
1,2,3-Trichlorobenzene	2.0 U	U	ug/L	2.0	SW846 8260D	1	12/12/2023 15:54	ILY	A
1,2,3-Trichloropropane	2.0 U	U	ug/L	2.0	SW846 8260D	1	12/12/2023 15:54	ILY	A
1,2,4-Trichlorobenzene	2.0 U	U	ug/L	2.0	SW846 8260D	1	12/12/2023 15:54	ILY	A
1,2-Dibromo-3-chloropropane	7.0 U	U	ug/L	7.0	SW846 8260D	1	12/12/2023 15:54	ILY	A
1,2-Dibromoethane	1.0 U	U	ug/L	1.0	SW846 8260D	1	12/12/2023 15:54	ILY	A
1,2-Dichlorobenzene	1.0 U	U	ug/L	1.0	SW846 8260D	1	12/12/2023 15:54	ILY	A
1,2-Dichloroethane	1.0 U	U	ug/L	1.0	SW846 8260D	1	12/12/2023 15:54	ILY	A
1,2-Dichloropropane	1.0 U	U	ug/L	1.0	SW846 8260D	1	12/12/2023 15:54	ILY	A
1,3-Dichlorobenzene	1.0 U	U	ug/L	1.0	SW846 8260D	1	12/12/2023 15:54	ILY	A
1,3-Dichloropropane	1.0 U	U	ug/L	1.0	SW846 8260D	1	12/12/2023 15:54	ILY	A
1,4-Dichlorobenzene	1.0 U	U	ug/L	1.0	SW846 8260D	1	12/12/2023 15:54	ILY	A
2,2-Dichloropropane	1.0 U	U	ug/L	1.0	SW846 8260D	1	12/12/2023 15:54	ILY	A
2-Butanone	10.0 U	U	ug/L	10.0	SW846 8260D	1	12/12/2023 15:54	ILY	A
2-Hexanone	5.0 U	U	ug/L	5.0	SW846 8260D	1	12/12/2023 15:54	ILY	A
4-Methyl-2-Pentanone(MIBK)	5.0 U	U	ug/L	5.0	SW846 8260D	1	12/12/2023 15:54	ILY	A
Acetone	10.0 U	U	ug/L	10.0	SW846 8260D	1	12/12/2023 15:54	ILY	A
Benzene	1.0 U	U	ug/L	1.0	SW846 8260D	1	12/12/2023 15:54	ILY	A
Bromobenzene	1.0 U	U	ug/L	1.0	SW846 8260D	1	12/12/2023 15:54	ILY	A
Bromochloromethane	1.0 U	U	ug/L	1.0	SW846 8260D	1	12/12/2023 15:54	ILY	A
Bromodichloromethane	1.0 U	U	ug/L	1.0	SW846 8260D	1	12/12/2023 15:54	ILY	A
Bromoform	1.0 U	U	ug/L	1.0	SW846 8260D	1	12/12/2023 15:54	ILY	A
Bromomethane	1.0 U	U	ug/L	1.0	SW846 8260D	1	12/12/2023 15:54	ILY	A
Carbon Tetrachloride	1.0 U	U	ug/L	1.0	SW846 8260D	1	12/12/2023 15:54	ILY	A
Chlorobenzene	1.0 U	U	ug/L	1.0	SW846 8260D	1	12/12/2023 15:54	ILY	A
Chlorodibromomethane	1.0 U	U	ug/L	1.0	SW846 8260D	1	12/12/2023 15:54	ILY	A
Chloroethane	1.0 U	U	ug/L	1.0	SW846 8260D	1	12/12/2023 15:54	ILY	A

Results

Client Sample ID	MW-46D	Collected	12/03/2023 10:35
Lab Sample ID	3335533022	Lab Receipt	12/04/2023 18:15

VOLATILE ORGANICS (cont.)

Compound	Result	Flag	Units	RDL	Method	Dilution	Analysis Date/Time	By	Cntr
Chloroform	1.0 U	U	ug/L	1.0	SW846 8260D	1	12/12/2023 15:54	ILY	A
Chloromethane	1.0 U	U	ug/L	1.0	SW846 8260D	1	12/12/2023 15:54	ILY	A
cis-1,2-Dichloroethene	1.0 U	U	ug/L	1.0	SW846 8260D	1	12/12/2023 15:54	ILY	A
cis-1,3-Dichloropropene	1.0 U	U	ug/L	1.0	SW846 8260D	1	12/12/2023 15:54	ILY	A
Dibromomethane	1.0 U	U	ug/L	1.0	SW846 8260D	1	12/12/2023 15:54	ILY	A
Dichlorodifluoromethane	1.0 U	U	ug/L	1.0	SW846 8260D	1	12/12/2023 15:54	ILY	A
Diisopropyl ether	1.0 U	U	ug/L	1.0	SW846 8260D	1	12/12/2023 15:54	ILY	A
Ethylbenzene	1.0 U	U	ug/L	1.0	SW846 8260D	1	12/12/2023 15:54	ILY	A
Hexachlorobutadiene	5.0 U	U	ug/L	5.0	SW846 8260D	1	12/12/2023 15:54	ILY	A
Methyl t-Butyl Ether	1.0 U	U	ug/L	1.0	SW846 8260D	1	12/12/2023 15:54	ILY	A
Methylene Chloride	1.0 U	U	ug/L	1.0	SW846 8260D	1	12/12/2023 15:54	ILY	A
mp-Xylene	2.0 U	U	ug/L	2.0	SW846 8260D	1	12/12/2023 15:54	ILY	A
Naphthalene	2.0 U	U	ug/L	2.0	SW846 8260D	1	12/12/2023 15:54	ILY	A
o-Chlorotoluene	1.0 U	U	ug/L	1.0	SW846 8260D	1	12/12/2023 15:54	ILY	A
o-Xylene	1.0 U	U	ug/L	1.0	SW846 8260D	1	12/12/2023 15:54	ILY	A
p-Chlorotoluene	1.0 U	U	ug/L	1.0	SW846 8260D	1	12/12/2023 15:54	ILY	A
p-Isopropyltoluene	1.0 U	U	ug/L	1.0	SW846 8260D	1	12/12/2023 15:54	ILY	A
Styrene	1.0 U	U	ug/L	1.0	SW846 8260D	1	12/12/2023 15:54	ILY	A
Tetrachloroethene	1.0 U	U	ug/L	1.0	SW846 8260D	1	12/12/2023 15:54	ILY	A
Toluene	1.0 U	U	ug/L	1.0	SW846 8260D	1	12/12/2023 15:54	ILY	A
Total Xylenes	3.0 U	U	ug/L	3.0	SW846 8260D	1	12/12/2023 15:54	ILY	A
trans-1,2-Dichloroethene	1.0 U	U	ug/L	1.0	SW846 8260D	1	12/12/2023 15:54	ILY	A
trans-1,3-Dichloropropene	1.0 U	U	ug/L	1.0	SW846 8260D	1	12/12/2023 15:54	ILY	A
Trichloroethene	1.0 U	U	ug/L	1.0	SW846 8260D	1	12/12/2023 15:54	ILY	A
Trichlorofluoromethane	1.0 U	U	ug/L	1.0	SW846 8260D	1	12/12/2023 15:54	ILY	A
Vinyl Acetate	5.0 U	U	ug/L	5.0	SW846 8260D	1	12/12/2023 15:54	ILY	A
Vinyl Chloride	1.0 U	U	ug/L	1.0	SW846 8260D	1	12/12/2023 15:54	ILY	A

SURROGATES

Compound	CAS No	Recovery	Limits(%)	Analysis Date/Time	Qualifiers
1,2-Dichloroethane-d4	17060-07-0	103%	62 – 133	12/12/2023 15:54	
4-Bromofluorobenzene	460-00-4	94%	79 – 114	12/12/2023 15:54	
Dibromofluoromethane	1868-53-7	95.7%	78 – 116	12/12/2023 15:54	
Toluene-d8	2037-26-5	94%	76 – 127	12/12/2023 15:54	

Results

Client Sample ID	DUP-120323	Collected	12/03/2023 12:30
Lab Sample ID	3335533023	Lab Receipt	12/04/2023 18:15

SEMIVOLATILE SIM

Compound	Result	Flag	Units	RDL	Method	Dilution	Analysis Date/Time	By	Cntr
1,4-Dioxane	27.0	20	ug/L	10.2	SW846 8270E SIM	10	12/12/2023 11:11	S7M	C

SURROGATES

Compound	CAS No	Recovery	Limits(%)	Analysis Date/Time	Qualifiers
2-Methylnapthalene-d10	7297-45-2	68.5%	29 – 112	12/11/2023 08:20	
2-Methylnapthalene-d10	7297-45-2	68.8%	29 – 112	12/12/2023 11:11	
Fluoranthene-d10	93951-69-0	79.2%	45 – 130	12/11/2023 08:20	
Fluoranthene-d10	93951-69-0	85.4%	45 – 130	12/12/2023 11:11	

VOLATILE ORGANICS

Compound	Result	Flag	Units	RDL	Method	Dilution	Analysis Date/Time	By	Cntr
1,1,1,2-Tetrachloroethane	1.0 U	U	ug/L	1.0	SW846 8260D	1	12/12/2023 16:15	ILY	A
1,1,1-Trichloroethane	4.7		ug/L	1.0	SW846 8260D	1	12/12/2023 16:15	ILY	A
1,1,2,2-Tetrachloroethane	1.0 U	U	ug/L	1.0	SW846 8260D	1	12/12/2023 16:15	ILY	A
1,1,2-Trichloroethane	1.0 U	U	ug/L	1.0	SW846 8260D	1	12/12/2023 16:15	ILY	A
1,1-Dichloroethane	19.7		ug/L	1.0	SW846 8260D	1	12/12/2023 16:15	ILY	A
1,1-Dichloroethene	98.3		ug/L	1.0	SW846 8260D	1	12/12/2023 16:15	ILY	A
1,1-Dichloropropene	1.0 U	U	ug/L	1.0	SW846 8260D	1	12/12/2023 16:15	ILY	A
1,2,3-Trichlorobenzene	2.0 U	U	ug/L	2.0	SW846 8260D	1	12/12/2023 16:15	ILY	A
1,2,3-Trichloropropane	2.0 U	U	ug/L	2.0	SW846 8260D	1	12/12/2023 16:15	ILY	A
1,2,4-Trichlorobenzene	2.0 U	U	ug/L	2.0	SW846 8260D	1	12/12/2023 16:15	ILY	A
1,2-Dibromo-3-chloropropane	7.0 U	U	ug/L	7.0	SW846 8260D	1	12/12/2023 16:15	ILY	A
1,2-Dibromoethane	1.0 U	U	ug/L	1.0	SW846 8260D	1	12/12/2023 16:15	ILY	A
1,2-Dichlorobenzene	1.0 U	U	ug/L	1.0	SW846 8260D	1	12/12/2023 16:15	ILY	A
1,2-Dichloroethane	1.0 U	U	ug/L	1.0	SW846 8260D	1	12/12/2023 16:15	ILY	A
1,2-Dichloropropane	1.0 U	U	ug/L	1.0	SW846 8260D	1	12/12/2023 16:15	ILY	A
1,3-Dichlorobenzene	1.0 U	U	ug/L	1.0	SW846 8260D	1	12/12/2023 16:15	ILY	A
1,3-Dichloropropane	1.0 U	U	ug/L	1.0	SW846 8260D	1	12/12/2023 16:15	ILY	A
1,4-Dichlorobenzene	1.0 U	U	ug/L	1.0	SW846 8260D	1	12/12/2023 16:15	ILY	A
2,2-Dichloropropane	1.0 U	U	ug/L	1.0	SW846 8260D	1	12/12/2023 16:15	ILY	A
2-Butanone	10.0 U	U	ug/L	10.0	SW846 8260D	1	12/12/2023 16:15	ILY	A
2-Hexanone	5.0 U	U	ug/L	5.0	SW846 8260D	1	12/12/2023 16:15	ILY	A
4-Methyl-2-Pentanone(MIBK)	5.0 U	U	ug/L	5.0	SW846 8260D	1	12/12/2023 16:15	ILY	A
Acetone	10.0 U	U	ug/L	10.0	SW846 8260D	1	12/12/2023 16:15	ILY	A
Benzene	1.0 U	U	ug/L	1.0	SW846 8260D	1	12/12/2023 16:15	ILY	A
Bromobenzene	1.0 U	U	ug/L	1.0	SW846 8260D	1	12/12/2023 16:15	ILY	A
Bromochloromethane	1.0 U	U	ug/L	1.0	SW846 8260D	1	12/12/2023 16:15	ILY	A
Bromodichloromethane	1.0 U	U	ug/L	1.0	SW846 8260D	1	12/12/2023 16:15	ILY	A
Bromoform	1.0 U	U	ug/L	1.0	SW846 8260D	1	12/12/2023 16:15	ILY	A
Bromomethane	1.0 U	U	ug/L	1.0	SW846 8260D	1	12/12/2023 16:15	ILY	A
Carbon Tetrachloride	1.0 U	U	ug/L	1.0	SW846 8260D	1	12/12/2023 16:15	ILY	A
Chlorobenzene	1.0 U	U	ug/L	1.0	SW846 8260D	1	12/12/2023 16:15	ILY	A
Chlorodibromomethane	1.0 U	U	ug/L	1.0	SW846 8260D	1	12/12/2023 16:15	ILY	A
Chloroethane	1.0 U	U	ug/L	1.0	SW846 8260D	1	12/12/2023 16:15	ILY	A

Results

Client Sample ID	DUP-120323	Collected	12/03/2023 12:30
Lab Sample ID	3335533023	Lab Receipt	12/04/2023 18:15

VOLATILE ORGANICS (cont.)

Compound	Result	Flag	Units	RDL	Method	Dilution	Analysis Date/Time	By	Cntr
Chloroform	1.0 U	U	ug/L	1.0	SW846 8260D	1	12/12/2023 16:15	ILY	A
Chloromethane	1.0 U	U	ug/L	1.0	SW846 8260D	1	12/12/2023 16:15	ILY	A
cis-1,2-Dichloroethene	1.0 U	U	ug/L	1.0	SW846 8260D	1	12/12/2023 16:15	ILY	A
cis-1,3-Dichloropropene	1.0 U	U	ug/L	1.0	SW846 8260D	1	12/12/2023 16:15	ILY	A
Dibromomethane	1.0 U	U	ug/L	1.0	SW846 8260D	1	12/12/2023 16:15	ILY	A
Dichlorodifluoromethane	1.0 U	U	ug/L	1.0	SW846 8260D	1	12/12/2023 16:15	ILY	A
Diisopropyl ether	1.0 U	U	ug/L	1.0	SW846 8260D	1	12/12/2023 16:15	ILY	A
Ethylbenzene	1.0 U	U	ug/L	1.0	SW846 8260D	1	12/12/2023 16:15	ILY	A
Hexachlorobutadiene	5.0 U	U	ug/L	5.0	SW846 8260D	1	12/12/2023 16:15	ILY	A
Methyl t-Butyl Ether	1.0 U	U	ug/L	1.0	SW846 8260D	1	12/12/2023 16:15	ILY	A
Methylene Chloride	1.0 U	U	ug/L	1.0	SW846 8260D	1	12/12/2023 16:15	ILY	A
mp-Xylene	2.0 U	U	ug/L	2.0	SW846 8260D	1	12/12/2023 16:15	ILY	A
Naphthalene	2.0 U	U	ug/L	2.0	SW846 8260D	1	12/12/2023 16:15	ILY	A
o-Chlorotoluene	1.0 U	U	ug/L	1.0	SW846 8260D	1	12/12/2023 16:15	ILY	A
o-Xylene	1.0 U	U	ug/L	1.0	SW846 8260D	1	12/12/2023 16:15	ILY	A
p-Chlorotoluene	1.0 U	U	ug/L	1.0	SW846 8260D	1	12/12/2023 16:15	ILY	A
p-Isopropyltoluene	1.0 U	U	ug/L	1.0	SW846 8260D	1	12/12/2023 16:15	ILY	A
Styrene	1.0 U	U	ug/L	1.0	SW846 8260D	1	12/12/2023 16:15	ILY	A
Tetrachloroethene	1.0 U	U	ug/L	1.0	SW846 8260D	1	12/12/2023 16:15	ILY	A
Toluene	1.0 U	U	ug/L	1.0	SW846 8260D	1	12/12/2023 16:15	ILY	A
Total Xylenes	3.0 U	U	ug/L	3.0	SW846 8260D	1	12/12/2023 16:15	ILY	A
trans-1,2-Dichloroethene	1.0 U	U	ug/L	1.0	SW846 8260D	1	12/12/2023 16:15	ILY	A
trans-1,3-Dichloropropene	1.0 U	U	ug/L	1.0	SW846 8260D	1	12/12/2023 16:15	ILY	A
Trichloroethene	1.0 U	U	ug/L	1.0	SW846 8260D	1	12/12/2023 16:15	ILY	A
Trichlorofluoromethane	1.0 U	U	ug/L	1.0	SW846 8260D	1	12/12/2023 16:15	ILY	A
Vinyl Acetate	5.0 U	U	ug/L	5.0	SW846 8260D	1	12/12/2023 16:15	ILY	A
Vinyl Chloride	1.0 U	U	ug/L	1.0	SW846 8260D	1	12/12/2023 16:15	ILY	A

SURROGATES

Compound	CAS No	Recovery	Limits(%)	Analysis Date/Time	Qualifiers
1,2-Dichloroethane-d4	17060-07-0	104%	62 – 133	12/12/2023 16:15	
4-Bromofluorobenzene	460-00-4	91.4%	79 – 114	12/12/2023 16:15	
Dibromofluoromethane	1868-53-7	96.9%	78 – 116	12/12/2023 16:15	
Toluene-d8	2037-26-5	90.7%	76 – 127	12/12/2023 16:15	

Results

Client Sample ID	Trip Blank A	Collected	12/03/2023 00:00
Lab Sample ID	3335533024	Lab Receipt	12/04/2023 18:15

VOLATILE ORGANICS

Compound	Result	Flag	Units	RDL	Method	Dilution	Analysis Date/Time	By	Cntr
1,1,1,2-Tetrachloroethane	1.0 U	U	ug/L	1.0	SW846 8260D	1	12/12/2023 13:52	ILY	A
1,1,1-Trichloroethane	1.0 U	U	ug/L	1.0	SW846 8260D	1	12/12/2023 13:52	ILY	A
1,1,2,2-Tetrachloroethane	1.0 U	U	ug/L	1.0	SW846 8260D	1	12/12/2023 13:52	ILY	A
1,1,2-Trichloroethane	1.0 U	U	ug/L	1.0	SW846 8260D	1	12/12/2023 13:52	ILY	A
1,1-Dichloroethane	1.0 U	U	ug/L	1.0	SW846 8260D	1	12/12/2023 13:52	ILY	A
1,1-Dichloroethene	1.0 U	U	ug/L	1.0	SW846 8260D	1	12/12/2023 13:52	ILY	A
1,1-Dichloropropene	1.0 U	U	ug/L	1.0	SW846 8260D	1	12/12/2023 13:52	ILY	A
1,2,3-Trichlorobenzene	2.0 U	U	ug/L	2.0	SW846 8260D	1	12/12/2023 13:52	ILY	A
1,2,3-Trichloropropane	2.0 U	U	ug/L	2.0	SW846 8260D	1	12/12/2023 13:52	ILY	A
1,2,4-Trichlorobenzene	2.0 U	U	ug/L	2.0	SW846 8260D	1	12/12/2023 13:52	ILY	A
1,2-Dibromo-3-chloropropane	7.0 U	U	ug/L	7.0	SW846 8260D	1	12/12/2023 13:52	ILY	A
1,2-Dibromoethane	1.0 U	U	ug/L	1.0	SW846 8260D	1	12/12/2023 13:52	ILY	A
1,2-Dichlorobenzene	1.0 U	U	ug/L	1.0	SW846 8260D	1	12/12/2023 13:52	ILY	A
1,2-Dichloroethane	1.0 U	U	ug/L	1.0	SW846 8260D	1	12/12/2023 13:52	ILY	A
1,2-Dichloropropane	1.0 U	U	ug/L	1.0	SW846 8260D	1	12/12/2023 13:52	ILY	A
1,3-Dichlorobenzene	1.0 U	U	ug/L	1.0	SW846 8260D	1	12/12/2023 13:52	ILY	A
1,3-Dichloropropane	1.0 U	U	ug/L	1.0	SW846 8260D	1	12/12/2023 13:52	ILY	A
1,4-Dichlorobenzene	1.0 U	U	ug/L	1.0	SW846 8260D	1	12/12/2023 13:52	ILY	A
2,2-Dichloropropane	1.0 U	U	ug/L	1.0	SW846 8260D	1	12/12/2023 13:52	ILY	A
2-Butanone	10.0 U	U	ug/L	10.0	SW846 8260D	1	12/12/2023 13:52	ILY	A
2-Hexanone	5.0 U	U	ug/L	5.0	SW846 8260D	1	12/12/2023 13:52	ILY	A
4-Methyl-2-Pentanone(MIBK)	5.0 U	U	ug/L	5.0	SW846 8260D	1	12/12/2023 13:52	ILY	A
Acetone	10.0 U	U	ug/L	10.0	SW846 8260D	1	12/12/2023 13:52	ILY	A
Benzene	1.0 U	U	ug/L	1.0	SW846 8260D	1	12/12/2023 13:52	ILY	A
Bromobenzene	1.0 U	U	ug/L	1.0	SW846 8260D	1	12/12/2023 13:52	ILY	A
Bromochloromethane	1.0 U	U	ug/L	1.0	SW846 8260D	1	12/12/2023 13:52	ILY	A
Bromodichloromethane	1.0 U	U	ug/L	1.0	SW846 8260D	1	12/12/2023 13:52	ILY	A
Bromoform	1.0 U	U	ug/L	1.0	SW846 8260D	1	12/12/2023 13:52	ILY	A
Bromomethane	1.0 U	U	ug/L	1.0	SW846 8260D	1	12/12/2023 13:52	ILY	A
Carbon Tetrachloride	1.0 U	U	ug/L	1.0	SW846 8260D	1	12/12/2023 13:52	ILY	A
Chlorobenzene	1.0 U	U	ug/L	1.0	SW846 8260D	1	12/12/2023 13:52	ILY	A
Chlorodibromomethane	1.0 U	U	ug/L	1.0	SW846 8260D	1	12/12/2023 13:52	ILY	A
Chloroethane	1.0 U	U	ug/L	1.0	SW846 8260D	1	12/12/2023 13:52	ILY	A
Chloroform	1.0 U	U	ug/L	1.0	SW846 8260D	1	12/12/2023 13:52	ILY	A
Chloromethane	1.0 U	U	ug/L	1.0	SW846 8260D	1	12/12/2023 13:52	ILY	A
cis-1,2-Dichloroethene	1.0 U	U	ug/L	1.0	SW846 8260D	1	12/12/2023 13:52	ILY	A
cis-1,3-Dichloropropene	1.0 U	U	ug/L	1.0	SW846 8260D	1	12/12/2023 13:52	ILY	A
Dibromomethane	1.0 U	U	ug/L	1.0	SW846 8260D	1	12/12/2023 13:52	ILY	A
Dichlorodifluoromethane	1.0 U	U	ug/L	1.0	SW846 8260D	1	12/12/2023 13:52	ILY	A
Diisopropyl ether	1.0 U	U	ug/L	1.0	SW846 8260D	1	12/12/2023 13:52	ILY	A
Ethylbenzene	1.0 U	U	ug/L	1.0	SW846 8260D	1	12/12/2023 13:52	ILY	A
Hexachlorobutadiene	5.0 U	U	ug/L	5.0	SW846 8260D	1	12/12/2023 13:52	ILY	A
Methyl t-Butyl Ether	1.0 U	U	ug/L	1.0	SW846 8260D	1	12/12/2023 13:52	ILY	A
Methylene Chloride	1.0 U	U	ug/L	1.0	SW846 8260D	1	12/12/2023 13:52	ILY	A
mp-Xylene	2.0 U	U	ug/L	2.0	SW846 8260D	1	12/12/2023 13:52	ILY	A
Naphthalene	2.0 U	U	ug/L	2.0	SW846 8260D	1	12/12/2023 13:52	ILY	A
o-Chlorotoluene	1.0 U	U	ug/L	1.0	SW846 8260D	1	12/12/2023 13:52	ILY	A

Results

Client Sample ID	Trip Blank A	Collected	12/03/2023 00:00
Lab Sample ID	3335533024	Lab Receipt	12/04/2023 18:15

VOLATILE ORGANICS (cont.)

Compound	Result	Flag	Units	RDL	Method	Dilution	Analysis Date/Time	By	Cntr
o-Xylene	1.0 U	U	ug/L	1.0	SW846 8260D	1	12/12/2023 13:52	ILY	A
p-Chlorotoluene	1.0 U	U	ug/L	1.0	SW846 8260D	1	12/12/2023 13:52	ILY	A
p-Isopropyltoluene	1.0 U	U	ug/L	1.0	SW846 8260D	1	12/12/2023 13:52	ILY	A
Styrene	1.0 U	U	ug/L	1.0	SW846 8260D	1	12/12/2023 13:52	ILY	A
Tetrachloroethene	1.0 U	U	ug/L	1.0	SW846 8260D	1	12/12/2023 13:52	ILY	A
Toluene	1.0 U	U	ug/L	1.0	SW846 8260D	1	12/12/2023 13:52	ILY	A
Total Xylenes	3.0 U	U	ug/L	3.0	SW846 8260D	1	12/12/2023 13:52	ILY	A
trans-1,2-Dichloroethene	1.0 U	U	ug/L	1.0	SW846 8260D	1	12/12/2023 13:52	ILY	A
trans-1,3-Dichloropropene	1.0 U	U	ug/L	1.0	SW846 8260D	1	12/12/2023 13:52	ILY	A
Trichloroethene	1.0 U	U	ug/L	1.0	SW846 8260D	1	12/12/2023 13:52	ILY	A
Trichlorofluoromethane	1.0 U	U	ug/L	1.0	SW846 8260D	1	12/12/2023 13:52	ILY	A
Vinyl Acetate	5.0 U	U	ug/L	5.0	SW846 8260D	1	12/12/2023 13:52	ILY	A
Vinyl Chloride	1.0 U	U	ug/L	1.0	SW846 8260D	1	12/12/2023 13:52	ILY	A

SURROGATES

Compound	CAS No	Recovery	Limits(%)	Analysis Date/Time	Qualifiers
1,2-Dichloroethane-d4	17060-07-0	107%	62 – 133	12/12/2023 13:52	
4-Bromofluorobenzene	460-00-4	94.6%	79 – 114	12/12/2023 13:52	
Dibromofluoromethane	1868-53-7	99.6%	78 – 116	12/12/2023 13:52	
Toluene-d8	2037-26-5	96.3%	76 – 127	12/12/2023 13:52	

Results

Client Sample ID	Trip Blank B	Collected	12/03/2023 00:00
Lab Sample ID	3335533025	Lab Receipt	12/04/2023 18:15

VOLATILE ORGANICS

Compound	Result	Flag	Units	RDL	Method	Dilution	Analysis Date/Time	By	Cntr
1,1,1,2-Tetrachloroethane	1.0 U	U	ug/L	1.0	SW846 8260D	1	12/12/2023 14:12	ILY	A
1,1,1-Trichloroethane	1.0 U	U	ug/L	1.0	SW846 8260D	1	12/12/2023 14:12	ILY	A
1,1,2,2-Tetrachloroethane	1.0 U	U	ug/L	1.0	SW846 8260D	1	12/12/2023 14:12	ILY	A
1,1,2-Trichloroethane	1.0 U	U	ug/L	1.0	SW846 8260D	1	12/12/2023 14:12	ILY	A
1,1-Dichloroethane	1.0 U	U	ug/L	1.0	SW846 8260D	1	12/12/2023 14:12	ILY	A
1,1-Dichloroethene	1.0 U	U	ug/L	1.0	SW846 8260D	1	12/12/2023 14:12	ILY	A
1,1-Dichloropropene	1.0 U	U	ug/L	1.0	SW846 8260D	1	12/12/2023 14:12	ILY	A
1,2,3-Trichlorobenzene	2.0 U	U	ug/L	2.0	SW846 8260D	1	12/12/2023 14:12	ILY	A
1,2,3-Trichloropropane	2.0 U	U	ug/L	2.0	SW846 8260D	1	12/12/2023 14:12	ILY	A
1,2,4-Trichlorobenzene	2.0 U	U	ug/L	2.0	SW846 8260D	1	12/12/2023 14:12	ILY	A
1,2-Dibromo-3-chloropropane	7.0 U	U	ug/L	7.0	SW846 8260D	1	12/12/2023 14:12	ILY	A
1,2-Dibromoethane	1.0 U	U	ug/L	1.0	SW846 8260D	1	12/12/2023 14:12	ILY	A
1,2-Dichlorobenzene	1.0 U	U	ug/L	1.0	SW846 8260D	1	12/12/2023 14:12	ILY	A
1,2-Dichloroethane	1.0 U	U	ug/L	1.0	SW846 8260D	1	12/12/2023 14:12	ILY	A
1,2-Dichloropropane	1.0 U	U	ug/L	1.0	SW846 8260D	1	12/12/2023 14:12	ILY	A
1,3-Dichlorobenzene	1.0 U	U	ug/L	1.0	SW846 8260D	1	12/12/2023 14:12	ILY	A
1,3-Dichloropropane	1.0 U	U	ug/L	1.0	SW846 8260D	1	12/12/2023 14:12	ILY	A
1,4-Dichlorobenzene	1.0 U	U	ug/L	1.0	SW846 8260D	1	12/12/2023 14:12	ILY	A
2,2-Dichloropropane	1.0 U	U	ug/L	1.0	SW846 8260D	1	12/12/2023 14:12	ILY	A
2-Butanone	10.0 U	U	ug/L	10.0	SW846 8260D	1	12/12/2023 14:12	ILY	A
2-Hexanone	5.0 U	U	ug/L	5.0	SW846 8260D	1	12/12/2023 14:12	ILY	A
4-Methyl-2-Pentanone(MIBK)	5.0 U	U	ug/L	5.0	SW846 8260D	1	12/12/2023 14:12	ILY	A
Acetone	10.0 U	U	ug/L	10.0	SW846 8260D	1	12/12/2023 14:12	ILY	A
Benzene	1.0 U	U	ug/L	1.0	SW846 8260D	1	12/12/2023 14:12	ILY	A
Bromobenzene	1.0 U	U	ug/L	1.0	SW846 8260D	1	12/12/2023 14:12	ILY	A
Bromochloromethane	1.0 U	U	ug/L	1.0	SW846 8260D	1	12/12/2023 14:12	ILY	A
Bromodichloromethane	1.0 U	U	ug/L	1.0	SW846 8260D	1	12/12/2023 14:12	ILY	A
Bromoform	1.0 U	U	ug/L	1.0	SW846 8260D	1	12/12/2023 14:12	ILY	A
Bromomethane	1.0 U	U	ug/L	1.0	SW846 8260D	1	12/12/2023 14:12	ILY	A
Carbon Tetrachloride	1.0 U	U	ug/L	1.0	SW846 8260D	1	12/12/2023 14:12	ILY	A
Chlorobenzene	1.0 U	U	ug/L	1.0	SW846 8260D	1	12/12/2023 14:12	ILY	A
Chlorodibromomethane	1.0 U	U	ug/L	1.0	SW846 8260D	1	12/12/2023 14:12	ILY	A
Chloroethane	1.0 U	U	ug/L	1.0	SW846 8260D	1	12/12/2023 14:12	ILY	A
Chloroform	1.0 U	U	ug/L	1.0	SW846 8260D	1	12/12/2023 14:12	ILY	A
Chloromethane	1.0 U	U	ug/L	1.0	SW846 8260D	1	12/12/2023 14:12	ILY	A
cis-1,2-Dichloroethene	1.0 U	U	ug/L	1.0	SW846 8260D	1	12/12/2023 14:12	ILY	A
cis-1,3-Dichloropropene	1.0 U	U	ug/L	1.0	SW846 8260D	1	12/12/2023 14:12	ILY	A
Dibromomethane	1.0 U	U	ug/L	1.0	SW846 8260D	1	12/12/2023 14:12	ILY	A
Dichlorodifluoromethane	1.0 U	U	ug/L	1.0	SW846 8260D	1	12/12/2023 14:12	ILY	A
Diisopropyl ether	1.0 U	U	ug/L	1.0	SW846 8260D	1	12/12/2023 14:12	ILY	A
Ethylbenzene	1.0 U	U	ug/L	1.0	SW846 8260D	1	12/12/2023 14:12	ILY	A
Hexachlorobutadiene	5.0 U	U	ug/L	5.0	SW846 8260D	1	12/12/2023 14:12	ILY	A
Methyl t-Butyl Ether	1.0 U	U	ug/L	1.0	SW846 8260D	1	12/12/2023 14:12	ILY	A
Methylene Chloride	1.0 U	U	ug/L	1.0	SW846 8260D	1	12/12/2023 14:12	ILY	A
mp-Xylene	2.0 U	U	ug/L	2.0	SW846 8260D	1	12/12/2023 14:12	ILY	A
Naphthalene	2.0 U	U	ug/L	2.0	SW846 8260D	1	12/12/2023 14:12	ILY	A
o-Chlorotoluene	1.0 U	U	ug/L	1.0	SW846 8260D	1	12/12/2023 14:12	ILY	A

Results

Client Sample ID	Trip Blank B	Collected	12/03/2023 00:00
Lab Sample ID	3335533025	Lab Receipt	12/04/2023 18:15

VOLATILE ORGANICS (cont.)

Compound	Result	Flag	Units	RDL	Method	Dilution	Analysis Date/Time	By	Cntr
o-Xylene	1.0 U	U	ug/L	1.0	SW846 8260D	1	12/12/2023 14:12	ILY	A
p-Chlorotoluene	1.0 U	U	ug/L	1.0	SW846 8260D	1	12/12/2023 14:12	ILY	A
p-Isopropyltoluene	1.0 U	U	ug/L	1.0	SW846 8260D	1	12/12/2023 14:12	ILY	A
Styrene	1.0 U	U	ug/L	1.0	SW846 8260D	1	12/12/2023 14:12	ILY	A
Tetrachloroethene	1.0 U	U	ug/L	1.0	SW846 8260D	1	12/12/2023 14:12	ILY	A
Toluene	1.0 U	U	ug/L	1.0	SW846 8260D	1	12/12/2023 14:12	ILY	A
Total Xylenes	3.0 U	U	ug/L	3.0	SW846 8260D	1	12/12/2023 14:12	ILY	A
trans-1,2-Dichloroethene	1.0 U	U	ug/L	1.0	SW846 8260D	1	12/12/2023 14:12	ILY	A
trans-1,3-Dichloropropene	1.0 U	U	ug/L	1.0	SW846 8260D	1	12/12/2023 14:12	ILY	A
Trichloroethene	1.0 U	U	ug/L	1.0	SW846 8260D	1	12/12/2023 14:12	ILY	A
Trichlorofluoromethane	1.0 U	U	ug/L	1.0	SW846 8260D	1	12/12/2023 14:12	ILY	A
Vinyl Acetate	5.0 U	U	ug/L	5.0	SW846 8260D	1	12/12/2023 14:12	ILY	A
Vinyl Chloride	1.0 U	U	ug/L	1.0	SW846 8260D	1	12/12/2023 14:12	ILY	A

SURROGATES

Compound	CAS No	Recovery	Limits(%)	Analysis Date/Time	Qualifiers
1,2-Dichloroethane-d4	17060-07-0	105%	62 – 133	12/12/2023 14:12	
4-Bromofluorobenzene	460-00-4	91.9%	79 – 114	12/12/2023 14:12	
Dibromofluoromethane	1868-53-7	97.8%	78 – 116	12/12/2023 14:12	
Toluene-d8	2037-26-5	94.4%	76 – 127	12/12/2023 14:12	

Results

Client Sample ID	Trip Blank C	Collected	12/03/2023 00:00
Lab Sample ID	3335533026	Lab Receipt	12/04/2023 18:15

VOLATILE ORGANICS

Compound	Result	Flag	Units	RDL	Method	Dilution	Analysis Date/Time	By	Cntr
1,1,1,2-Tetrachloroethane	1.0 U	U	ug/L	1.0	SW846 8260D	1	12/12/2023 14:33	ILY	A
1,1,1-Trichloroethane	1.0 U	U	ug/L	1.0	SW846 8260D	1	12/12/2023 14:33	ILY	A
1,1,2,2-Tetrachloroethane	1.0 U	U	ug/L	1.0	SW846 8260D	1	12/12/2023 14:33	ILY	A
1,1,2-Trichloroethane	1.0 U	U	ug/L	1.0	SW846 8260D	1	12/12/2023 14:33	ILY	A
1,1-Dichloroethane	1.0 U	U	ug/L	1.0	SW846 8260D	1	12/12/2023 14:33	ILY	A
1,1-Dichloroethene	1.0 U	U	ug/L	1.0	SW846 8260D	1	12/12/2023 14:33	ILY	A
1,1-Dichloropropene	1.0 U	U	ug/L	1.0	SW846 8260D	1	12/12/2023 14:33	ILY	A
1,2,3-Trichlorobenzene	2.0 U	U	ug/L	2.0	SW846 8260D	1	12/12/2023 14:33	ILY	A
1,2,3-Trichloropropane	2.0 U	U	ug/L	2.0	SW846 8260D	1	12/12/2023 14:33	ILY	A
1,2,4-Trichlorobenzene	2.0 U	U	ug/L	2.0	SW846 8260D	1	12/12/2023 14:33	ILY	A
1,2-Dibromo-3-chloropropane	7.0 U	U	ug/L	7.0	SW846 8260D	1	12/12/2023 14:33	ILY	A
1,2-Dibromoethane	1.0 U	U	ug/L	1.0	SW846 8260D	1	12/12/2023 14:33	ILY	A
1,2-Dichlorobenzene	1.0 U	U	ug/L	1.0	SW846 8260D	1	12/12/2023 14:33	ILY	A
1,2-Dichloroethane	1.0 U	U	ug/L	1.0	SW846 8260D	1	12/12/2023 14:33	ILY	A
1,2-Dichloropropane	1.0 U	U	ug/L	1.0	SW846 8260D	1	12/12/2023 14:33	ILY	A
1,3-Dichlorobenzene	1.0 U	U	ug/L	1.0	SW846 8260D	1	12/12/2023 14:33	ILY	A
1,3-Dichloropropane	1.0 U	U	ug/L	1.0	SW846 8260D	1	12/12/2023 14:33	ILY	A
1,4-Dichlorobenzene	1.0 U	U	ug/L	1.0	SW846 8260D	1	12/12/2023 14:33	ILY	A
2,2-Dichloropropane	1.0 U	U	ug/L	1.0	SW846 8260D	1	12/12/2023 14:33	ILY	A
2-Butanone	10.0 U	U	ug/L	10.0	SW846 8260D	1	12/12/2023 14:33	ILY	A
2-Hexanone	5.0 U	U	ug/L	5.0	SW846 8260D	1	12/12/2023 14:33	ILY	A
4-Methyl-2-Pentanone(MIBK)	5.0 U	U	ug/L	5.0	SW846 8260D	1	12/12/2023 14:33	ILY	A
Acetone	10.0 U	U	ug/L	10.0	SW846 8260D	1	12/12/2023 14:33	ILY	A
Benzene	1.0 U	U	ug/L	1.0	SW846 8260D	1	12/12/2023 14:33	ILY	A
Bromobenzene	1.0 U	U	ug/L	1.0	SW846 8260D	1	12/12/2023 14:33	ILY	A
Bromochloromethane	1.0 U	U	ug/L	1.0	SW846 8260D	1	12/12/2023 14:33	ILY	A
Bromodichloromethane	1.0 U	U	ug/L	1.0	SW846 8260D	1	12/12/2023 14:33	ILY	A
Bromoform	1.0 U	U	ug/L	1.0	SW846 8260D	1	12/12/2023 14:33	ILY	A
Bromomethane	1.0 U	U	ug/L	1.0	SW846 8260D	1	12/12/2023 14:33	ILY	A
Carbon Tetrachloride	1.0 U	U	ug/L	1.0	SW846 8260D	1	12/12/2023 14:33	ILY	A
Chlorobenzene	1.0 U	U	ug/L	1.0	SW846 8260D	1	12/12/2023 14:33	ILY	A
Chlorodibromomethane	1.0 U	U	ug/L	1.0	SW846 8260D	1	12/12/2023 14:33	ILY	A
Chloroethane	1.0 U	U	ug/L	1.0	SW846 8260D	1	12/12/2023 14:33	ILY	A
Chloroform	1.0 U	U	ug/L	1.0	SW846 8260D	1	12/12/2023 14:33	ILY	A
Chloromethane	1.0 U	U	ug/L	1.0	SW846 8260D	1	12/12/2023 14:33	ILY	A
cis-1,2-Dichloroethene	1.0 U	U	ug/L	1.0	SW846 8260D	1	12/12/2023 14:33	ILY	A
cis-1,3-Dichloropropene	1.0 U	U	ug/L	1.0	SW846 8260D	1	12/12/2023 14:33	ILY	A
Dibromomethane	1.0 U	U	ug/L	1.0	SW846 8260D	1	12/12/2023 14:33	ILY	A
Dichlorodifluoromethane	1.0 U	U	ug/L	1.0	SW846 8260D	1	12/12/2023 14:33	ILY	A
Diisopropyl ether	1.0 U	U	ug/L	1.0	SW846 8260D	1	12/12/2023 14:33	ILY	A
Ethylbenzene	1.0 U	U	ug/L	1.0	SW846 8260D	1	12/12/2023 14:33	ILY	A
Hexachlorobutadiene	5.0 U	U	ug/L	5.0	SW846 8260D	1	12/12/2023 14:33	ILY	A
Methyl t-Butyl Ether	1.0 U	U	ug/L	1.0	SW846 8260D	1	12/12/2023 14:33	ILY	A
Methylene Chloride	1.0 U	U	ug/L	1.0	SW846 8260D	1	12/12/2023 14:33	ILY	A
mp-Xylene	2.0 U	U	ug/L	2.0	SW846 8260D	1	12/12/2023 14:33	ILY	A
Naphthalene	2.0 U	U	ug/L	2.0	SW846 8260D	1	12/12/2023 14:33	ILY	A
o-Chlorotoluene	1.0 U	U	ug/L	1.0	SW846 8260D	1	12/12/2023 14:33	ILY	A

Results

Client Sample ID	Trip Blank C	Collected	12/03/2023 00:00
Lab Sample ID	3335533026	Lab Receipt	12/04/2023 18:15

VOLATILE ORGANICS (cont.)

Compound	Result	Flag	Units	RDL	Method	Dilution	Analysis Date/Time	By	Cntr
o-Xylene	1.0 U	U	ug/L	1.0	SW846 8260D	1	12/12/2023 14:33	ILY	A
p-Chlorotoluene	1.0 U	U	ug/L	1.0	SW846 8260D	1	12/12/2023 14:33	ILY	A
p-Isopropyltoluene	1.0 U	U	ug/L	1.0	SW846 8260D	1	12/12/2023 14:33	ILY	A
Styrene	1.0 U	U	ug/L	1.0	SW846 8260D	1	12/12/2023 14:33	ILY	A
Tetrachloroethene	1.0 U	U	ug/L	1.0	SW846 8260D	1	12/12/2023 14:33	ILY	A
Toluene	1.0 U	U	ug/L	1.0	SW846 8260D	1	12/12/2023 14:33	ILY	A
Total Xylenes	3.0 U	U	ug/L	3.0	SW846 8260D	1	12/12/2023 14:33	ILY	A
trans-1,2-Dichloroethene	1.0 U	U	ug/L	1.0	SW846 8260D	1	12/12/2023 14:33	ILY	A
trans-1,3-Dichloropropene	1.0 U	U	ug/L	1.0	SW846 8260D	1	12/12/2023 14:33	ILY	A
Trichloroethene	1.0 U	U	ug/L	1.0	SW846 8260D	1	12/12/2023 14:33	ILY	A
Trichlorofluoromethane	1.0 U	U	ug/L	1.0	SW846 8260D	1	12/12/2023 14:33	ILY	A
Vinyl Acetate	5.0 U	U	ug/L	5.0	SW846 8260D	1	12/12/2023 14:33	ILY	A
Vinyl Chloride	1.0 U	U	ug/L	1.0	SW846 8260D	1	12/12/2023 14:33	ILY	A

SURROGATES

Compound	CAS No	Recovery	Limits(%)	Analysis Date/Time	Qualifiers
1,2-Dichloroethane-d4	17060-07-0	108%	62 – 133	12/12/2023 14:33	
4-Bromofluorobenzene	460-00-4	91%	79 – 114	12/12/2023 14:33	
Dibromofluoromethane	1868-53-7	98.5%	78 – 116	12/12/2023 14:33	
Toluene-d8	2037-26-5	91.1%	76 – 127	12/12/2023 14:33	

Sample - Method Cross Reference Table

Lab ID	Sample ID	Analysis Method	Preparation Method	Leachate Method
3335533001	MW-01	SW846 8270E SIM SW846 8260D	SW846 3510C N/A	
3335533002	MW-03	SW846 8270E SIM SW846 8260D	SW846 3510C N/A	
3335533003	MW-04R	SW846 8270E SIM SW846 8260D	SW846 3510C N/A	
3335533004	MW-05R	SW846 8270E SIM SW846 8260D	SW846 3510C N/A	
3335533005	MW-09	SW846 8270E SIM SW846 8260D	SW846 3510C N/A	
3335533006	MW-16	SW846 8270E SIM SW846 8260D	SW846 3510C N/A	
3335533007	MW-18	SW846 8270E SIM SW846 8260D	SW846 3510C N/A	
3335533008	MW-20	SW846 8270E SIM SW846 8260D	SW846 3510C N/A	
3335533009	MW-38R	SW846 8270E SIM SW846 8260D	SW846 3510C N/A	
3335533010	MW-42	SW846 8270E SIM SW846 8260D	SW846 3510C N/A	
3335533011	MW-43	SW846 8270E SIM SW846 8260D	SW846 3510C N/A	
3335533012	MW-44	SW846 8270E SIM SW846 8260D	SW846 3510C N/A	
3335533013	MW-45	SW846 8270E SIM SW846 8260D	SW846 3510C N/A	
3335533014	MW-01D	SW846 8270E SIM SW846 8260D	SW846 3510C N/A	
3335533015	MW-16D	SW846 8270E SIM SW846 8260D	SW846 3510C N/A	
3335533016	MW-21D	SW846 8270E SIM SW846 8260D	SW846 3510C N/A	
3335533017	MW-22D	SW846 8270E SIM SW846 8260D	SW846 3510C N/A	
3335533018	MW-23D	SW846 8270E SIM SW846 8260D	SW846 3510C N/A	
3335533019	MW-27D	SW846 8270E SIM SW846 8260D	SW846 3510C N/A	
3335533020	MW-40D	SW846 8270E SIM SW846 8260D	SW846 3510C N/A	
3335533021	MW-41D	SW846 8270E SIM SW846 8260D	SW846 3510C N/A	
3335533022	MW-46D	SW846 8270E SIM SW846 8260D	SW846 3510C N/A	
3335533023	DUP-120323	SW846 8270E SIM SW846 8260D	SW846 3510C N/A	
3335533024	Trip Blank A	SW846 8260D	N/A	
3335533025	Trip Blank B	SW846 8260D	N/A	
3335533026	Trip Blank C	SW846 8260D	N/A	

QUALITY CONTROL SAMPLES

SEMIVOLATILE SIM

QC Batch

QC Batch	1096962	Prep Method	SW846 3510C
Date	12/06/2023 10:50	Analysis Method	SW846 8270E SIM
Tech.	BNR		

Associated Samples

3335533006	3335533007	3335533008	3335533001
3335533002	3335533003	3335533004	3335533005
3335533009	3335533013	3335533014	3335533015
3335533016	3335533017	3335533020	3335533018
3335533019	3335533010	3335533011	3335533012

Method Blank 3758535 (MB) Created on 12/05/2023 12:21 For QC Batch 1096962

RESULTS

Compound	CAS No		Result	Units	RDL	Qualifiers
1,4-Dioxane	123-91-1	BLK	1.0 U	ug/L	1.0	U

SURROGATES

Compound	CAS No		Result (ug/L)	Expected (ug/L)	Rec. (%)	Limits (%)	Qualifiers
2-Methylnapthalene-d10	7297-45-2	BLK	0.65	1	65	29 - 112	
Fluoranthene-d10	93951-69-0	BLK	0.87	1	87.3	45 - 130	

Lab Control Standard 3758536 (LCS) Created on 12/05/2023 12:21 For QC Batch 1096962

RESULTS

Compound	CAS No		Result (ug/L)	Orig. Result (ug/L)	Spk Added (ug/L)	Rec. (%)	Limits (%)	RPD Limit (%)	Qualifiers
1,4-Dioxane	123-91-1	LCS	0.52		1	51.6	22 - 75		U

SURROGATES

Compound	CAS No		Result (ug/L)	Expected (ug/L)	Rec. (%)	Limits (%)	Qualifiers
2-Methylnapthalene-d10	7297-45-2	LCS	0.68	1	68.2	29 - 112	
Fluoranthene-d10	93951-69-0	LCS	0.87	1	86.6	45 - 130	

Matrix Spike 3758537 (MS) 3335533006 For QC Batch 1096962

****NOTE - The Original Result shown below is a raw result and is only used for the purpose of calculating Matrix Spike percent recoveries. This result is not a final value and cannot be used as such.

RESULTS

Compound	CAS No		Result (ug/L)	Orig. Result (ug/L)	Spk Added (ug/L)	Rec. (%)	Limits (%)	RPD Limit (%)	Qualifiers
1,4-Dioxane	123-91-1	MS	104	96.30	1.30	NC	22 - 75		

QUALITY CONTROL SAMPLES

SEMIVOLATILE SIM (cont.)

SURROGATES

Compound	CAS No		Result (ug/L)	Expected (ug/L)	Rec. (%)	Limits (%)	Qualifiers
2-Methylnapthalene-d10	7297-45-2	MS	0.69	1.30	51.6	29 - 112	
Fluoranthene-d10	93951-69-0	MS	0.84	1.30	62.4	45 - 130	

Duplicate 3758538 (DUP) 3335533012 For QC Batch 1096962

****NOTE - The Original Result and Duplicate Result shown below are raw results and are only used for the purpose of calculating Sample Duplicate percent recoveries. This result is not a final value and cannot be used as such.

RESULTS

Compound	CAS No		Result (ug/L)	Orig. Result (ug/L)		Qualifiers
1,4-Dioxane	123-91-1	DUP	4.5264	2.6153	RPD 53.50* (Max-30)	

SURROGATES

Compound	CAS No		Result (ug/L)	Expected (ug/L)	Rec. (%)	Limits (%)	Qualifiers
2-Methylnapthalene-d10	7297-45-2	DUP	0.68	1	66.1	29 - 112	
Fluoranthene-d10	93951-69-0	DUP	0.87	1	84	45 - 130	

QC Batch

QC Batch	1097820	Prep Method	SW846 3510C
Date	12/07/2023 11:45	Analysis Method	SW846 8270E SIM
Tech.	BNR		

Associated Samples

3335533021 3335533022 3335533023

Method Blank 3759481 (MB) Created on 12/07/2023 08:50 For QC Batch 1097820

RESULTS

Compound	CAS No		Result	Units	RDL	Qualifiers
1,4-Dioxane	123-91-1	BLK	1.0 U	ug/L	1.0	U

SURROGATES

Compound	CAS No		Result (ug/L)	Expected (ug/L)	Rec. (%)	Limits (%)	Qualifiers
2-Methylnapthalene-d10	7297-45-2	BLK	0.69	1	69.4	29 - 112	
Fluoranthene-d10	93951-69-0	BLK	0.81	1	80.7	45 - 130	

Lab Control Standard 3759482 (LCS) Created on 12/07/2023 08:50 For QC Batch 1097820

QUALITY CONTROL SAMPLES

SEMIVOLATILE SIM (cont.)

RESULTS

Compound	CAS No		Result (ug/L)	Orig. Result (ug/L)	Spk Added (ug/L)	Rec. (%)	Limits (%)	RPD Limit (%)	Qualifiers
1,4-Dioxane	123-91-1	LCS	0.69		1	69.4	22 - 75		U

SURROGATES

Compound	CAS No		Result (ug/L)	Expected (ug/L)	Rec. (%)	Limits (%)	Qualifiers
2-Methylnapthalene-d10	7297-45-2	LCS	0.69	1	68.7	29 - 112	
Fluoranthene-d10	93951-69-0	LCS	0.92	1	92.4	45 - 130	

QUALITY CONTROL SAMPLES

VOLATILE ORGANICS

QC Batch

QC Batch	1101196	Prep Method	N/A
Date	N/A	Analysis Method	SW846 8260D
Tech.			

Associated Samples

3335533005	3335533006	3335533007	3335533008
3335533001	3335533002	3335533003	3335533004
3335533009	3335533010	3335533013	3335533014
3335533018	3335533020	3335533015	3335533016
3335533017	3335533019	3335533011	3335533012

Method Blank 3761558 (MB) Created on 12/12/2023 12:20 For QC Batch 1101196

RESULTS

Compound	CAS No		Result	Units	RDL	Qualifiers
1,1,1,2-Tetrachloroethane	630-20-6	BLK	1.0 U	ug/L	1.0	U
1,1,1-Trichloroethane	71-55-6	BLK	1.0 U	ug/L	1.0	U
1,1,2,2-Tetrachloroethane	79-34-5	BLK	1.0 U	ug/L	1.0	U
1,1,2-Trichloroethane	79-00-5	BLK	1.0 U	ug/L	1.0	U
1,1-Dichloroethane	75-34-3	BLK	1.0 U	ug/L	1.0	U
1,1-Dichloroethene	75-35-4	BLK	1.0 U	ug/L	1.0	U
1,1-Dichloropropene	563-58-6	BLK	1.0 U	ug/L	1.0	U
1,2,3-Trichlorobenzene	87-61-6	BLK	2.0 U	ug/L	2.0	U
1,2,3-Trichloropropane	96-18-4	BLK	2.0 U	ug/L	2.0	U
1,2,4-Trichlorobenzene	120-82-1	BLK	2.0 U	ug/L	2.0	U
1,2-Dibromo-3-chloropropane	96-12-8	BLK	7.0 U	ug/L	7.0	U
1,2-Dibromoethane	106-93-4	BLK	1.0 U	ug/L	1.0	U
1,2-Dichlorobenzene	95-50-1	BLK	1.0 U	ug/L	1.0	U
1,2-Dichloroethane	107-06-2	BLK	1.0 U	ug/L	1.0	U
1,2-Dichloropropane	78-87-5	BLK	1.0 U	ug/L	1.0	U
1,3-Dichlorobenzene	541-73-1	BLK	1.0 U	ug/L	1.0	U
1,3-Dichloropropane	142-28-9	BLK	1.0 U	ug/L	1.0	U
1,4-Dichlorobenzene	106-46-7	BLK	1.0 U	ug/L	1.0	U
2,2-Dichloropropane	594-20-7	BLK	1.0 U	ug/L	1.0	U
2-Butanone	78-93-3	BLK	10.0 U	ug/L	10.0	U
2-Hexanone	591-78-6	BLK	5.0 U	ug/L	5.0	U
4-Methyl-2-Pentanone(MIBK)	108-10-1	BLK	5.0 U	ug/L	5.0	U
Acetone	67-64-1	BLK	10.0 U	ug/L	10.0	U
Benzene	71-43-2	BLK	1.0 U	ug/L	1.0	U
Bromobenzene	108-86-1	BLK	1.0 U	ug/L	1.0	U
Bromochloromethane	74-97-5	BLK	1.0 U	ug/L	1.0	U
Bromodichloromethane	75-27-4	BLK	1.0 U	ug/L	1.0	U
Bromoform	75-25-2	BLK	1.0 U	ug/L	1.0	U
Bromomethane	74-83-9	BLK	1.0 U	ug/L	1.0	U
Carbon Tetrachloride	56-23-5	BLK	1.0 U	ug/L	1.0	U
Chlorobenzene	108-90-7	BLK	1.0 U	ug/L	1.0	U
Chlorodibromomethane	124-48-1	BLK	1.0 U	ug/L	1.0	U
Chloroethane	75-00-3	BLK	1.0 U	ug/L	1.0	U
Chloroform	67-66-3	BLK	1.0 U	ug/L	1.0	U
Chloromethane	74-87-3	BLK	1.0 U	ug/L	1.0	U
cis-1,2-Dichloroethene	156-59-2	BLK	1.0 U	ug/L	1.0	U
cis-1,3-Dichloropropene	10061-01-5	BLK	1.0 U	ug/L	1.0	U

QUALITY CONTROL SAMPLES

VOLATILE ORGANICS (cont.)

RESULTS

Compound	CAS No		Result	Units	RDL	Qualifiers
Dibromomethane	74-95-3	BLK	1.0 U	ug/L	1.0	U
Dichlorodifluoromethane	75-71-8	BLK	1.0 U	ug/L	1.0	U
Diisopropyl ether	108-20-3	BLK	1.0 U	ug/L	1.0	U
Ethylbenzene	100-41-4	BLK	1.0 U	ug/L	1.0	U
Hexachlorobutadiene	87-68-3	BLK	5.0 U	ug/L	5.0	U
Methyl t-Butyl Ether	1634-04-4	BLK	1.0 U	ug/L	1.0	U
Methylene Chloride	75-09-2	BLK	1.0 U	ug/L	1.0	U
mp-Xylene	108383/106423	BLK	2.0 U	ug/L	2.0	U
Naphthalene	91-20-3	BLK	2.0 U	ug/L	2.0	U
o-Chlorotoluene	95-49-8	BLK	1.0 U	ug/L	1.0	U
o-Xylene	95-47-6	BLK	1.0 U	ug/L	1.0	U
p-Chlorotoluene	106-43-4	BLK	1.0 U	ug/L	1.0	U
p-Isopropyltoluene	99-87-6	BLK	1.0 U	ug/L	1.0	U
Styrene	100-42-5	BLK	1.0 U	ug/L	1.0	U
Tetrachloroethene	127-18-4	BLK	1.0 U	ug/L	1.0	U
Toluene	108-88-3	BLK	1.0 U	ug/L	1.0	U
Total Xylenes	1330-20-7	BLK	3.0 U	ug/L	3.0	U
trans-1,2-Dichloroethene	156-60-5	BLK	1.0 U	ug/L	1.0	U
trans-1,3-Dichloropropene	10061-02-6	BLK	1.0 U	ug/L	1.0	U
Trichloroethene	79-01-6	BLK	1.0 U	ug/L	1.0	U
Trichlorofluoromethane	75-69-4	BLK	1.0 U	ug/L	1.0	U
Vinyl Acetate	108-05-4	BLK	5.0 U	ug/L	5.0	U
Vinyl Chloride	75-01-4	BLK	1.0 U	ug/L	1.0	U

SURROGATES

Compound	CAS No		Result (ug/L)	Expected (ug/L)	Rec. (%)	Limits (%)	Qualifiers
1,2-Dichloroethane-d4	17060-07-0	BLK	28.30	30	94.3	62 - 133	
4-Bromofluorobenzene	460-00-4	BLK	32	30	107	79 - 114	
Dibromofluoromethane	1868-53-7	BLK	30.80	30	103	78 - 116	
Toluene-d8	2037-26-5	BLK	31.30	30	104	76 - 127	

Lab Control Standard 3761559 (LCS) Created on 12/12/2023 12:20 For QC Batch 1101196

RESULTS

Compound	CAS No		Result (ug/L)	Orig. Result (ug/L)	Spk Added (ug/L)	Rec. (%)	Limits (%)	RPD Limit (%)	Qualifiers
1,1,1,2-Tetrachloroethane	630-20-6	LCS	22.20		20	111	78 - 121		
1,1,1-Trichloroethane	71-55-6	LCS	22.10		20	111	66 - 130		
1,1,2,2-Tetrachloroethane	79-34-5	LCS	18.70		20	93.7	74 - 135		
1,1,2-Trichloroethane	79-00-5	LCS	20.40		20	102	82 - 126		
1,1-Dichloroethane	75-34-3	LCS	20		20	100	78 - 124		
1,1-Dichloroethene	75-35-4	LCS	21.30		20	107	63 - 128		
1,1-Dichloropropene	563-58-6	LCS	21.10		20	105	76 - 126		
1,2,3-Trichlorobenzene	87-61-6	LCS	22.50		20	112	61 - 126		
1,2,3-Trichloropropane	96-18-4	LCS	19.60		20	97.9	75 - 132		

QUALITY CONTROL SAMPLES

VOLATILE ORGANICS (cont.)

RESULTS

Compound	CAS No		Result (ug/L)	Orig. Result (ug/L)	Spk Added (ug/L)	Rec. (%)	Limits (%)	RPD Limit (%)	Qualifiers
1,2,4-Trichlorobenzene	120-82-1	LCS	23.20		20	116	67 - 123		
1,2-Dibromo-3-chloropropane	96-12-8	LCS	17.40		20	87.1	59 - 133		
1,2-Dibromoethane	106-93-4	LCS	21.80		20	109	80 - 124		
1,2-Dichlorobenzene	95-50-1	LCS	21.20		20	106	82 - 118		
1,2-Dichloroethane	107-06-2	LCS	19.30		20	96.5	70 - 133		
1,2-Dichloropropane	78-87-5	LCS	19.50		20	97.3	81 - 127		
1,3-Dichlorobenzene	541-73-1	LCS	20.80		20	104	81 - 118		
1,3-Dichloropropane	142-28-9	LCS	20.80		20	104	82 - 126		
1,4-Dichlorobenzene	106-46-7	LCS	20.50		20	103	81 - 116		
2,2-Dichloropropane	594-20-7	LCS	20.30		20	102	64 - 129		
2-Butanone	78-93-3	LCS	119		100	119	50 - 152		
2-Hexanone	591-78-6	LCS	92		100	92	65 - 154		
4-Methyl-2-Pentanone(MIBK)	108-10-1	LCS	103		100	103	71 - 146		
Acetone	67-64-1	LCS	93.10		100	93.1	40 - 151		
Benzene	71-43-2	LCS	20.60		20	103	80 - 124		
Bromobenzene	108-86-1	LCS	20.40		20	102	81 - 119		
Bromochloromethane	74-97-5	LCS	22.40		20	112	73 - 117		
Bromodichloromethane	75-27-4	LCS	20.60		20	103	79 - 126		
Bromoform	75-25-2	LCS	21		20	105	70 - 123		
Bromomethane	74-83-9	LCS	20.80		20	104	45 - 148		
Carbon Tetrachloride	56-23-5	LCS	25.50		20	127	62 - 132		
Chlorobenzene	108-90-7	LCS	21.20		20	106	85 - 117		
Chlorodibromomethane	124-48-1	LCS	22.10		20	110	77 - 122		
Chloroethane	75-00-3	LCS	11.30		20	56.6	51 - 142		
Chloroform	67-66-3	LCS	21.10		20	106	78 - 122		
Chloromethane	74-87-3	LCS	15.30		20	76.3	38 - 156		
cis-1,2-Dichloroethene	156-59-2	LCS	20.50		20	103	78 - 125		
cis-1,3-Dichloropropene	10061-01-5	LCS	20.40		20	102	81 - 121		
Dibromomethane	74-95-3	LCS	21.40		20	107	81 - 125		
Dichlorodifluoromethane	75-71-8	LCS	16.30		20	81.7	17 - 166		
Diisopropyl ether	108-20-3	LCS	19.30		20	96.7	74 - 131		
Ethylbenzene	100-41-4	LCS	22.50		20	113	80 - 124		
Hexachlorobutadiene	87-68-3	LCS	25.80		20	129*	55 - 128		
Methyl t-Butyl Ether	1634-04-4	LCS	21.60		20	108	69 - 115		
Methylene Chloride	75-09-2	LCS	21.10		20	106	76 - 121		
mp-Xylene	108383/106423	LCS	44.70		40	112	79 - 125		
Naphthalene	91-20-3	LCS	18.50		20	92.3	56 - 134		
o-Chlorotoluene	95-49-8	LCS	18		20	90.2	78 - 126		
o-Xylene	95-47-6	LCS	19.90		20	99.5	79 - 124		
p-Chlorotoluene	106-43-4	LCS	17.60		20	88.1	78 - 125		
p-Isopropyltoluene	99-87-6	LCS	19.50		20	97.6	72 - 123		
Styrene	100-42-5	LCS	18.50		20	92.4	79 - 123		
Tetrachloroethene	127-18-4	LCS	23.90		20	119	72 - 124		
Toluene	108-88-3	LCS	19.90		20	99.7	80 - 125		
Total Xylenes	1330-20-7	LCS	64.60		60	108	79 - 125		
trans-1,2-Dichloroethene	156-60-5	LCS	20.80		20	104	71 - 122		
trans-1,3-Dichloropropene	10061-02-6	LCS	20.80		20	104	78 - 126		

QUALITY CONTROL SAMPLES

VOLATILE ORGANICS (cont.)

RESULTS

Compound	CAS No		Result (ug/L)	Orig. Result (ug/L)	Spk Added (ug/L)	Rec. (%)	Limits (%)	RPD Limit (%)	Qualifiers
Trichloroethene	79-01-6	LCS	20.70		20	103	77 - 124		
Trichlorofluoromethane	75-69-4	LCS	14.30		20	71.5	38 - 123		
Vinyl Acetate	108-05-4	LCS	21.90		20	109	58 - 136		
Vinyl Chloride	75-01-4	LCS	16.40		20	81.8	27 - 138		

SURROGATES

Compound	CAS No		Result (ug/L)	Expected (ug/L)	Rec. (%)	Limits (%)	Qualifiers
1,2-Dichloroethane-d4	17060-07-0	LCS	29.30	30	97.7	62 - 133	
4-Bromofluorobenzene	460-00-4	LCS	30.40	30	101	79 - 114	
Dibromofluoromethane	1868-53-7	LCS	30.60	30	102	78 - 116	
Toluene-d8	2037-26-5	LCS	30.70	30	102	76 - 127	

Matrix Spike 3761560 (MS) 3335533016 For QC Batch 1101196

****NOTE - The Original Result shown below is a raw result and is only used for the purpose of calculating Matrix Spike percent recoveries. This result is not a final value and cannot be used as such.

Matrix Spike Duplicate 3761561 (MSD) 3335533016 For QC Batch 1101196

RESULTS

Compound	CAS No		Result (ug/L)	Orig. Result (ug/L)	Spk Added (ug/L)	Rec. (%)	Limits (%)	RPD Limit (%)	Qualifiers
1,1,1,2-Tetrachloroethane	630-20-6	MS	21.80	0	20	109	78 - 121		
1,1,1,2-Tetrachloroethane	630-20-6	MSD	21.30	0	20	107	78 - 121	RPD 2.36 (Max-16)	
1,1,1-Trichloroethane	71-55-6	MS	25.70	0	20	128	66 - 130		
1,1,1-Trichloroethane	71-55-6	MSD	24.80	0	20	124	66 - 130	RPD 3.37 (Max-20)	
1,1,2,2-Tetrachloroethane	79-34-5	MS	23.30	0	20	116	74 - 135		
1,1,2,2-Tetrachloroethane	79-34-5	MSD	23.10	0	20	116	74 - 135	RPD 0.55 (Max-16)	
1,1,2-Trichloroethane	79-00-5	MS	22	0	20	110	82 - 126		
1,1,2-Trichloroethane	79-00-5	MSD	21.30	0	20	106	82 - 126	RPD 3.23 (Max-15)	
1,1-Dichloroethane	75-34-3	MS	26.60	0.85	20	129*	78 - 124		
1,1-Dichloroethane	75-34-3	MSD	25.20	0.85	20	122	78 - 124	RPD 5.36 (Max-15)	
1,1-Dichloroethene	75-35-4	MS	57	30.80	20	131*	63 - 128		
1,1-Dichloroethene	75-35-4	MSD	54.30	30.80	20	117	63 - 128	RPD 4.92 (Max-21)	
1,1-Dichloropropene	563-58-6	MS	26.20	0	20	131*	76 - 126		
1,1-Dichloropropene	563-58-6	MSD	25.10	0	20	125	76 - 126	RPD 4.32 (Max-16)	
1,2,3-Trichlorobenzene	87-61-6	MS	20.50	0	20	102	61 - 126		
1,2,3-Trichlorobenzene	87-61-6	MSD	20	0	20	100	61 - 126	RPD 2.33 (Max-36)	
1,2,3-Trichloropropane	96-18-4	MS	22.40	0	20	112	75 - 132		
1,2,3-Trichloropropane	96-18-4	MSD	22.30	0	20	112	75 - 132	RPD 0.19 (Max-19)	
1,2,4-Trichlorobenzene	120-82-1	MS	21.80	0	20	109	67 - 123		
1,2,4-Trichlorobenzene	120-82-1	MSD	21.60	0	20	108	67 - 123	RPD 0.90 (Max-22)	
1,2-Dibromo-3-chloropropane	96-12-8	MS	20.30	0	20	102	59 - 133		
1,2-Dibromo-3-chloropropane	96-12-8	MSD	20.80	0	20	104	59 - 133	RPD 2.20 (Max-26)	
1,2-Dibromoethane	106-93-4	MS	21.70	0	20	109	80 - 124		
1,2-Dibromoethane	106-93-4	MSD	21	0	20	105	80 - 124	RPD 3.35 (Max-19)	

QUALITY CONTROL SAMPLES

VOLATILE ORGANICS (cont.)

RESULTS

Compound	CAS No		Result (ug/L)	Orig. Result (ug/L)	Spk Added (ug/L)	Rec. (%)	Limits (%)	RPD Limit (%)	Qualifiers
1,2-Dichlorobenzene	95-50-1	MS	22.20	0	20	111	82 - 118		
1,2-Dichlorobenzene	95-50-1	MSD	22.20	0	20	111	82 - 118	RPD 0.07 (Max-15)	
1,2-Dichloroethane	107-06-2	MS	23.60	0.52	20	116	70 - 133		
1,2-Dichloroethane	107-06-2	MSD	22.60	0.52	20	110	70 - 133	RPD 4.59 (Max-19)	
1,2-Dichloropropane	78-87-5	MS	24.10	0	20	121	81 - 127		
1,2-Dichloropropane	78-87-5	MSD	23.40	0	20	117	81 - 127	RPD 2.95 (Max-15)	
1,3-Dichlorobenzene	541-73-1	MS	22.20	0	20	111	81 - 118		
1,3-Dichlorobenzene	541-73-1	MSD	22.20	0	20	111	81 - 118	RPD 0.24 (Max-16)	
1,3-Dichloropropane	142-28-9	MS	22.70	0	20	113	82 - 126		
1,3-Dichloropropane	142-28-9	MSD	22	0	20	110	82 - 126	RPD 3.18 (Max-15)	
1,4-Dichlorobenzene	106-46-7	MS	21.60	0	20	108	81 - 116		
1,4-Dichlorobenzene	106-46-7	MSD	21.70	0	20	109	81 - 116	RPD 0.57 (Max-15)	
2,2-Dichloropropane	594-20-7	MS	22	0	20	110	64 - 129		
2,2-Dichloropropane	594-20-7	MSD	21.30	0	20	107	64 - 129	RPD 3.06 (Max-18)	
2-Butanone	78-93-3	MS	128	0	100	128	50 - 152		
2-Butanone	78-93-3	MSD	125	0	100	125	50 - 152	RPD 2.25 (Max-16)	
2-Hexanone	591-78-6	MS	108	0	100	108	65 - 154		
2-Hexanone	591-78-6	MSD	107	0	100	107	65 - 154	RPD 0.44 (Max-17)	
4-Methyl-2-Pentanone(MIBK)	108-10-1	MS	121	0	100	121	71 - 146		
4-Methyl-2-Pentanone(MIBK)	108-10-1	MSD	120	0	100	120	71 - 146	RPD 0.63 (Max-16)	
Acetone	67-64-1	MS	97.20	0	100	97.2	40 - 151		
Acetone	67-64-1	MSD	98.20	0	100	98.2	40 - 151	RPD 0.99 (Max-40)	
Benzene	71-43-2	MS	25.10	0	20	126*	80 - 124		
Benzene	71-43-2	MSD	24.30	0	20	121	80 - 124	RPD 3.41 (Max-26)	
Bromobenzene	108-86-1	MS	22	0	20	110	81 - 119		
Bromobenzene	108-86-1	MSD	22	0	20	110	81 - 119	RPD 0.16 (Max-17)	
Bromochloromethane	74-97-5	MS	23.90	0	20	120*	73 - 117		
Bromochloromethane	74-97-5	MSD	23	0	20	115	73 - 117	RPD 4.13 (Max-19)	
Bromodichloromethane	75-27-4	MS	23.60	0	20	118	79 - 126		
Bromodichloromethane	75-27-4	MSD	22.90	0	20	115	79 - 126	RPD 3.19 (Max-16)	
Bromoform	75-25-2	MS	20.20	0	20	101	70 - 123		
Bromoform	75-25-2	MSD	19.80	0	20	98.8	70 - 123	RPD 2.18 (Max-16)	
Bromomethane	74-83-9	MS	22.50	0	20	112	45 - 148		
Bromomethane	74-83-9	MSD	21.60	0	20	108	45 - 148	RPD 3.96 (Max-26)	
Carbon Tetrachloride	56-23-5	MS	25.60	0	20	128	62 - 132		
Carbon Tetrachloride	56-23-5	MSD	24.70	0	20	124	62 - 132	RPD 3.42 (Max-17)	
Chlorobenzene	108-90-7	MS	21.50	0	20	108	85 - 117		
Chlorobenzene	108-90-7	MSD	20.80	0	20	104	85 - 117	RPD 3.54 (Max-15)	
Chlorodibromomethane	124-48-1	MS	21.40	0	20	107	77 - 122		
Chlorodibromomethane	124-48-1	MSD	20.50	0	20	103	77 - 122	RPD 3.95 (Max-15)	
Chloroethane	75-00-3	MS	17.30	0	20	86.6	51 - 142		
Chloroethane	75-00-3	MSD	13.60	0	20	68	51 - 142	RPD 24 (Max-24)	
Chloroform	67-66-3	MS	23.50	0	20	117	78 - 122		
Chloroform	67-66-3	MSD	23	0	20	115	78 - 122	RPD 2.28 (Max-16)	
Chloromethane	74-87-3	MS	19.70	0	20	98.6	38 - 156		
Chloromethane	74-87-3	MSD	19.30	0	20	96.3	38 - 156	RPD 2.42 (Max-27)	
cis-1,2-Dichloroethene	156-59-2	MS	26.10	0	20	130*	78 - 125		
cis-1,2-Dichloroethene	156-59-2	MSD	24.90	0	20	125	78 - 125	RPD 4.55 (Max-21)	
cis-1,3-Dichloropropene	10061-01-5	MS	21.20	0	20	106	81 - 121		

QUALITY CONTROL SAMPLES

VOLATILE ORGANICS (cont.)

RESULTS

Compound	CAS No		Result (ug/L)	Orig. Result (ug/L)	Spk Added (ug/L)	Rec. (%)	Limits (%)	RPD Limit (%)	Qualifiers
cis-1,3-Dichloropropene	10061-01-5	MSD	20.70	0	20	104	81 - 121	RPD 2.44 (Max-16)	
Dibromomethane	74-95-3	MS	23.60	0	20	118	81 - 125		
Dibromomethane	74-95-3	MSD	22.90	0	20	115	81 - 125	RPD 2.68 (Max-16)	
Dichlorodifluoromethane	75-71-8	MS	17.50	0	20	87.6	17 - 166		
Dichlorodifluoromethane	75-71-8	MSD	16.90	0	20	84.4	17 - 166	RPD 3.72 (Max-24)	
Diisopropyl ether	108-20-3	MS	25.30	0	20	126	74 - 131		
Diisopropyl ether	108-20-3	MSD	24.80	0	20	124	74 - 131	RPD 2.15 (Max-15)	
Ethylbenzene	100-41-4	MS	23	0	20	115	80 - 124		
Ethylbenzene	100-41-4	MSD	22.70	0	20	113	80 - 124	RPD 1.39 (Max-19)	
Hexachlorobutadiene	87-68-3	MS	23.20	0	20	116	55 - 128		
Hexachlorobutadiene	87-68-3	MSD	20.70	0	20	104	55 - 128	RPD 11.20 (Max-35)	
Methyl t-Butyl Ether	1634-04-4	MS	25.10	0.93	20	121*	69 - 115		
Methyl t-Butyl Ether	1634-04-4	MSD	24.70	0.93	20	119*	69 - 115	RPD 1.77 (Max-20)	
Methylene Chloride	75-09-2	MS	24.40	0	20	122*	76 - 121		
Methylene Chloride	75-09-2	MSD	23.60	0	20	118	76 - 121	RPD 3.55 (Max-17)	
mp-Xylene	108383/106423	MS	45.80	0	40	115	79 - 125		
mp-Xylene	108383/106423	MSD	45.10	0	40	113	79 - 125	RPD 1.50 (Max-21)	
Naphthalene	91-20-3	MS	17.60	0	20	87.8	56 - 134		
Naphthalene	91-20-3	MSD	18.30	0	20	91.6	56 - 134	RPD 4.22 (Max-40)	
o-Chlorotoluene	95-49-8	MS	21.30	0	20	106	78 - 126		
o-Chlorotoluene	95-49-8	MSD	21.40	0	20	107	78 - 126	RPD 0.38 (Max-17)	
o-Xylene	95-47-6	MS	20.10	0	20	101	79 - 124		
o-Xylene	95-47-6	MSD	20	0	20	99.9	79 - 124	RPD 0.78 (Max-19)	
p-Chlorotoluene	106-43-4	MS	20.90	0	20	104	78 - 125		
p-Chlorotoluene	106-43-4	MSD	20.80	0	20	104	78 - 125	RPD 0.57 (Max-16)	
p-Isopropyltoluene	99-87-6	MS	20.40	0	20	102	72 - 123		
p-Isopropyltoluene	99-87-6	MSD	20.50	0	20	103	72 - 123	RPD 0.64 (Max-17)	
Styrene	100-42-5	MS	21	0	20	105	79 - 123		
Styrene	100-42-5	MSD	20.60	0	20	103	79 - 123	RPD 1.60 (Max-16)	
Tetrachloroethene	127-18-4	MS	21	0	20	105	72 - 124		
Tetrachloroethene	127-18-4	MSD	20.60	0	20	103	72 - 124	RPD 1.92 (Max-38)	
Toluene	108-88-3	MS	21.60	0	20	108	80 - 125		
Toluene	108-88-3	MSD	21	0	20	105	80 - 125	RPD 3.04 (Max-20)	
Total Xylenes	1330-20-7	MS	65.90	0	60	110	79 - 125		
Total Xylenes	1330-20-7	MSD	65.10	0	60	108	79 - 125	RPD 1.28 (Max-35)	
trans-1,2-Dichloroethene	156-60-5	MS	26.70	0	20	134*	71 - 122		
trans-1,2-Dichloroethene	156-60-5	MSD	25.40	0	20	127*	71 - 122	RPD 4.94 (Max-22)	
trans-1,3-Dichloropropene	10061-02-6	MS	21.90	0	20	110	78 - 126		
trans-1,3-Dichloropropene	10061-02-6	MSD	21.10	0	20	106	78 - 126	RPD 3.79 (Max-18)	
Trichloroethene	79-01-6	MS	23.80	0	20	119	77 - 124		
Trichloroethene	79-01-6	MSD	22.80	0	20	114	77 - 124	RPD 4.33 (Max-18)	
Trichlorofluoromethane	75-69-4	MS	20.90	0	20	105	38 - 123		
Trichlorofluoromethane	75-69-4	MSD	19	0	20	94.8	38 - 123	RPD 9.87 (Max-23)	
Vinyl Acetate	108-05-4	MS	18.90	0	20	94.7	58 - 136		
Vinyl Acetate	108-05-4	MSD	18.10	0	20	90.3	58 - 136	RPD 4.82 (Max-17)	
Vinyl Chloride	75-01-4	MS	19.40	0	20	97.2	27 - 138		
Vinyl Chloride	75-01-4	MSD	18.10	0	20	90.3	27 - 138	RPD 7.38 (Max-40)	

QUALITY CONTROL SAMPLES

VOLATILE ORGANICS (cont.)

SURROGATES

Compound	CAS No		Result (ug/L)	Expected (ug/L)	Rec. (%)	Limits (%)	Qualifiers
1,2-Dichloroethane-d4	17060-07-0	MS	31.60	30	105	62 - 133	
1,2-Dichloroethane-d4	17060-07-0	MSD	31.80	30	106	62 - 133	
4-Bromofluorobenzene	460-00-4	MS	29.80	30	99.3	79 - 114	
4-Bromofluorobenzene	460-00-4	MSD	30	30	100	79 - 114	
Dibromofluoromethane	1868-53-7	MS	29.70	30	98.9	78 - 116	
Dibromofluoromethane	1868-53-7	MSD	30.10	30	100	78 - 116	
Toluene-d8	2037-26-5	MS	28.70	30	95.8	76 - 127	
Toluene-d8	2037-26-5	MSD	28.80	30	95.9	76 - 127	

QC Batch

QC Batch	1101227	Prep Method	N/A
Date	N/A	Analysis Method	SW846 8260D
Tech.			

Associated Samples

3335533021	3335533026	3335533024	3335533025
3335533022	3335533023		

Method Blank 3761690 (MB) Created on 12/12/2023 14:12 For QC Batch 1101227

RESULTS

Compound	CAS No		Result	Units	RDL	Qualifiers
1,1,1,2-Tetrachloroethane	630-20-6	BLK	1.0 U	ug/L	1.0	U
1,1,1-Trichloroethane	71-55-6	BLK	1.0 U	ug/L	1.0	U
1,1,2,2-Tetrachloroethane	79-34-5	BLK	1.0 U	ug/L	1.0	U
1,1,2-Trichloroethane	79-00-5	BLK	1.0 U	ug/L	1.0	U
1,1-Dichloroethane	75-34-3	BLK	1.0 U	ug/L	1.0	U
1,1-Dichloroethene	75-35-4	BLK	1.0 U	ug/L	1.0	U
1,1-Dichloropropene	563-58-6	BLK	1.0 U	ug/L	1.0	U
1,2,3-Trichlorobenzene	87-61-6	BLK	2.0 U	ug/L	2.0	U
1,2,3-Trichloropropane	96-18-4	BLK	2.0 U	ug/L	2.0	U
1,2,4-Trichlorobenzene	120-82-1	BLK	2.0 U	ug/L	2.0	U
1,2-Dibromo-3-chloropropane	96-12-8	BLK	7.0 U	ug/L	7.0	U
1,2-Dibromoethane	106-93-4	BLK	1.0 U	ug/L	1.0	U
1,2-Dichlorobenzene	95-50-1	BLK	1.0 U	ug/L	1.0	U
1,2-Dichloroethane	107-06-2	BLK	1.0 U	ug/L	1.0	U
1,2-Dichloropropane	78-87-5	BLK	1.0 U	ug/L	1.0	U
1,3-Dichlorobenzene	541-73-1	BLK	1.0 U	ug/L	1.0	U
1,3-Dichloropropane	142-28-9	BLK	1.0 U	ug/L	1.0	U
1,4-Dichlorobenzene	106-46-7	BLK	1.0 U	ug/L	1.0	U
2,2-Dichloropropane	594-20-7	BLK	1.0 U	ug/L	1.0	U
2-Butanone	78-93-3	BLK	10.0 U	ug/L	10.0	U
2-Hexanone	591-78-6	BLK	5.0 U	ug/L	5.0	U
4-Methyl-2-Pentanone(MIBK)	108-10-1	BLK	5.0 U	ug/L	5.0	U
Acetone	67-64-1	BLK	10.0 U	ug/L	10.0	U
Benzene	71-43-2	BLK	1.0 U	ug/L	1.0	U
Bromobenzene	108-86-1	BLK	1.0 U	ug/L	1.0	U

QUALITY CONTROL SAMPLES

VOLATILE ORGANICS (cont.)

RESULTS

Compound	CAS No		Result	Units	RDL	Qualifiers
Bromochloromethane	74-97-5	BLK	1.0 U	ug/L	1.0	U
Bromodichloromethane	75-27-4	BLK	1.0 U	ug/L	1.0	U
Bromoform	75-25-2	BLK	1.0 U	ug/L	1.0	U
Bromomethane	74-83-9	BLK	1.0 U	ug/L	1.0	U
Carbon Tetrachloride	56-23-5	BLK	1.0 U	ug/L	1.0	U
Chlorobenzene	108-90-7	BLK	1.0 U	ug/L	1.0	U
Chlorodibromomethane	124-48-1	BLK	1.0 U	ug/L	1.0	U
Chloroethane	75-00-3	BLK	1.0 U	ug/L	1.0	U
Chloroform	67-66-3	BLK	1.0 U	ug/L	1.0	U
Chloromethane	74-87-3	BLK	1.0 U	ug/L	1.0	U
cis-1,2-Dichloroethene	156-59-2	BLK	1.0 U	ug/L	1.0	U
cis-1,3-Dichloropropene	10061-01-5	BLK	1.0 U	ug/L	1.0	U
Dibromomethane	74-95-3	BLK	1.0 U	ug/L	1.0	U
Dichlorodifluoromethane	75-71-8	BLK	1.0 U	ug/L	1.0	U
Diisopropyl ether	108-20-3	BLK	1.0 U	ug/L	1.0	U
Ethylbenzene	100-41-4	BLK	1.0 U	ug/L	1.0	U
Hexachlorobutadiene	87-68-3	BLK	5.0 U	ug/L	5.0	U
Methyl t-Butyl Ether	1634-04-4	BLK	1.0 U	ug/L	1.0	U
Methylene Chloride	75-09-2	BLK	1.0 U	ug/L	1.0	U
mp-Xylene	108383/106423	BLK	2.0 U	ug/L	2.0	U
Naphthalene	91-20-3	BLK	2.0 U	ug/L	2.0	U
o-Chlorotoluene	95-49-8	BLK	1.0 U	ug/L	1.0	U
o-Xylene	95-47-6	BLK	1.0 U	ug/L	1.0	U
p-Chlorotoluene	106-43-4	BLK	1.0 U	ug/L	1.0	U
p-Isopropyltoluene	99-87-6	BLK	1.0 U	ug/L	1.0	U
Styrene	100-42-5	BLK	1.0 U	ug/L	1.0	U
Tetrachloroethene	127-18-4	BLK	1.0 U	ug/L	1.0	U
Toluene	108-88-3	BLK	1.0 U	ug/L	1.0	U
Total Xylenes	1330-20-7	BLK	3.0 U	ug/L	3.0	U
trans-1,2-Dichloroethene	156-60-5	BLK	1.0 U	ug/L	1.0	U
trans-1,3-Dichloropropene	10061-02-6	BLK	1.0 U	ug/L	1.0	U
Trichloroethene	79-01-6	BLK	1.0 U	ug/L	1.0	U
Trichlorofluoromethane	75-69-4	BLK	1.0 U	ug/L	1.0	U
Vinyl Acetate	108-05-4	BLK	5.0 U	ug/L	5.0	U
Vinyl Chloride	75-01-4	BLK	1.0 U	ug/L	1.0	U

SURROGATES

Compound	CAS No		Result (ug/L)	Expected (ug/L)	Rec. (%)	Limits (%)	Qualifiers
1,2-Dichloroethane-d4	17060-07-0	BLK	32.10	30	107	62 - 133	
4-Bromofluorobenzene	460-00-4	BLK	28.70	30	95.6	79 - 114	
Dibromofluoromethane	1868-53-7	BLK	29.90	30	99.8	78 - 116	
Toluene-d8	2037-26-5	BLK	30.20	30	101	76 - 127	

QUALITY CONTROL SAMPLES

VOLATILE ORGANICS (cont.)

Lab Control Standard 3761691 (LCS) Created on 12/12/2023 14:12 For QC Batch 1101227

RESULTS

Compound	CAS No		Result (ug/L)	Orig. Result (ug/L)	Spk Added (ug/L)	Rec. (%)	Limits (%)	RPD Limit (%)	Qualifiers
1,1,1,2-Tetrachloroethane	630-20-6	LCS	21.70		20	108	78 - 121		
1,1,1-Trichloroethane	71-55-6	LCS	22.10		20	111	66 - 130		
1,1,2,2-Tetrachloroethane	79-34-5	LCS	21		20	105	74 - 135		
1,1,2-Trichloroethane	79-00-5	LCS	21.90		20	109	82 - 126		
1,1-Dichloroethane	75-34-3	LCS	21.60		20	108	78 - 124		
1,1-Dichloroethene	75-35-4	LCS	24.60		20	123	63 - 128		
1,1-Dichloropropene	563-58-6	LCS	21.60		20	108	76 - 126		
1,2,3-Trichlorobenzene	87-61-6	LCS	20.50		20	102	61 - 126		
1,2,3-Trichloropropane	96-18-4	LCS	21.60		20	108	75 - 132		
1,2,4-Trichlorobenzene	120-82-1	LCS	20.10		20	100	67 - 123		
1,2-Dibromo-3-chloropropane	96-12-8	LCS	20.40		20	102	59 - 133		
1,2-Dibromoethane	106-93-4	LCS	21.50		20	107	80 - 124		
1,2-Dichlorobenzene	95-50-1	LCS	20		20	100	82 - 118		
1,2-Dichloroethane	107-06-2	LCS	21.70		20	108	70 - 133		
1,2-Dichloropropane	78-87-5	LCS	21.60		20	108	81 - 127		
1,3-Dichlorobenzene	541-73-1	LCS	20		20	99.9	81 - 118		
1,3-Dichloropropane	142-28-9	LCS	22.20		20	111	82 - 126		
1,4-Dichlorobenzene	106-46-7	LCS	20.50		20	102	81 - 116		
2,2-Dichloropropane	594-20-7	LCS	21.30		20	107	64 - 129		
2-Butanone	78-93-3	LCS	106		100	106	50 - 152		
2-Hexanone	591-78-6	LCS	116		100	116	65 - 154		
4-Methyl-2-Pentanone(MIBK)	108-10-1	LCS	113		100	113	71 - 146		
Acetone	67-64-1	LCS	126		100	126	40 - 151		
Benzene	71-43-2	LCS	21.20		20	106	80 - 124		
Bromobenzene	108-86-1	LCS	20.50		20	102	81 - 119		
Bromochloromethane	74-97-5	LCS	21.90		20	110	73 - 117		
Bromodichloromethane	75-27-4	LCS	21.60		20	108	79 - 126		
Bromoform	75-25-2	LCS	20.70		20	103	70 - 123		
Bromomethane	74-83-9	LCS	22.50		20	113	45 - 148		
Carbon Tetrachloride	56-23-5	LCS	22.20		20	111	62 - 132		
Chlorobenzene	108-90-7	LCS	20.70		20	103	85 - 117		
Chlorodibromomethane	124-48-1	LCS	21.50		20	107	77 - 122		
Chloroethane	75-00-3	LCS	21.40		20	107	51 - 142		
Chloroform	67-66-3	LCS	21.90		20	110	78 - 122		
Chloromethane	74-87-3	LCS	17.30		20	86.7	38 - 156		
cis-1,2-Dichloroethene	156-59-2	LCS	21.90		20	110	78 - 125		
cis-1,3-Dichloropropene	10061-01-5	LCS	20.80		20	104	81 - 121		
Dibromomethane	74-95-3	LCS	21.60		20	108	81 - 125		
Dichlorodifluoromethane	75-71-8	LCS	17.10		20	85.6	17 - 166		
Diisopropyl ether	108-20-3	LCS	21.60		20	108	74 - 131		
Ethylbenzene	100-41-4	LCS	20.80		20	104	80 - 124		
Hexachlorobutadiene	87-68-3	LCS	21		20	105	55 - 128		
Methyl t-Butyl Ether	1634-04-4	LCS	22.10		20	111	69 - 115		
Methylene Chloride	75-09-2	LCS	22		20	110	76 - 121		

QUALITY CONTROL SAMPLES

VOLATILE ORGANICS (cont.)

RESULTS

Compound	CAS No		Result (ug/L)	Orig. Result (ug/L)	Spk Added (ug/L)	Rec. (%)	Limits (%)	RPD Limit (%)	Qualifiers
mp-Xylene	108383/106423	LCS	42.10		40	105	79 - 125		
Naphthalene	91-20-3	LCS	20.70		20	103	56 - 134		
o-Chlorotoluene	95-49-8	LCS	21.20		20	106	78 - 126		
o-Xylene	95-47-6	LCS	21		20	105	79 - 124		
p-Chlorotoluene	106-43-4	LCS	20.60		20	103	78 - 125		
p-Isopropyltoluene	99-87-6	LCS	22		20	110	72 - 123		
Styrene	100-42-5	LCS	20.70		20	103	79 - 123		
Tetrachloroethene	127-18-4	LCS	21.10		20	106	72 - 124		
Toluene	108-88-3	LCS	20.70		20	103	80 - 125		
Total Xylenes	1330-20-7	LCS	63.10		60	105	79 - 125		
trans-1,2-Dichloroethene	156-60-5	LCS	22.50		20	113	71 - 122		
trans-1,3-Dichloropropene	10061-02-6	LCS	22		20	110	78 - 126		
Trichloroethene	79-01-6	LCS	20.70		20	103	77 - 124		
Trichlorofluoromethane	75-69-4	LCS	21.30		20	107	38 - 123		
Vinyl Acetate	108-05-4	LCS	22.50		20	112	58 - 136		
Vinyl Chloride	75-01-4	LCS	19.40		20	97.2	27 - 138		

SURROGATES

Compound	CAS No		Result (ug/L)	Expected (ug/L)	Rec. (%)	Limits (%)	Qualifiers
1,2-Dichloroethane-d4	17060-07-0	LCS	30.40	30	101	62 - 133	
4-Bromofluorobenzene	460-00-4	LCS	27.30	30	91.1	79 - 114	
Dibromofluoromethane	1868-53-7	LCS	29.70	30	98.9	78 - 116	
Toluene-d8	2037-26-5	LCS	27.80	30	92.8	76 - 127	

QUALITY CONTROL DATA CROSS REFERENCE TABLE

Lab ID	Sample ID	Preparation Method	Prep Batch	Prep Date/Time	By	Analysis Method	Anly Batch
3335533001	MW-01	SW846 3510C	1096962	12/06/2023 10:50	BNR	SW846 8270E SIM	1098684
		N/A	N/A	N/A		SW846 8260D	1101196
3335533002	MW-03	SW846 3510C	1096962	12/06/2023 10:50	BNR	SW846 8270E SIM	1098684
		N/A	N/A	N/A		SW846 8260D	1101196
3335533003	MW-04R	SW846 3510C	1096962	12/06/2023 10:50	BNR	SW846 8270E SIM	1098684
		SW846 3510C	1096962	12/06/2023 10:50	BNR	SW846 8270E SIM	1101861
		N/A	N/A	N/A		SW846 8260D	1101196
3335533004	MW-05R	SW846 3510C	1096962	12/06/2023 10:50	BNR	SW846 8270E SIM	1098684
		N/A	N/A	N/A		SW846 8260D	1101196
3335533005	MW-09	SW846 3510C	1096962	12/06/2023 10:50	BNR	SW846 8270E SIM	1098684
		N/A	N/A	N/A		SW846 8260D	1101196
3335533006	MW-16	SW846 3510C	1096962	12/06/2023 10:50	BNR	SW846 8270E SIM	1098684
		SW846 3510C	1096962	12/06/2023 10:50	BNR	SW846 8270E SIM	1101861
		N/A	N/A	N/A		SW846 8260D	1101196
3335533007	MW-18	SW846 3510C	1096962	12/06/2023 10:50	SXM	SW846 8270E SIM	1098684
		N/A	N/A	N/A		SW846 8260D	1101196
3335533008	MW-20	SW846 3510C	1096962	12/06/2023 10:50	BNR	SW846 8270E SIM	1098684
		SW846 3510C	1096962	12/06/2023 10:50	BNR	SW846 8270E SIM	1101861
		N/A	N/A	N/A		SW846 8260D	1101196
3335533009	MW-38R	SW846 3510C	1096962	12/06/2023 10:50	BNR	SW846 8270E SIM	1101861
		SW846 3510C	1096962	12/06/2023 10:50	BNR	SW846 8270E SIM	1098684
		N/A	N/A	N/A		SW846 8260D	1101196
3335533010	MW-42	SW846 3510C	1096962	12/06/2023 10:50	BNR	SW846 8270E SIM	1098684
		N/A	N/A	N/A		SW846 8260D	1101196
3335533011	MW-43	SW846 3510C	1096962	12/06/2023 10:50	BNR	SW846 8270E SIM	1098684
		N/A	N/A	N/A		SW846 8260D	1101196
3335533012	MW-44	SW846 3510C	1096962	12/06/2023 10:50	BNR	SW846 8270E SIM	1098684
		N/A	N/A	N/A		SW846 8260D	1101196
3335533013	MW-45	SW846 3510C	1096962	12/06/2023 10:50	BNR	SW846 8270E SIM	1098684
		N/A	N/A	N/A		SW846 8260D	1101196
3335533014	MW-01D	SW846 3510C	1096962	12/06/2023 10:50	BNR	SW846 8270E SIM	1098684
		N/A	N/A	N/A		SW846 8260D	1101196
3335533015	MW-16D	SW846 3510C	1096962	12/06/2023 10:50	BNR	SW846 8270E SIM	1098684
		SW846 3510C	1096962	12/06/2023 10:50	BNR	SW846 8270E SIM	1101861
		N/A	N/A	N/A		SW846 8260D	1101196
3335533016	MW-21D	SW846 3510C	1096962	12/06/2023 10:50	BNR	SW846 8270E SIM	1098684
		N/A	N/A	N/A		SW846 8260D	1101196
3335533017	MW-22D	SW846 3510C	1096962	12/06/2023 10:50	BNR	SW846 8270E SIM	1098684
		N/A	N/A	N/A		SW846 8260D	1101196
3335533018	MW-23D	SW846 3510C	1096962	12/06/2023 10:50	BNR	SW846 8270E SIM	1098684
		SW846 3510C	1096962	12/06/2023 10:50	BNR	SW846 8270E SIM	1101861
		N/A	N/A	N/A		SW846 8260D	1101196
3335533019	MW-27D	SW846 3510C	1096962	12/06/2023 10:50	BNR	SW846 8270E SIM	1098684
		N/A	N/A	N/A		SW846 8260D	1101196
3335533020	MW-40D	SW846 3510C	1096962	12/06/2023 10:50	BNR	SW846 8270E SIM	1098684
		N/A	N/A	N/A		SW846 8260D	1101196
3335533021	MW-41D	SW846 3510C	1097820	12/07/2023 11:45	BNR	SW846 8270E SIM	1100276
		N/A	N/A	N/A		SW846 8260D	1101227
3335533022	MW-46D	SW846 3510C	1097820	12/07/2023 11:45	BNR	SW846 8270E SIM	1100276
		SW846 3510C	1097820	12/07/2023 11:45	BNR	SW846 8270E SIM	1101861
		N/A	N/A	N/A		SW846 8260D	1101227
3335533023	DUP-120323	SW846 3510C	1097820	12/07/2023 11:45	BNR	SW846 8270E SIM	1100276
		SW846 3510C	1097820	12/07/2023 11:45	BNR	SW846 8270E SIM	1101861
		N/A	N/A	N/A		SW846 8260D	1101227
3335533024	Trip Blank A	N/A	N/A	N/A		SW846 8260D	1101227
3335533025	Trip Blank B	N/A	N/A	N/A		SW846 8260D	1101227
3335533026	Trip Blank C	N/A	N/A	N/A		SW846 8260D	1101227

301 Fulling Mill Rd, Suite A
Middletown, PA 17057
P. 717-944-5541

CHAIN OF CUSTODY/ REQUEST FOR ANALYSIS

ALL SHADED AREAS MUST BE COMPLETED BY THE CLIENT / SAMPLER. INSTRUCTIONS ON THE BACK.

3335533
Logged By: SLS
PM: SJB

3335533 of

Client Name: WSP USA

Address: 13530 Dulles Technology Dr Suite 300 Herndon VA ~~20001~~ 20171

Contact: Eric Johnson

Phone#: (703) 709-6500

Project Name/#: Kap Flex Onsite / 31405608.010

Bill To:

Purchase Order #:

TAT [X] Normal-Standard TAT is 10-12 business days. [ ] Rush-Subject to ALS approval and surcharges.

Date Required: Approved?

Email? [ ]

Container Type	CG	AG								
Container Size	VOA	250								
Preservative	HCl	None								

Orthophosphate Filtered? Yes No Hexavalent Chromium Filtered? Yes No

ANALYSIS / METHOD REQUESTED

	Sample Description/Location (as it will appear on the lab report)	Date Collected mm/dd/yy	Time hh:mm	SDWA Sample Type (see key)	*G or C	**Matrix (See bottom of COC)	VOCs 8260	8270 1,4 Dioxane								
							Enter Number of Containers Per Sample or Field Results Below.									
A	1 MW-01	12/03/23	1425		G	GW	2X	2X								
B	2 MW-03	12/03/23	0950		G	GW	X	X								
A	3 MW-04R	12/03/23	1510		G	GW	X	X								
C	4 MW-05R	12/03/23	1205		G	GW	X	X								
B	5 MW-09	12/03/23	1530		G	GW	X	X								
B	6 MW-16	12/03/23	1605		G	GW	X	X								
C	7 MW-18	12/03/23	1140		G	GW	X	X								
A	8 MW-20	12/03/23	1515		G	GW	X	X								
C	9 MW-38R	12/03/23	1120		G	GW	X	X								
	~~10 MW-39~~	~~12/03/23~~ 12/04/23	~~1100~~		G	GW	X	X								

Circle Sample Collector: ALS Tech / Client
Name: ID:

Comments:

Date:	Time		Relinquished By / Company Name		Received By / Company Name
12/4/23	1605	1	WSP	2	1610 ALS Evon P
12-4-23	1815	3	ALS Evon P	4	
		5		6	
		7		8	
		9		10	

Temp Taken By: RW Therm ID: 520 WO Temp (°C) 3C

Receipt Info completed by: RW

WV Containers 0-6°C Y N NA

Cooler Custody Seals Intact	Y	N	NA
Sample Custody Seal Intact	Y	N	NA
Received on Ice	Y	N	NA
Coolers & Samples Intact	Y	N	
Correct Containers Provided	Y	N	
Sample Label/COC Agree	Y	N	
Adequate Sample Volumes	Y	N	
VOA only: Trip Blank	Y	N	~~NA~~

NJ ≤ 4 days? Y N

Courier/Tracking #

Deviations? NO YES
If YES, list below:

Client contact:
Date/Tech:

Sample(s) for Radiation testing? Y N Rad Screen (uCi)

Reportable SDWA Sample(s)? Y N New Source? Y N

SDWA State of Origin? New Source Contact:

PWSID #

PWS Contact: PWS Phone #:

SDWA Sample Type Key: D=Distribution E=Entry Point R=Raw P=Plant C=Check S=Special A=Annual Startup

Sample/COC Remarks

Contains Short Hold Testing YES NO

Internal Use: If less than 48 hours - notify lab upon receipt

Data Deliverables: [ ] Standard Lvl 1 [ ] CLP-like [ ] HSCA; [X] Standard Lvl 2 [ ] DOD [ ] Landfill; [ ] Standard Lvl 3 [ ] NJ RED [ ] NJ GW; [ ] Standard Lvl 4 [ ] NJ Full [ ] ____

EDDs: [X] Excel Summary [ ] Equis [ ] Custom

Sample Disposal: [ ] Lab [ ] Special

EDDS: Format Type

State Samples Collected In: [ ] NY [ ] NJ [ ] PA [ ] WV [ ] FL [ ] other

* G=Grab; C=Composite **Matrix - A=Air; D=Drinking Water; GW=Groundwater; O=Oil; LW=Liquid Waste; S=Solid/Soil/Sludge; SW=Surface Water; WP=Wipe; WW=Wastewater

ALS SHIPPING ADDRESS: 301 Fulling Mill Road, Suite A, Middletown, PA 17057

Rev 07.06.2023

301 Fulling Mill Rd, Suite A
Middletown, PA 17057
P. 717-944-5541

CHAIN OF CUSTODY/ REQUEST FOR ANALYSIS

ALL SHADED AREAS MUST BE COMPLETED BY THE CLIENT / SAMPLER. INSTRUCTIONS ON THE BACK.

COC #: 2 of 3 3335533 of

ALS Quote #:

Client Name: WSP USA

Address: 13530 Dulles Technology Dr
Suite 300
Herndon VA 20171

Contact: Eric Johnson

Phone#: (703) 709-6500

Project Name/#: Kop-Flex Onsite / 31405608.010

Bill To:

Purchase Order #:

TAT: [X] Normal-Standard TAT is 10-12 business days. [ ] Rush-Subject to ALS approval and surcharges.

Date Required: Approved?

Email? [ ]

	Container Type											
	Container Size	VOA	250									
	Preservative	HCl	None									

Orthophosphate Filtered? Yes (No) Hexavalent Chromium Filtered? Yes (No)

ANALYSIS / METHOD REQUESTED

	Sample Description/Location (as it will appear on the lab report)	Date Collected mm/dd/yy	Time hh:mm	SDWA Sample Type (see key)	*G or C	**Matrix (See bottom of COC)	VOCs 8260	1,4 Dioxane 8270	
1	MW-42	12/03/23	1135		G	GW	7X	2X	
2	MW-43	12/03/23	1050		G	GW	X	X	
3	MW-44	12/03/23	1330		G	GW	X	X	
4	MW-45	12/04/23	1330		G	GW	X	X	
5	MW-01D	12/03/23	1430		G	GW	X	X	
6	MW-16D	12/03/23	1615		G	GW	X	X	
7	MW-21D	12/03/23	1355		G	GW	X	X	
8	MW-22D	12/03/23	1455		G	GW	X	X	
9	MW-23D	12/03/23	1540		G	GW	X	X	
10	MW-24D	12/04/23			G	GW	X	X	

Enter Number of Containers Per Sample or Field Results Below.

Circle Sample Collector: ALS Tech / (Client)

Name: ID:

Comments:

Date:	Time		Relinquished By / Company Name		Received By / Company Name
12/4/23	1605	1	[signature] WSP	2	ALS Evan P
12-4-23	1815	3	ALS Evan P	4	[signature]
		5		6	
		7		8	
		9		10	

* G=Grab; C=Composite **Matrix - A=Air; D=Drinking Water; GW=Groundwater; O=Oil; LW=Liquid Waste; S=Solid/Soil/Sludge; SW=Surface Water; WP=Wipe; WW=Wastewater

ALS SHIPPING ADDRESS: 301 Fulling Mill Road, Suite A, Middletown, PA 17057

Receipt Information (completed by Receiving Lab)

Temp Taken By: Therm ID: WO Temp (°C)

Receipt Info completed by:

WV Containers 0-6°C Y N NA

Cooler Custody Seals Intact	Y	N	NA
Sample Custody Seal Intact	Y	N	NA
Received on Ice	Y	N	NA
Coolers & Samples Intact	Y	N	
Correct Containers Provided	Y	N	
Sample Label/COC Agree	Y	N	
Adequate Sample Volumes	Y	N	
VOA only: Trip Blank	Y	N	NA

NJ ≤ 4 days? Y N

Courier/Tracking #

Deviations? NO YES

If YES, list below:

Client contact:

Date/Tech:

Sample(s) for Radiation testing? Y N

Reportable SDWA Sample(s)? Y N

SDWA State of Origin?

PWSID #

PWS Contact: PWS Phone #:

Rad Screen (uCi)

New Source? Y N

New Source Contact:

SDWA Sample Type Key: D=Distribution E=Entry Point R=Raw P=Plant C=Check S=Special A=Annual Startup

Sample/COC Remarks

Contains Short Hold Testing YES NO

Internal Use: If less than 48 hours - notify lab upon receipt

Data Deliverables: [ ] Standard Lvl 1 [X] Standard Lvl 2 [ ] Standard Lvl 3 [ ] Standard Lvl 4 [ ] CLP-like [ ] DOD [ ] NJ RED [ ] NJ Full [ ] HSCA [ ] Landfill [ ] NJ GW [ ]

EDDs: [X] Excel Summary [ ] Equis [ ] Custom

Sample Disposal: [ ] Lab [ ] Special

EDDS: Format Type

State Samples Collected In: [ ] NY [ ] NJ [ ] PA [ ] WV [ ] FL [ ] other

301 Fulling Mill Rd, Suite A
Middletown, PA 17057
P. 717-944-5541

CHAIN OF CUSTODY/ REQUEST FOR ANALYSIS

ALL SHADED AREAS MUST BE COMPLETED BY THE CLIENT / SAMPLER. INSTRUCTIONS ON THE BACK.

COC #: 3 of 3 3335533 of
ALS Quote #:

Client Name: WSP USA
Address: 13530 Dulles Technology Dr
Suite 300
Herndon VA 20171

Contact: Eric Johnson
Phone#: (703) 709-6500
Project Name/#: 31405608.010
Bill To:
Purchase Order #:
TAT ☒ Normal-Standard TAT is 10-12 business days.
☐ Rush-Subject to ALS approval and surcharges.
Date Required: Approved?
Email? ☐

	Container Type	CG	AG								
	Container Size	VOA	250 mL								
	Preservative	HCl	None								

Orthophosphate Filtered? Yes No Hexavalent Chromium Filtered? Yes No

ANALYSIS / METHOD REQUESTED

	Sample Description/Location (as it will appear on the lab report)	Date Collected mm/dd/yy	Time hh:mm	SDWA Sample Type (see key)	*G or C	**Matrix (See bottom of COC)	8260 VOCs	1,4 Dioxane 8270										
							Enter Number of Containers Per Sample or Field Results Below.											
1	MW-27D	12/03/23	1000		G	GW	2X	2X										
2	MW-40D	12/03/23	1150		G	GW	X	X										
3	MW-41D	12/03/23	1405		G	GW	X	X										
4	MW-46D	12/03/23	1035		G	GW	X	X										
5	DUP-120323	12/03/23	1230		G	GW	X	X										
6	Trip Blank A						X											
7	Trip Blank B						X											
8	Trip Blank C						X											
9																		
10																		

B C A B B

Circle Sample Collector: ALS Tech / Client
Name: ID:

Comments:

Date:	Time		Relinquished By / Company Name		Received By / Company Name
12/4/23	1605	1	WSP	2	ALS Evon P
12-4-23	1815	3	ALS Evon P	4	
		5		6	
		7		8	
		9		10	

Receipt Information (completed by Receiving Lab)
Temp Taken By: Therm ID: WO Temp (°C)
Receipt Info completed by:
WV Containers 0-6°C Y N NA
Cooler Custody Seals Intact Y N NA
Sample Custody Seal Intact Y N NA
Received on Ice Y N NA
Coolers & Samples Intact Y N
Correct Containers Provided Y N
Sample Label/COC Agree Y N
Adequate Sample Volumes Y N
VOA only: Trip Blank Y N NA
NJ ≤ 4 days? Y N
Courier/Tracking #

Deviations? NO YES
If YES, list below:

Client contact:
Date/Tech.

Sample(s) for Radiation testing? Y N
Reportable SDWA Sample(s)? Y N
SDWA State of Origin?
PWSID #
PWS Contact: PWS Phone #:

Rad Screen (uCi)
New Source? Y N
New Source Contact:

SDWA Sample Type Key: D=Distribution E=Entry Point
R=Raw P=Plant C=Check S=Special A=Annual Startup

Sample/COC Remarks

Contains Short Hold Testing YES NO
Internal Use: If less than 48 hours - notify lab upon receipt

Data Deliverables
☐ Standard Lvl 1 ☐ CLP-like ☐ HSCA
☒ Standard Lvl 2 ☐ DOD ☐ Landfill
☐ Standard Lvl 3 ☐ NJ RED ☐ NJ GW
☐ Standard Lvl 4 ☐ NJ Full ☐ _____

EDDs
☒ Excel Summary
☐ Equis
☐ Custom

Sample Disposal
Lab ☐
Special ☐

EDDS: Format Type

State Samples Collected In
☐ NY ☐ NJ ☐ PA ☐ WV ☐ FL ☐ other

* G=Grab; C=Composite **Matrix - A=Air; D=Drinking Water; GW=Groundwater; O=Oil; LW=Liquid Waste; S=Solid/Soil/Sludge; SW=Surface Water; WP=Wipe; WW=Wastewater

ALS SHIPPING ADDRESS: 301 Fulling Mill Road, Suite A, Middletown, PA 17057

Main Site: 301 Fulling Mill Road | Middletown, PA 17057 | Phone: 717-944-5541 | Fax: 717-944-1430 | www.alsglobal.com
Associated Site: 20 Riverside Drive | Spring City, PA 19475 | Phone: 610-948-4903 | Fax: 717-944-1430 |

NELAP Certifications: NJ PA010 , NY 11759 , PA 22-293 DoD ELAP: PJLA 74618
State Certifications: FL E871113 , WA C999 , MD 128 , VA 460157 , WV DW 9961-C , WV 343

Analytical Results Report For **WSP USA Inc.**

Project	Former KOP-Flex Facility Onsit
Workorder	3338319
Report ID	291955 on 12/29/2023

Certificate of Analysis

Enclosed are the analytical results for samples received by the laboratory on Dec 21, 2023.

The ALS Environmental laboratory in Middletown, Pennsylvania is a National Environmental Laboratory Accreditation Program (NELAP) accredited laboratory and as such, certifies that all applicable test results meet the requirements of NELAP.

If you have any questions regarding this certificate of analysis, please contact Susan Scherer (Project Coordinator) at (717) 944-5541.

Analyses were performed according to our laboratory's NELAP-approved quality assurance program and any applicable state requirements. The test results meet requirements of the current NELAP standards or state requirements, where applicable. For a specific list of accredited analytes, refer to the certifications section of the ALS website at www.alsglobal.com/en/Our-Services/Life-Sciences/Environmental/Downloads.

This laboratory report may not be reproduced, except in full, without the written approval of ALS Global.
ALS Middletown: 301 Fulling Mill Road, Middletown, PA 17057 : 717-944-5541.

Recipient(s):
Elliott Martynkiewicz - WSP USA Inc.
Eric Johnson - WSP USA INC

This page is included as part of the Analytical Report and must be retained as a permanent record thereof.

Susan Scherer

Susan Scherer *(ALS Digital Signature)*
Project Coordinator

Sample Summary

Lab ID	Sample ID	Matrix	Date Collected	Date Received	Collector	Collection Company
3338319001	MW-39	Ground Water	12/20/2023 09:50	12/21/2023 08:24	CBC	Collected By Client

Reference

Notes

- Samples collected by ALS personnel are done so in accordance with the procedures set forth in the ALS Field Sampling Plan (20 - Field Services Sampling Plan).
- Except as qualified, Clean Water Act sample analyses are consistent with methodology requirements in 40 CFR Part 136, including but not limited to the following EPA Method reference revisions:
  EPA 300.1 Rev. 1.0-1997
  EPA 300.0 Rev. 2.1-1993
  EPA 353.2 Rev. 2.0-1993
  EPA 410.4 Rev. 1.0-1993
  EPA 420.4 Rev. 1.0-1993
  EPA 365.1 Rev. 2.0-1993
  EPA 200.7 Rev. 4.4-1994
  EPA 200.8 Rev. 5.4-1994
  EPA 245.1 Rev. 3.0-1994
- Except as qualified, Safe Drinking Water Act sample analyses are consistent with methodology requirements in 40 CFR Part 141.
- The Chain of Custody document is included as part of this report.
- All Library Search analytes should be regarded as tentative identifications based on the presumptive evidence of the mass spectra. Concentrations reported are estimated values.
- Parameters identified as "analyze immediately" require analysis within 15 minutes of collection. Any "analyze immediately" parameters not listed under the header "Field Parameters" are preformed in the laboratory and are therefore analyzed out of hold time.
- Method references listed on this report beginning with the prefix “S” followed by a method number (such as S2310B-97) refer to methods from “Standard Methods for the Examination of Water and Wastewater”.
- For microbiological analyses, the "Prepared" value is the date/time into the incubator and the "Analyzed" value is the date/time out the incubator.
- An Analysis-Prep Method Cross Reference Table is included after Analytical Results & Qualifiers section in this report.
- Unless otherwise noted, all quantitative results for soils are reported on a dry weight basis.

Standard Acronyms/Flags

J	Indicates an estimated value between the Method Detection Limit (MDL) and the Practical Quantitation Limit (PQL) for the analyte
U	Indicates that the analyte was Not Detected (ND) above the MDL
N	Indicates presumptive evidence of the presence of a compound
MDL	Method Detection Limit
PQL	Practical Quantitation Limit
RDL	Practical Quantitation Limit for this Project
ND	Not Detected - indicates that the analyte was Not Detected
Cntr	Analysis was performed using this container
RegLmt	Regulatory Limit
LCS	Laboratory Control Sample
MS	Matrix Spike
MSD	Matrix Spike Duplicate
DUP	Sample Duplicate
%Rec	Percent Recovery
RPD	Relative Percent Difference
LOD	DoD Limit of Detection
LOQ	DoD Limit of Quantitation
DL	DoD Detection Limit
I	Indicates reported value is greater than or equal to the Method Detection Limit (MDL) but less than the Report Detection Limit (RDL)
(S)	Surrogate Compound
NC	Not Calculated
*	Result outside of QC limits
#	Please reference the result in the Results Section for analyte-level flags.

Project Notations

Sample Notations

Lab ID	Sample ID

Result Notations

Notation Ref.

Detected Results Summary

Not applicable for this WO.

Results

Client Sample ID	MW-39	Collected	12/20/2023 09:50
Lab Sample ID	3338319001	Lab Receipt	12/21/2023 08:24

SEMIVOLATILE SIM

Compound	Result	Flag	Units	RDL	Method	Dilution	Analysis Date/Time	By	Cntr
1,4-Dioxane	1.0 U	U	ug/L	1.0	SW846 8270E SIM	1	12/26/2023 19:12	CGS	C

SURROGATES

Compound	CAS No	Recovery	Limits(%)	Analysis Date/Time	Qualifiers
2-Methylnapthalene-d10	7297-45-2	55.7%	29 – 112	12/26/2023 19:12	
Fluoranthene-d10	93951-69-0	77.5%	45 – 130	12/26/2023 19:12	

VOLATILE ORGANICS

Compound	Result	Flag	Units	RDL	Method	Dilution	Analysis Date/Time	By	Cntr
1,1,1,2-Tetrachloroethane	1.0 U	U	ug/L	1.0	SW846 8260D	1	12/22/2023 14:26	ILY	A
1,1,1-Trichloroethane	1.0 U	U	ug/L	1.0	SW846 8260D	1	12/22/2023 14:26	ILY	A
1,1,2,2-Tetrachloroethane	1.0 U	U	ug/L	1.0	SW846 8260D	1	12/22/2023 14:26	ILY	A
1,1,2-Trichloroethane	1.0 U	U	ug/L	1.0	SW846 8260D	1	12/22/2023 14:26	ILY	A
1,1-Dichloroethane	1.0 U	U	ug/L	1.0	SW846 8260D	1	12/22/2023 14:26	ILY	A
1,1-Dichloroethene	1.0 U	U	ug/L	1.0	SW846 8260D	1	12/22/2023 14:26	ILY	A
1,1-Dichloropropene	1.0 U	U	ug/L	1.0	SW846 8260D	1	12/22/2023 14:26	ILY	A
1,2,3-Trichlorobenzene	2.0 U	U	ug/L	2.0	SW846 8260D	1	12/22/2023 14:26	ILY	A
1,2,3-Trichloropropane	2.0 U	U	ug/L	2.0	SW846 8260D	1	12/22/2023 14:26	ILY	A
1,2,4-Trichlorobenzene	2.0 U	U	ug/L	2.0	SW846 8260D	1	12/22/2023 14:26	ILY	A
1,2-Dibromo-3-chloropropane	7.0 U	U	ug/L	7.0	SW846 8260D	1	12/22/2023 14:26	ILY	A
1,2-Dibromoethane	1.0 U	U	ug/L	1.0	SW846 8260D	1	12/22/2023 14:26	ILY	A
1,2-Dichlorobenzene	1.0 U	U	ug/L	1.0	SW846 8260D	1	12/22/2023 14:26	ILY	A
1,2-Dichloroethane	1.0 U	U	ug/L	1.0	SW846 8260D	1	12/22/2023 14:26	ILY	A
1,2-Dichloropropane	1.0 U	U	ug/L	1.0	SW846 8260D	1	12/22/2023 14:26	ILY	A
1,3-Dichlorobenzene	1.0 U	U	ug/L	1.0	SW846 8260D	1	12/22/2023 14:26	ILY	A
1,3-Dichloropropane	1.0 U	U	ug/L	1.0	SW846 8260D	1	12/22/2023 14:26	ILY	A
1,4-Dichlorobenzene	1.0 U	U	ug/L	1.0	SW846 8260D	1	12/22/2023 14:26	ILY	A
2,2-Dichloropropane	1.0 U	U	ug/L	1.0	SW846 8260D	1	12/22/2023 14:26	ILY	A
2-Butanone	10.0 U	U	ug/L	10.0	SW846 8260D	1	12/22/2023 14:26	ILY	A
2-Hexanone	5.0 U	U	ug/L	5.0	SW846 8260D	1	12/22/2023 14:26	ILY	A
4-Methyl-2-Pentanone(MIBK)	5.0 U	U	ug/L	5.0	SW846 8260D	1	12/22/2023 14:26	ILY	A
Acetone	10.0 U	U	ug/L	10.0	SW846 8260D	1	12/22/2023 14:26	ILY	A
Benzene	1.0 U	U	ug/L	1.0	SW846 8260D	1	12/22/2023 14:26	ILY	A
Bromobenzene	1.0 U	U	ug/L	1.0	SW846 8260D	1	12/22/2023 14:26	ILY	A
Bromochloromethane	1.0 U	U	ug/L	1.0	SW846 8260D	1	12/22/2023 14:26	ILY	A
Bromodichloromethane	1.0 U	U	ug/L	1.0	SW846 8260D	1	12/22/2023 14:26	ILY	A
Bromoform	1.0 U	U	ug/L	1.0	SW846 8260D	1	12/22/2023 14:26	ILY	A
Bromomethane	1.0 U	U	ug/L	1.0	SW846 8260D	1	12/22/2023 14:26	ILY	A
Carbon Tetrachloride	1.0 U	U	ug/L	1.0	SW846 8260D	1	12/22/2023 14:26	ILY	A
Chlorobenzene	1.0 U	U	ug/L	1.0	SW846 8260D	1	12/22/2023 14:26	ILY	A
Chlorodibromomethane	1.0 U	U	ug/L	1.0	SW846 8260D	1	12/22/2023 14:26	ILY	A
Chloroethane	1.0 U	U	ug/L	1.0	SW846 8260D	1	12/22/2023 14:26	ILY	A
Chloroform	1.0 U	U	ug/L	1.0	SW846 8260D	1	12/22/2023 14:26	ILY	A
Chloromethane	1.0 U	U	ug/L	1.0	SW846 8260D	1	12/22/2023 14:26	ILY	A

Results

Client Sample ID	MW-39	Collected	12/20/2023 09:50
Lab Sample ID	3338319001	Lab Receipt	12/21/2023 08:24

VOLATILE ORGANICS (cont.)

Compound	Result	Flag	Units	RDL	Method	Dilution	Analysis Date/Time	By	Cntr
cis-1,2-Dichloroethene	1.0 U	U	ug/L	1.0	SW846 8260D	1	12/22/2023 14:26	ILY	A
cis-1,3-Dichloropropene	1.0 U	U	ug/L	1.0	SW846 8260D	1	12/22/2023 14:26	ILY	A
Dibromomethane	1.0 U	U	ug/L	1.0	SW846 8260D	1	12/22/2023 14:26	ILY	A
Dichlorodifluoromethane	1.0 U	U	ug/L	1.0	SW846 8260D	1	12/22/2023 14:26	ILY	A
Diisopropyl ether	1.0 U	U	ug/L	1.0	SW846 8260D	1	12/22/2023 14:26	ILY	A
Ethylbenzene	1.0 U	U	ug/L	1.0	SW846 8260D	1	12/22/2023 14:26	ILY	A
Hexachlorobutadiene	5.0 U	U	ug/L	5.0	SW846 8260D	1	12/22/2023 14:26	ILY	A
Methyl t-Butyl Ether	1.0 U	U	ug/L	1.0	SW846 8260D	1	12/22/2023 14:26	ILY	A
Methylene Chloride	1.0 U	U	ug/L	1.0	SW846 8260D	1	12/22/2023 14:26	ILY	A
mp-Xylene	2.0 U	U	ug/L	2.0	SW846 8260D	1	12/22/2023 14:26	ILY	A
Naphthalene	2.0 U	U	ug/L	2.0	SW846 8260D	1	12/22/2023 14:26	ILY	A
o-Chlorotoluene	1.0 U	U	ug/L	1.0	SW846 8260D	1	12/22/2023 14:26	ILY	A
o-Xylene	1.0 U	U	ug/L	1.0	SW846 8260D	1	12/22/2023 14:26	ILY	A
p-Chlorotoluene	1.0 U	U	ug/L	1.0	SW846 8260D	1	12/22/2023 14:26	ILY	A
p-Isopropyltoluene	1.0 U	U	ug/L	1.0	SW846 8260D	1	12/22/2023 14:26	ILY	A
Styrene	1.0 U	U	ug/L	1.0	SW846 8260D	1	12/22/2023 14:26	ILY	A
Tetrachloroethene	1.0 U	U	ug/L	1.0	SW846 8260D	1	12/22/2023 14:26	ILY	A
Toluene	1.0 U	U	ug/L	1.0	SW846 8260D	1	12/22/2023 14:26	ILY	A
Total Xylenes	3.0 U	U	ug/L	3.0	SW846 8260D	1	12/22/2023 14:26	ILY	A
trans-1,2-Dichloroethene	1.0 U	U	ug/L	1.0	SW846 8260D	1	12/22/2023 14:26	ILY	A
trans-1,3-Dichloropropene	1.0 U	U	ug/L	1.0	SW846 8260D	1	12/22/2023 14:26	ILY	A
Trichloroethene	1.0 U	U	ug/L	1.0	SW846 8260D	1	12/22/2023 14:26	ILY	A
Trichlorofluoromethane	1.0 U	U	ug/L	1.0	SW846 8260D	1	12/22/2023 14:26	ILY	A
Vinyl Acetate	5.0 U	U	ug/L	5.0	SW846 8260D	1	12/22/2023 14:26	ILY	A
Vinyl Chloride	1.0 U	U	ug/L	1.0	SW846 8260D	1	12/22/2023 14:26	ILY	A

SURROGATES

Compound	CAS No	Recovery	Limits(%)	Analysis Date/Time	Qualifiers
1,2-Dichloroethane-d4	17060-07-0	109%	62 – 133	12/22/2023 14:26	
4-Bromofluorobenzene	460-00-4	89.7%	79 – 114	12/22/2023 14:26	
Dibromofluoromethane	1868-53-7	102%	78 – 116	12/22/2023 14:26	
Toluene-d8	2037-26-5	108%	76 – 127	12/22/2023 14:26	

Sample - Method Cross Reference Table

Lab ID	Sample ID	Analysis Method	Preparation Method	Leachate Method
3338319001	MW-39	SW846 8270E SIM	SW846 3510C	
		SW846 8260D	N/A	

QUALITY CONTROL SAMPLES

SEMIVOLATILE SIM

QC Batch

QC Batch	1108803	Prep Method	SW846 3510C
Date	12/21/2023 16:10	Analysis Method	SW846 8270E SIM
Tech.	SXM		

Associated Samples

3338319001

Method Blank 3766005 (MB) Created on 12/21/2023 10:00 For QC Batch 1108803

RESULTS

Compound	CAS No		Result	Units	RDL	Qualifiers
1,4-Dioxane	123-91-1	BLK	1.0 U	ug/L	1.0	U

SURROGATES

Compound	CAS No		Result (ug/L)	Expected (ug/L)	Rec. (%)	Limits (%)	Qualifiers
2-Methylnapthalene-d10	7297-45-2	BLK	0.54	1	54	29 - 112	
Fluoranthene-d10	93951-69-0	BLK	0.72	1	71.7	45 - 130	

Lab Control Standard 3766006 (LCS) Created on 12/21/2023 10:00 For QC Batch 1108803

RESULTS

Compound	CAS No		Result (ug/L)	Orig. Result (ug/L)	Spk Added (ug/L)	Rec. (%)	Limits (%)	RPD Limit (%)	Qualifiers
1,4-Dioxane	123-91-1	LCS	0.29		1	28.9	22 - 75		U

SURROGATES

Compound	CAS No		Result (ug/L)	Expected (ug/L)	Rec. (%)	Limits (%)	Qualifiers
2-Methylnapthalene-d10	7297-45-2	LCS	0.52	1	51.8	29 - 112	
Fluoranthene-d10	93951-69-0	LCS	0.69	1	69	45 - 130	

QUALITY CONTROL SAMPLES

VOLATILE ORGANICS

QC Batch

QC Batch	1109980	Prep Method	N/A
Date	N/A	Analysis Method	SW846 8260D
Tech.			

Associated Samples

3338319001

Matrix Spike 3766856 (MS) 3338364001 (non-Project Sample) For QC Batch 1109980

****NOTE - The Original Result shown below is a raw result and is only used for the purpose of calculating Matrix Spike percent recoveries. This result is not a final value and cannot be used as such.

Matrix Spike Duplicate 3766857 (MSD) 3338364001 (non-Project Sample) For QC Batch 1109980

RESULTS

Compound	CAS No		Result (ug/L)	Orig. Result (ug/L)	Spk Added (ug/L)	Rec. (%)	Limits (%)	RPD Limit (%)	Qualifiers
1,1,1,2-Tetrachloroethane	630-20-6	MS	21.50	0	20	108	78 - 121		
1,1,1,2-Tetrachloroethane	630-20-6	MSD	20.80	0	20	104	78 - 121	RPD 3.54 (Max-16)	
1,1,1-Trichloroethane	71-55-6	MS	23.30	0	20	116	66 - 130		
1,1,1-Trichloroethane	71-55-6	MSD	21.40	0	20	107	66 - 130	RPD 8.47 (Max-20)	
1,1,2,2-Tetrachloroethane	79-34-5	MS	21.20	0	20	106	74 - 135		
1,1,2,2-Tetrachloroethane	79-34-5	MSD	21.20	0	20	106	74 - 135	RPD 0.05 (Max-16)	
1,1,2-Trichloroethane	79-00-5	MS	24.50	0	20	122	82 - 126		
1,1,2-Trichloroethane	79-00-5	MSD	23.20	0	20	116	82 - 126	RPD 5.08 (Max-15)	
1,1-Dichloroethane	75-34-3	MS	23.10	0	20	116	78 - 124		
1,1-Dichloroethane	75-34-3	MSD	21.70	0	20	108	78 - 124	RPD 6.44 (Max-15)	
1,1-Dichloroethene	75-35-4	MS	25.90	0	20	130*	63 - 128		
1,1-Dichloroethene	75-35-4	MSD	23.80	0	20	119	63 - 128	RPD 8.37 (Max-21)	
1,1-Dichloropropene	563-58-6	MS	23.20	0	20	116	76 - 126		
1,1-Dichloropropene	563-58-6	MSD	21.50	0	20	107	76 - 126	RPD 7.80 (Max-16)	
1,2,3-Trichlorobenzene	87-61-6	MS	18.70	0	20	93.7	61 - 126		
1,2,3-Trichlorobenzene	87-61-6	MSD	18.70	0	20	93.5	61 - 126	RPD 0.22 (Max-36)	
1,2,3-Trichloropropane	96-18-4	MS	21.40	0	20	107	75 - 132		
1,2,3-Trichloropropane	96-18-4	MSD	21.30	0	20	106	75 - 132	RPD 0.68 (Max-19)	
1,2,4-Trichlorobenzene	120-82-1	MS	18.50	0	20	92.4	67 - 123		
1,2,4-Trichlorobenzene	120-82-1	MSD	18.80	0	20	94.2	67 - 123	RPD 2.03 (Max-22)	
1,2-Dibromo-3-chloropropane	96-12-8	MS	18	0	20	89.9	59 - 133		
1,2-Dibromo-3-chloropropane	96-12-8	MSD	20.30	0	20	102	59 - 133	RPD 12.40 (Max-26)	
1,2-Dibromoethane	106-93-4	MS	21.10	0	20	106	80 - 124		
1,2-Dibromoethane	106-93-4	MSD	20.30	0	20	102	80 - 124	RPD 3.91 (Max-19)	
1,2-Dichlorobenzene	95-50-1	MS	19.70	0	20	98.4	82 - 118		
1,2-Dichlorobenzene	95-50-1	MSD	19.70	0	20	98.6	82 - 118	RPD 0.20 (Max-15)	
1,2-Dichloroethane	107-06-2	MS	20.80	0	20	104	70 - 133		
1,2-Dichloroethane	107-06-2	MSD	19.70	0	20	98.6	70 - 133	RPD 5.39 (Max-19)	
1,2-Dichloropropane	78-87-5	MS	22.70	0	20	113	81 - 127		
1,2-Dichloropropane	78-87-5	MSD	21.30	0	20	106	81 - 127	RPD 6.37 (Max-15)	
1,3-Dichlorobenzene	541-73-1	MS	19.70	0	20	98.5	81 - 118		
1,3-Dichlorobenzene	541-73-1	MSD	19.70	0	20	98.5	81 - 118	RPD 0.01 (Max-16)	
1,3-Dichloropropane	142-28-9	MS	22.20	0	20	111	82 - 126		
1,3-Dichloropropane	142-28-9	MSD	21.10	0	20	106	82 - 126	RPD 5.17 (Max-15)	
1,4-Dichlorobenzene	106-46-7	MS	19.90	0	20	99.4	81 - 116		

QUALITY CONTROL SAMPLES

VOLATILE ORGANICS (cont.)

RESULTS

Compound	CAS No		Result (ug/L)	Orig. Result (ug/L)	Spk Added (ug/L)	Rec. (%)	Limits (%)	RPD Limit (%)	Qualifiers
1,4-Dichlorobenzene	106-46-7	MSD	19.70	0	20	98.6	81 - 116	RPD 0.89 (Max-15)	
2,2-Dichloropropane	594-20-7	MS	20.80	0	20	104	64 - 129		
2,2-Dichloropropane	594-20-7	MSD	19	0	20	95.1	64 - 129	RPD 8.98 (Max-18)	
2-Butanone	78-93-3	MS	95	0	100	95	50 - 152		
2-Butanone	78-93-3	MSD	96	0	100	96	50 - 152	RPD 0.97 (Max-16)	
2-Hexanone	591-78-6	MS	112	0	100	112	65 - 154		
2-Hexanone	591-78-6	MSD	109	0	100	109	65 - 154	RPD 2.36 (Max-17)	
4-Methyl-2-Pentanone(MIBK)	108-10-1	MS	112	0	100	112	71 - 146		
4-Methyl-2-Pentanone(MIBK)	108-10-1	MSD	109	0	100	109	71 - 146	RPD 2.62 (Max-16)	
Acetone	67-64-1	MS	124	0	100	124	40 - 151		
Acetone	67-64-1	MSD	117	0	100	117	40 - 151	RPD 5.23 (Max-40)	
Benzene	71-43-2	MS	54.60	31.40	20	116	80 - 124		
Benzene	71-43-2	MSD	50.90	31.40	20	97.6	80 - 124	RPD 7 (Max-26)	
Bromobenzene	108-86-1	MS	19.90	0	20	99.7	81 - 119		
Bromobenzene	108-86-1	MSD	19.60	0	20	97.8	81 - 119	RPD 1.90 (Max-17)	
Bromochloromethane	74-97-5	MS	21.80	0	20	109	73 - 117		
Bromochloromethane	74-97-5	MSD	20.60	0	20	103	73 - 117	RPD 5.86 (Max-19)	
Bromodichloromethane	75-27-4	MS	22.30	0	20	112	79 - 126		
Bromodichloromethane	75-27-4	MSD	20.10	0	20	100	79 - 126	RPD 10.60 (Max-16)	
Bromoform	75-25-2	MS	18.40	0	20	92	70 - 123		
Bromoform	75-25-2	MSD	19.10	0	20	95.5	70 - 123	RPD 3.73 (Max-16)	
Bromomethane	74-83-9	MS	20.70	0	20	104	45 - 148		
Bromomethane	74-83-9	MSD	18.80	0	20	93.8	45 - 148	RPD 9.91 (Max-26)	
Carbon Tetrachloride	56-23-5	MS	21.70	0	20	109	62 - 132		
Carbon Tetrachloride	56-23-5	MSD	20.90	0	20	105	62 - 132	RPD 3.79 (Max-17)	
Chlorobenzene	108-90-7	MS	21	0	20	105	85 - 117		
Chlorobenzene	108-90-7	MSD	20.20	0	20	101	85 - 117	RPD 3.88 (Max-15)	
Chlorodibromomethane	124-48-1	MS	20.80	0	20	104	77 - 122		
Chlorodibromomethane	124-48-1	MSD	20.10	0	20	101	77 - 122	RPD 3.38 (Max-15)	
Chloroethane	75-00-3	MS	18.10	0	20	90.7	51 - 142		
Chloroethane	75-00-3	MSD	17.30	0	20	86.3	51 - 142	RPD 5 (Max-24)	
Chloroform	67-66-3	MS	22.70	0	20	113	78 - 122		
Chloroform	67-66-3	MSD	21.10	0	20	105	78 - 122	RPD 7.33 (Max-16)	
Chloromethane	74-87-3	MS	20.60	0	20	103	38 - 156		
Chloromethane	74-87-3	MSD	18.20	0	20	91.1	38 - 156	RPD 12.40 (Max-27)	
cis-1,2-Dichloroethene	156-59-2	MS	23.10	0	20	115	78 - 125		
cis-1,2-Dichloroethene	156-59-2	MSD	21.60	0	20	108	78 - 125	RPD 6.59 (Max-21)	
cis-1,3-Dichloropropene	10061-01-5	MS	21	0	20	105	81 - 121		
cis-1,3-Dichloropropene	10061-01-5	MSD	20.10	0	20	101	81 - 121	RPD 4.43 (Max-16)	
Dibromomethane	74-95-3	MS	21.20	0	20	106	81 - 125		
Dibromomethane	74-95-3	MSD	20.70	0	20	104	81 - 125	RPD 2.20 (Max-16)	
Dichlorodifluoromethane	75-71-8	MS	19	0	20	95	17 - 166		
Dichlorodifluoromethane	75-71-8	MSD	17.30	0	20	86.5	17 - 166	RPD 9.36 (Max-24)	
Diisopropyl ether	108-20-3	MS	23.30	1.10	20	111	74 - 131		
Diisopropyl ether	108-20-3	MSD	22.20	1.10	20	105	74 - 131	RPD 4.95 (Max-15)	
Ethylbenzene	100-41-4	MS	64.60	43.20	20	107	80 - 124		
Ethylbenzene	100-41-4	MSD	61.80	43.20	20	93	80 - 124	RPD 4.38 (Max-19)	
Hexachlorobutadiene	87-68-3	MS	19.60	0	20	98	55 - 128		
Hexachlorobutadiene	87-68-3	MSD	19.30	0	20	96.5	55 - 128	RPD 1.46 (Max-35)	

QUALITY CONTROL SAMPLES

VOLATILE ORGANICS (cont.)

RESULTS

Compound	CAS No		Result (ug/L)	Orig. Result (ug/L)	Spk Added (ug/L)	Rec. (%)	Limits (%)	RPD Limit (%)	Qualifiers
Methyl t-Butyl Ether	1634-04-4	MS	21.40	0	20	107	69 - 115		
Methyl t-Butyl Ether	1634-04-4	MSD	20.60	0	20	103	69 - 115	RPD 3.57 (Max-20)	
Methylene Chloride	75-09-2	MS	22.20	0	20	111	76 - 121		
Methylene Chloride	75-09-2	MSD	21.10	0	20	105	76 - 121	RPD 5.26 (Max-17)	
mp-Xylene	108383/106423	MS	50	6.30	40	109	79 - 125		
mp-Xylene	108383/106423	MSD	46.90	6.30	40	102	79 - 125	RPD 6.28 (Max-21)	
Naphthalene	91-20-3	MS	38.30	19.20	20	95.9	56 - 134		
Naphthalene	91-20-3	MSD	39.40	19.20	20	101	56 - 134	RPD 2.79 (Max-40)	
o-Chlorotoluene	95-49-8	MS	21.60	0	20	108	78 - 126		
o-Chlorotoluene	95-49-8	MSD	21	0	20	105	78 - 126	RPD 3.01 (Max-17)	
o-Xylene	95-47-6	MS	22.60	0	20	113	79 - 124		
o-Xylene	95-47-6	MSD	21.60	0	20	108	79 - 124	RPD 4.57 (Max-19)	
p-Chlorotoluene	106-43-4	MS	20.60	0	20	103	78 - 125		
p-Chlorotoluene	106-43-4	MSD	20.60	0	20	103	78 - 125	RPD 0.11 (Max-16)	
p-Isopropyltoluene	99-87-6	MS	22.90	0	20	114	72 - 123		
p-Isopropyltoluene	99-87-6	MSD	22.90	0	20	115	72 - 123	RPD 0.11 (Max-17)	
Styrene	100-42-5	MS	21.20	0	20	106	79 - 123		
Styrene	100-42-5	MSD	21	0	20	105	79 - 123	RPD 0.82 (Max-16)	
Tetrachloroethene	127-18-4	MS	21.10	2.50	20	93.1	72 - 124		
Tetrachloroethene	127-18-4	MSD	20.10	2.50	20	87.8	72 - 124	RPD 5.14 (Max-38)	
Toluene	108-88-3	MS	23	1.30	20	108	80 - 125		
Toluene	108-88-3	MSD	21.70	1.30	20	102	80 - 125	RPD 5.79 (Max-20)	
Total Xylenes	1330-20-7	MS	72.60	6.30	60	110	79 - 125		
Total Xylenes	1330-20-7	MSD	68.50	6.30	60	104	79 - 125	RPD 5.74 (Max-35)	
trans-1,2-Dichloroethene	156-60-5	MS	23.50	0	20	118	71 - 122		
trans-1,2-Dichloroethene	156-60-5	MSD	21.90	0	20	109	71 - 122	RPD 7.32 (Max-22)	
trans-1,3-Dichloropropene	10061-02-6	MS	21.50	0	20	108	78 - 126		
trans-1,3-Dichloropropene	10061-02-6	MSD	20.90	0	20	104	78 - 126	RPD 3.06 (Max-18)	
Trichloroethene	79-01-6	MS	21.80	1.40	20	102	77 - 124		
Trichloroethene	79-01-6	MSD	21	1.40	20	98	77 - 124	RPD 3.80 (Max-18)	
Trichlorofluoromethane	75-69-4	MS	19.60	0	20	97.9	38 - 123		
Trichlorofluoromethane	75-69-4	MSD	18.20	0	20	90.9	38 - 123	RPD 7.38 (Max-23)	
Vinyl Acetate	108-05-4	MS	20.50	0	20	103	58 - 136		
Vinyl Acetate	108-05-4	MSD	20.10	0	20	100	58 - 136	RPD 2.21 (Max-17)	
Vinyl Chloride	75-01-4	MS	18.10	0	20	90.5	27 - 138		
Vinyl Chloride	75-01-4	MSD	16.90	0	20	84.7	27 - 138	RPD 6.63 (Max-40)	

SURROGATES

Compound	CAS No		Result (ug/L)	Expected (ug/L)	Rec. (%)	Limits (%)	Qualifiers
1,2-Dichloroethane-d4	17060-07-0	MS	36.10	30	120	62 - 133	
1,2-Dichloroethane-d4	17060-07-0	MSD	34	30	113	62 - 133	
4-Bromofluorobenzene	460-00-4	MS	27.80	30	92.8	79 - 114	
4-Bromofluorobenzene	460-00-4	MSD	27.40	30	91.2	79 - 114	
Dibromofluoromethane	1868-53-7	MS	33.20	30	111	78 - 116	
Dibromofluoromethane	1868-53-7	MSD	31.80	30	106	78 - 116	
Toluene-d8	2037-26-5	MS	32.60	30	109	76 - 127	
Toluene-d8	2037-26-5	MSD	32.60	30	109	76 - 127	

QUALITY CONTROL SAMPLES

VOLATILE ORGANICS (cont.)

Method Blank 3766854 (MB) Created on 12/22/2023 12:38 For QC Batch 1109980

RESULTS

Compound	CAS No		Result	Units	RDL	Qualifiers
1,1,1,2-Tetrachloroethane	630-20-6	BLK	1.0 U	ug/L	1.0	U
1,1,1-Trichloroethane	71-55-6	BLK	1.0 U	ug/L	1.0	U
1,1,2,2-Tetrachloroethane	79-34-5	BLK	1.0 U	ug/L	1.0	U
1,1,2-Trichloroethane	79-00-5	BLK	1.0 U	ug/L	1.0	U
1,1-Dichloroethane	75-34-3	BLK	1.0 U	ug/L	1.0	U
1,1-Dichloroethene	75-35-4	BLK	1.0 U	ug/L	1.0	U
1,1-Dichloropropene	563-58-6	BLK	1.0 U	ug/L	1.0	U
1,2,3-Trichlorobenzene	87-61-6	BLK	2.0 U	ug/L	2.0	U
1,2,3-Trichloropropane	96-18-4	BLK	2.0 U	ug/L	2.0	U
1,2,4-Trichlorobenzene	120-82-1	BLK	2.0 U	ug/L	2.0	U
1,2-Dibromo-3-chloropropane	96-12-8	BLK	7.0 U	ug/L	7.0	U
1,2-Dibromoethane	106-93-4	BLK	1.0 U	ug/L	1.0	U
1,2-Dichlorobenzene	95-50-1	BLK	1.0 U	ug/L	1.0	U
1,2-Dichloroethane	107-06-2	BLK	1.0 U	ug/L	1.0	U
1,2-Dichloropropane	78-87-5	BLK	1.0 U	ug/L	1.0	U
1,3-Dichlorobenzene	541-73-1	BLK	1.0 U	ug/L	1.0	U
1,3-Dichloropropane	142-28-9	BLK	1.0 U	ug/L	1.0	U
1,4-Dichlorobenzene	106-46-7	BLK	1.0 U	ug/L	1.0	U
2,2-Dichloropropane	594-20-7	BLK	1.0 U	ug/L	1.0	U
2-Butanone	78-93-3	BLK	10.0 U	ug/L	10.0	U
2-Hexanone	591-78-6	BLK	5.0 U	ug/L	5.0	U
4-Methyl-2-Pentanone(MIBK)	108-10-1	BLK	5.0 U	ug/L	5.0	U
Acetone	67-64-1	BLK	10.0 U	ug/L	10.0	U
Benzene	71-43-2	BLK	1.0 U	ug/L	1.0	U
Bromobenzene	108-86-1	BLK	1.0 U	ug/L	1.0	U
Bromochloromethane	74-97-5	BLK	1.0 U	ug/L	1.0	U
Bromodichloromethane	75-27-4	BLK	1.0 U	ug/L	1.0	U
Bromoform	75-25-2	BLK	1.0 U	ug/L	1.0	U
Bromomethane	74-83-9	BLK	1.0 U	ug/L	1.0	U
Carbon Tetrachloride	56-23-5	BLK	1.0 U	ug/L	1.0	U
Chlorobenzene	108-90-7	BLK	1.0 U	ug/L	1.0	U
Chlorodibromomethane	124-48-1	BLK	1.0 U	ug/L	1.0	U
Chloroethane	75-00-3	BLK	1.0 U	ug/L	1.0	U
Chloroform	67-66-3	BLK	1.0 U	ug/L	1.0	U
Chloromethane	74-87-3	BLK	1.0 U	ug/L	1.0	U
cis-1,2-Dichloroethene	156-59-2	BLK	1.0 U	ug/L	1.0	U
cis-1,3-Dichloropropene	10061-01-5	BLK	1.0 U	ug/L	1.0	U
Dibromomethane	74-95-3	BLK	1.0 U	ug/L	1.0	U
Dichlorodifluoromethane	75-71-8	BLK	1.0 U	ug/L	1.0	U
Diisopropyl ether	108-20-3	BLK	1.0 U	ug/L	1.0	U
Ethylbenzene	100-41-4	BLK	1.0 U	ug/L	1.0	U
Hexachlorobutadiene	87-68-3	BLK	5.0 U	ug/L	5.0	U
Methyl t-Butyl Ether	1634-04-4	BLK	1.0 U	ug/L	1.0	U
Methylene Chloride	75-09-2	BLK	1.0 U	ug/L	1.0	U
mp-Xylene	108383/106423	BLK	2.0 U	ug/L	2.0	U

QUALITY CONTROL SAMPLES

VOLATILE ORGANICS (cont.)

RESULTS

Compound	CAS No		Result	Units	RDL	Qualifiers
Naphthalene	91-20-3	BLK	2.0 U	ug/L	2.0	U
o-Chlorotoluene	95-49-8	BLK	1.0 U	ug/L	1.0	U
o-Xylene	95-47-6	BLK	1.0 U	ug/L	1.0	U
p-Chlorotoluene	106-43-4	BLK	1.0 U	ug/L	1.0	U
p-Isopropyltoluene	99-87-6	BLK	1.0 U	ug/L	1.0	U
Styrene	100-42-5	BLK	1.0 U	ug/L	1.0	U
Tetrachloroethene	127-18-4	BLK	1.0 U	ug/L	1.0	U
Toluene	108-88-3	BLK	1.0 U	ug/L	1.0	U
Total Xylenes	1330-20-7	BLK	3.0 U	ug/L	3.0	U
trans-1,2-Dichloroethene	156-60-5	BLK	1.0 U	ug/L	1.0	U
trans-1,3-Dichloropropene	10061-02-6	BLK	1.0 U	ug/L	1.0	U
Trichloroethene	79-01-6	BLK	1.0 U	ug/L	1.0	U
Trichlorofluoromethane	75-69-4	BLK	1.0 U	ug/L	1.0	U
Vinyl Acetate	108-05-4	BLK	5.0 U	ug/L	5.0	U
Vinyl Chloride	75-01-4	BLK	1.0 U	ug/L	1.0	U

SURROGATES

Compound	CAS No		Result (ug/L)	Expected (ug/L)	Rec. (%)	Limits (%)	Qualifiers
1,2-Dichloroethane-d4	17060-07-0	BLK	32.70	30	109	62 - 133	
4-Bromofluorobenzene	460-00-4	BLK	23.90	30	79.5	79 - 114	
Dibromofluoromethane	1868-53-7	BLK	30.40	30	101	78 - 116	
Toluene-d8	2037-26-5	BLK	31.40	30	105	76 - 127	

Lab Control Standard 3766855 (LCS) Created on 12/22/2023 12:38 For QC Batch 1109980

RESULTS

Compound	CAS No		Result (ug/L)	Orig. Result (ug/L)	Spk Added (ug/L)	Rec. (%)	Limits (%)	RPD Limit (%)	Qualifiers
1,1,1,2-Tetrachloroethane	630-20-6	LCS	21.70		20	108	78 - 121		
1,1,1-Trichloroethane	71-55-6	LCS	20.20		20	101	66 - 130		
1,1,2,2-Tetrachloroethane	79-34-5	LCS	21.40		20	107	74 - 135		
1,1,2-Trichloroethane	79-00-5	LCS	21.30		20	106	82 - 126		
1,1-Dichloroethane	75-34-3	LCS	20.60		20	103	78 - 124		
1,1-Dichloroethene	75-35-4	LCS	21.80		20	109	63 - 128		
1,1-Dichloropropene	563-58-6	LCS	20.70		20	103	76 - 126		
1,2,3-Trichlorobenzene	87-61-6	LCS	21.70		20	108	61 - 126		
1,2,3-Trichloropropane	96-18-4	LCS	21.10		20	105	75 - 132		
1,2,4-Trichlorobenzene	120-82-1	LCS	21.20		20	106	67 - 123		
1,2-Dibromo-3-chloropropane	96-12-8	LCS	18.50		20	92.4	59 - 133		
1,2-Dibromoethane	106-93-4	LCS	21.20		20	106	80 - 124		
1,2-Dichlorobenzene	95-50-1	LCS	21.30		20	107	82 - 118		
1,2-Dichloroethane	107-06-2	LCS	19.10		20	95.5	70 - 133		
1,2-Dichloropropane	78-87-5	LCS	20.90		20	104	81 - 127		
1,3-Dichlorobenzene	541-73-1	LCS	21.10		20	105	81 - 118		
1,3-Dichloropropane	142-28-9	LCS	22		20	110	82 - 126		

QUALITY CONTROL SAMPLES

VOLATILE ORGANICS (cont.)

RESULTS

Compound	CAS No		Result (ug/L)	Orig. Result (ug/L)	Spk Added (ug/L)	Rec. (%)	Limits (%)	RPD Limit (%)	Qualifiers
1,4-Dichlorobenzene	106-46-7	LCS	21.50		20	108	81 - 116		
2,2-Dichloropropane	594-20-7	LCS	20.10		20	100	64 - 129		
2-Butanone	78-93-3	LCS	96.50		100	96.5	50 - 152		
2-Hexanone	591-78-6	LCS	112		100	112	65 - 154		
4-Methyl-2-Pentanone(MIBK)	108-10-1	LCS	104		100	104	71 - 146		
Acetone	67-64-1	LCS	114		100	114	40 - 151		
Benzene	71-43-2	LCS	20.60		20	103	80 - 124		
Bromobenzene	108-86-1	LCS	20.60		20	103	81 - 119		
Bromochloromethane	74-97-5	LCS	20.60		20	103	73 - 117		
Bromodichloromethane	75-27-4	LCS	20.20		20	101	79 - 126		
Bromoform	75-25-2	LCS	20.10		20	101	70 - 123		
Bromomethane	74-83-9	LCS	20.70		20	103	45 - 148		
Carbon Tetrachloride	56-23-5	LCS	19.80		20	98.8	62 - 132		
Chlorobenzene	108-90-7	LCS	21.30		20	106	85 - 117		
Chlorodibromomethane	124-48-1	LCS	20.90		20	104	77 - 122		
Chloroethane	75-00-3	LCS	16.40		20	81.8	51 - 142		
Chloroform	67-66-3	LCS	20.40		20	102	78 - 122		
Chloromethane	74-87-3	LCS	18.70		20	93.7	38 - 156		
cis-1,2-Dichloroethene	156-59-2	LCS	21.10		20	106	78 - 125		
cis-1,3-Dichloropropene	10061-01-5	LCS	21.20		20	106	81 - 121		
Dibromomethane	74-95-3	LCS	20.20		20	101	81 - 125		
Dichlorodifluoromethane	75-71-8	LCS	17.30		20	86.4	17 - 166		
Diisopropyl ether	108-20-3	LCS	20.10		20	101	74 - 131		
Ethylbenzene	100-41-4	LCS	21.60		20	108	80 - 124		
Hexachlorobutadiene	87-68-3	LCS	23.10		20	116	55 - 128		
Methyl t-Butyl Ether	1634-04-4	LCS	19.70		20	98.3	69 - 115		
Methylene Chloride	75-09-2	LCS	21		20	105	76 - 121		
mp-Xylene	108383/106423	LCS	43.60		40	109	79 - 125		
Naphthalene	91-20-3	LCS	22.20		20	111	56 - 134		
o-Chlorotoluene	95-49-8	LCS	22		20	110	78 - 126		
o-Xylene	95-47-6	LCS	21.40		20	107	79 - 124		
p-Chlorotoluene	106-43-4	LCS	21.60		20	108	78 - 125		
p-Isopropyltoluene	99-87-6	LCS	22.90		20	115	72 - 123		
Styrene	100-42-5	LCS	23		20	115	79 - 123		
Tetrachloroethene	127-18-4	LCS	20.30		20	101	72 - 124		
Toluene	108-88-3	LCS	21.40		20	107	80 - 125		
Total Xylenes	1330-20-7	LCS	65		60	108	79 - 125		
trans-1,2-Dichloroethene	156-60-5	LCS	21		20	105	71 - 122		
trans-1,3-Dichloropropene	10061-02-6	LCS	21.70		20	108	78 - 126		
Trichloroethene	79-01-6	LCS	19.50		20	97.7	77 - 124		
Trichlorofluoromethane	75-69-4	LCS	18.30		20	91.3	38 - 123		
Vinyl Acetate	108-05-4	LCS	21.70		20	109	58 - 136		
Vinyl Chloride	75-01-4	LCS	16.30		20	81.3	27 - 138		

QUALITY CONTROL SAMPLES

VOLATILE ORGANICS (cont.)

SURROGATES

Compound	CAS No		Result (ug/L)	Expected (ug/L)	Rec. (%)	Limits (%)	Qualifiers
1,2-Dichloroethane-d4	17060-07-0	LCS	32.40	30	108	62 - 133	
4-Bromofluorobenzene	460-00-4	LCS	25.70	30	85.6	79 - 114	
Dibromofluoromethane	1868-53-7	LCS	30.80	30	103	78 - 116	
Toluene-d8	2037-26-5	LCS	30.80	30	103	76 - 127	

QUALITY CONTROL DATA CROSS REFERENCE TABLE

Lab ID	Sample ID	Preparation Method	Prep Batch	Prep Date/Time	By	Analysis Method	Anly Batch
3338319001	MW-39	SW846 3510C	1108803	12/21/2023 16:10	SXM	SW846 8270E SIM	1111044
		N/A	N/A	N/A		SW846 8260D	1109980

3338319

Logged By: MJE
PM: SJB

3338319 Page 1 of 1

CHAIN-OF-CUSTODY REC

No. 12613

WSP

WSP USA Office Address	13530 Dulles Technology Dr Suite 300 Herndon VA 20171
Project Name	Kap Flex Onsite
Project Location	Hanover MD
Project Number & Task	31405608.010
Sampler(s) Name(s)	Elliott Martynkiewicz
WSP USA Contact Name	Eric Johnsen
WSP USA Contact E-mail	eric.johnson@wsp.com ~~@wsp.com~~
WSP USA Contact Phone	(703) 709-6500
Sampler(s) Signature(s)	Elliott M

Laboratory Name & Location	ALS Global Middletown
Laboratory Project Manager	Susan Scherer
Requested Turn-Around-Time	[X] Standard [ ] 24 HR [ ] 48 HR [ ] 72 HR [ ] ____ HR

Sample Identification	Matrix	Collection Start* Date	Collection Start* Time	Collection Stop* Date	Collection Stop* Time	Number of Containers	VOCs	1,4-Dioxane	Sample Comments
MW-39	GW	12/20/23	0950			4	X	X	
									2-40mL/HCl/G
									2-250mL/HNp/AG
									No C/C
									DD 12/21/23

Temp By: DD | WO Temp (°C): 3' | Therm ID: 573

DD

Receipt Info Completed By:

Cooler Custody Seal Intact	Y	N	NA
Sample Custody Seal Intact	Y	N	NA
Received on Ice	Y	N	NA
Cooler & Samples Intact	Y	N	
Correct Containers Provided	Y	N	
Sample Label/COC Agree	Y	N	
Adequate Sample Volumes	Y	N	
CR6 Samples Filtered	Y	N	NA
OP Samples Filtered	Y	N	NA
VOA Trip Blank	Y	N	NA
NJ≤ 4 Days?		~~Y~~	N
Rad Screen (uCi)	—		

Courier/Tracking #: 7883 5769 8136

SDWA Compliance		Y	N
PWSID			
WV Containers 0-6°C	Y	N	NA

Relinquished By (Signature)	Date	Time	Received By (Signature)	Date	Time	Shipment Method	Tracking Number(s)
Elliott M	12/20/23	1500	FEDEX			Fedex	
FEDEX			DD/ALS	12/21/23	0824	Number of Packages	Custody Seal Number(s)

*Use stop time/date for composite and/or air samples; use only start time/date for all other samples.

Matrix: AQ = Aqueous, S = Soil, SE = Sediment, A = Air, W = Wipe, B = Bulk, O = Other (detail in comments)

APPENDIX

G GSI MANN-KENDALL OUTPUTS

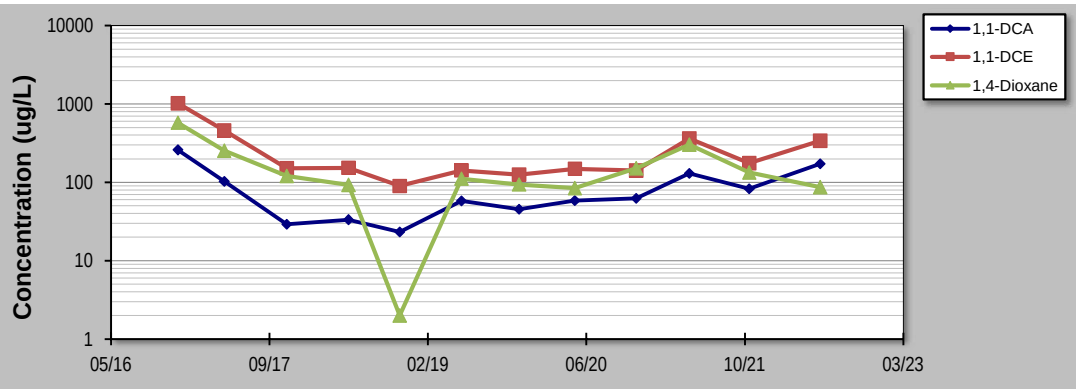
ATTACHMENT 1

GSI MANN-KENDALL TOOLKIT
for Constituent Trend Analysis

Evaluation Date: 9-Mar-24
Facility Name: Kop-Flex
Conducted By: AMR

Job ID:
Constituent: MW-4
Concentration Units: ug/L

Sampling Point ID:	1,1-DCA	1,1-DCE	1,4-Dioxane				
Sampling Event	Sampling Date	MW-4 CONCENTRATION (ug/L)						
1	7-Dec-16	259	1020	576				
2	2-May-17	103	459	252				
3	15-Nov-17	29.2	151	121				
4	30-May-18	33.3	153	92.7				
5	7-Nov-18	23.3	89.9	2				
6	21-May-19	57.7	142	111				
7	19-Nov-19	45.1	126	94.2				
8	13-May-20	58.6	149	84.6				
9	22-Nov-20	62	141	151				
10	9-May-21	130	361	303				
11	14-Nov-21	82.7	175	134				
12	26-Jun-22	173	339	86.8				
13								
14								
15								
16								
17								
18								
19								
20								
Coefficient of Variation:		0.79	0.95	0.90				
Mann-Kendall Statistic (S):		20	-6	-12				
Confidence Factor:		90.2%	63.1%	77.0%				
Concentration Trend:		Prob. Increasing	Stable	Stable				



Notes:

1. At least four independent sampling events per well are required for calculating the trend. *Methodology is valid for 4 to 40 samples.*
2. Confidence in Trend = Confidence (in percent) that constituent concentration is increasing (S>0) or decreasing (S<0): >95% = Increasing or Decreasing; ≥ 90% = Probably Increasing or Probably Decreasing; < 90% and S>0 = No Trend; < 90%, S≤0, and COV ≥ 1 = No Trend; < 90% and COV < 1 = Stable.
3. Methodology based on "MAROS: A Decision Support System for Optimizing Monitoring Plans", J.J. Aziz, M. Ling, H.S. Rifai, C.J. Newell, and J.R. Gonzales, *Ground Water* , 41(3):355-367, 2003.

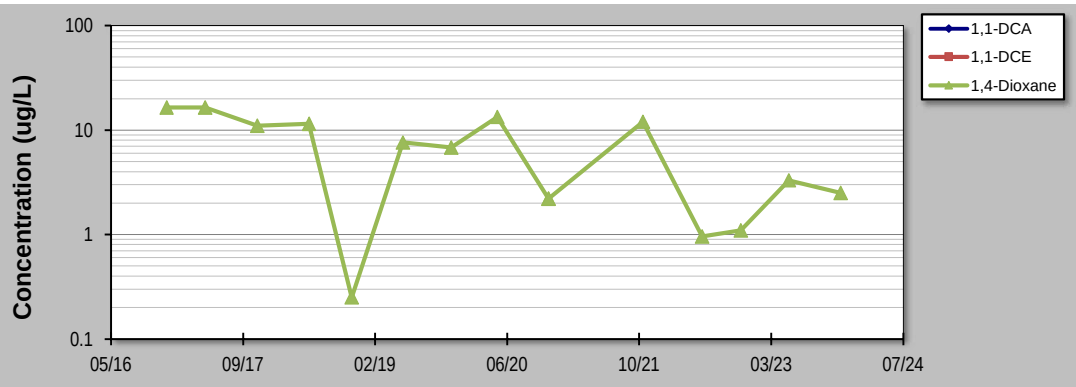
DISCLAIMER: The GSI Mann-Kendall Toolkit is available "as is". Considerable care has been exercised in preparing this software product; however, no party, including without limitation GSI Environmental Inc., makes any representation or warranty regarding the accuracy, correctness, or completeness of the information contained herein, and no such party shall be liable for any direct, indirect, consequential, incidental or other damages resulting from the use of this product or the information contained herein. Information in this publication is subject to change without notice. GSI Environmental Inc., disclaims any responsibility or obligation to update the information contained herein.

GSI MANN-KENDALL TOOLKIT
for Constituent Trend Analysis

Evaluation Date: **9-Mar-24**
Facility Name: **Kop-Flex**
Conducted By: **AMR**

Job ID:
Constituent: **MW-5R**
Concentration Units: **ug/L**

Sampling Point ID:	1,1-DCA	1,1-DCE	1,4-Dioxane				
Sampling Event	Sampling Date	MW-5R CONCENTRATION (ug/L)						
1	7-Dec-16			16.5				
2	1-May-17			16.5				
3	15-Nov-17			11				
4	30-May-18			11.5				
5	7-Nov-18			0.25				
6	21-May-19			7.6				
7	19-Nov-19			6.8				
8	12-May-20			13.4				
9	22-Nov-20			2.2				
10	22-Nov-20			2.2				
11	14-Nov-21			12				
12	26-Jun-22			0.96				
13	20-Nov-22			1.1				
14	21-May-23			3.3				
15	3-Dec-23			2.5				
16								
17								
18								
19								
20								
Coefficient of Variation:				**0.81**				
Mann-Kendall Statistic (S):				**-43**				
Confidence Factor:				**98.2%**				
Concentration Trend:				Decreasing				



Notes:

1. At least four independent sampling events per well are required for calculating the trend. *Methodology is valid for 4 to 40 samples.*
2. Confidence in Trend = Confidence (in percent) that constituent concentration is increasing (S>0) or decreasing (S<0): >95% = Increasing or Decreasing; ≥ 90% = Probably Increasing or Probably Decreasing; < 90% and S>0 = No Trend; < 90%, S≤0, and COV ≥ 1 = No Trend; < 90% and COV < 1 = Stable.
3. Methodology based on "MAROS: A Decision Support System for Optimizing Monitoring Plans", J.J. Aziz, M. Ling, H.S. Rifai, C.J. Newell, and J.R. Gonzales, *Ground Water* , 41(3):355-367, 2003.

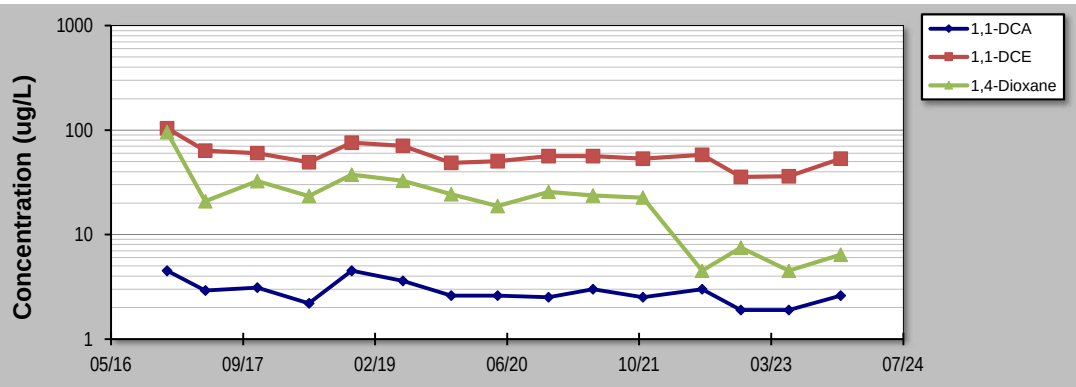
DISCLAIMER: The GSI Mann-Kendall Toolkit is available "as is". Considerable care has been exercised in preparing this software product; however, no party, including without limitation GSI Environmental Inc., makes any representation or warranty regarding the accuracy, correctness, or completeness of the information contained herein, and no such party shall be liable for any direct, indirect, consequential, incidental or other damages resulting from the use of this product or the information contained herein. Information in this publication is subject to change without notice. GSI Environmental Inc., disclaims any responsibility or obligation to update the information contained herein.

GSI MANN-KENDALL TOOLKIT
for Constituent Trend Analysis

Evaluation Date: **9-Mar-24**
Facility Name: **Kop-Flex**
Conducted By: **AMR**

Job ID:
Constituent: **MW-9**
Concentration Units: **ug/L**

Sampling Point ID:	1,1-DCA	1,1-DCE	1,4-Dioxane				
Sampling Event	Sampling Date	MW-9 CONCENTRATION (ug/L)						
1	8-Dec-16	4.5	104	95.5				
2	2-May-17	2.9	63.8	20.8				
3	15-Nov-17	3.1	60.2	32.4				
4	30-May-18	2.2	49.2	23.4				
5	7-Nov-18	4.5	75.9	37.4				
6	21-May-19	3.6	70.8	32.8				
7	19-Nov-19	2.6	48.7	24.4				
8	13-May-20	2.6	50.5	18.7				
9	22-Nov-20	2.5	56.4	25.7				
10	9-May-21	3	56.3	23.6				
11	14-Nov-21	2.5	53.3	22.6				
12	26-Jun-22	3	57.7	4.5				
13	20-Nov-22	1.9	35.7	7.5				
14	21-May-23	1.9	36	4.5				
15	3-Dec-23	2.6	53.4	6.4				
16								
17								
18								
19								
20								
Coefficient of Variation:		**0.27**	**0.29**	**0.87**				
Mann-Kendall Statistic (S):		**-44**	**-45**	**-60**				
Confidence Factor:		**98.4%**	**98.6%**	**99.9%**				
Concentration Trend:		Decreasing	Decreasing	Decreasing				



Notes:

1. At least four independent sampling events per well are required for calculating the trend. *Methodology is valid for 4 to 40 samples.*
2. Confidence in Trend = Confidence (in percent) that constituent concentration is increasing (S>0) or decreasing (S<0): >95% = Increasing or Decreasing; ≥ 90% = Probably Increasing or Probably Decreasing; < 90% and S>0 = No Trend; < 90%, S≤0, and COV ≥ 1 = No Trend; < 90% and COV < 1 = Stable.
3. Methodology based on "MAROS: A Decision Support System for Optimizing Monitoring Plans", J.J. Aziz, M. Ling, H.S. Rifai, C.J. Newell, and J.R. Gonzales, *Ground Water* , 41(3):355-367, 2003.

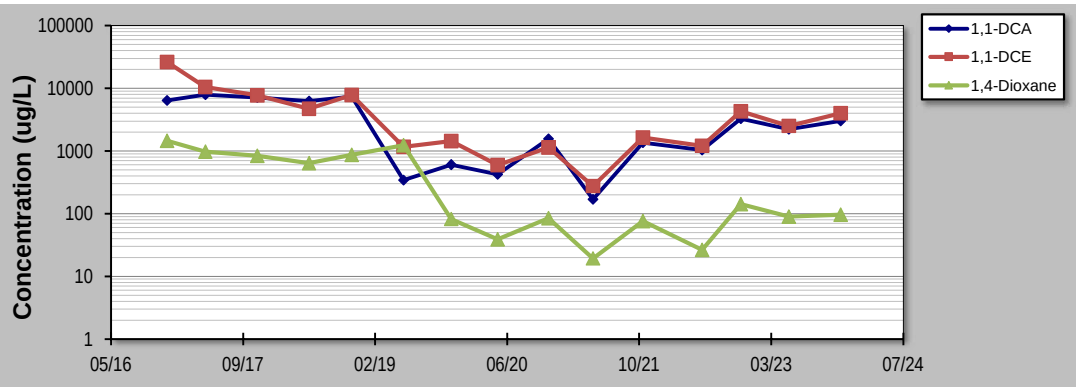
DISCLAIMER: The GSI Mann-Kendall Toolkit is available "as is". Considerable care has been exercised in preparing this software product; however, no party, including without limitation GSI Environmental Inc., makes any representation or warranty regarding the accuracy, correctness, or completeness of the information contained herein, and no such party shall be liable for any direct, indirect, consequential, incidental or other damages resulting from the use of this product or the information contained herein. Information in this publication is subject to change without notice. GSI Environmental Inc., disclaims any responsibility or obligation to update the information contained herein.

GSI MANN-KENDALL TOOLKIT
for Constituent Trend Analysis

Evaluation Date: **9-Mar-24**
Facility Name: **Kop-Flex**
Conducted By: **AMR**

Job ID:
Constituent: **MW-16**
Concentration Units: **ug/L**

Sampling Point ID:	1,1-DCA	1,1-DCE	1,4-Dioxane				
Sampling Event	Sampling Date	MW-16 CONCENTRATION (ug/L)						
1	8-Dec-16	6420	26200	1450				
2	2-May-17	7910	10500	971				
3	15-Nov-17	7110	7740	836				
4	30-May-18	6250	4690	636				
5	7-Nov-18	7360	7800	866				
6	22-May-19	343	1160	1230				
7	19-Nov-19	608	1440	81.9				
8	13-May-20	425	594	39.2				
9	22-Nov-20	1560	1130	84.2				
10	9-May-21	169	276	19.3				
11	14-Nov-21	1350	1630	76				
12	26-Jun-22	1030	1210	26.4				
13	20-Nov-22	3290	4290	143				
14	21-May-23	2230	2510	89.5				
15	3-Dec-23	3040	3990	96.3				
16								
17								
18								
19								
20								
Coefficient of Variation:		**0.89**	**1.32**	**1.13**				
Mann-Kendall Statistic (S):		**-25**	**-35**	**-45**				
Confidence Factor:		**88.0%**	**95.4%**	**98.6%**				
Concentration Trend:		Stable	Decreasing	Decreasing				



Notes:

1. At least four independent sampling events per well are required for calculating the trend. *Methodology is valid for 4 to 40 samples.*
2. Confidence in Trend = Confidence (in percent) that constituent concentration is increasing (S>0) or decreasing (S<0): >95% = Increasing or Decreasing; ≥ 90% = Probably Increasing or Probably Decreasing; < 90% and S>0 = No Trend; < 90%, S≤0, and COV ≥ 1 = No Trend; < 90% and COV < 1 = Stable.
3. Methodology based on "MAROS: A Decision Support System for Optimizing Monitoring Plans", J.J. Aziz, M. Ling, H.S. Rifai, C.J. Newell, and J.R. Gonzales, *Ground Water* , 41(3):355-367, 2003.

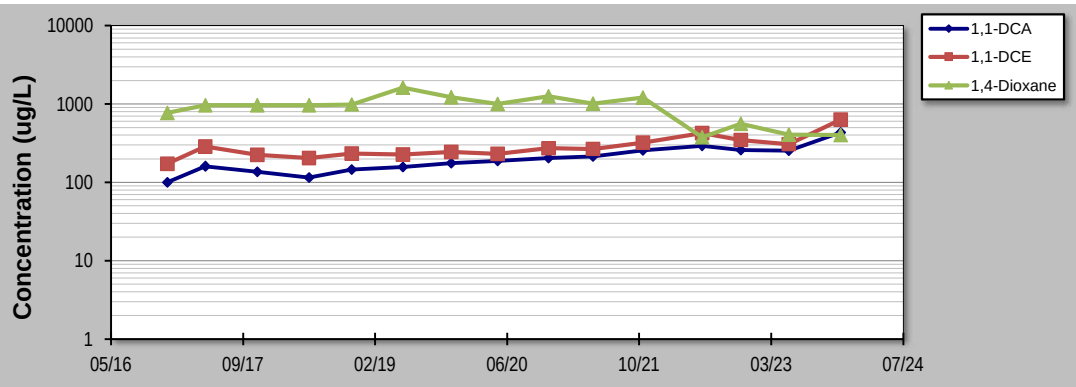
DISCLAIMER: The GSI Mann-Kendall Toolkit is available "as is". Considerable care has been exercised in preparing this software product; however, no party, including without limitation GSI Environmental Inc., makes any representation or warranty regarding the accuracy, correctness, or completeness of the information contained herein, and no such party shall be liable for any direct, indirect, consequential, incidental or other damages resulting from the use of this product or the information contained herein. Information in this publication is subject to change without notice. GSI Environmental Inc., disclaims any responsibility or obligation to update the information contained herein.

GSI MANN-KENDALL TOOLKIT
for Constituent Trend Analysis

Evaluation Date: **9-Mar-24**
Facility Name: **Kop-Flex**
Conducted By: **AMR**

Job ID:
Constituent: **MW-20**
Concentration Units: **ug/L**

Sampling Point ID:	1,1-DCA	1,1-DCE	1,4-Dioxane				
Sampling Event	Sampling Date	MW-20 CONCENTRATION (ug/L)						
1	9-Dec-16	99.7	173	767				
2	2-May-17	161	286	967				
3	15-Nov-17	136	223	969				
4	30-May-18	115	205	966				
5	7-Nov-18	145	233	986				
6	21-May-19	157	226	1620				
7	19-Nov-19	175	244	1220				
8	13-May-20	188	232	1000				
9	22-Nov-20	205	272	1260				
10	9-May-21	214	267	1010				
11	14-Nov-21	256	321	1210				
12	26-Jun-22	294	426	377				
13	20-Nov-22	258	348	560				
14	21-May-23	252	307	407				
15	3-Dec-23	432	631	404				
16								
17								
18								
19								
20								
Coefficient of Variation:		**0.41**	**0.39**	**0.39**				
Mann-Kendall Statistic (S):		**87**	**71**	**-13**				
Confidence Factor:		**>99.9%**	**>99.9%**	**72.1%**				
Concentration Trend:		Increasing	Increasing	Stable				



Notes:

1. At least four independent sampling events per well are required for calculating the trend. *Methodology is valid for 4 to 40 samples.*
2. Confidence in Trend = Confidence (in percent) that constituent concentration is increasing (S>0) or decreasing (S<0): >95% = Increasing or Decreasing; ≥ 90% = Probably Increasing or Probably Decreasing; < 90% and S>0 = No Trend; < 90%, S≤0, and COV ≥ 1 = No Trend; < 90% and COV < 1 = Stable.
3. Methodology based on "MAROS: A Decision Support System for Optimizing Monitoring Plans", J.J. Aziz, M. Ling, H.S. Rifai, C.J. Newell, and J.R. Gonzales, *Ground Water* , 41(3):355-367, 2003.

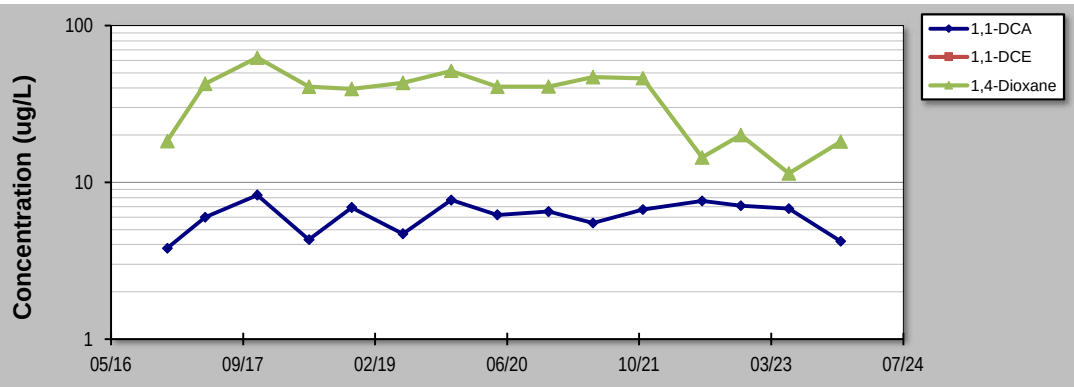
DISCLAIMER: The GSI Mann-Kendall Toolkit is available "as is". Considerable care has been exercised in preparing this software product; however, no party, including without limitation GSI Environmental Inc., makes any representation or warranty regarding the accuracy, correctness, or completeness of the information contained herein, and no such party shall be liable for any direct, indirect, consequential, incidental or other damages resulting from the use of this product or the information contained herein. Information in this publication is subject to change without notice. GSI Environmental Inc., disclaims any responsibility or obligation to update the information contained herein.

GSI MANN-KENDALL TOOLKIT
for Constituent Trend Analysis

Evaluation Date: **9-Mar-24**
Facility Name: **Kop-Flex**
Conducted By: **AMR**

Job ID:
Constituent: **MW-38R**
Concentration Units: **ug/L**

Sampling Point ID:	1,1-DCA	1,1-DCE	1,4-Dioxane				
Sampling Event	Sampling Date	MW-38R CONCENTRATION (ug/L)						
1	9-Dec-16	3.8		18.3				
2	1-May-17	6		42.6				
3	15-Nov-17	8.3		62.5				
4	30-May-18	4.3		40.7				
5	7-Nov-18	6.9		39.4				
6	21-May-19	4.7		43.2				
7	19-Nov-19	7.7		51.5				
8	12-May-20	6.2		40.8				
9	22-Nov-20	6.5		40.9				
10	9-May-21	5.5		47				
11	14-Nov-21	6.7		46.2				
12	26-Jun-22	7.6		14.4				
13	20-Nov-22	7.1		20.1				
14	21-May-23	6.8		11.4				
15	3-Dec-23	4.2		18.2				
16								
17								
18								
19								
20								
Coefficient of Variation:		**0.22**		**0.43**				
Mann-Kendall Statistic (S):		**15**		**-27**				
Confidence Factor:		**75.2%**		**89.9%**				
Concentration Trend:		No Trend		Stable				



Notes:

1. At least four independent sampling events per well are required for calculating the trend. *Methodology is valid for 4 to 40 samples.*
2. Confidence in Trend = Confidence (in percent) that constituent concentration is increasing (S>0) or decreasing (S<0): >95% = Increasing or Decreasing; ≥ 90% = Probably Increasing or Probably Decreasing; < 90% and S>0 = No Trend; < 90%, S≤0, and COV ≥ 1 = No Trend; < 90% and COV < 1 = Stable.
3. Methodology based on "MAROS: A Decision Support System for Optimizing Monitoring Plans", J.J. Aziz, M. Ling, H.S. Rifai, C.J. Newell, and J.R. Gonzales, *Ground Water* , 41(3):355-367, 2003.

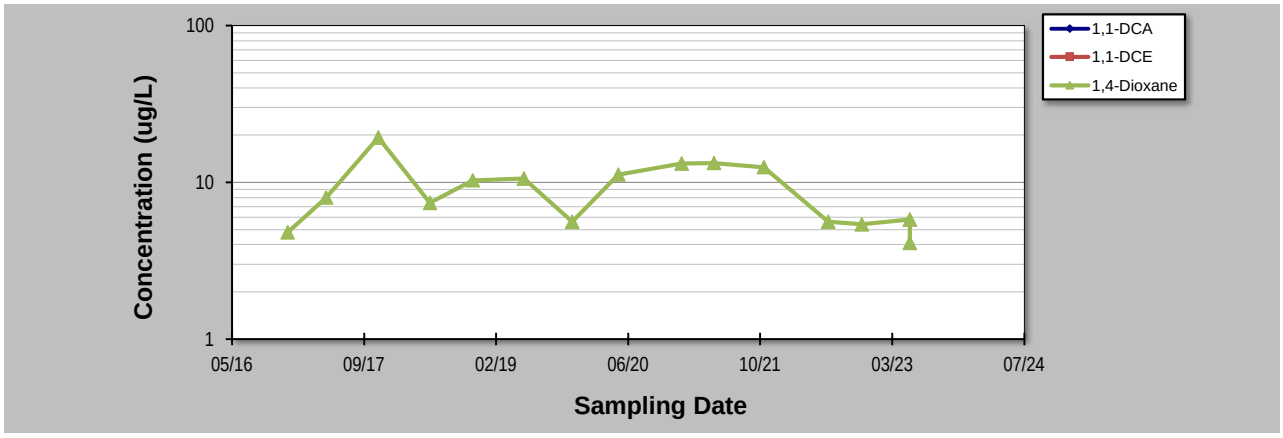
DISCLAIMER: The GSI Mann-Kendall Toolkit is available "as is". Considerable care has been exercised in preparing this software product; however, no party, including without limitation GSI Environmental Inc., makes any representation or warranty regarding the accuracy, correctness, or completeness of the information contained herein, and no such party shall be liable for any direct, indirect, consequential, incidental or other damages resulting from the use of this product or the information contained herein. Information in this publication is subject to change without notice. GSI Environmental Inc., disclaims any responsibility or obligation to update the information contained herein.

GSI MANN-KENDALL TOOLKIT
for Constituent Trend Analysis

Evaluation Date: **9-Mar-24**
Facility Name: **Kop-Flex**
Conducted By: **AMR**

Job ID:
Constituent: **MW-42**
Concentration Units: **ug/L**

Sampling Point ID:	1,1-DCA	1,1-DCE	1,4-Dioxane				
Sampling Event	Sampling Date	MW-42 CONCENTRATION (ug/L)						
1	7-Dec-16			4.8				
2	1-May-17			8				
3	15-Nov-17			19.3				
4	30-May-18			7.4				
5	7-Nov-18			10.3				
6	21-May-19			10.6				
7	19-Nov-19			5.6				
8	12-May-20			11.2				
9	6-Jan-21			13.2				
10	9-May-21			13.3				
11	14-Nov-21			12.5				
12	15-Jul-22			5.6				
13	20-Nov-22			5.4				
14	21-May-23			5.8				
15	21-May-23			4.1				
16								
17								
18								
19								
20								
Coefficient of Variation:				**0.47**				
Mann-Kendall Statistic (S):				**-12**				
Confidence Factor:				**70.4%**				
Concentration Trend:				Stable				



Notes:

1. At least four independent sampling events per well are required for calculating the trend. *Methodology is valid for 4 to 40 samples.*
2. Confidence in Trend = Confidence (in percent) that constituent concentration is increasing (S>0) or decreasing (S<0): >95% = Increasing or Decreasing; ≥ 90% = Probably Increasing or Probably Decreasing; < 90% and S>0 = No Trend; < 90%, S≤0, and COV ≥ 1 = No Trend; < 90% and COV < 1 = Stable.
3. Methodology based on "MAROS: A Decision Support System for Optimizing Monitoring Plans", J.J. Aziz, M. Ling, H.S. Rifai, C.J. Newell, and J.R. Gonzales, *Ground Water* , 41(3):355-367, 2003.

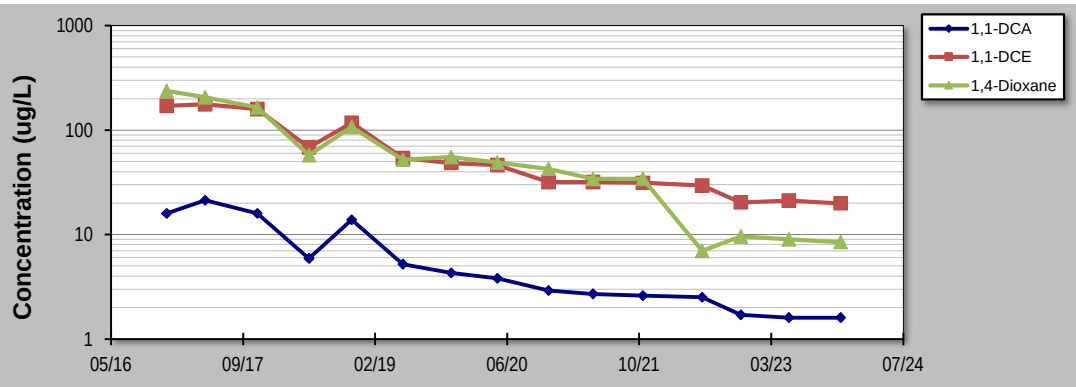
DISCLAIMER: The GSI Mann-Kendall Toolkit is available "as is". Considerable care has been exercised in preparing this software product; however, no party, including without limitation GSI Environmental Inc., makes any representation or warranty regarding the accuracy, correctness, or completeness of the information contained herein, and no such party shall be liable for any direct, indirect, consequential, incidental or other damages resulting from the use of this product or the information contained herein. Information in this publication is subject to change without notice. GSI Environmental Inc., disclaims any responsibility or obligation to update the information contained herein.

GSI MANN-KENDALL TOOLKIT
for Constituent Trend Analysis

Evaluation Date: **9-Mar-24**
Facility Name: **Kop-Flex**
Conducted By: **AMR**

Job ID:
Constituent: **MW-43**
Concentration Units: **ug/L**

Sampling Point ID:	1,1-DCA	1,1-DCE	1,4-Dioxane				
Sampling Event	Sampling Date	MW-43 CONCENTRATION (ug/L)						
1	7-Dec-16	15.9	171	237				
2	1-May-17	21.3	177	206				
3	15-Nov-17	15.9	159	165				
4	30-May-18	5.9	68	57.6				
5	7-Nov-18	13.8	118	107				
6	21-May-19	5.2	53.9	52				
7	19-Nov-19	4.3	48.5	55.2				
8	12-May-20	3.8	46.3	49				
9	22-Nov-20	2.9	31.8	42.7				
10	9-May-21	2.7	31.7	34.1				
11	14-Nov-21	2.6	31.3	34.3				
12	26-Jun-22	2.5	29.4	7				
13	20-Nov-22	1.7	20.3	9.6				
14	21-May-23	1.6	21.2	9				
15	3-Dec-23	1.6	19.9	8.5				
16								
17								
18								
19								
20								
Coefficient of Variation:		**0.96**	**0.84**	**1.03**				
Mann-Kendall Statistic (S):		**-99**	**-99**	**-93**				
Confidence Factor:		**>99.9%**	**>99.9%**	**>99.9%**				
Concentration Trend:		Decreasing	Decreasing	Decreasing				



Notes:

1. At least four independent sampling events per well are required for calculating the trend. *Methodology is valid for 4 to 40 samples.*
2. Confidence in Trend = Confidence (in percent) that constituent concentration is increasing (S>0) or decreasing (S<0): >95% = Increasing or Decreasing; ≥ 90% = Probably Increasing or Probably Decreasing; < 90% and S>0 = No Trend; < 90%, S≤0, and COV ≥ 1 = No Trend; < 90% and COV < 1 = Stable.
3. Methodology based on "MAROS: A Decision Support System for Optimizing Monitoring Plans", J.J. Aziz, M. Ling, H.S. Rifai, C.J. Newell, and J.R. Gonzales, *Ground Water* , 41(3):355-367, 2003.

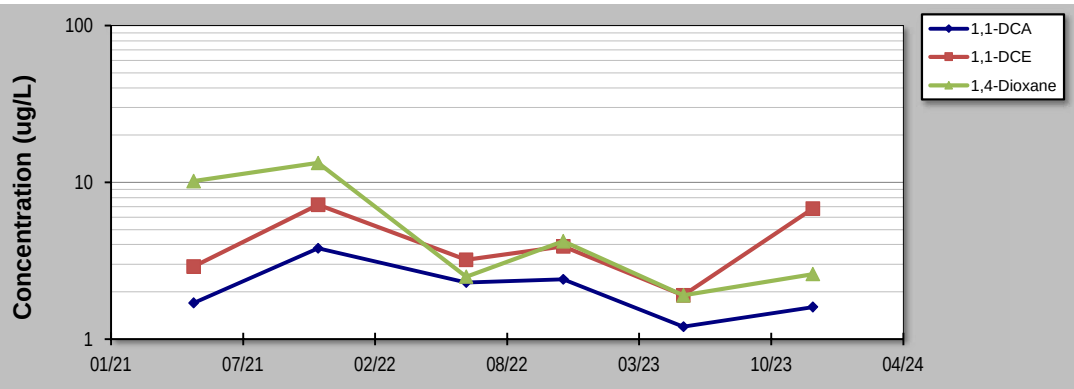
DISCLAIMER: The GSI Mann-Kendall Toolkit is available "as is". Considerable care has been exercised in preparing this software product; however, no party, including without limitation GSI Environmental Inc., makes any representation or warranty regarding the accuracy, correctness, or completeness of the information contained herein, and no such party shall be liable for any direct, indirect, consequential, incidental or other damages resulting from the use of this product or the information contained herein. Information in this publication is subject to change without notice. GSI Environmental Inc., disclaims any responsibility or obligation to update the information contained herein.

GSI MANN-KENDALL TOOLKIT
for Constituent Trend Analysis

Evaluation Date: **9-Mar-24**
Facility Name: **Kop-Flex**
Conducted By: **AMR**

Job ID:
Constituent: **MW-44**
Concentration Units: **ug/L**

Sampling Point ID:	1,1-DCA	1,1-DCE	1,4-Dioxane				
Sampling Event	Sampling Date	MW-44 CONCENTRATION (ug/L)						
1	9-May-21	1.7	2.9	10.2				
2	14-Nov-21	3.8	7.2	13.3				
3	26-Jun-22	2.3	3.2	2.5				
4	20-Nov-22	2.4	3.9	4.2				
5	21-May-23	1.2	1.9	1.9				
6	3-Dec-23	1.6	6.8	2.6				
7								
8								
9								
10								
11								
12								
13								
14								
15								
16								
17								
18								
19								
20								
Coefficient of Variation:		0.42	0.50	0.83				
Mann-Kendall Statistic (S):		-5	1	-7				
Confidence Factor:		76.5%	50.0%	86.4%				
Concentration Trend:		Stable	No Trend	Stable				



Notes:

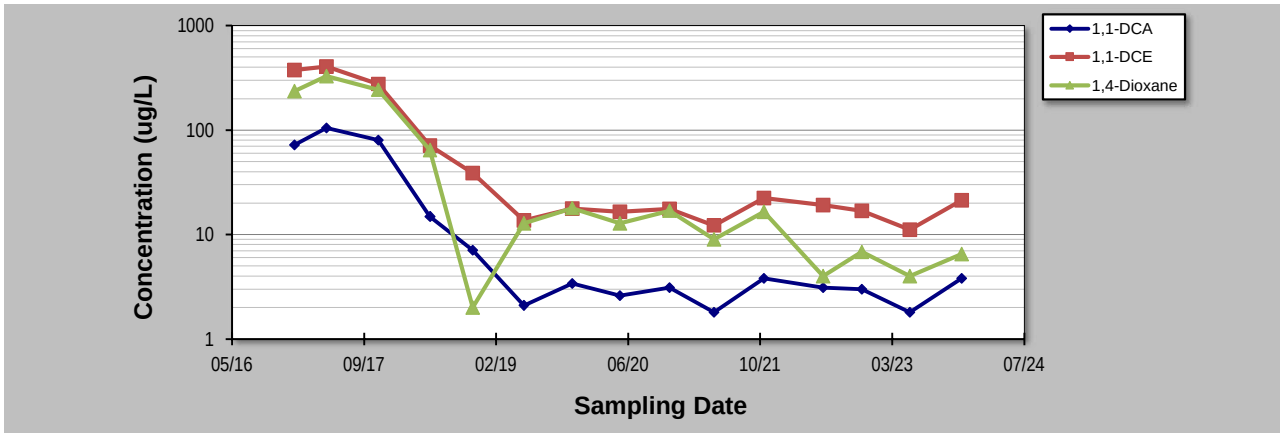
1. At least four independent sampling events per well are required for calculating the trend. *Methodology is valid for 4 to 40 samples.*
2. Confidence in Trend = Confidence (in percent) that constituent concentration is increasing (S>0) or decreasing (S<0): >95% = Increasing or Decreasing; ≥ 90% = Probably Increasing or Probably Decreasing; < 90% and S>0 = No Trend; < 90%, S≤0, and COV ≥ 1 = No Trend; < 90% and COV < 1 = Stable.
3. Methodology based on "MAROS: A Decision Support System for Optimizing Monitoring Plans", J.J. Aziz, M. Ling, H.S. Rifai, C.J. Newell, and J.R. Gonzales, *Ground Water* , 41(3):355-367, 2003.

DISCLAIMER: The GSI Mann-Kendall Toolkit is available "as is". Considerable care has been exercised in preparing this software product; however, no party, including without limitation GSI Environmental Inc., makes any representation or warranty regarding the accuracy, correctness, or completeness of the information contained herein, and no such party shall be liable for any direct, indirect, consequential, incidental or other damages resulting from the use of this product or the information contained herein. Information in this publication is subject to change without notice. GSI Environmental Inc., disclaims any responsibility or obligation to update the information contained herein.

GSI MANN-KENDALL TOOLKIT
for Constituent Trend Analysis

Evaluation Date:	9-Mar-24	Job ID:	
Facility Name:	Kop-Flex	Constituent:	MW-1D
Conducted By:	AMR	Concentration Units:	ug/L

Sampling Point ID:	1,1-DCA	1,1-DCE	1,4-Dioxane				
Sampling Event	Sampling Date	MW-1D CONCENTRATION (ug/L)						
1	2-Jan-17	72	375	236				
2	3-May-17	105	407	329				
3	15-Nov-17	80	277	243				
4	30-May-18	14.9	71.4	64.4				
5	7-Nov-18	7.1	38.8	2				
6	21-May-19	2.1	13.7	12.8				
7	19-Nov-19	3.4	17.7	17.9				
8	18-May-20	2.6	16.5	12.8				
9	22-Nov-20	3.1	17.6	16.9				
10	9-May-21	1.8	12.2	9				
11	14-Nov-21	3.8	22.4	16.5				
12	26-Jun-22	3.1	19.1	4				
13	20-Nov-22	3	16.8	6.8				
14	21-May-23	1.8	11.1	4				
15	3-Dec-23	3.8	21.3	6.5				
16								
17								
18								
19								
20								
Coefficient of Variation:		1.68	1.57	1.66				
Mann-Kendall Statistic (S):		-52	-53	-61				
Confidence Factor:		99.5%	99.6%	99.9%				
Concentration Trend:		Decreasing	Decreasing	Decreasing				



Notes:

1. At least four independent sampling events per well are required for calculating the trend. *Methodology is valid for 4 to 40 samples.*
2. Confidence in Trend = Confidence (in percent) that constituent concentration is increasing (S>0) or decreasing (S<0): >95% = Increasing or Decreasing; ≥ 90% = Probably Increasing or Probably Decreasing; < 90% and S>0 = No Trend; < 90%, S≤0, and COV ≥ 1 = No Trend; < 90% and COV < 1 = Stable.
3. Methodology based on "MAROS: A Decision Support System for Optimizing Monitoring Plans", J.J. Aziz, M. Ling, H.S. Rifai, C.J. Newell, and J.R. Gonzales, *Ground Water* , 41(3):355-367, 2003.

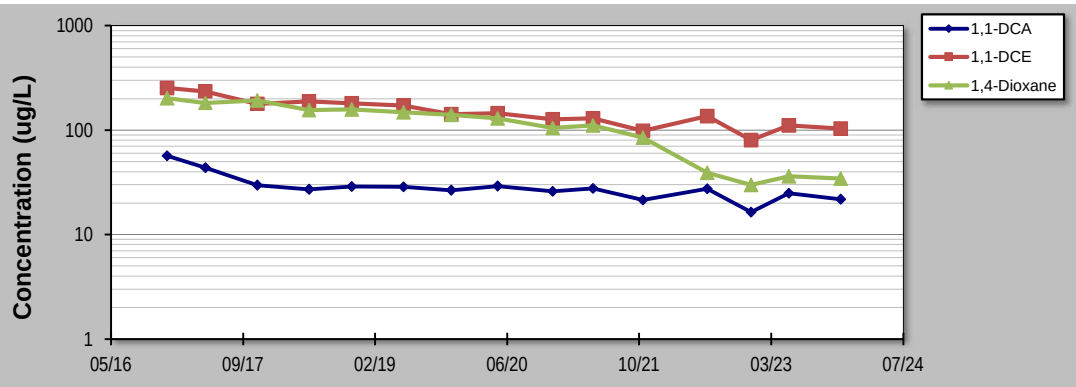
DISCLAIMER: The GSI Mann-Kendall Toolkit is available "as is". Considerable care has been exercised in preparing this software product; however, no party, including without limitation GSI Environmental Inc., makes any representation or warranty regarding the accuracy, correctness, or completeness of the information contained herein, and no such party shall be liable for any direct, indirect, consequential, incidental or other damages resulting from the use of this product or the information contained herein. Information in this publication is subject to change without notice. GSI Environmental Inc., disclaims any responsibility or obligation to update the information contained herein.

GSI MANN-KENDALL TOOLKIT
for Constituent Trend Analysis

Evaluation Date: **9-Mar-24**
Facility Name: **Kop-Flex**
Conducted By: **AMR**

Job ID:
Constituent: **MW-16D**
Concentration Units: **ug/L**

Sampling Point ID:	1,1-DCA	1,1-DCE	1,4-Dioxane				
Sampling Event	Sampling Date	MW-16D CONCENTRATION (ug/L)						
1	8-Dec-16	56.6	254	202				
2	2-May-17	43.7	235	182				
3	15-Nov-17	29.7	179	192				
4	30-May-18	27.1	188	156				
5	7-Nov-18	28.9	180	158				
6	22-May-19	28.5	172	148				
7	19-Nov-19	26.6	142	140				
8	13-May-20	29.1	145	130				
9	8-Dec-20	25.9	127	105				
10	9-May-21	27.7	130	111				
11	14-Nov-21	21.5	98.7	84.5				
12	15-Jul-22	27.4	136	39.2				
13	29-Dec-22	16.4	80.1	29.9				
14	21-May-23	24.9	111	36.1				
15	3-Dec-23	21.8	103	34.5				
16								
17								
18								
19								
20								
Coefficient of Variation:		**0.33**	**0.32**	**0.51**				
Mann-Kendall Statistic (S):		**-71**	**-83**	**-95**				
Confidence Factor:		**>99.9%**	**>99.9%**	**>99.9%**				
Concentration Trend:		Decreasing	Decreasing	Decreasing				



Notes:

1. At least four independent sampling events per well are required for calculating the trend. *Methodology is valid for 4 to 40 samples.*
2. Confidence in Trend = Confidence (in percent) that constituent concentration is increasing (S>0) or decreasing (S<0): >95% = Increasing or Decreasing; ≥ 90% = Probably Increasing or Probably Decreasing; < 90% and S>0 = No Trend; < 90%, S≤0, and COV ≥ 1 = No Trend; < 90% and COV < 1 = Stable.
3. Methodology based on "MAROS: A Decision Support System for Optimizing Monitoring Plans", J.J. Aziz, M. Ling, H.S. Rifai, C.J. Newell, and J.R. Gonzales, *Ground Water* , 41(3):355-367, 2003.

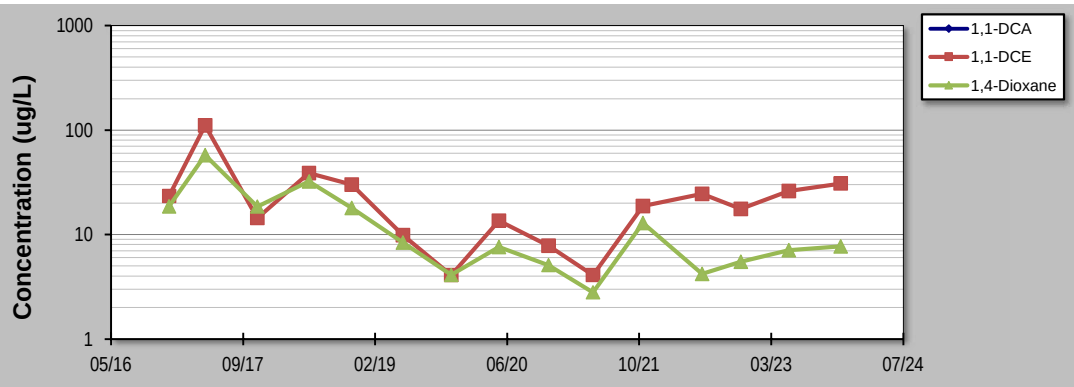
DISCLAIMER: The GSI Mann-Kendall Toolkit is available "as is". Considerable care has been exercised in preparing this software product; however, no party, including without limitation GSI Environmental Inc., makes any representation or warranty regarding the accuracy, correctness, or completeness of the information contained herein, and no such party shall be liable for any direct, indirect, consequential, incidental or other damages resulting from the use of this product or the information contained herein. Information in this publication is subject to change without notice. GSI Environmental Inc., disclaims any responsibility or obligation to update the information contained herein.

GSI MANN-KENDALL TOOLKIT
for Constituent Trend Analysis

Evaluation Date: **9-Mar-24**
Facility Name: **Kop-Flex**
Conducted By: **AMR**

Job ID:
Constituent: **MW-21D**
Concentration Units: **ug/L**

Sampling Point ID:	1,1-DCA	1,1-DCE	1,4-Dioxane				
Sampling Event	Sampling Date	MW-21D CONCENTRATION (ug/L)						
1	16-Dec-16		23.4	18.6				
2	1-May-17		111	57.5				
3	15-Nov-17		14.4	18.5				
4	30-May-18		38.8	32.2				
5	7-Nov-18		30	18				
6	21-May-19		9.9	8.4				
7	19-Nov-19		4.1	4.1				
8	18-May-20		13.6	7.6				
9	22-Nov-20		7.8	5.1				
10	9-May-21		4.1	2.8				
11	14-Nov-21		18.7	12.9				
12	26-Jun-22		24.5	4.2				
13	20-Nov-22		17.6	5.5				
14	21-May-23		26.1	7.1				
15	3-Dec-23		30.8	7.7				
16								
17								
18								
19								
20								
Coefficient of Variation:			**1.04**	**1.03**				
Mann-Kendall Statistic (S):			**-4**	**-49**				
Confidence Factor:			**55.8%**	**99.2%**				
Concentration Trend:			No Trend	Decreasing				



Notes:

1. At least four independent sampling events per well are required for calculating the trend. *Methodology is valid for 4 to 40 samples.*
2. Confidence in Trend = Confidence (in percent) that constituent concentration is increasing (S>0) or decreasing (S<0): >95% = Increasing or Decreasing; ≥ 90% = Probably Increasing or Probably Decreasing; < 90% and S>0 = No Trend; < 90%, S≤0, and COV ≥ 1 = No Trend; < 90% and COV < 1 = Stable.
3. Methodology based on "MAROS: A Decision Support System for Optimizing Monitoring Plans", J.J. Aziz, M. Ling, H.S. Rifai, C.J. Newell, and J.R. Gonzales, *Ground Water* , 41(3):355-367, 2003.

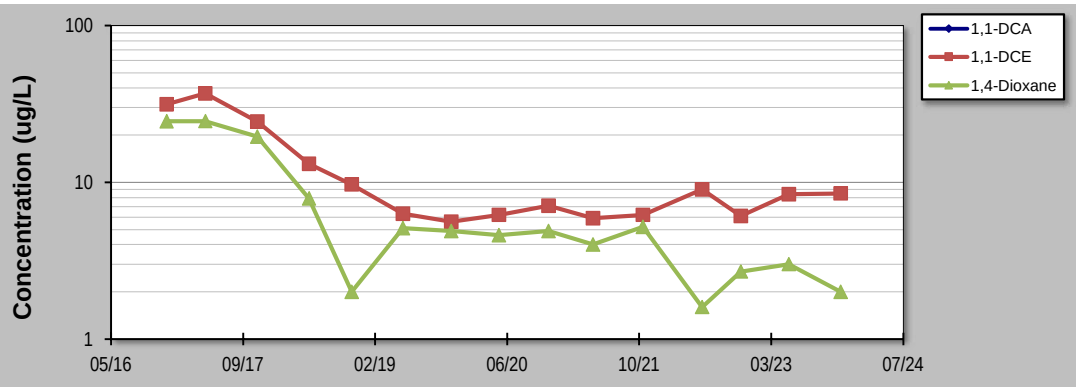
DISCLAIMER: The GSI Mann-Kendall Toolkit is available "as is". Considerable care has been exercised in preparing this software product; however, no party, including without limitation GSI Environmental Inc., makes any representation or warranty regarding the accuracy, correctness, or completeness of the information contained herein, and no such party shall be liable for any direct, indirect, consequential, incidental or other damages resulting from the use of this product or the information contained herein. Information in this publication is subject to change without notice. GSI Environmental Inc., disclaims any responsibility or obligation to update the information contained herein.

GSI MANN-KENDALL TOOLKIT
for Constituent Trend Analysis

Evaluation Date: **9-Mar-24**
Facility Name: **Kop-Flex**
Conducted By: **AMR**

Job ID:
Constituent: **MW-22D**
Concentration Units: **ug/L**

Sampling Point ID:	1,1-DCA	1,1-DCE	1,4-Dioxane				
Sampling Event	Sampling Date	MW-22D CONCENTRATION (ug/L)						
1	7-Dec-16		31.5	24.5				
2	2-May-17		36.9	24.6				
3	15-Nov-17		24.4	19.6				
4	30-May-18		13.1	7.9				
5	7-Nov-18		9.7	2				
6	21-May-19		6.3	5.1				
7	19-Nov-19		5.6	4.9				
8	18-May-20		6.2	4.6				
9	22-Nov-20		7.1	4.9				
10	9-May-21		5.9	4				
11	14-Nov-21		6.2	5.2				
12	26-Jun-22		9	1.6				
13	20-Nov-22		6.1	2.7				
14	21-May-23		8.4	3				
15	3-Dec-23		8.5	2				
16								
17								
18								
19								
20								
Coefficient of Variation:			**0.82**	**1.04**				
Mann-Kendall Statistic (S):			**-42**	**-65**				
Confidence Factor:			**98.0%**	**100.0%**				
Concentration Trend:			Decreasing	Decreasing				



Notes:

1. At least four independent sampling events per well are required for calculating the trend. *Methodology is valid for 4 to 40 samples.*
2. Confidence in Trend = Confidence (in percent) that constituent concentration is increasing (S>0) or decreasing (S<0): >95% = Increasing or Decreasing; ≥ 90% = Probably Increasing or Probably Decreasing; < 90% and S>0 = No Trend; < 90%, S≤0, and COV ≥ 1 = No Trend; < 90% and COV < 1 = Stable.
3. Methodology based on "MAROS: A Decision Support System for Optimizing Monitoring Plans", J.J. Aziz, M. Ling, H.S. Rifai, C.J. Newell, and J.R. Gonzales, *Ground Water* , 41(3):355-367, 2003.

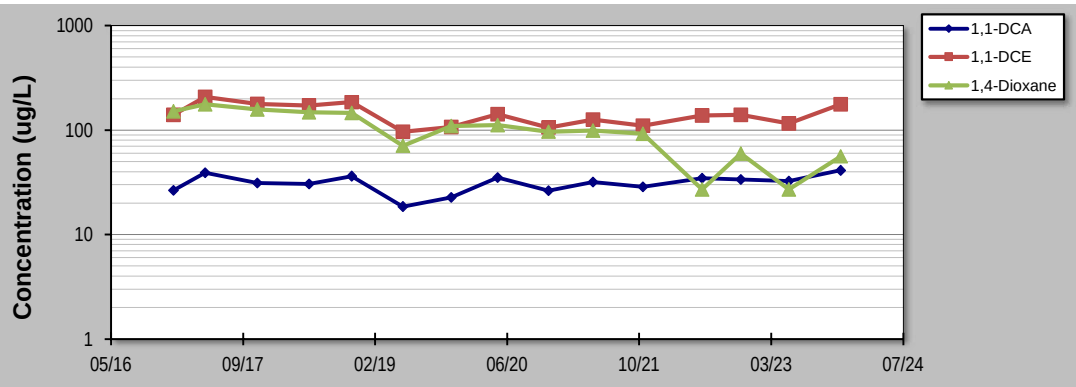
DISCLAIMER: The GSI Mann-Kendall Toolkit is available "as is". Considerable care has been exercised in preparing this software product; however, no party, including without limitation GSI Environmental Inc., makes any representation or warranty regarding the accuracy, correctness, or completeness of the information contained herein, and no such party shall be liable for any direct, indirect, consequential, incidental or other damages resulting from the use of this product or the information contained herein. Information in this publication is subject to change without notice. GSI Environmental Inc., disclaims any responsibility or obligation to update the information contained herein.

GSI MANN-KENDALL TOOLKIT
for Constituent Trend Analysis

Evaluation Date: **9-Mar-24**
Facility Name: **Kop-Flex**
Conducted By: **AMR**

Job ID:
Constituent: **MW-23D**
Concentration Units: **ug/L**

Sampling Point ID:	1,1-DCA	1,1-DCE	1,4-Dioxane				
Sampling Event	Sampling Date	MW-23D CONCENTRATION (ug/L)						
1	2-Jan-17	26.4	140	151				
2	1-May-17	39.1	208	177				
3	15-Nov-17	31.1	179	158				
4	30-May-18	30.5	172	148				
5	7-Nov-18	36.2	185	146				
6	21-May-19	18.5	96.4	70.7				
7	19-Nov-19	22.7	107	109				
8	13-May-20	35.2	142	112				
9	22-Nov-20	26.3	106	96.7				
10	9-May-21	31.8	126	99				
11	14-Nov-21	28.5	110	92.4				
12	26-Jun-22	34.6	138	27				
13	20-Nov-22	33.6	140	59.6				
14	21-May-23	32.4	116	27				
15	3-Dec-23	41.2	177	56.1				
16								
17								
18								
19								
20								
Coefficient of Variation:		**0.19**	**0.24**	**0.47**				
Mann-Kendall Statistic (S):		**19**	**-18**	**-80**				
Confidence Factor:		**81.0%**	**79.6%**	**>99.9%**				
Concentration Trend:		No Trend	Stable	Decreasing				



Notes:

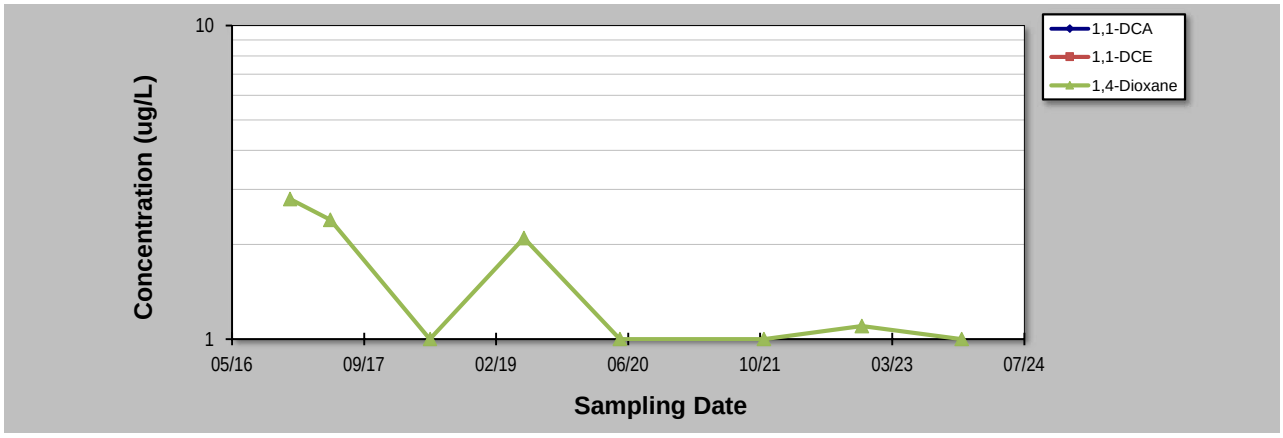
1. At least four independent sampling events per well are required for calculating the trend. *Methodology is valid for 4 to 40 samples.*
2. Confidence in Trend = Confidence (in percent) that constituent concentration is increasing (S>0) or decreasing (S<0): >95% = Increasing or Decreasing; ≥ 90% = Probably Increasing or Probably Decreasing; < 90% and S>0 = No Trend; < 90%, S≤0, and COV ≥ 1 = No Trend; < 90% and COV < 1 = Stable.
3. Methodology based on "MAROS: A Decision Support System for Optimizing Monitoring Plans", J.J. Aziz, M. Ling, H.S. Rifai, C.J. Newell, and J.R. Gonzales, *Ground Water* , 41(3):355-367, 2003.

DISCLAIMER: The GSI Mann-Kendall Toolkit is available "as is". Considerable care has been exercised in preparing this software product; however, no party, including without limitation GSI Environmental Inc., makes any representation or warranty regarding the accuracy, correctness, or completeness of the information contained herein, and no such party shall be liable for any direct, indirect, consequential, incidental or other damages resulting from the use of this product or the information contained herein. Information in this publication is subject to change without notice. GSI Environmental Inc., disclaims any responsibility or obligation to update the information contained herein.

GSI MANN-KENDALL TOOLKIT
for Constituent Trend Analysis

Evaluation Date: **9-Mar-24**
Facility Name: **Kop-Flex**
Conducted By: **AMR**
Job ID:
Constituent: **MW-41D**
Concentration Units: **ug/L**

Sampling Point ID:	1,1-DCA	1,1-DCE	1,4-Dioxane				
Sampling Event	Sampling Date	MW-41D CONCENTRATION (ug/L)						
1	16-Dec-16			2.8				
2	17-May-17			2.4				
3	30-May-18			1				
4	21-May-19			2.1				
5	18-May-20			1				
6	14-Nov-21			1				
7	20-Nov-22			1.1				
8	3-Dec-23			1				
9								
10								
11								
12								
13								
14								
15								
16								
17								
18								
19								
20								
Coefficient of Variation:				0.49				
Mann-Kendall Statistic (S):				-14				
Confidence Factor:				94.6%				
Concentration Trend:				Prob. Decreasing				



Notes:

1. At least four independent sampling events per well are required for calculating the trend. *Methodology is valid for 4 to 40 samples.*
2. Confidence in Trend = Confidence (in percent) that constituent concentration is increasing (S>0) or decreasing (S<0): >95% = Increasing or Decreasing; ≥ 90% = Probably Increasing or Probably Decreasing; < 90% and S>0 = No Trend; < 90%, S≤0, and COV ≥ 1 = No Trend; < 90% and COV < 1 = Stable.
3. Methodology based on "MAROS: A Decision Support System for Optimizing Monitoring Plans", J.J. Aziz, M. Ling, H.S. Rifai, C.J. Newell, and J.R. Gonzales, *Ground Water* , 41(3):355-367, 2003.

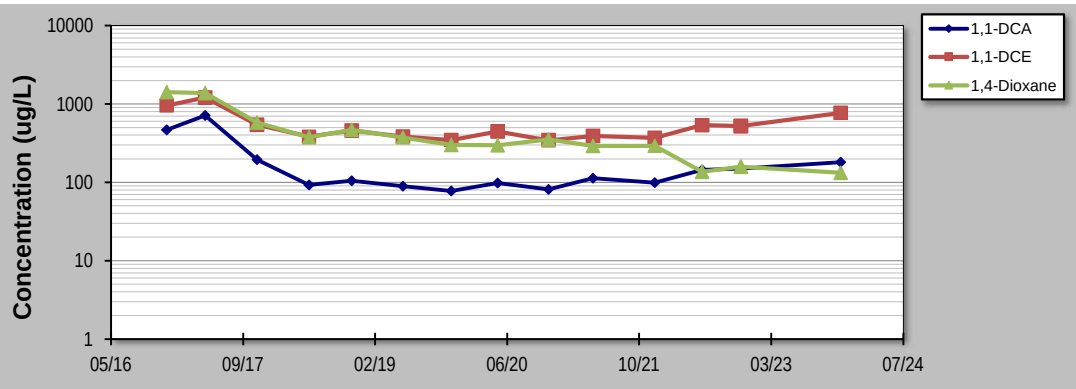
DISCLAIMER: The GSI Mann-Kendall Toolkit is available "as is". Considerable care has been exercised in preparing this software product; however, no party, including without limitation GSI Environmental Inc., makes any representation or warranty regarding the accuracy, correctness, or completeness of the information contained herein, and no such party shall be liable for any direct, indirect, consequential, incidental or other damages resulting from the use of this product or the information contained herein. Information in this publication is subject to change without notice. GSI Environmental Inc., disclaims any responsibility or obligation to update the information contained herein.

GSI MANN-KENDALL TOOLKIT
for Constituent Trend Analysis

Evaluation Date: **9-Mar-24**
Facility Name: **Kop-Flex**
Conducted By: **AMR**

Job ID:
Constituent: **RW-1S**
Concentration Units: **ug/L**

Sampling Point ID:	1,1-DCA	1,1-DCE	1,4-Dioxane				
Sampling Event	Sampling Date	RW-1S CONCENTRATION (ug/L)						
1	7-Dec-16	468	957	1420				
2	1-May-17	711	1210	1370				
3	14-Nov-17	196	544	580				
4	30-May-18	93	381	377				
5	7-Nov-18	105	458	467				
6	21-May-19	89.1	384	374				
7	19-Nov-19	77.4	348	299				
8	13-May-20	98.2	447	298				
9	22-Nov-20	81.2	344	351				
10	9-May-21	113	389	291				
11	29-Dec-21	99.4	368	294				
12	26-Jun-22	144	537	136				
13	20-Nov-22	150	523	158				
14	20-Nov-22	150	523	158				
15	3-Dec-23	180	775	133				
16								
17								
18								
19								
20								
Coefficient of Variation:		**0.95**	**0.46**	**0.90**				
Mann-Kendall Statistic (S):		**4**	**-8**	**-92**				
Confidence Factor:		**55.8%**	**63.3%**	**>99.9%**				
Concentration Trend:		No Trend	Stable	Decreasing				



Notes:

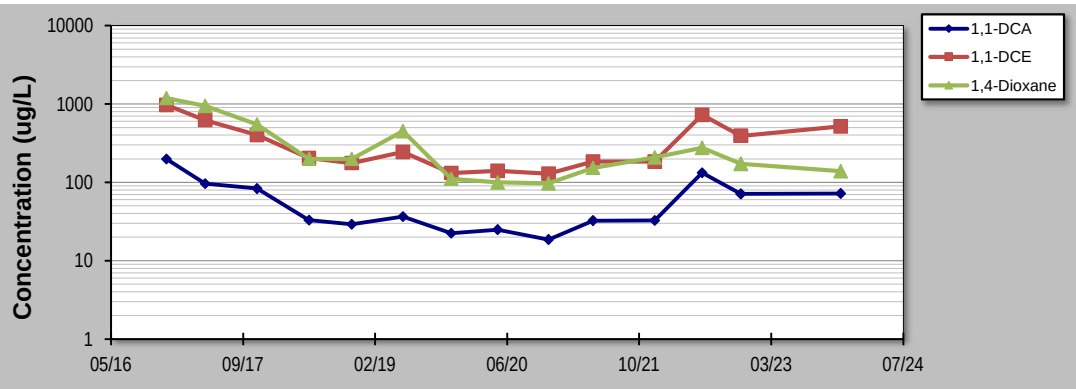
1. At least four independent sampling events per well are required for calculating the trend. *Methodology is valid for 4 to 40 samples.*
2. Confidence in Trend = Confidence (in percent) that constituent concentration is increasing (S>0) or decreasing (S<0): >95% = Increasing or Decreasing; ≥ 90% = Probably Increasing or Probably Decreasing; < 90% and S>0 = No Trend; < 90%, S≤0, and COV ≥ 1 = No Trend; < 90% and COV < 1 = Stable.
3. Methodology based on "MAROS: A Decision Support System for Optimizing Monitoring Plans", J.J. Aziz, M. Ling, H.S. Rifai, C.J. Newell, and J.R. Gonzales, *Ground Water* , 41(3):355-367, 2003.

DISCLAIMER: The GSI Mann-Kendall Toolkit is available "as is". Considerable care has been exercised in preparing this software product; however, no party, including without limitation GSI Environmental Inc., makes any representation or warranty regarding the accuracy, correctness, or completeness of the information contained herein, and no such party shall be liable for any direct, indirect, consequential, incidental or other damages resulting from the use of this product or the information contained herein. Information in this publication is subject to change without notice. GSI Environmental Inc., disclaims any responsibility or obligation to update the information contained herein.

GSI MANN-KENDALL TOOLKIT
for Constituent Trend Analysis

Evaluation Date: **9-Mar-24**
Facility Name: **Kop-Flex**
Conducted By: **AMR**
Job ID:
Constituent: **RW-2S**
Concentration Units: **ug/L**

Sampling Point ID:	1,1-DCA	1,1-DCE	1,4-Dioxane				
Sampling Event	Sampling Date	RW-2S CONCENTRATION (ug/L)						
1	6-Dec-16	198	971	1190				
2	1-May-17	95.7	622	949				
3	14-Nov-17	83.5	401	549				
4	30-May-18	33	203	200				
5	7-Nov-18	29.1	177	200				
6	21-May-19	36.5	244	448				
7	19-Nov-19	22.4	132	111				
8	13-May-20	24.9	140	99.8				
9	22-Nov-20	18.6	129	97				
10	9-May-21	32.4	184	153				
11	29-Dec-21	32.7	184	207				
12	26-Jun-22	133	726	276				
13	20-Nov-22	71.2	393	172				
14	20-Nov-22	71.2	393	172				
15	3-Dec-23	72.4	517	139				
16								
17								
18								
19								
20								
Coefficient of Variation:		**0.78**	**0.70**	**0.99**				
Mann-Kendall Statistic (S):		**-8**	**-7**	**-45**				
Confidence Factor:		**63.3%**	**61.5%**	**98.6%**				
Concentration Trend:		Stable	Stable	Decreasing				



Notes:

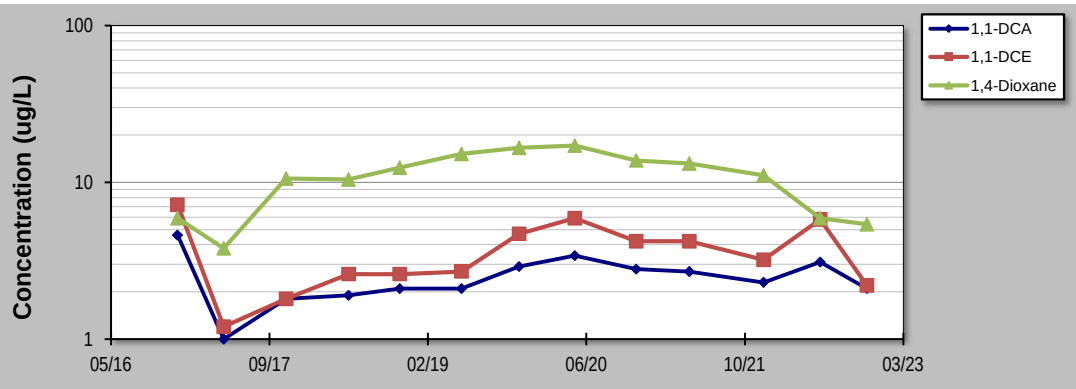
1. At least four independent sampling events per well are required for calculating the trend. *Methodology is valid for 4 to 40 samples.*
2. Confidence in Trend = Confidence (in percent) that constituent concentration is increasing (S>0) or decreasing (S<0): >95% = Increasing or Decreasing; ≥ 90% = Probably Increasing or Probably Decreasing; < 90% and S>0 = No Trend; < 90%, S≤0, and COV ≥ 1 = No Trend; < 90% and COV < 1 = Stable.
3. Methodology based on "MAROS: A Decision Support System for Optimizing Monitoring Plans", J.J. Aziz, M. Ling, H.S. Rifai, C.J. Newell, and J.R. Gonzales, *Ground Water* , 41(3):355-367, 2003.

DISCLAIMER: The GSI Mann-Kendall Toolkit is available "as is". Considerable care has been exercised in preparing this software product; however, no party, including without limitation GSI Environmental Inc., makes any representation or warranty regarding the accuracy, correctness, or completeness of the information contained herein, and no such party shall be liable for any direct, indirect, consequential, incidental or other damages resulting from the use of this product or the information contained herein. Information in this publication is subject to change without notice. GSI Environmental Inc., disclaims any responsibility or obligation to update the information contained herein.

GSI MANN-KENDALL TOOLKIT
for Constituent Trend Analysis

Evaluation Date:	9-Mar-24	Job ID:	
Facility Name:	Kop-Flex	Constituent:	RW-3S
Conducted By:	AMR	Concentration Units:	ug/L

Sampling Point ID:	1,1-DCA	1,1-DCE	1,4-Dioxane				
Sampling Event	Sampling Date	RW-3S CONCENTRATION (ug/L)						
1	6-Dec-16	4.6	7.2	5.9				
2	1-May-17	1	1.2	3.8				
3	14-Nov-17	1.8	1.8	10.6				
4	30-May-18	1.9	2.6	10.4				
5	7-Nov-18	2.1	2.6	12.4				
6	21-May-19	2.1	2.7	15.2				
7	19-Nov-19	2.9	4.7	16.6				
8	12-May-20	3.4	5.9	17.2				
9	22-Nov-20	2.8	4.2	13.8				
10	9-May-21	2.7	4.2	13.2				
11	29-Dec-21	2.3	3.2	11.1				
12	26-Jun-22	3.1	5.8	5.9				
13	20-Nov-22	2.1	2.2	5.4				
14								
15								
16								
17								
18								
19								
20								
Coefficient of Variation:		0.35	0.48	0.41				
Mann-Kendall Statistic (S):		19	16	7				
Confidence Factor:		86.1%	81.6%	64.0%				
Concentration Trend:		No Trend	No Trend	No Trend				



Notes:

1. At least four independent sampling events per well are required for calculating the trend. *Methodology is valid for 4 to 40 samples.*
2. Confidence in Trend = Confidence (in percent) that constituent concentration is increasing (S>0) or decreasing (S<0): >95% = Increasing or Decreasing; ≥ 90% = Probably Increasing or Probably Decreasing; < 90% and S>0 = No Trend; < 90%, S≤0, and COV ≥ 1 = No Trend; < 90% and COV < 1 = Stable.
3. Methodology based on "MAROS: A Decision Support System for Optimizing Monitoring Plans", J.J. Aziz, M. Ling, H.S. Rifai, C.J. Newell, and J.R. Gonzales, *Ground Water* , 41(3):355-367, 2003.

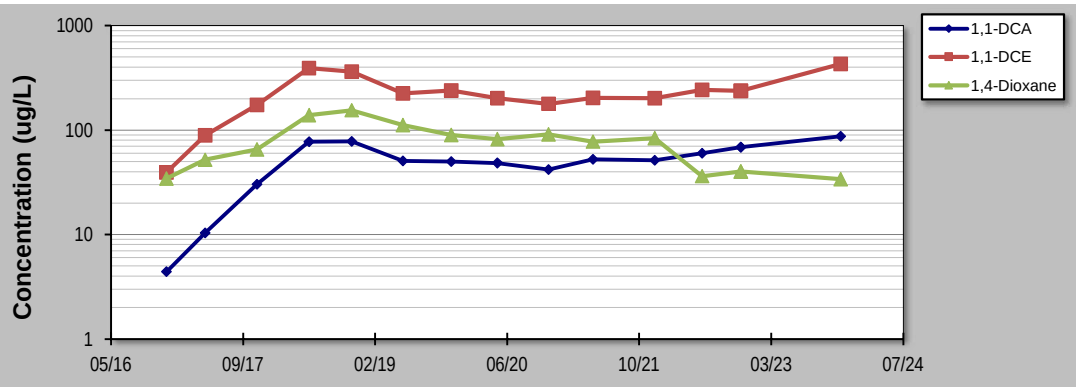
DISCLAIMER: The GSI Mann-Kendall Toolkit is available "as is". Considerable care has been exercised in preparing this software product; however, no party, including without limitation GSI Environmental Inc., makes any representation or warranty regarding the accuracy, correctness, or completeness of the information contained herein, and no such party shall be liable for any direct, indirect, consequential, incidental or other damages resulting from the use of this product or the information contained herein. Information in this publication is subject to change without notice. GSI Environmental Inc., disclaims any responsibility or obligation to update the information contained herein.

GSI MANN-KENDALL TOOLKIT
for Constituent Trend Analysis

Evaluation Date: **9-Mar-24**
Facility Name: **Kop-Flex**
Conducted By: **AMR**

Job ID:
Constituent: **RW-1D**
Concentration Units: **ug/L**

Sampling Point ID:	1,1-DCA	1,1-DCE	1,4-Dioxane				
Sampling Event	Sampling Date	RW-1D CONCENTRATION (ug/L)						
1	6-Dec-16	4.4	39.3	34.4				
2	1-May-17	10.4	88.9	51.9				
3	14-Nov-17	30.4	174	65.5				
4	30-May-18	77.1	392	139				
5	7-Nov-18	78.1	363	155				
6	21-May-19	50.8	224	112				
7	19-Nov-19	49.9	240	89.7				
8	12-May-20	48.4	202	81.8				
9	22-Nov-20	42	179	90.9				
10	9-May-21	52.4	204	77.7				
11	29-Dec-21	51.4	202	83.7				
12	26-Jun-22	59.9	242	36.2				
13	20-Nov-22	68.6	237	40.2				
14	20-Nov-22	68.6	237	40.2				
15	3-Dec-23	87.3	431	34				
16								
17								
18								
19								
20								
Coefficient of Variation:		**0.45**	**0.45**	**0.50**				
Mann-Kendall Statistic (S):		**54**	**37**	**-30**				
Confidence Factor:		**99.7%**	**96.3%**	**92.3%**				
Concentration Trend:		Increasing	Increasing	Prob. Decreasing				



Notes:

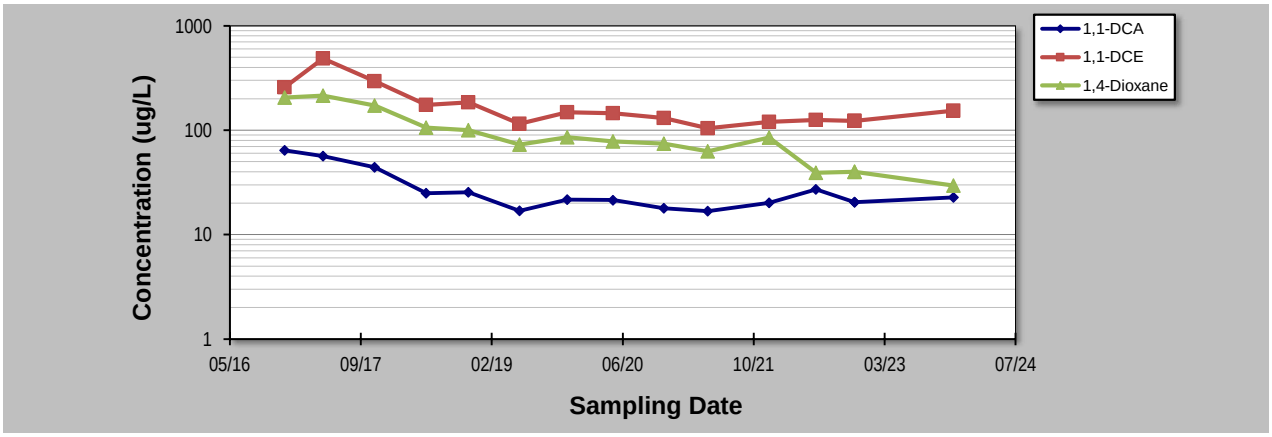
1. At least four independent sampling events per well are required for calculating the trend. *Methodology is valid for 4 to 40 samples.*
2. Confidence in Trend = Confidence (in percent) that constituent concentration is increasing (S>0) or decreasing (S<0): >95% = Increasing or Decreasing; ≥ 90% = Probably Increasing or Probably Decreasing; < 90% and S>0 = No Trend; < 90%, S≤0, and COV ≥ 1 = No Trend; < 90% and COV < 1 = Stable.
3. Methodology based on "MAROS: A Decision Support System for Optimizing Monitoring Plans", J.J. Aziz, M. Ling, H.S. Rifai, C.J. Newell, and J.R. Gonzales, *Ground Water* , 41(3):355-367, 2003.

DISCLAIMER: The GSI Mann-Kendall Toolkit is available "as is". Considerable care has been exercised in preparing this software product; however, no party, including without limitation GSI Environmental Inc., makes any representation or warranty regarding the accuracy, correctness, or completeness of the information contained herein, and no such party shall be liable for any direct, indirect, consequential, incidental or other damages resulting from the use of this product or the information contained herein. Information in this publication is subject to change without notice. GSI Environmental Inc., disclaims any responsibility or obligation to update the information contained herein.

GSI MANN-KENDALL TOOLKIT
for Constituent Trend Analysis

Evaluation Date:	9-Mar-24	Job ID:	
Facility Name:	Kop-Flex	Constituent:	RW-2D
Conducted By:	AMR	Concentration Units:	ug/L

Sampling Point ID:	1,1-DCA	1,1-DCE	1,4-Dioxane				
Sampling Event	Sampling Date	RW-2D CONCENTRATION (ug/L)						
1	6-Dec-16	64	257	206				
2	1-May-17	56.6	486	214				
3	14-Nov-17	44	295	172				
4	30-May-18	24.9	175	106				
5	7-Nov-18	25.4	185	99.8				
6	21-May-19	16.9	115	72.7				
7	19-Nov-19	21.6	149	85.5				
8	12-May-20	21.4	145	78.2				
9	22-Nov-20	17.9	131	74.5				
10	9-May-21	16.8	104	62.8				
11	29-Dec-21	20.2	120	85.1				
12	26-Jun-22	27.1	125	39.2				
13	20-Nov-22	20.4	123	40				
14	20-Nov-22	20.4	123	40				
15	3-Dec-23	22.8	154	29.5				
16								
17								
18								
19								
20								
Coefficient of Variation:		0.52	0.56	0.63				
Mann-Kendall Statistic (S):		-42	-52	-84				
Confidence Factor:		98.0%	99.5%	>99.9%				
Concentration Trend:		Decreasing	Decreasing	Decreasing				



Notes:

1. At least four independent sampling events per well are required for calculating the trend. *Methodology is valid for 4 to 40 samples.*
2. Confidence in Trend = Confidence (in percent) that constituent concentration is increasing (S>0) or decreasing (S<0): >95% = Increasing or Decreasing; ≥ 90% = Probably Increasing or Probably Decreasing; < 90% and S>0 = No Trend; < 90%, S≤0, and COV ≥ 1 = No Trend; < 90% and COV < 1 = Stable.
3. Methodology based on "MAROS: A Decision Support System for Optimizing Monitoring Plans", J.J. Aziz, M. Ling, H.S. Rifai, C.J. Newell, and J.R. Gonzales, *Ground Water* , 41(3):355-367, 2003.

DISCLAIMER: The GSI Mann-Kendall Toolkit is available "as is". Considerable care has been exercised in preparing this software product; however, no party, including without limitation GSI Environmental Inc., makes any representation or warranty regarding the accuracy, correctness, or completeness of the information contained herein, and no such party shall be liable for any direct, indirect, consequential, incidental or other damages resulting from the use of this product or the information contained herein. Information in this publication is subject to change without notice. GSI Environmental Inc., disclaims any responsibility or obligation to update the information contained herein.