APRIL 2021 SURFACE WATER TECHNICAL MEMORANDUM FOR DARK HEAD COVE AND COW PEN CREEK
LOCKHEED MARTIN CORPORATION, MIDDLE RIVER COMPLEX
2323 EASTERN BOULEVARD, MIDDLE RIVER, MD

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ACRONYMS AND ABBREVIATIONS

AECOM	AECOM Technical Services, Inc.
BGE	Baltimore Gas and Electric
BTAG	(USEPA) Biological Technical Advisory Group
cis-1,2-DCE	cis-1,2-dichloroethene
COC	chain of custody
COMAR	Code of Maryland Regulations
DO	dissolved oxygen
g/d/feet	gallon(s) per day per foot
GIS	geographic information system
gpm	gallon(s) per minute
HASP	health and safety plan
MDE	Maryland Department of the Environment
MDL	Method Detection Limit
µg/L	microgram(s) per liter
MRC	Middle River Complex
ORP	oxygen reduction potential
PCB(s)	polychlorinated biphenyl(s)
TCE	trichloroethene
USEPA	United States Environmental Protection Agency
VOC(s)	volatile organic compound(s)

EXECUTIVE SUMMARY

On behalf of Lockheed Martin Corporation, AECOM Technical Services, Inc., has prepared this technical memorandum documenting the April 2021 surface water monitoring at the Lockheed Martin Middle River Complex in Middle River, Maryland. This technical memorandum is part of the long-term groundwater and surface water monitoring program at the Middle River Complex. The objectives of the surface water monitoring program are to determine whether volatile organic compounds, polychlorinated biphenyls, and/or 1,4-dioxane previously detected in groundwater, sediment, and soil are reaching Dark Head Cove and Cow Pen Creek via groundwater seepage, infiltration, or transport through nearby storm drains at concentrations greater than the established criteria including ecological and human health screening-level criteria and site-specific risk-based swimming screening levels.

The risk-based swimming screening levels (developed to assess the cumulative risk to a theoretical recreational receptor compared with Maryland Department of the Environment risk management benchmarks) address six contaminants of concern found in surface water adjacent to the Middle River Complex: trichloroethene, *cis*-1,2-dichloroethene, 1,2,4-trichlorobenzene, chlorobenzene, polychlorinated biphenyls, and 1,4-dioxane. Investigative activities conducted by AECOM from 2018 to 2021 as part of this surface water monitoring program include three annual rounds of sampling and chemical analyses of surface water in Dark Head Cove and Cow Pen Creek in April, June, and September of each year. Prior to 2018, annual surface water monitoring was completed by Tetra Tech, Inc. beginning in 2010.

This technical memorandum evaluates the April 2021 surface water sampling analytical data based on current and historical results and estimates of potential groundwater to surface water discharge. On-site personnel collected 23 surface water samples (including two duplicates) from 21 sampling locations in Cow Pen Creek and Dark Head Cove on April 13th, 2021, on behalf of Lockheed Martin Corporation. Surface water samples were sent to Alpha Analytical in Westborough, Massachusetts to be chemically analyzed for polychlorinated biphenyls, and Pace Analytical in West Columbia, SC to be chemically analyzed for volatile organic compounds and 1,4-dioxane.

The analytical results from the sampling events were evaluated with respect to ecological and human health screening-level criteria, including:

- Maryland ambient water quality criteria for human health consumption of organisms (Code of Maryland Regulations 26.08.02.03)
- United States Environmental Protection Agency National Recommended Water Quality Criteria – human health criteria, consumption of organism only (United States Environmental Protection Agency, 2015)
- United States Environmental Protection Agency National Recommended Aquatic Life Criteria – freshwater, acute and chronic criteria (United States Environmental Protection Agency, 2018a)
- United States Environmental Protection Agency Region III Biological Technical Advisory Group freshwater screening levels (United States Environmental Protection Agency, 2006)
    - If no benchmarks were listed by United States Environmental Protection Agency Region III, guidance from United States Environmental Protection Agency Region IV (United States Environmental Protection Agency, 2018b) and Region V (United States Environmental Protection Agency, 2003) were reviewed for additional ecological benchmarks.
- Risk-based site-specific swimming screening levels developed in 2019 for trichloroethene, *cis*-1,2-dichloroethene, 1,2,4-trichlorobenzene, chlorobenzene, polychlorinated biphenyls, and 1,4-dioxane for Dark Head Cove and Cow Pen Creek at the Middle River Complex. These risk-based screening values were approved by the Maryland Department of the Environment in 2019 (Lockheed Martin Corporation, 2019).

Detections from the April 2021 surface water sampling are as follows:

- trichloroethene—detected at 11 locations in Dark Head Cove below screening levels
- 1,4-dioxane—detected at four locations in Dark Head Cove and three locations in Cow Pen Creek, all below screening levels
- polychlorinated biphenyls— detected at 16 locations sampled in Dark Head Cove above the United States Environmental Protection Agency Region III Biological Technical Advisory Group Freshwater Screening Benchmark (0.074 [nanograms per liter] ng/L) and nine locations are above the Maryland ambient water quality criteria for human health consumption of organisms (0.64 ng/L).

Detected polychlorinated biphenyl concentrations for individual homolog groups (dichlorobiphenyls, trichlorobiphenyls, hexachlorobiphenyls, and heptachlorobiphenyls) range from 0.248 ng/L in sample MRC-SW8B-S to 0.604 ng/L in sample MRC-SW16A-S, collected

from Dark Head Cove. Sixteen of 17 samples collected exceed the ecological surface water screening level of 0.074 ng/L set in place by the United States Environmental Protection Agency Region III Biological Technical Advisory Group and 9 out of 17 locations exceed the Maryland ambient water quality criteria for human health consumption of organisms (0.64 ng/L). A fish consumption advisory is currently in effect for Middle River (Maryland Department of the Environment, 2018), recommending consumption of no more than six meals of blue crab or a number of fish species listed in the advisory per month, due to polychlorinated biphenyl contamination in the area. Since elevated turbidity was not identified in the 2021 sampling event, polychlorinated biphenyl analytical detections were not associated with elevated turbidity, and therefore likely represent dissolved constituents in surface water.

SECTION 1
INTRODUCTION

On behalf of Lockheed Martin Corporation, AECOM Technical Services, Inc., has prepared the following technical memorandum for the April 2021 surface water monitoring at the Middle River Complex in Middle River, Maryland (Figure 1). This technical memorandum details the analytical results from 21 surface water samples and two duplicate samples collected from Dark Head Cove and Cow Pen Creek. Site contaminants at the Middle River Complex could potentially be introduced to surface water through groundwater discharge or through groundwater infiltration into storm drains, thereby discharging into surface water through nearby outfalls.

Before 2017, surface water had been sampled annually by Tetra Tech, Inc. beginning in 2010. In 2017, the sampling frequency increased to three times per year (April, June, and September) to assess whether volatile organic compounds were reaching Dark Head Cove and Cow Pen Creek during implementation of the groundwater remedy at concentrations exceeding the established criteria including ecological and human health screening-level criteria and site-specific risk-based swimming screening levels. The additional objectives of sampling were to determine the extent to which chemicals in groundwater, sediments, and soil at the Middle River Complex have been transported to surface water. Specifically, this included investigating if polychlorinated biphenyls were in surface water after sediment removal actions and in-place treatment that Lockheed Martin performed in Dark Head Cove between 2015 and 2017, and to determine if the Block G 1,4 dioxane groundwater plume is discharging into Cow Pen Creek.

Surface water samples collected in Dark Head Cove in 2017 were not analyzed for 1,4-dioxane, as it was not a chemical of concern in groundwater in the southeastern portion of the Middle River Complex. Selected surface water samples collected under the current program from 2018 through 2021 were analyzed for 1,4-dioxane because it was detected in the 2017 groundwater samples in the eastern Blocks E and F plume, and site-specific swimming screening levels had since been revised lower. Polychlorinated biphenyls are not chemicals of concern in groundwater that discharges to Cow Pen Creek and therefore were not analyzed for in surface water samples during the 2018 through 2021 triannual sampling.

This technical memorandum is organized as follows:

Section 1—Introduction: presents objectives for the surface-water monitoring program.

Section 2—Site Background: briefly describes the site history and surface water sampling history.

Section 3—Investigation Approach and Methodology: presents the technical approach to surface water sampling and describes the field methodology employed.

Section 4—Analytical Results: discusses the analytical results for each analyte.

Section 5—Summary: summarizes findings and conclusions.

Section 6—References: cites references used to compile this technical memorandum.

SECTION 2
SITE BACKGROUND

2.1 MIDDLE RIVER COMPLEX BACKGROUND

The Middle River Complex is part of the Chesapeake Industrial Park at 2323 Eastern Boulevard in Middle River, Maryland, approximately 11.5 miles northeast of downtown Baltimore. It is composed of approximately 161 acres, including 12 main buildings, an active industrial area and yard, perimeter parking lots, an athletic field, a vacant concrete lot, a trailer and parts storage lot, and numerous grassy spaces along its perimeter. It is bounded by Eastern Boulevard (Route 150) to the north, Martin State Airport to the east, Dark Head Cove to the south, and Cow Pen Creek to the west. Figure 2 shows the Middle River Complex site layout.

LMC Properties, Inc., owns the Middle River Complex. Its primary activities at the Middle River Complex include facility and building management and maintenance. The main site tenant, MRA Systems, LLC, who's ownership transferred to Vision Technologies Aerospace Incorporated (U.S. subsidiary of Singapore Technologies Engineering Ltd.) in April 2019, designs, manufactures, fabricates, tests, overhauls, repairs, and maintains aeronautical structures, parts, and components for military and commercial applications. Lockheed Martin Rotary and Mission Systems (a division of Lockheed Martin Corporation) conducts engineering activities and fabricates, assembles, tests, and otherwise supports vertical-launch systems.

2.1.1 Middle River Complex History

In 1929, the Glenn L. Martin Company (a predecessor entity of Lockheed Martin Corporation) acquired large parcels of undeveloped land in Middle River, Maryland, on which to manufacture aircraft for the United States government and commercial clients. In the early 1960s, Glenn L. Martin Company merged with American-Marietta Company to form Martin Marietta Corporation. Around 1975, the adjacent eastern airport area (currently Martin State Airport), approximately 750 acres, was transferred to the state of Maryland. In the mid-1990s, Martin Marietta Corporation merged with Lockheed Corporation to form Lockheed Martin Corporation. Shortly after the merger, General Electric Company entities acquired most of Lockheed Martin Corporation's

aeronautical business in Middle River and the General Electric subsidiary, MRA Systems, Inc., began operations at the site. MRA Systems, Inc., was sold to Vision Technologies Aerospace Incorporated (United States subsidiary of Singapore Technologies Engineering Ltd.) in April 2019.

2.1.2 Middle River Complex Characteristics

2.1.2.1 Physiography

The Middle River Complex is in the Western Shore of the Coastal Plain physiographic province, which is generally characterized by low relief. The Middle River Complex's topography slopes gently, ranging from sea level to 32 feet above mean sea level (Cassell, 1977). The topography declines from Eastern Boulevard to the southwest and south toward Cow Pen Creek and Dark Head Cove.

2.1.2.2 Hydrology

The Middle River Complex is at the junction of Cow Pen Creek and Dark Head Cove. Both surface water bodies discharge into Dark Head Creek, a tributary of Middle River, which is a tributary of Chesapeake Bay. The Middle River Complex is approximately 3.24 miles (17,100 feet) upstream of Chesapeake Bay. The Middle River Complex has no surface water bodies on site.

Surface-water runoff discharges from the facility via storm drains, except for areas immediately adjacent to Cow Pen Creek and Dark Head Cove.

2.1.2.3 Regional Hydrogeology

Sand and gravel zones in the unconsolidated surficial deposits at the Middle River Complex, when present, might form an unconfined or water table aquifer system (Bennett and Meyer, 1952). The water table at the Middle River Complex generally conforms to the land surface, with the highest water levels in interior land areas and the lowest levels at approximately surface water elevations along the shoreline.

Regionally, the Patuxent Formation is the most important water-bearing formation in the Baltimore area. Industrial wells in the southeastern part of the area, specifically Curtis Bay and Sparrows Point, yield 500–900 gallons per minute (gpm). In these industrialized areas, the transmissivity and storage coefficient in confined portions of the aquifer average are about 50,000 gallons per day per foot (g/d/feet) and 0.00026, respectively.

The Patapsco Formation is also an important water-bearing formation in industrialized Baltimore, where it is separated by clay into a lower and an upper aquifer. Industrial wells screened in the lower aquifer yield as much as 500–750 gpm, with an estimated transmissivity of 25,000 g/d/feet (Bennett and Meyer, 1952). The upper aquifer yields quantities of water similar to industrial wells, but likely has a higher overall transmissivity, because it is thicker than the lower aquifer.

2.2 SURFACE WATER

Dark Head Cove and Cow Pen Creek receive groundwater discharge from the Middle River Complex either directly or through outfalls. Chemicals of concern found in Middle River Complex groundwater (e.g., polychlorinated biphenyls, trichloroethene, and 1,4-dioxane) have historically been detected in creek and/or cove samples. Sampling of surface water and sediment adjacent to the Middle River Complex's southern and western property boundaries began in March 2005 (Tetra Tech Inc., 2005).

Tetra Tech Inc. conducted subsequent sampling in 2005 and in each year from 2010–2017 to characterize surface water and sediment, conduct a human health and ecological risk assessment, aid in subsequent design of the sediment remedy, and to support storm-drain investigations (Tetra Tech Inc., 2017b). The current annual sampling program, which began in April 2018, seeks to determine the extent to which chemicals in groundwater, sediments, and soil at the Middle River Complex have been transported to surface water. The sampling program (occurring in April, June, and September) is also designed to provide analytical data during times of greatest recreational use of these surface water bodies.

SECTION 3
INVESTIGATION APPROACH AND METHODOLOGY

The overall objective in characterizing site surface water is to provide updated surface water quality data. Surface water analytical data from Cow Pen Creek and Dark Head Cove are used to assess the nature and extent of contamination, including potential contaminant transport from the Middle River Complex (MRC) into surface water. Before beginning fieldwork, appropriate personnel from AECOM Technical Services, Inc. (AECOM) reviewed the site-specific health and safety plan (HASP) and the respective "Safe Work" permits and emergency response plan included in the HASP.

AECOM conducted mandatory health and safety tailgate meetings before fieldwork and a twilight debrief meeting at the end of the day. The AECOM site health and safety officer documented the topics covered and personnel in attendance. Safety requirements are addressed in detail in the site-specific AECOM HASP, included in the *2018–2021 Groundwater and Surface Water Monitoring Work Plan* and its associated addenda (AECOM, 2017, 2018a, 2018b, 2019, 2020, 2021).

3.1 SURFACE WATER SAMPLING

The April 2021 surface water sampling described herein provides surface water quality data for Dark Head Cove and Cow Pen Creek. Specifically, current goals are to determine whether volatile organic compounds (VOCs), polychlorinated biphenyls (PCBs), and/or 1,4-dioxane previously detected in groundwater, sediment and soil are reaching Dark Head Cove and Cow Pen Creek via groundwater seepage, infiltration, or transport through nearby storm drains at concentrations greater than the established criteria including ecological and human health screening-level criteria and site-specific risk-based swimming screening levels. Concentrations of VOCs, PCBs, and 1,4-dioxane in surface water were determined through laboratory analyses of the collected samples.

Samples in Dark Head Cove and Cow Pen Creek were collected with dedicated, disposable tubing, attached to a depth transducer that was part of the YSI water quality meter, which measures the water quality parameters outlined in Section 4.4. The meter was lowered to one foot below the water surface and marked by electrical tape on the cord at the one-foot mark. The appropriate length of tubing was cut (to ensure collection from one foot below the water surface) and samples were collected via a peristaltic pump set at a purge rate of approximately 500 milliliters per minute. Samples collected from Dark Head Cove are designated with an "S" in the sample ID, indicating shallow surface water sample collected from one foot below the water surface.

Dark Head Cove—Eighteen surface water samples were collected in Dark Head Cove at and near Outfalls 005E, 005W, 006, 007, 008, and 009, which discharge to the cove (Figure 3). One sample was collected at Outfalls 007 (MRC-SW7A-S) and 009 (MRC-SW9A-S): one sample from 10 feet offshore ("A" sample) at each of the above listed outfall locations. Two samples were collected at Outfalls 006 (MRC-SW6A-S and MRC-SW6B-S) and 008 (MRC-SW8A-S and MRC-SW8B-S): one sample from 10 feet offshore ("A" sample) and a second sample from 50 feet offshore ("B" sample) at each of the above listed outfall locations. Two samples were collected west of Outfall 008 (MRC-SW11A-S and MRC-SW11B-S): one sample from 10 feet offshore ("A" sample) and a second sample from 50 feet offshore ("B" sample) at a location that is not directly influenced by any of the above listed outfall locations. Seven sampling locations west of Outfall 008 (MRC-SW12A-S, MRC-SW13A-S, MRC-SW20A-S, MRC-SW15A-S, MRC-SW16A-S, MRC-SW18A-S, and MRC-SW14A-S) have no associated "B" sample. These surface water samples were collected 10 feet offshore. Two outlets are at Outfall 005: 005E and 005W. One sample was collected at each outlet, 10 feet offshore, recorded as the 5A1-S and 5A2-S samples. A single sample was collected 50 feet offshore, perpendicular to the bulkhead and halfway between the outlets, and was recorded as the "B" sample.

Cow Pen Creek—Two samples (MRC-SW1A and MRC-SW2A) were collected along the centerline of Cow Pen Creek downgradient of Outfall 004, with one sample collected upstream of the Block G swale outfall and one sample collected downstream of the Block G swale outfall. A third sample (MRC-SW17A) was collected near Outfall 003 and represents the farthest upgradient sample that can be collected within the site boundaries. MRC-SW17A was collected immediately downstream of the Baltimore Gas and Electric (BGE) property boundary. BGE owns this section

of the creek and does not allow creek samples to be collected by Lockheed Martin on BGE property. Table 1 summarizes the analytical constituents included in the April 2021 monitoring program.

3.1.1 Chemical Analyses

Surface water samples were analyzed at Alpha Analytical (in Westborough, Massachusetts) for chemical analysis of PCBs and Pace Analytical (West Columbia, SC) for chemical analysis of VOCs and 1,4-dioxane. As shown in Table 1, all samples were analyzed for VOCs, Cow Pen Creek and select Dark Head Cove samples were analyzed for 1,4-dioxane, and Dark Head Cove surface water samples were analyzed for PCB homologs.

Two field duplicates, two matrix spikes, and two matrix spike duplicate samples for each parameter (VOCs, 1,4-dioxane, and PCB homologs) were collected during the April 2021 surface-water sampling. One trip-blank sample per sampling event (i.e., one per cooler) was also collected for VOC analysis.

Water quality parameters, including color, temperature, pH, specific conductance, hardness, salinity, turbidity, dissolved oxygen, and oxidation reduction potential, were measured at surface water sampling locations at the time of sampling.

3.1.2 Staff Gauges and Tidal Stages

Tidal stage at the time of sample collection was recorded from two staff gauges shown on Figure 3. The first staff gauge, MRC-STAFF01, is in Dark Head Cove near Outfall 009 and the second staff gauge, MRC-STAFF02, is near Cow Pen Creek. Tidal stages were recorded on April 13th, 2021, before and after sampling in each respective area. When sampling began in Dark Head Cove on April 13th, MRC-STAFF01 read 2.2 feet at approximately 0901 hours. By the completion of the Dark Head Cove sampling, the staff gauge read 0.4 feet at approximately 1525 hours on April 13th. When sampling began in Cow Pen Creek on April 13th, MRC-STAFF02 read 0.4 feet at approximately 1529 hours. By the completion of the Cow Pen Creek sampling, the staff gauge again read 0.4 feet at approximately 1604 hours. Tidal information from the Bowley Bar Point station, southeast of Middle River, Maryland, reported low tide at 1525 hours on April 13th, 2021. Tidal information is documented on the surface water sampling forms, in Appendix A.

3.2 MOBILE DATA COLLECTION DOCUMENTATION

Site activities and observations, including an overall record of field activities, were recorded on electronic field log sheets. Completed chains-of-custody (COC) and matrix specific sampling log sheets were maintained. Completed COC forms are found in the *Data-Validation Report* in Appendix B. AECOM used Esri's mobile applications *Collector for ArcGIS*® during surface water data collection. Electronic data collection is designed to be consistent with the forms in Appendix A.

Once in the field, if the technician required location services, needed to reference a base map, or needed to add or edit a location, *Collector for ArcGIS*® was used. The technician was also able to review historical information about the location, make edits, and take photos with the application, as required. Surface water sampling locations were also surveyed using a handheld global positioning system receiver in the Maryland State Plane North American Datum 1983.

Water quality parameters from each sample location were recorded on Excel spreadsheets using field-dedicated tablets. Blank templates used to record sampling information and water quality data were pre-loaded on each field tablet. Tablets were connected to a central Microsoft OneDrive account where updates were synched periodically to a cloud network. While in the field, AECOM personnel also used *Collector for ArcGIS*, a mobile data application by Esri, to aid personnel with location services, provide base-map references, and allow the user to edit sampling location information based on field observations.

3.3 EQUIPMENT DECONTAMINATION

The surface water samples were collected using a peristaltic pump and disposable tubing which was changed between each sample location. Therefore, equipment decontamination was unnecessary during the April 2021 surface water sampling event.

3.4 WASTE MANAGEMENT

No investigation-derived waste was generated during this surface water sampling. General waste, such as gloves and tubing were disposed of as general refuse.

3.5 DATA REVIEW

Laboratory data were entered into an internal sample database and evaluated against site-specific risk-based swimming-screening levels and applicable regulatory criteria. AECOM performed a manual data review and data validation using the *EQuIS™ Automated Validated Assistant* tool. This included completing a limited data review (evaluating data completeness, holding times, laboratory and field blank contamination, laboratory batch quality control, field duplicate precision, and detection limits) concurrent with the data evaluation. Some of the major findings encountered during data review are discussed below.

The method blank prepared in batch WQ89524 displayed a detection greater than the reporting limit (RL) for 1,4-dioxane. The associated positive field sample results that displayed a concentration within five times the method blank detection were qualified B,bl. The qualified field sample results are usable as reported and should be considered potential false positives. During data review, AECOM staff observed laboratory quality control anomalies encountered during initial sample analysis that warranted laboratory re-extraction. These samples were ultimately re-analyzed outside of the extraction holding time. The qualified results are potentially impacted by a negative bias from the holding time exceedance. Due to the historical presence of 1,4-dioxane in surface water samples from the same locations, only the initial results, qualified B,bl due to the method blank detection, are considered to be representative as conservative estimates and are recommended for use. The complete Data Validation and Usability Report can be found in Appendix B.

The review is based on the United States Environmental Protection Agency (USEPA) *National Functional Guidelines for Organic Superfund Methods Data Review* (USEPA-540-R-2017-002, January 2017a) and USEPA *National Functional Guidelines for Inorganic Superfund Methods Data Review* (USEPA 540-R-2017-001, January 2017b) for an Organic/Inorganic Level I data review. Data were reviewed based on the specifics of the analytical method used. The data-qualifying flags applied to the surface water chemical results during data validation are identified in the *Data-Validation Report* in Appendix B. The analytical laboratory reports can be found in Appendix C. AECOM has uploaded new surface water sampling locations and validated data into the Lockheed Martin ESH-GIS database.

SECTION 4
ANALYTICAL RESULTS

Validated analytical data from the April 2021 surface water sampling were evaluated with respect to appropriate ecological and human health screening level criteria, including:

- Maryland ambient water quality criteria for human health consumption of organisms (Code of Maryland Regulations [COMAR] 26.08.02.03)
- United States Environmental Protection Agency (USEPA) National Recommended Water Quality Criteria – human health criteria, consumption of organism only (USEPA, 2015)
- USEPA National Recommended Aquatic Life Criteria – freshwater, acute and chronic criteria (USEPA, 2018a)
- USEPA Region III Biological Technical Advisory Group (BTAG) freshwater screening levels (USEPA, 2006)
- If no benchmarks were listed by USEPA Region III, guidance from USEPA Region IV (USEPA, 2018b) and Region V (USEPA, 2003) were reviewed for additional ecological benchmarks.
- Risk-based site-specific swimming screening levels developed in 2019 for trichloroethene (TCE), *cis*-1,2-dichloroethene (*cis*-1,2-DCE), 1,2,4-trichlorobenzene, and 1,4-dioxane for Dark Head Cove and Cow Pen Creek at the Middle River Complex (MRC). These risk-based screening values were approved by the Maryland Department of the Environment (MDE) in 2019 (Lockheed Martin Corporation [Lockheed Martin], 2019).

Site contaminants in groundwater at the MRC could potentially be introduced to surface water through groundwater discharge, or through groundwater infiltration into storm drains thereby discharging to surface water through nearby outfalls.

Table 2 outlines the detected analytes from each sampling location and compares that to the screening levels established by each of the above entities. The full list of analytical results, including non-detects, is provided in Appendix D. To improve readability throughout Section 4, the leading "MRC" prefix before each sample name has been dropped, i.e., MRC-SW17A will henceforth be referred to as SW17A.

4.1 VOLATILE ORGANIC COMPOUNDS

Table 2 summarizes volatile organic compound (VOC) detections in April 2021. The distribution of detections is shown in Figure 4. TCE, the primary VOC of concern associated with groundwater at MRC, was detected in eleven sampling locations in Dark Head Cove (SW6A-S, SW6B-S, SW8A-S, SW8B-S, SW9A-S, SW11A-S, SW12A-S, SW13A-S, SW14A-S, SW-15A-S, and SW16A-S) ranging from 0.51 to 1.2 µg/L. Chloroform was detected at location SW17A, the only location to historically observe low-level detections of chloroform during triannual events, and the only other VOC detected during the April 2021 sampling event. The analytes *cis*-1,2-DCE and vinyl chloride, breakdown products of TCE, were not detected in surface water samples in Dark Head Cove.

As shown in Table 2, the detected chloroform and TCE concentrations are well below their various respective screening criteria. The highest TCE concentration of 1.2 µg/L from the most recent surface water sampling of April 2021 was detected at SW12A-S. Surface water sample location SW12A-S is to the southwest of effluent from Outfall 008 within Dark Head Cove. The highest TCE concentrations detected from 2018 through 2021 during the April sampling events were 1.6 µg/L at sampling location SW13A-S (2018), 4.2 µg/L at SW12A-S (2019), and 2.2 µg/L at SW8A-S (2020). Location SW8A-S is located just outside Outfall 8, while locations SW12A and SW13A are located just southwest of Outfall 8, with all three locations being collected from 10-feet offshore. The groundwater/surface water relationship is dynamic in nature, influenced by tidal-zone mixing and mechanisms of the groundwater/surface water discharge/recharge relationship, creating an uneven distribution of contaminants within Dark Head Cove and Cow Pen Creek, which is being further evaluated as part of the Blocks E and F mass discharge assessment.

USEPA and MDE have not established acute or chronic freshwater criteria for TCE. The BTAG ecological screening level for TCE is 21 µg/L. The maximum TCE concentration (1.2 µg/L) detected in this investigation is more than 17 times below the most conservative regulatory screening level of 21 µg/L, and 25 times below the MDE-approved risk-based swimming screening level of 30 µg/L for evaluating exposure risks to swimmers (Table 2).

4.2 1,4-DIOXANE

As shown in Table 2, 1,4-dioxane was detected at seven of the sample locations it was analyzed for in concentrations ranging from 0.088 B,bl to 0.18 B,bl µg/L. Discussions of B-flags and other data qualifying flags are discussed in Section 3.5 and presented in detail in Appendix B. These concentrations are negligible compared to the USEPA ecological screening level of 22,000 µg/L. These concentrations are also below the MDE-approved risk-based swimming screening level of 20 µg/L. In April 2020 and 2019, 1,4-dioxane was detected in the same seven sample locations as in 2021, with concentrations ranging from 0.026 J to 0.056 J µg/L (2020) and 0.024 J to 0.064 J µg/L (2019). However, in April 2018 only one sample result, at location SW8B-S, detected 1,4-dioxane at a concentration of 0.049 J µg/L.

4.3 POLYCHLORINATED BIPHENYLS

Table 2 summarizes PCB detections in April 2021. Sixteen out of seventeen samples collected had PCB detections, the distribution of detections is shown in Figure 4. Four PCB homologs were detected in surface water samples collected in Dark Head Cove: dichlorobiphenyls, heptachlorobiphenyls, hexachlorobiphenyls, and trichlorobiphenyls.

Detected polychlorinated biphenyl concentrations for individual homolog groups (dichlorobiphenyls, trichlorobiphenyls, hexachlorobiphenyls, and heptachlorobiphenyls) range from 0.248 ng/L in sample MRC-SW8B-S to 0.604 ng/L in sample MRC-SW16A-S. Detected dichlorobiphenyl concentrations range from 0.264 J ng/L in sample MRC-SW8B-S to 0.317 J ng/L in sample MRC-SW16A-S. Detected trichlorobiphenyl concentrations range from 0.306 J ng/L in sample MRC-SW8A-S to 0.604 ng/L in sample MRC-SW16A-S. Detected hexachlorobiphenyl concentrations range from 0.248 J ng/L in sample MRC-SW8B-S to 0.355 J ng/L in sample MRC-SW15A-S. Detected heptachlorobiphenyl concentrations range from 0.279 J ng/L in sample MRC-SW6B-S to 0.289 J ng/L in sample MRC-SW12A-S. Total PCB homolog concentrations, representing the sum of individual homolog detections in each sample, range from 0.575 ng/L in sample MRC-SW8B-S to 1.1 ng/L in sample MRC-SW12A-S. Detection limits of PCB homolog groups via SW846-8270D Selected Ion Monitoring (SIM) range from 0.245 ng/L to 0.263 ng/L. The PCB homolog analytical method was changed from EPA Method 680 to SW846-8270D SIM in 2021, which resulted in decreased detection limits compared to historical PCB homolog data at the site. Figure 5 provides context and continuity between the 2021 results and the previous PCB

homolog detections of dichlorobiphenyls via EPA Method 680 from 2018 to 2020, showing changes in the detected concentrations and detection limits of total dichlorobiphenyls. The results for each PCB homolog group detected in April 2021 are shown in comparison to the changing detection limits from 2018 to 2021 in Figure 6 through Figure 9.

Sixteen of 17 samples collected exceed the ecological surface water screening level of 0.074 ng/L for total PCBs set in place by the USEPA Region III Biological Technical Advisory Group. However, even with the lower level of sensitivity, the 2021 PCB homolog detection limits are not protective of the ecological surface water screening level of 0.074 ng/L. Therefore, non-detect results for Total PCBs should be considered as potential exceedances of the ecological surface water screening level. A total of 9 samples exceeded the human health consumption-of-organisms level of 0.64 ng/L for total PCBs per the *Code of Maryland Regulations* (COMAR). However, detections for total PCBs were significantly lower than the site-specific risk-based swimming screening level of 5,000 ng/L (Lockheed Martin, 2019). Total PCB detections are compared to the applicable surface water screening levels in Figure 10, represented on a logarithmic scale. Figure 11 shows detected Total PCB concentrations compared to only the two screening levels that had exceedances to better represent the variability of the results and differentiate the instances where a screening criterion was exceeded.

During the April 2018 and 2019 surface water sampling events, all field samples collected in Dark Head Cove had detections of total PCBs (14 samples in 2018 and 18 samples in 2019), specifically only the total dichlorobiphenyl homolog group. In April 2018, concentrations of total dichlorobiphenyls ranged from 1.9 J ng/L at SW13A-S to 6.6 ng/L in sample SW7A-S. In April 2019, concentrations of total dichlorobiphenyls ranged from 3.0 J- ng/L at SW18A-S to 8.28 J+ ng/L at SW13A-S. PCBs were non-detect in the 18 surface water samples collected in Dark Head Cove in April 2020, which can be attributed to higher laboratory detections limits than previous years. The 2020 MDLs (between 2.5 and 2.9 ng/L) are comparable to the MDLs obtained during 2019 (between 2.3 and 2.5 ng/L), and clarifies that comparable concentrations of dichlorobiphenyl homolog group PCBs detected in 2018 and 2019 were not present in Dark Head Cove surface water during 2020 (Figure 5). The 2021 MDLs (between 0.245 µg/L and 0.263 ng/L) are significantly lower than previous years' detection limits and accounts for the increased number of overall homolog detections during the April 2021 sampling round. Additionally, this variation over

time may be explained by the understanding that surface water is dynamic in nature, influenced by tidal zone mixing, runoff, and mechanisms of the groundwater/surface water discharge/recharge relationship, all contributing to potentially uneven or fluctuating identification of PCBs over time within Dark Head Cove.

4.4 WATER QUALITY PARAMETERS

Water quality parameters were collected in the field for each of the 21 field samples collected during the April 2021 sampling. Water quality parameters, including temperature, pH, specific conductance, hardness, salinity, turbidity, dissolved oxygen (DO), and oxidation reduction potential (ORP), were measured at surface water sampling locations at the time of sampling and are included in Table 3. Associated parameters were measured at approximately one foot below the water surface, before sample collection.

Sampling locations measured neutral to slightly basic pH values, ranging between 7.14 and 8.70 except for one sample (SW7A-S) which had a pH value of 6.40. These values are consistent with natural surface water in this region. Turbidity was consistent between most samples, with the highest turbidity reported from SW17A within Cow Pen Creek at 12.7 nephelometric turbidity units.

DO levels are on the higher side of typical values, ranging from 6.68 to 8.99 milligrams per liter, indicating a healthy estuarine environment. Additionally, ORP values are positive, ranging from 125 to 223 millivolts, consistent with surface water containing high levels of dissolved oxygen.

SECTION 5
SUMMARY

AECOM Technical Services, Inc. (AECOM) collected 23 field samples from 21 locations throughout Cow Pen Creek and Dark Head Cove on April 13th, 2021, on behalf of Lockheed Martin Corporation (Lockheed Martin). The samples were collected, sent to laboratories, and chemically analyzed for volatile organic compounds (VOCs), 1,4-dioxane, and polychlorinated biphenyls (PCBs). These analyses were carried out to determine if these constituents are in surface water.

Trichloroethene (TCE) was detected in eleven samples (SW6A-S, SW6B-S, SW8A-S, SW8B-S, SW9A-S, SW11A-S, SW12A-S, SW13A-S, SW14A-S, SW15A-S, and SW16A-S) within Dark Head Cove and downgradient to the southeastern Blocks E/F trichloroethene plume, at concentrations ranging from 0.51 to 1.2 micrograms per liter (µg/L). These TCE concentrations are below the United States Environmental Protection Agency (USEPA) screening level value of 21 micrograms per liter (µg/L), well below the human health consumption-of-organism's level of 300 µg/L per the *Code of Maryland Regulations* (COMAR), and well below the site-specific risk-based swimming screening level of 30 µg/L (Lockheed Martin, 2019). The TCE detections in surface water are likely due to groundwater to surface water discharge of the nearby TCE-impacted groundwater plume originating in Block E.

1,4-Dioxane was detected at seven of the sample locations it was analyzed for in concentrations ranging from 0.088 B,bl to 0.18 B,bl µg/L. During data validation, the method blank prepared in batch WQ89524 displayed a detection greater than the reporting limit (RL) for 1,4-dioxane. The associated positive field sample results that displayed a concentration within five times the method blank detection were qualified B,bl. The qualified field sample results are usable as reported but should be considered potential false positives. These concentrations are significantly less than the associated USEPA ecological screening level of 22,000 µg/L and the MDE-approved risk-based swimming screening level of 20 µg/L. The detections of 1,4-dioxane in Dark Head Cove are likely due to groundwater infiltration into the storm drain system associated with Outfalls 06 and 08,

outside of the TCE plume footprint. The detections of 1,4-dioxane in Cow Pen Creek are possibly due to groundwater discharge into Cow Pen Creek from the southwestern groundwater 1,4-dioxane plume emanating from Block G.

Polychlorinated biphenyls (PCBs) were detected in sixteen of the seventeen sample locations it was analyzed for within Dark Head Cove, at concentrations ranging from 0.248 ng/L in sample MRC-SW8B-S to 0.604 ng/L in sample MRC-SW16A-S. Sixteen of 17 samples collected exceed the ecological surface water screening level of 0.074 ng/L set in place by the United States Environmental Protection Agency Region III Biological Technical Advisory Group and 9 out of 17 locations exceed the Maryland ambient water quality criteria for human health consumption of organisms (0.64 ng/L). Sample detections were well below the site-specific swimming screening criteria of 5,000 ng/L. A fish consumption advisory is currently in effect for Middle River (Maryland Department of the Environment, 2018), recommending consumption of no more than six meals of blue crab or a number of fish species listed in the advisory per month, due to polychlorinated biphenyl contamination in the area. Since measured turbidity levels were relatively low (less than 13 nephelometric turbidity units) in the April 2021 sampling event, polychlorinated biphenyl analytical detections were not associated with elevated turbidity, and therefore likely represent dissolved constituents in surface water.

SECTION 6
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FIGURES

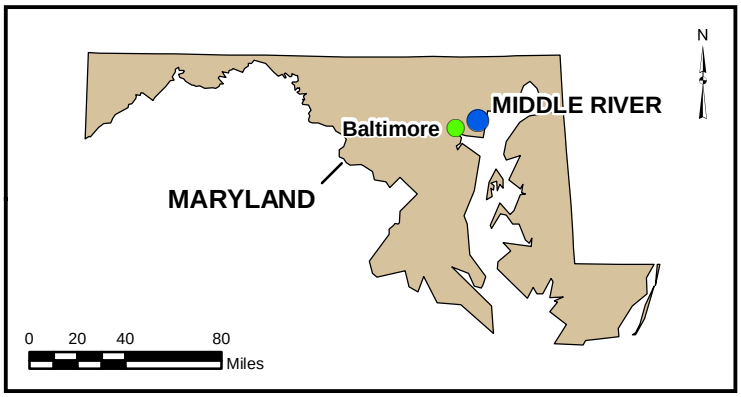

FIGURE 1

MIDDLE RIVER COMPLEX
LOCATION MAP

Lockheed Martin Middle River Complex
Middle River, Maryland

DATE MODIFIED:	01/15/19	CREATED BY:	JEE

AECOM

Map Document: (Q:\Projects\ENV\GEARS\GEO\Lockheed Martin\Middle River\Middle River FY18-20 GW_SW_Mon\900-CAD-GIS\920-GIS\MXDs\2018 SW Memo\Figure_1_Location_Map.mxd)
CREDITS: Aerial Imagery,ESRI, 2019; Basemap, Tetra Tech, 2017

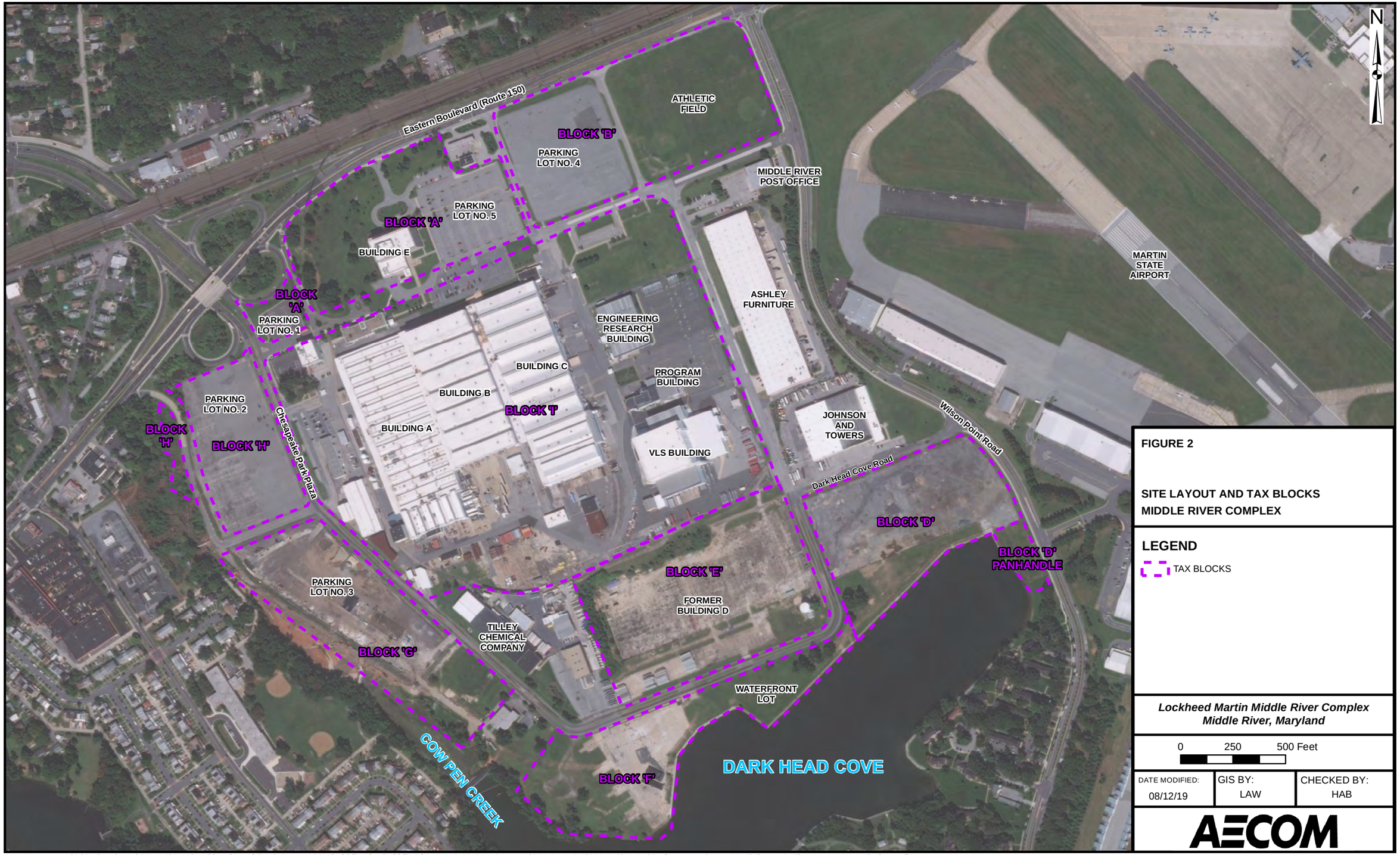

FIGURE 2

SITE LAYOUT AND TAX BLOCKS
MIDDLE RIVER COMPLEX

LEGEND

TAX BLOCKS

Lockheed Martin Middle River Complex
Middle River, Maryland

0 250 500 Feet

DATE MODIFIED:	GIS BY:	CHECKED BY:
08/12/19	LAW	HAB

AECOM

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CREDITS: Aerial Imagery, ESRI, 2019; Basemap, Tetra Tech, 2017

FIGURE 3

2021 SURFACE WATER SAMPLING LOCATIONS
COW PEN CREEK AND DARK HEAD COVE

LEGEND

- SURFACE WATER SAMPLE LOCATION
- STAFF GAUGE
- STORMWATER OUTFALL LOCATION
- TAX BLOCKS

Lockheed Martin Middle River Complex
Middle River, Maryland

0 250 500 Feet

DATE MODIFIED:	GIS BY:	CHECKED BY:
2/9/2021	GC	HAB

AECOM

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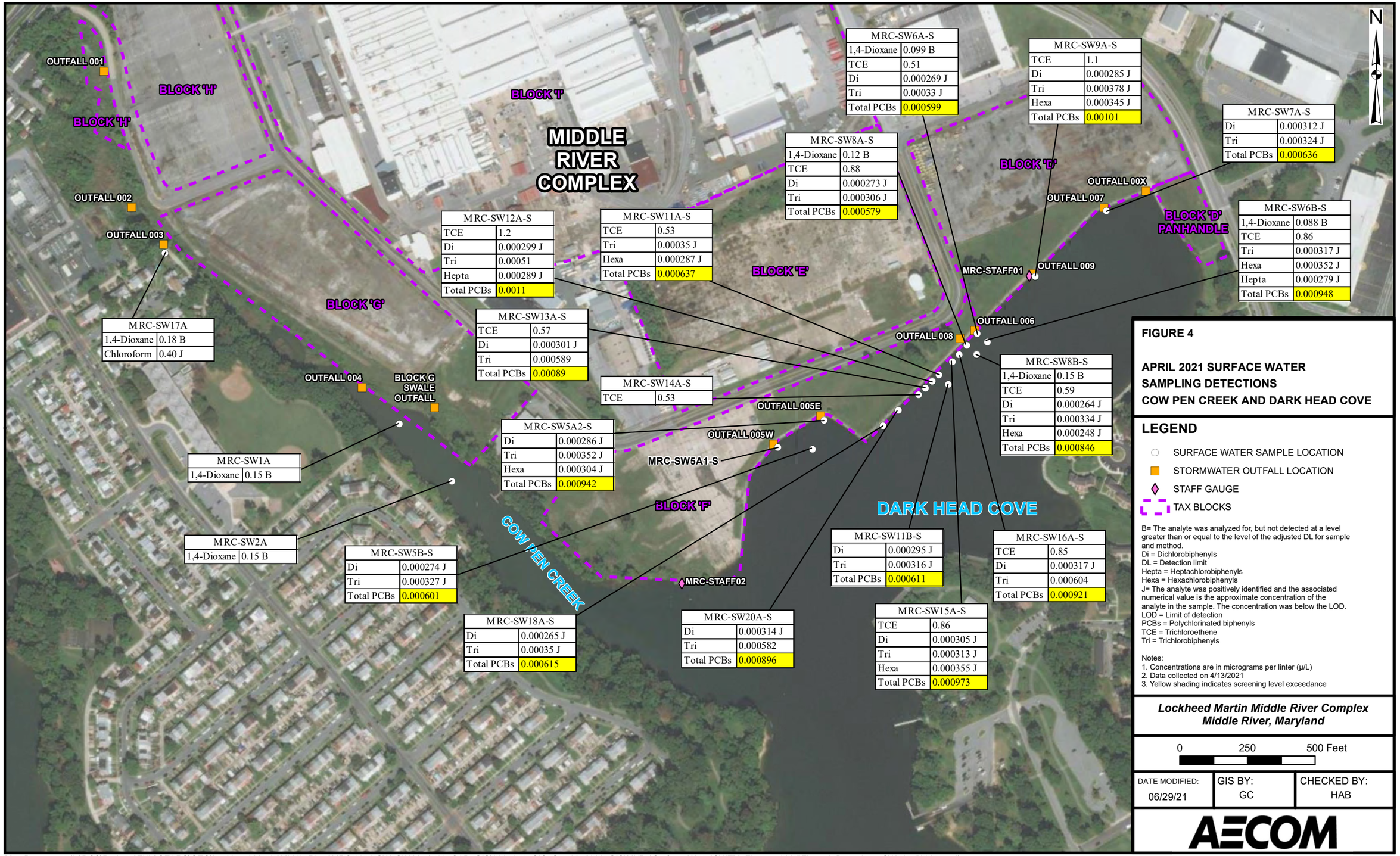
CREDITS: Source: Esri, DigitalGlobe, GeoEye, Earthstar Geographics, CNES/Airbus DS, USDA, USGS, AeroGRID, IGN, and the GIS User Community



MRC-SW6A-S	
1,4-Dioxane	0.099 B
TCE	0.51
Di	0.000269 J
Tri	0.00033 J
Total PCBs	0.000599

MRC-SW9A-S	
TCE	1.1
Di	0.000285 J
Tri	0.000378 J
Hexa	0.000345 J
Total PCBs	0.00101

MRC-SW7A-S	
Di	0.000312 J
Tri	0.000324 J
Total PCBs	0.000636

MRC-SW8A-S	
1,4-Dioxane	0.12 B
TCE	0.88
Di	0.000273 J
Tri	0.000306 J
Total PCBs	0.000579

MRC-SW12A-S	
TCE	1.2
Di	0.000299 J
Tri	0.00051
Hepta	0.000289 J
Total PCBs	0.0011

MRC-SW11A-S	
TCE	0.53
Tri	0.00035 J
Hexa	0.000287 J
Total PCBs	0.000637

MRC-SW6B-S	
1,4-Dioxane	0.088 B
TCE	0.86
Tri	0.000317 J
Hexa	0.000352 J
Hepta	0.000279 J
Total PCBs	0.000948

MRC-SW17A	
1,4-Dioxane	0.18 B
Chloroform	0.40 J

MRC-SW13A-S	
TCE	0.57
Di	0.000301 J
Tri	0.000589
Total PCBs	0.00089

MRC-SW14A-S	
TCE	0.53

MRC-SW8B-S	
1,4-Dioxane	0.15 B
TCE	0.59
Di	0.000264 J
Tri	0.000334 J
Hexa	0.000248 J
Total PCBs	0.000846

MRC-SW5A2-S	
Di	0.000286 J
Tri	0.000352 J
Hexa	0.000304 J
Total PCBs	0.000942

MRC-SW1A	
1,4-Dioxane	0.15 B

MRC-SW2A	
1,4-Dioxane	0.15 B

MRC-SW5B-S	
Di	0.000274 J
Tri	0.000327 J
Total PCBs	0.000601

MRC-SW18A-S	
Di	0.000265 J
Tri	0.00035 J
Total PCBs	0.000615

MRC-SW20A-S	
Di	0.000314 J
Tri	0.000582
Total PCBs	0.000896

MRC-SW11B-S	
Di	0.000295 J
Tri	0.000316 J
Total PCBs	0.000611

MRC-SW16A-S	
TCE	0.85
Di	0.000317 J
Tri	0.000604
Total PCBs	0.000921

MRC-SW15A-S	
TCE	0.86
Di	0.000305 J
Tri	0.000313 J
Hexa	0.000355 J
Total PCBs	0.000973

FIGURE 4

APRIL 2021 SURFACE WATER SAMPLING DETECTIONS
COW PEN CREEK AND DARK HEAD COVE

LEGEND

- SURFACE WATER SAMPLE LOCATION
- STORMWATER OUTFALL LOCATION
- STAFF GAUGE
- TAX BLOCKS

B= The analyte was analyzed for, but not detected at a level greater than or equal to the level of the adjusted DL for sample and method.
Di = Dichlorobiphenyls
DL = Detection limit
Hepta = Heptachlorobiphenyls
Hexa = Hexachlorobiphenyls
J= The analyte was positively identified and the associated numerical value is the approximate concentration of the analyte in the sample. The concentration was below the LOD.
LOD = Limit of detection
PCBs = Polychlorinated biphenyls
TCE = Trichloroethene
Tri = Trichlorobiphenyls

Notes:
1. Concentrations are in micrograms per linter (µ/L)
2. Data collected on 4/13/2021
3. Yellow shading indicates screening level exceedance

Lockheed Martin Middle River Complex
Middle River, Maryland

0 250 500 Feet

DATE MODIFIED:	GIS BY:	CHECKED BY:
06/29/21	GC	HAB

AECOM

Map Document: (L:\DCS\Projects\ENV\GEARS\GEO\Lockheed Martin\Middle River\MRC 2021 GW_SW Mon\900_CAD_GIS\920_929_GIS_Graphics\920_GIS\MXDs\Surface_Water\SWTM_Figures_2021\Figure4_Detections_SW_April2021.mxd)
CREDITS: Aerial Imagery, ESRI Basemaps, 2019; Basemap, Tetra Tech, 2017

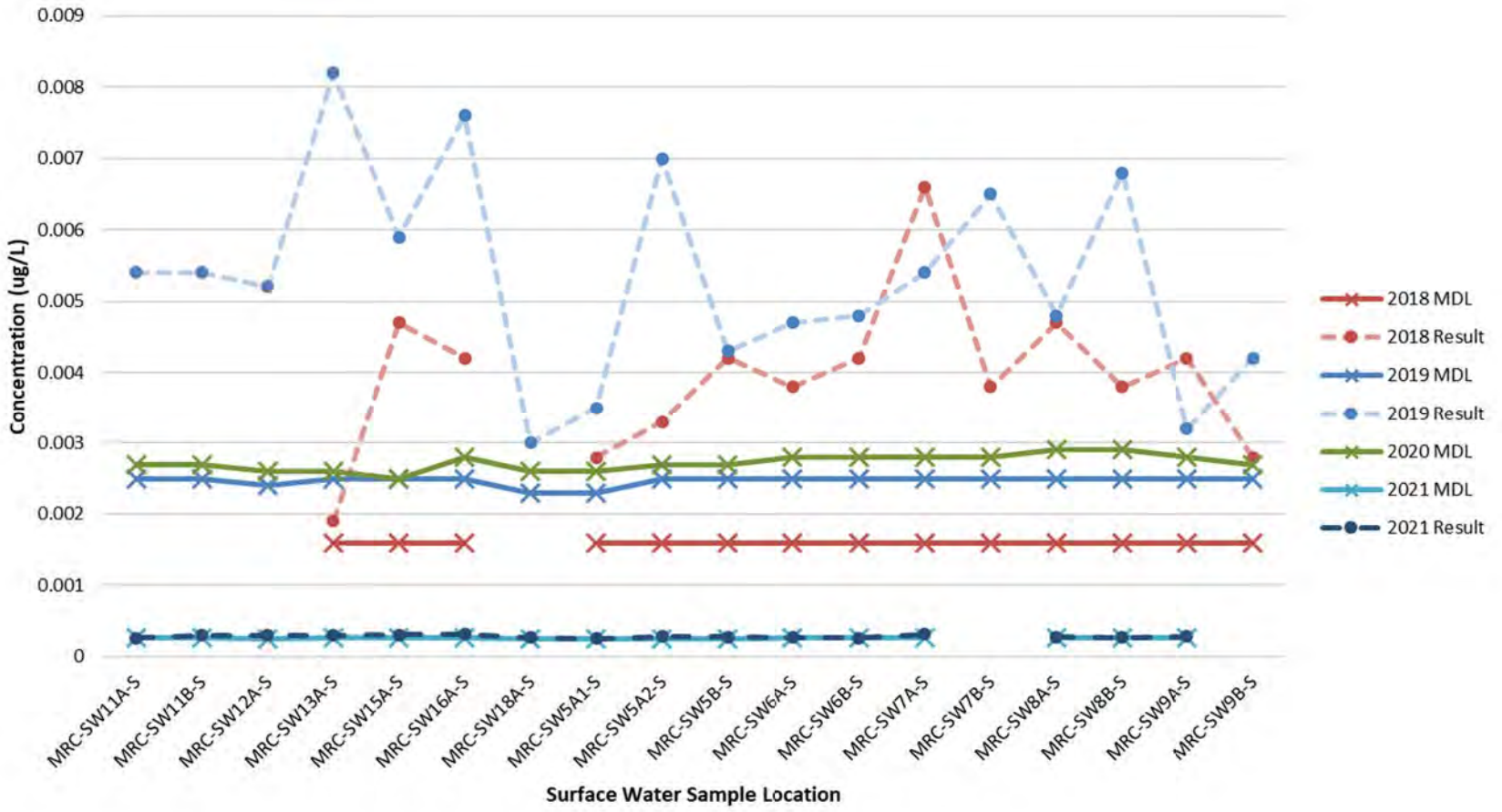


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Figure 5
Total Dichlorobiphenyls Method Detection Limits and Detected Concentrations
2018-2021 Surface Water Sampling
Lockheed Martin Middle River Complex

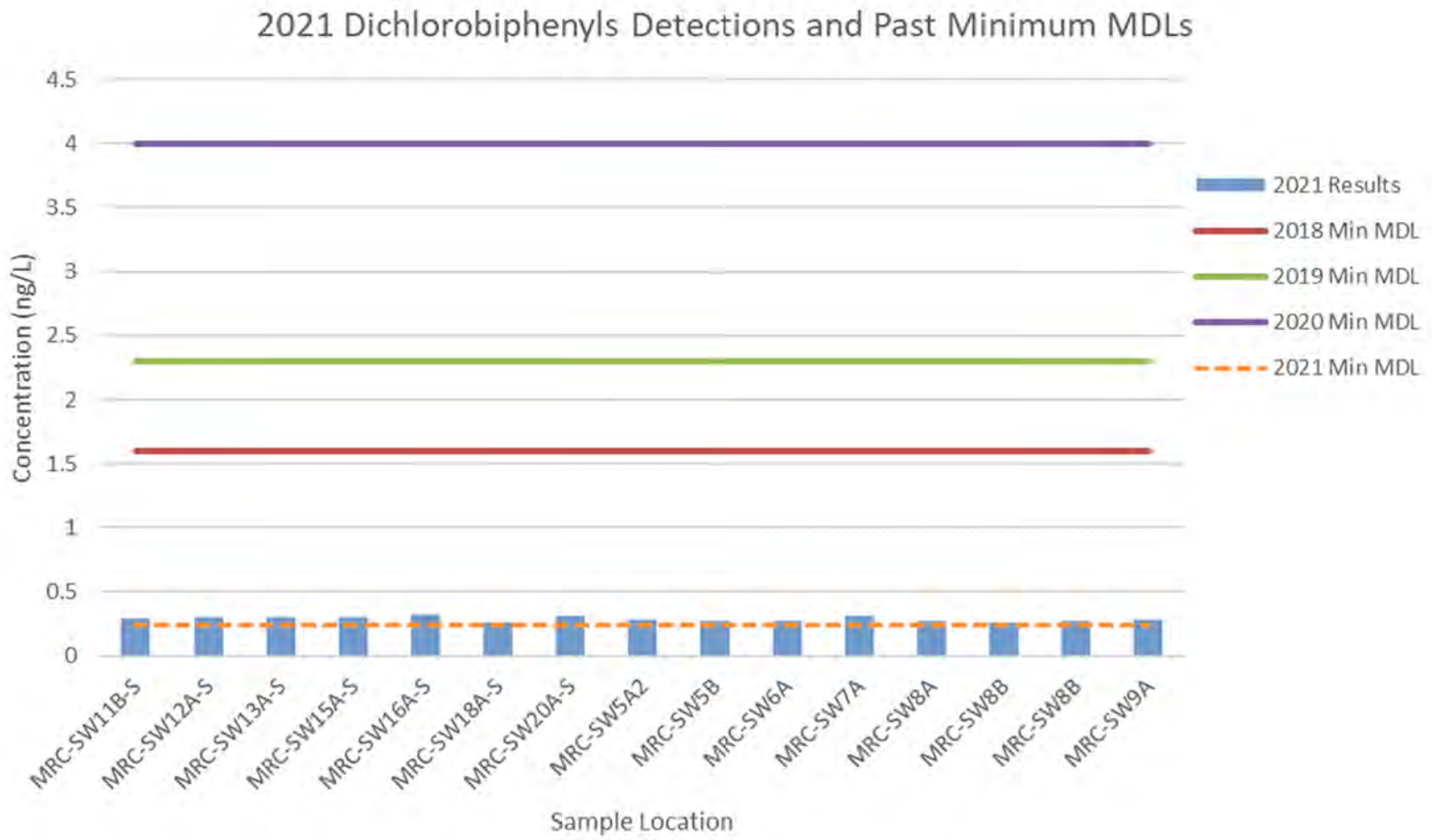

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Figure 6
Total Dichlorobiphenyls Minimum Method Detection Limits and 2021 Concentrations
2018-2021 Surface Water Sampling
Lockheed Martin Middle River Complex

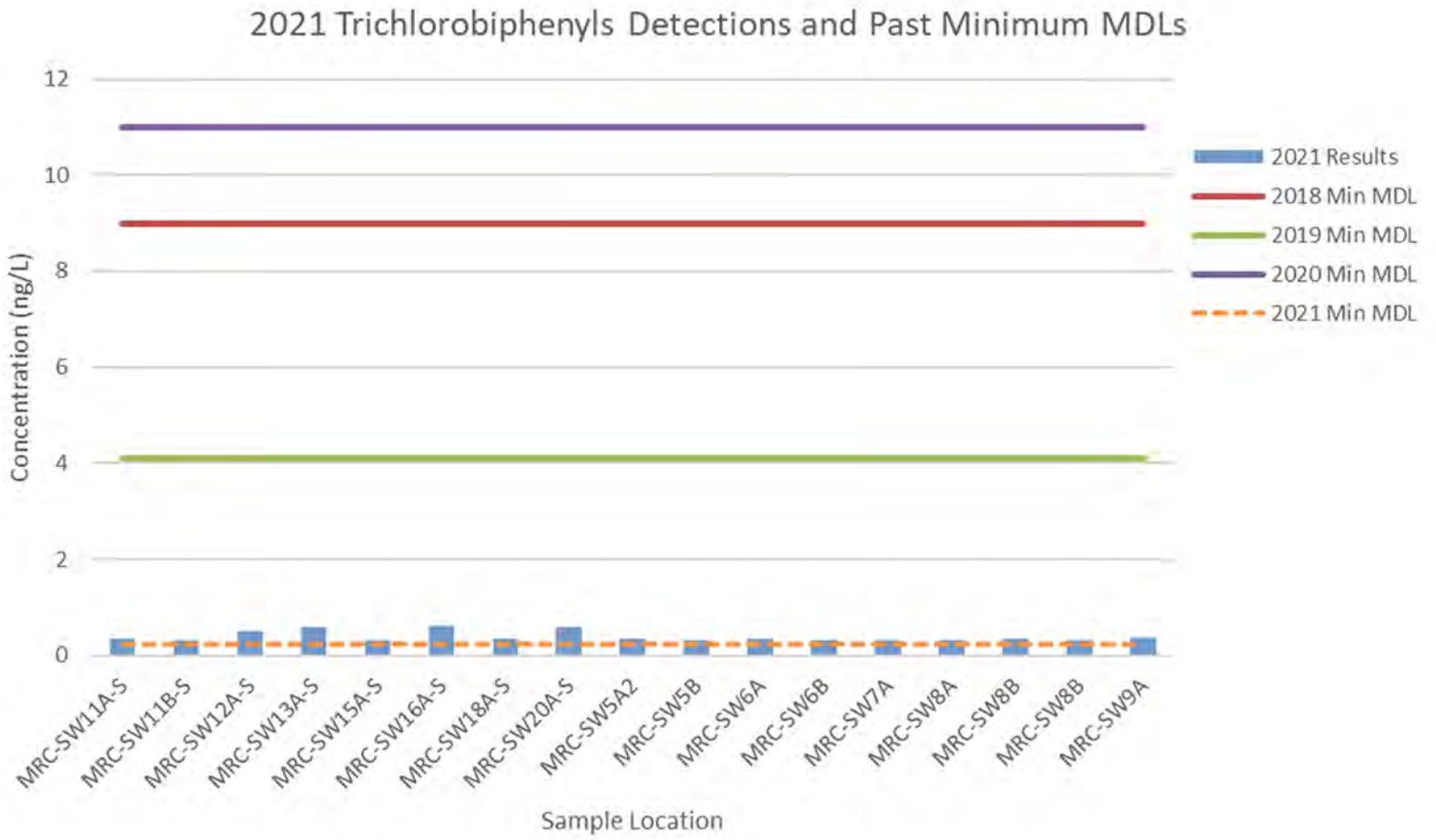

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Figure 7
Total Trichlorobiphenyls Minimum Method Detection Limits and 2021 Concentrations
2018-2021 Surface Water Sampling
Lockheed Martin Middle River Complex

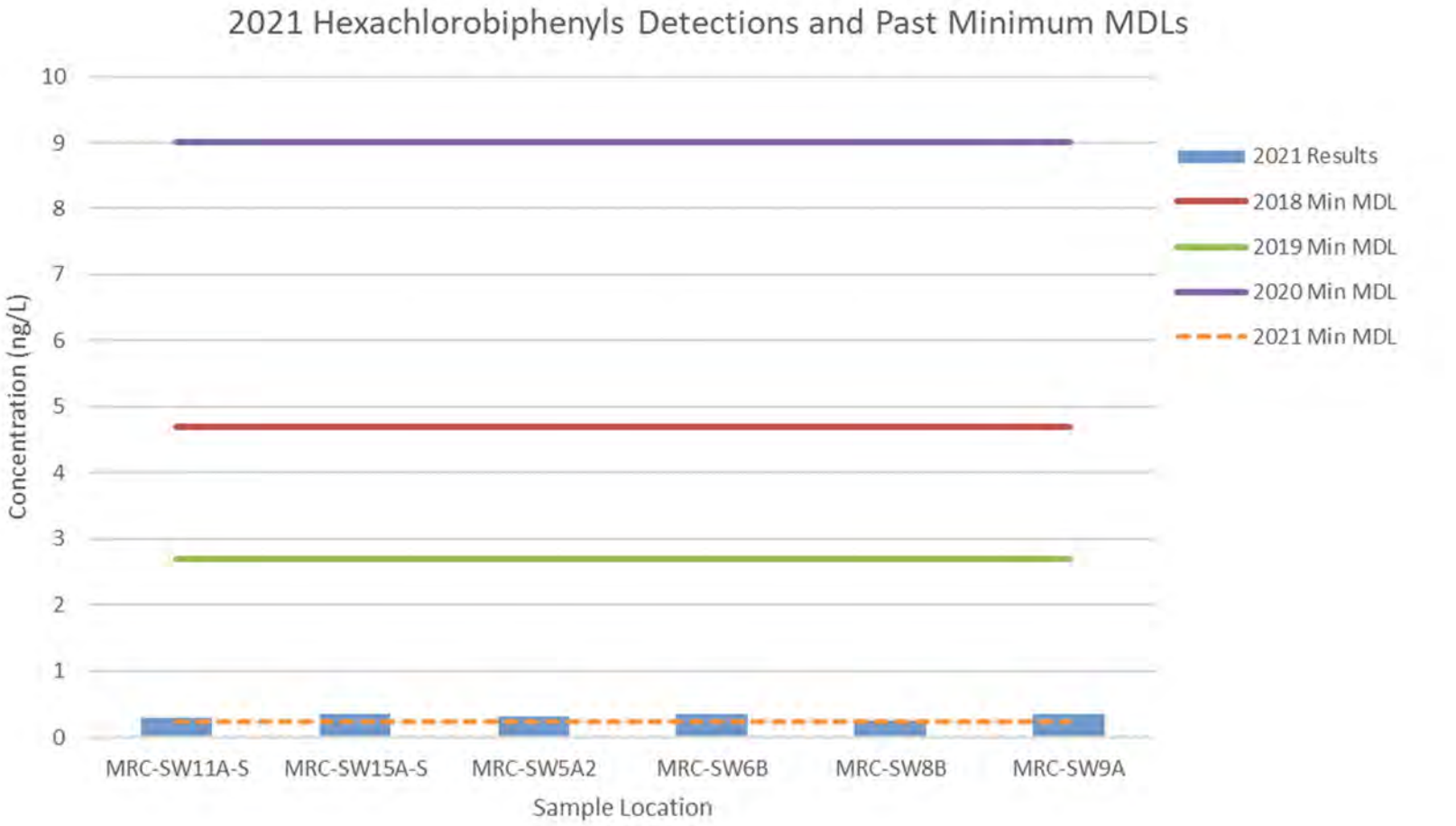

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Figure 8
Total Hexachlorobiphenyls Minimum Method Detection Limits and 2021 Concentrations
2018-2021 Surface Water Sampling
Lockheed Martin Middle River Complex

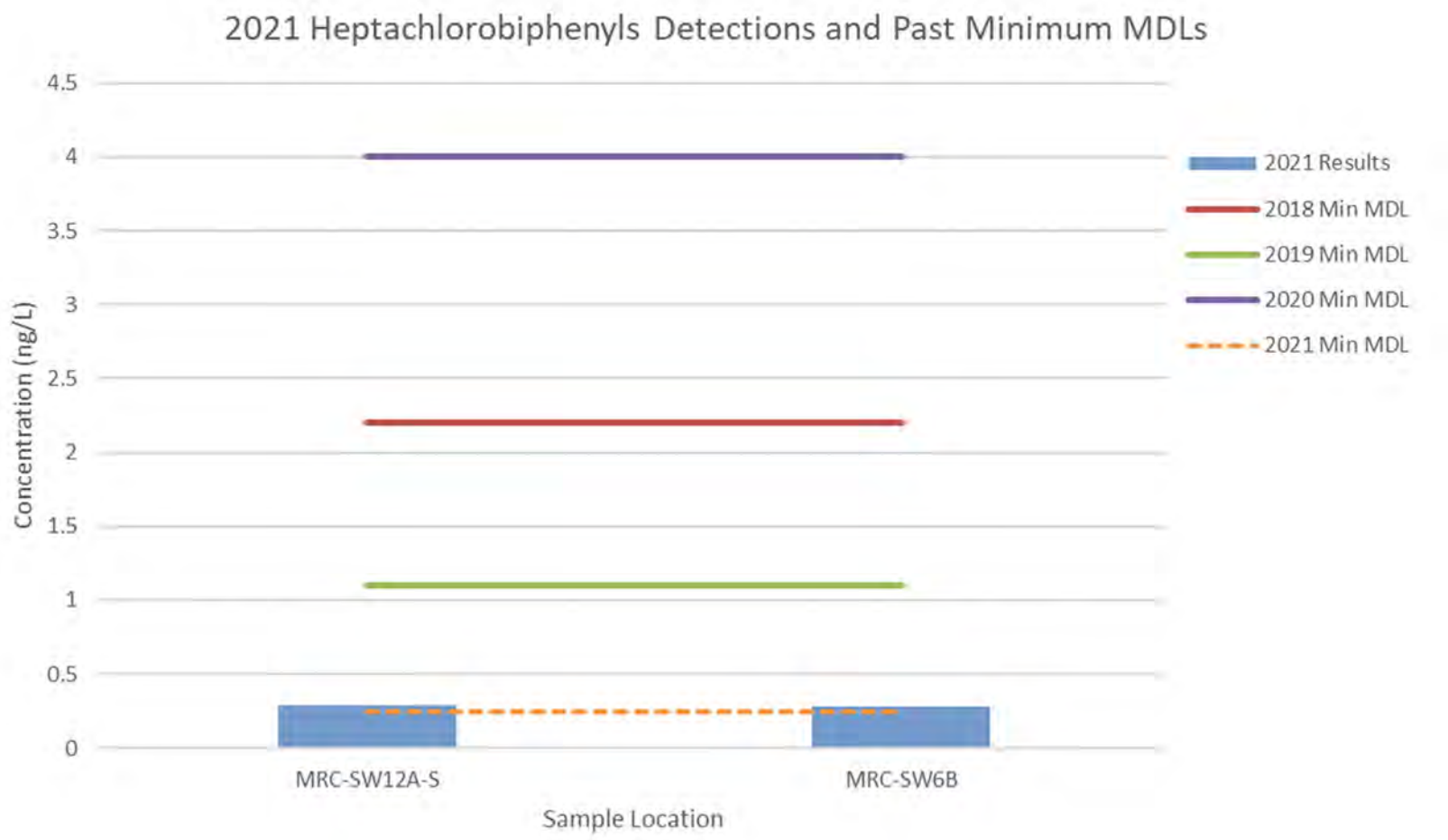

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Figure 9
Total Heptachlorobiphenyls Minimum Method Detection Limits and 2021 Concentrations
2018-2021 Surface Water Sampling
Lockheed Martin Middle River Complex

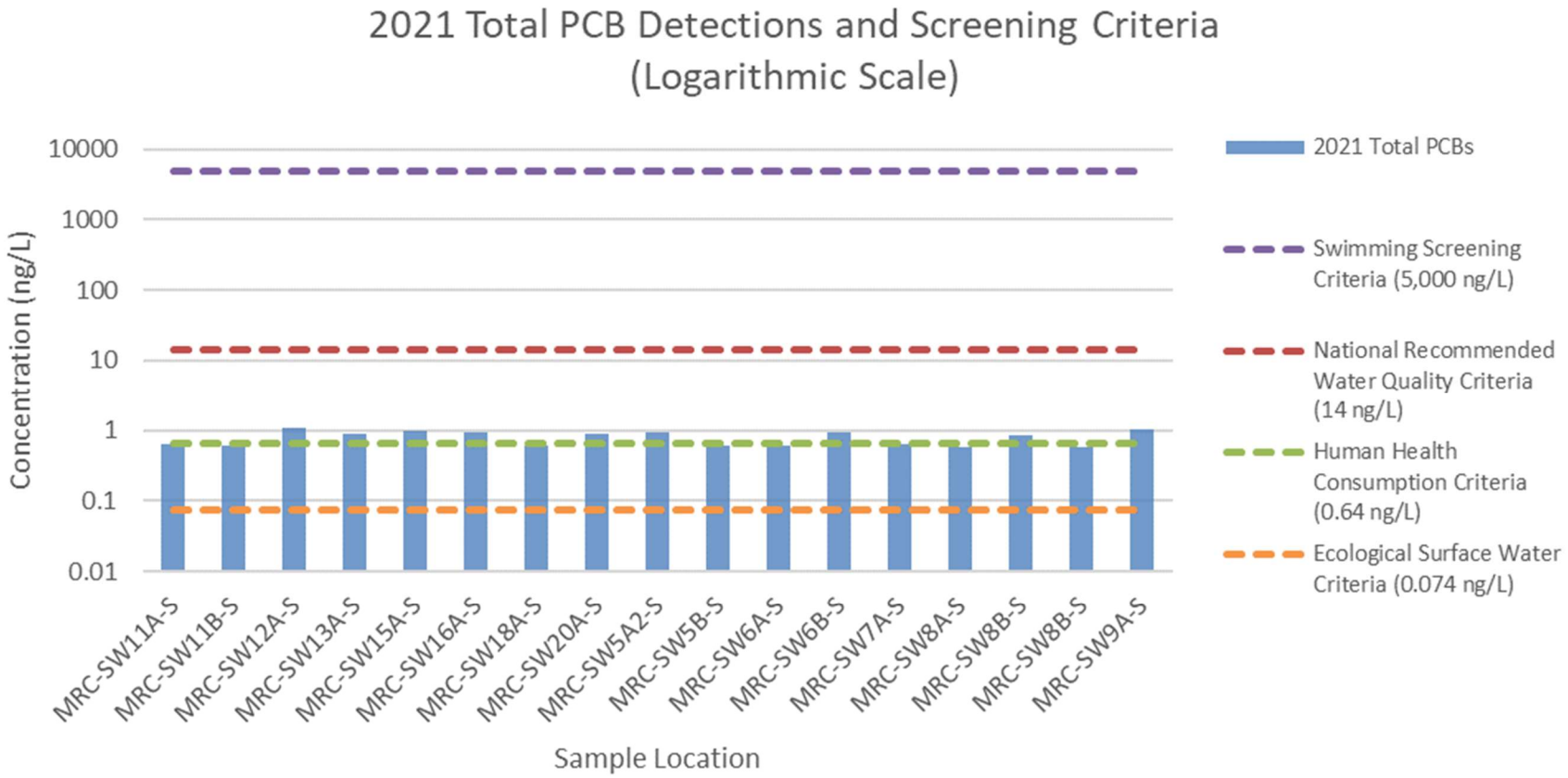

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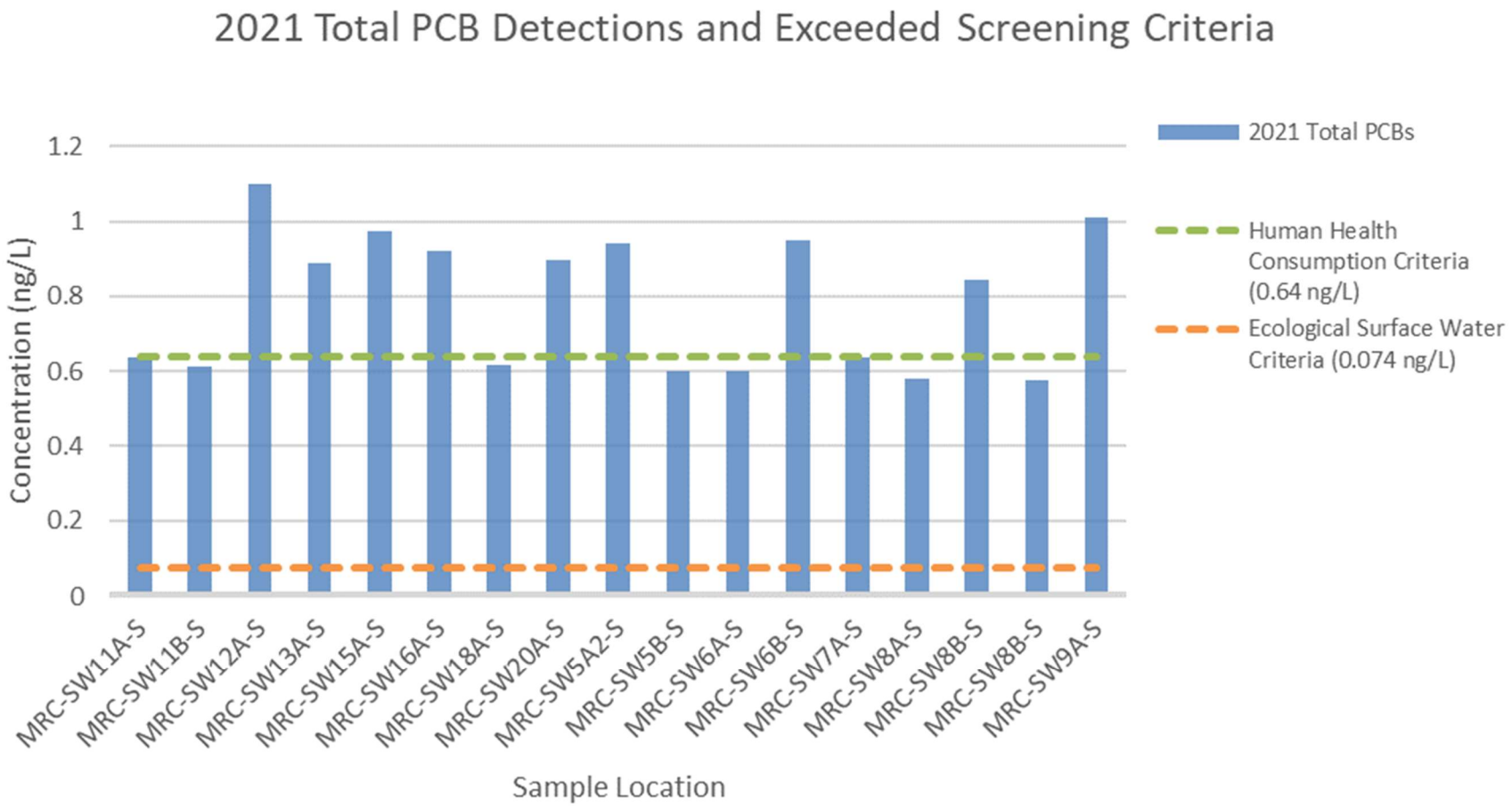
Figure 10
2021 Total Detected Polychlorinated Biphenyls and Screening Criteria on a Logarithmic Scale
2021 Surface Water Sampling
Lockheed Martin Middle River Complex



AECOM

Figure 11
2021 Total Detected Polychlorinated Biphenyls and Exceeded Screening Criteria
2021 Surface Water Sampling
Lockheed Martin Middle River Complex

TABLES

Table 1 2021 Surface Water Sampling Locations, Chemical Analyses, and Laboratory Analytical Methods

Table 2 Detected Analytes and Screening Level Exceedances in April 2021 Surface Water Samples

Table 3 Field Measurements for Surface Water Quality, April 2021

Table 1
2021 Surface Water Sampling Locations, Chemical Analyses, and Laboratory Analytical Methods
Lockheed Martin Corporation, Middle River Complex, Middle River, Maryland

Sample Location	Sample Identification	Distance From Shore (feet)	Samples Per Round[4]	Volatile Organic Compounds (USEPA Method 8260C)	1,4-Dioxane (USEPA Method SW846 8270D SIM)[3]	PCB Homologs (USEPA Method 680)[3]
Dark Head Cove						
Outfall 5[1]	MRC-SW5A1-S	10	1	x		x
	MRC-SW5A2-S	10	1	x		x
	MRC-SW5B-S*	50	1	x		x
Outfall 6	MRC-SW6A-S	10	1	x	x	x
	MRC-SW6B-S	50	1	x	x	x
Outfall 7	MRC-SW7A-S	10	1	x		x
Outfall 8	MRC-SW8A-S	10	1	x	x	x
	MRC-SW8B-S	50	1	x	x	x
Outfall 9	MRC-SW9A-S	10	1	x		x
Dark Head Cove	MRC-SW11A-S	10	1	x		x
	MRC-SW11B-S	50	1	x		x
	MRC-SW12A-S	10	1	x		x
	MRC-SW13A-S	10	1	x		x
	MRC-SW20A-S	10	1	x		x
	MRC-SW15A-S	10	1	x		x
	MRC-SW16A-S	50	1	x		x
	MRC-SW18A-S	10	1	x		x
	MRC-SW14A-S**	10	1	x		
Cow Pen Creek						
Outfall 3	MRC-SW17A	downstream[2]	1	x	x	
Near western plume	MRC-SW1A	upstream[2]	1	x	x	
	MRC-SW2A	downstream[2]	1	x	x	

* MRC-SW5B-S collected in April only

** MRC-SW14A-S collected in April and June only

1 Two near-shore samples (10-feet) will be collected only at Outfall 5; at the remaining outfalls, one near-shore (10-feet) sample will be collected

2 Samples will be collected from the creek's centerline, 10 feet upstream (northwest) and 10 feet downstream (southeast) from the estimated GW plume boundaries

3 1,4-Dioxane and PCB samples will be collected only in the April round

4 Samples are to be collected in April, June, and September, 1 foot below the water surface

5 Field parameters will be collected at all sampling locations and include pH, temperature, specific conductance, dissolved oxygen (DO), hardness, turbidity, oxidation-reduction potential (ORP), and salinity using calibrated portable field instruments (Horiba U-52) at the time of sampling.

6 Field blank: one sample, PCB homologs only

7 Equipment rinseate blank: one sample, PCB homologs only

8 PCB trip blank/laboratory-blind bottle blank: one sample, homologs only

8 Field Duplicate Frequency - 20% frequency, all analyses

9 Trip blank - one per shipment to the laboratory, VOCs only

Location and/or analysis added to the 2021 sampling program

GW - Groundwater

MRC - Middle River Complex

PCB - polychlorinated biphenyl

USEPA - United States Environmental Protection Agency

VOCs - volatile organic compounds

Table 2
Detected Analytes and Screening Level Exceedances in April 2021 Surface Water Samples
Lockheed Martin Corporation, Middle River Complex, Middle River, Maryland

Analyte	CAS Number	National Recommended Water Quality		Ecological Surface Water Screening Level (2)	Human Health Consumption (Organism Only) (1) (3)	Swimming Screening Levels (4)	MRC-SW11A-S 04/13/2021 Field Sample			MRC-SW11B-S 04/13/2021 Field Sample			MRC-SW12A-S 04/13/2021 Field Sample			MRC-SW13A-S 04/13/2021 Field Sample			MRC-SW14A-S 04/13/2021 Field Sample			MRC-SW15A-S 04/13/2021 Field Sample		
		Acute	Chronic				Result	FQ	RC	Result	FQ	RC	Result	FQ	RC	Result	FQ	RC	Result	FQ	RC	Result	FQ	RC
VOLATILES (µg/L)																							
Chloroform	67-66-3	NE	NE	1.8	4700	NE	ND	U		ND	U		ND	U		ND	U		ND	U		ND	U	
Trichloroethene	79-01-6	NE	NE	21	300	30	0.53			ND	U		1.2			0.57			0.53			0.86		
POLYCHLORINATED BIPHENYLS (ng/L)																							
Dichlorobiphenyls, Total	25512-42-9	NE	NE	NE	NE	NE	ND	U		0.295	J		0.299	J		0.301	J		NS			0.305	J	
Trichlorobiphenyls, Total	25323-68-6	NE	NE	NE	NE	NE	0.350	J		0.316	J		0.510			0.589			NS			0.313	J	
Hexachlorobiphenyls, Total	26601-64-9	NE	NE	NE	NE	NE	0.287	J		ND	U		ND	U		ND	U		NS			0.355	J	
Heptachlorobiphenyls, Total	28655-71-2	NE	NE	NE	NE	NE	ND	U		ND	U		0.289	J		ND	U		NS			ND	U	
Total Polychlorinated biphenyls (PCBs	1336-36-3	NE	14	0.074	0.64	5000	0.637			0.611			1.10			0.890			NS			0.973		
SEMIVOLATILES (µg/L)																							
1,4-Dioxane	123-91-1	NE	NE	22000	NE	20	NS			NS			NS			NS			NS			NS		

Bold values indicate detections

Yellow shading indicates a results that exceeds a screening criterion

References

1 National Recommended Water Quality Criteria, http://water.epa.gov/scitech/swguidance/standards/current/index.cfm; and Maryland Numerical Criteria for Toxic Substances in Surface Waters, Code of Maryland Regulations (COMAR) 26.08.02.03, http://www.dsd.state.md.us./comar/comarhtml/26/26.08.02.03-2.htm

2 United States Environmental Protection Agency (USEPA) Region 3 Biological Technical Advisory Group (BTAG) Freshwater Screening Benchmarks. Value for 1,4-dioxane is the USEPA Region 5 ecological screening value (USEPA, 2003).

3 For carcinogens, criterion is for incremental cancer risk of $1x10^{-5}$

4 Risk-based swimming screening levels were developed for trichloroethene, *cis* -1,2-dichloroethene, 1,4 dioxane, 1,2,4-trichlorobenzene and Total PCBs for Dark Head Cove.

Definitions

FQ - Final Qualifier
MRC - Middle River Complex
ND - not detected
NE - not established
NS - not sampled
RC - Reason Code
SW - surface water
µg/L - micrograms per liter

Data Qualifiers and Reason Codes

J = Estimated concentration
U = The analyte was analyzed for, but not detected at a level greater than or equal to the level of the Method Detection Limit (MDL) for sample and method.
B = The associated method blank or field blank displayed a detection greater than the MDL. The reported result value is unchanged and did not require further qualification by data reviewers.
bl = Method blank contamination

Table 2
Detected Analytes and Screening Level Exceedances in April 2021 Surface Water Samples
Lockheed Martin Corporation, Middle River Complex, Middle River, Maryland

Analyte	CAS Number	National Recommended Water Quality		Ecological Surface Water Screening Level (2)	Human Health Consumption (Organism Only) (1) (3)	Swimming Screening Levels (4)	MRC-SW16A-S 04/13/2021 Field Sample			MRC-SW17A 04/13/2021 Field Sample			MRC-SW18A-S 04/13/2021 Field Sample			MRC-SW18A-S-DUP 04/13/2021 Field Duplicate			MRC-SW1A 04/13/2021 Field Sample			MRC-SW20A-S 04/13/2021 Field Sample		
		Acute	Chronic				Result	FQ	RC	Result	FQ	RC	Result	FQ	RC	Result	FQ	RC	Result	FQ	RC	Result	FQ	RC
VOLATILES (µg/L)																							
Chloroform	67-66-3	NE	NE	1.8	4700	NE	ND	U		0.40	J		ND	U		ND	U		ND	U		ND	U	
Trichloroethene	79-01-6	NE	NE	21	300	30	0.85			ND	U		ND	U		ND	U		ND	U		ND	U	
POLYCHLORINATED BIPHENYLS (ng/L)																							
Dichlorobiphenyls, Total	25512-42-9	NE	NE	NE	NE	NE	0.317	J		NS			0.265	J		NS			NS			0.314	J	
Trichlorobiphenyls, Total	25323-68-6	NE	NE	NE	NE	NE	0.604			NS			0.350	J		NS			NS			0.582		
Hexachlorobiphenyls, Total	26601-64-9	NE	NE	NE	NE	NE	ND	U		NS			ND	U		NS			NS			ND	U	
Heptachlorobiphenyls, Total	28655-71-2	NE	NE	NE	NE	NE	ND	U		NS			ND	U		NS			NS			ND	U	
Total Polychlorinated biphenyls (PCBs	1336-36-3	NE	14	0.074	0.64	5000	**0.921**			NS			**0.615**			NS			NS			**0.896**		
SEMIVOLATILES (µg/L)																							
1,4-Dioxane	123-91-1	NE	NE	22000	NE	20	NS			0.18	B	bl	NS			NS			0.15	B	bl	NS		

Bold values indicate detections

Yellow shading indicates a results that exceeds a screening criterion

References

1 National Recommended Water Quality Criteria, http://water.epa.gov/scitech/swguidance/standards/current/index.cfm; and Maryland Numerical Criteria for Toxic Substances in Surface Waters, Code of Maryland Regulations (COMAR) 26.08.02.03, http://www.dsd.state.md.us./comar/comarhtml/26/26.08.02.03-2.htm

2 United States Environmental Protection Agency (USEPA) Region 3 Biological Technical Advisory Group (BTAG) Freshwater Screening Benchmarks. Value for 1,4-dioxane is the USEPA Region 5 ecological screening value (USEPA, 2003).

3 For carcinogens, criterion is for incremental cancer risk of $1x10^{-5}$

4 Risk-based swimming screening levels were developed for trichloroethene, *cis* -1,2-dichloroethene, 1,4 dioxane, 1,2,4-trichlorobenzene and Total PCBs for Dark Head Cove.

Definitions

FQ - Final Qualifier
MRC - Middle River Complex
ND - not detected
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Table 2
Detected Analytes and Screening Level Exceedances in April 2021 Surface Water Samples
Lockheed Martin Corporation, Middle River Complex, Middle River, Maryland

Analyte	CAS Number	National Recommended Water Quality		Ecological Surface Water Screening Level (2)	Human Health Consumption (Organism Only) (1) (3)	Swimming Screening Levels (4)	MRC-SW2A 04/13/2021 Field Sample			MRC-SW5A1-S 04/13/2021 Field Sample			MRC-SW5A2-S 04/13/2021 Field Sample			MRC-SW5B-S 04/13/2021 Field Sample			MRC-SW6A-S 04/13/2021 Field Sample			MRC-SW6B-S 04/13/2021 Field Sample		
		Acute	Chronic				Result	FQ	RC	Result	FQ	RC	Result	FQ	RC	Result	FQ	RC	Result	FQ	RC	Result	FQ	RC
VOLATILES (µg/L)																							
Chloroform	67-66-3	NE	NE	1.8	4700	NE	ND	U		ND	U		ND	U		ND	U		ND	U		ND	U	
Trichloroethene	79-01-6	NE	NE	21	300	30	ND	U		ND	U		ND	U		ND	U		0.51			0.86		
POLYCHLORINATED BIPHENYLS (ng/L)																							
Dichlorobiphenyls, Total	25512-42-9	NE	NE	NE	NE	NE	NS			ND	U		0.286	J		0.274	J		0.269	J		ND	U	
Trichlorobiphenyls, Total	25323-68-6	NE	NE	NE	NE	NE	NS			ND	U		0.352	J		0.327	J		0.330	J		0.317	J	
Hexachlorobiphenyls, Total	26601-64-9	NE	NE	NE	NE	NE	NS			ND	U		0.304	J		ND	U		ND	U		0.352	J	
Heptachlorobiphenyls, Total	28655-71-2	NE	NE	NE	NE	NE	NS			ND	U		ND	U		ND	U		ND	U		0.279	J	
Total Polychlorinated biphenyls (PCBs	1336-36-3	NE	14	0.074	0.64	5000	NS			ND	U		0.942			0.601			0.599			0.948		
SEMIVOLATILES (µg/L)																							
1,4-Dioxane	123-91-1	NE	NE	22000	NE	20	0.15	B	bl	NS			NS			NS			0.099	B	bl	0.088	B	bl

Bold values indicate detections

Yellow shading indicates a results that exceeds a screening criterion

References

1 National Recommended Water Quality Criteria, http://water.epa.gov/scitech/swguidance/standards/current/index.cfm; and Maryland Numerical Criteria for Toxic Substances in Surface Waters, Code of Maryland Regulations (COMAR) 26.08.02.03, http://www.dsd.state.md.us./comar/comarhtml/26/26.08.02.03-2.htm

2 United States Environmental Protection Agency (USEPA) Region 3 Biological Technical Advisory Group (BTAG) Freshwater Screening Benchmarks. Value for 1,4-dioxane is the USEPA Region 5 ecological screening value (USEPA, 2003).

3 For carcinogens, criterion is for incremental cancer risk of $1x10^{-5}$

4 Risk-based swimming screening levels were developed for trichloroethene, *cis* -1,2-dichloroethene, 1,4 dioxane, 1,2,4-trichlorobenzene and Total PCBs for Dark Head Cove.

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Table 2
Detected Analytes and Screening Level Exceedances in April 2021 Surface Water Samples
Lockheed Martin Corporation, Middle River Complex, Middle River, Maryland

Analyte	CAS Number	National Recommended Water Quality		Ecological Surface Water Screening Level (2)	Human Health Consumption (Organism Only) (1) (3)	Swimming Screening Levels (4)	MRC-SW7A-S 04/13/2021 Field Sample			MRC-SW8A-S 04/13/2021 Field Sample			MRC-SW8B-S 04/13/2021 Field Sample			MRC-SW8B-S-DUP 04/13/2021 Field Duplicate			MRC-SW9A-S 04/13/2021 Field Sample		
		Acute	Chronic				Result	FQ	RC	Result	FQ	RC	Result	FQ	RC	Result	FQ	RC	Result	FQ	RC
VOLATILES (µg/L)																					
Chloroform	67-66-3	NE	NE	1.8	4700	NE	ND	U		ND	U		ND	U		ND	U		ND	U	
Trichloroethene	79-01-6	NE	NE	21	300	30	ND	U		0.88			0.59			0.56			1.1		
POLYCHLORINATED BIPHENYLS (ng/L)																					
Dichlorobiphenyls, Total	25512-42-9	NE	NE	NE	NE	NE	0.312	J		0.273	J		0.264	J		0.268	J		0.285	J	
Trichlorobiphenyls, Total	25323-68-6	NE	NE	NE	NE	NE	0.324	J		0.306	J		0.334	J		0.307	J		0.378	J	
Hexachlorobiphenyls, Total	26601-64-9	NE	NE	NE	NE	NE	ND	U		ND	U		0.248	J		ND	U		0.345	J	
Heptachlorobiphenyls, Total	28655-71-2	NE	NE	NE	NE	NE	ND	U		ND	U		ND	U		ND	U		ND	U	
Total Polychlorinated biphenyls (PCBs	1336-36-3	NE	14	0.074	0.64	5000	0.636			0.579			0.846			0.575			1.01		
SEMIVOLATILES (µg/L)																					
1,4-Dioxane	123-91-1	NE	NE	22000	NE	20	NS			0.12	B	bl	0.15	B	bl	0.13	B	bl	NS		

Bold values indicate detections

Yellow shading indicates a results that exceeds a screening criterion

References

1 National Recommended Water Quality Criteria, http://water.epa.gov/scitech/swguidance/standards/current/index.cfm; and Maryland Numerical Criteria for Toxic Substances in Surface Waters, Code of Maryland Regulations (COMAR) 26.08.02.03, http://www.dsd.state.md.us./comar/comarhtml/26/26.08.02.03-2.htm

2 United States Environmental Protection Agency (USEPA) Region 3 Biological Technical Advisory Group (BTAG) Freshwater Screening Benchmarks. Value for 1,4-dioxane is the USEPA Region 5 ecological screening value (USEPA, 2003).

3 For carcinogens, criterion is for incremental cancer risk of $1x10^{-5}$

4 Risk-based swimming screening levels were developed for trichloroethene, *cis* -1,2-dichloroethene, 1,4 dioxane, 1,2,4-trichlorobenzene and Total PCBs for Dark Head Cove.

Definitions

FQ - Final Qualifier
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Data Qualifiers and Reason Codes

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B = The associated method blank or field blank displayed a detection greater than the MDL. The reported result value is unchanged and did not require further qualification by data reviewers.
bl = Method blank contamination

Table 3
Field Measurements for Surface Water Quality, April 2021
Lockheed Martin Corporation, Middle River Complex, Middle River, Maryland

Location	Date	Time	Temp (°C)	pH (s.u.)	Specific Conductance (µS/cm)	Turb (NTU)	DO (mg/L)	ORP (mV)	Salinity (ppt)	Hardness (mg/L CaCO3)
MRC-SW1A	4/13/2021	1550	17.96	8.62	2.56	7.8	6.89	188	1.32	216.8
MRC-SW2A	4/13/2021	1535	8.07	8.64	2.61	7.6	7.58	190	1.34	216.8
MRC-SW5A1-S	4/13/2021	1510	17.85	8.69	2.92	5.6	8.18	184	1.52	216.8
MRC-SW5A2-S	4/13/2021	1440	17.45	8.60	2.98	5.1	8.83	185	1.54	216.8
MRC-SW5B-S	4/13/2021	1455	17.64	8.70	2.96	5.0	7.88	190	1.54	216.8
MRC-SW6A-S	4/13/2021	0955	16.50	7.70	2.98	7.1	7.06	195	1.55	216.8
MRC-SW6B-S	4/13/2021	1025	16.54	8.01	2.97	6.9	6.84	178	1.54	216.8
MRC-SW7A-S	4/13/2021	0911	16.39	6.40	2.95	11.0	8.15	223	1.53	216.8
MRC-SW8A-S	4/13/2021	1045	16.57	8.12	2.95	5.8	7.49	189	1.53	216.8
MRC-SW8B-S	4/13/2021	1105	16.72	8.25	2.97	5.9	7.30	187	1.54	216.8
MRC-SW9A-S	4/13/2021	0931	16.36	7.14	2.95	6.3	8.34	199	1.54	216.8
MRC-SW11A-S	4/13/2021	1225	16.93	8.26	2.97	5.2	7.36	185	1.54	216.8
MRC-SW11B-S	4/13/2021	1245	17.21	8.35	2.97	4.4	7.92	190	1.54	216.8
MRC-SW12A-S	4/13/2021	1300	17.06	8.45	2.97	4.8	7.47	193	1.54	216.8
MRC-SW13A-S	4/13/2021	1330	17.11	8.51	2.96	3.9	7.38	191	1.54	216.8
MRC-SW14A-S	4/13/2021	1350	17.36	8.41	2.95	4.4	8.74	189	1.54	216.8
MRC-SW15A-S	4/13/2021	1210	16.92	8.10	2.95	4.7	6.68	189	1.53	216.8
MRC-SW16A-S	4/13/2021	1200	16.88	8.33	2.96	4.7	8.03	187	1.53	216.8
MRC-SW17A	4/13/2021	1650	14.53	8.63	0.56	12.7	8.99	125	0.27	281.2
MRC-SW18A-S	4/13/2021	1410	17.46	8.60	2.95	4.8	7.59	184	1.53	216.8
MRC-SW20A-S	4/13/2021	1400	17.44	8.53	2.97	4.9	8.27	182	1.54	216.8

Notes:
Temp - Temperature
(°C) - Degrees Celcius
s.u. - Standard units
µs/cm - MicroSiemens per centimeter
Turb - Turbidity
NTU - Nephelometric turbidity unit
DO - Dissolved oxygen
mg/L - milligrams per liter
ORP - Oxidation reduction potential
mV - millivolts
ppt - parts per thousand

APPENDICES

Appendix A—Surface Water Sampling Forms

Appendix B—Data Validation Report

Appendix C—Laboratory Analytical Report

Appendix D—Laboratory Analytical Result Table

APPENDIX A
Surface Water Sampling Forms

AECOM

SURFACE WATER SAMPLE LOG SHEET

Project Site Name: Lockheed Martin Corporation Middle River Complex Sample ID No.: MRC-SW1A-20210413
Project No.: 60555202 Sample Location: MRC-SW1A
Sampled By: Antonio Zarrelli

[] Domestic Well Data
[] Monitoring Well Data
[X] Other: Tidal Creek - Freshwater
[] QA Sample Type: _____

Type of Sample:
[X] Low Concentration
[] High Concentration

SAMPLING DATA:

Date: 04/13/2021 Time: 1550	**Color** (Visual)	**pH** (S.U.)	**S.C.** (mS/cm)	**Temp.** (°C)	**Turbidity** (NTU)	**DO** (mg/l)	**Salinity** (ppt)	**ORP** (mV)
Method: Grab Sample Depth: 1 ft below water surface Static Water Level: MRC-STAFF02 start: 0.4 stop: 0.4	**Clear**	**8.62**	**2.56**	**17.96**	**7.80**	**6.89**	**1.32**	**188**

SAMPLE COLLECTION INFORMATION:

Analysis	**Preservative**	**Container Requirements**	**Collected**
VOCs (8260C)	HCl	3 - 40 mL glass vials	Yes
1,4-Dioxane (8270E-SIM)	None	2 - 1L Ambers	Yes

OBSERVATIONS / NOTES:

MAP:

Highlight if Applicable:

MS/MSD	**Duplicate**	

Signature: Antonio Zarrelli

AECOM

SURFACE WATER SAMPLE LOG SHEET

Project Site Name: Lockheed Martin Corporation Middle River Complex Sample ID No.: MRC-SW2A-20210413
Project No.: 60555202 Sample Location: MRC-SW1A
Sampled By: Antonio Zarrelli

[] Domestic Well Data
[] Monitoring Well Data
[X] Other: Tidal Creek - Freshwater
[] QA Sample Type: _____

Type of Sample:
[X] Low Concentration
[] High Concentration

SAMPLING DATA:

Date: 04/13/2021 Time: 1535	**Color** (Visual)	**pH** (S.U.)	**S.C.** (mS/cm)	**Temp.** (°C)	**Turbidity** (NTU)	**DO** (mg/l)	**Salinity** (ppt)	**ORP** (mV)
Method: Grab Sample Depth: 1 ft below water surface Static Water Level: MRC-STAFF02 start: 0.4 stop: 0.4	**Clear**	**8.64**	**2.61**	**8.07**	**7.60**	**7.58**	**1.34**	**190**

SAMPLE COLLECTION INFORMATION:

Analysis	**Preservative**	**Container Requirements**	**Collected**
VOCs (8260C)	HCl	3 - 40 mL glass vials	Yes
1,4-Dioxane (8270E-SIM)	None	2 - 1L Ambers	Yes

OBSERVATIONS / NOTES:

MAP:

Highlight if Applicable:

MS/MSD	**Duplicate**	

Signature: Antonio Zarrelli

AECOM

SURFACE WATER SAMPLE LOG SHEET

Project Site Name: Lockheed Martin Corporation Middle River Complex
Project No.: 60555202
Sample ID No.: MRC-SW5A1-S-20210413
Sample Location: MRC-SW5A1-S
Sampled By: Antonio Zarrelli

[] Domestic Well Data
[] Monitoring Well Data
[X] Other: Tidal Creek - Freshwater
[] QA Sample Type: _____

Type of Sample:
[X] Low Concentration
[] High Concentration

SAMPLING DATA:

Date: 04/13/2021 Time: 1510	**Color** (Visual)	**pH** (S.U.)	**S.C.** (mS/cm)	**Temp.** (°C)	**Turbidity** (NTU)	**DO** (mg/l)	**Salinity** (ppt)	**ORP** (mV)
Method: Grab Sample Depth: 1 ft below water surface Static Water Level: MRC-STAFF01 start: 2.2 stop: 0.4	**Clear**	**8.69**	**2.92**	**17.85**	**5.60**	**8.18**	**1.52**	**184**

SAMPLE COLLECTION INFORMATION:

Analysis	**Preservative**	**Container Requirements**	**Collected**
VOCs (8260C)	HCl	3 - 40 mL glass vials	Yes
PCBs (8270D-SIM)	None	2 - 1L Ambers	Yes
OBSERVATIONS / NOTES:		**MAP:**	

Highlight if Applicable:

MS/MSD	**Duplicate**	

Signature: Antonio Zarrelli

AECOM

SURFACE WATER SAMPLE LOG SHEET

Project Site Name: Lockheed Martin Corporation Middle River Complex
Project No.: 60555202
Sample ID No.: MRC-SW5A2-S-20210413
Sample Location: MRC-SW5A2-S
Sampled By: Antonio Zarrelli

[] Domestic Well Data
[] Monitoring Well Data
[X] Other: Tidal Creek - Freshwater
[] QA Sample Type: _____

Type of Sample:
[X] Low Concentration
[] High Concentration

SAMPLING DATA:

Date: 04/13/2021 Time: 1440	**Color** (Visual)	**pH** (S.U.)	**S.C.** (mS/cm)	**Temp.** (°C)	**Turbidity** (NTU)	**DO** (mg/l)	**Salinity** (ppt)	**ORP** (mV)
Method: Grab Sample Depth: 1 ft below water surface Static Water Level: MRC-STAFF01 start: 2.2 stop: 0.4	**Clear**	**8.60**	**2.98**	**17.45**	**5.10**	**8.83**	**1.54**	**185**

SAMPLE COLLECTION INFORMATION:

Analysis	**Preservative**	**Container Requirements**	**Collected**
VOCs (8260C)	HCl	3 - 40 mL glass vials	Yes
PCBs (8270D-SIM)	None	2 - 1L Ambers	Yes
OBSERVATIONS / NOTES:		**MAP:**	

Highlight if Applicable:

MS/MSD	**Duplicate**	

Signature: Antonio Zarrelli

AECOM

SURFACE WATER SAMPLE LOG SHEET

Project Site Name: Lockheed Martin Corporation Middle River Complex
Project No.: 60555202
Sample ID No.: MRC-SW5B-S-20210413
Sample Location: MRC-SW5B-S
Sampled By: Antonio Zarrelli

[] Domestic Well Data
[] Monitoring Well Data
[X] Other: Tidal Creek - Freshwater
[] QA Sample Type: _____

Type of Sample:
[X] Low Concentration
[] High Concentration

SAMPLING DATA:

Date: 04/13/2021 Time: 1455	**Color** (Visual)	**pH** (S.U.)	**S.C.** (mS/cm)	**Temp.** (°C)	**Turbidity** (NTU)	**DO** (mg/l)	**Salinity** (ppt)	**ORP** (mV)
Method: Grab Sample Depth: 1 ft below water surface Static Water Level: MRC-STAFF01 start: 2.2 stop: 0.4	**Clear**	**8.70**	**2.96**	**17.64**	**5.00**	**7.88**	**1.54**	**190**

SAMPLE COLLECTION INFORMATION:

Analysis	**Preservative**	**Container Requirements**	**Collected**
VOCs (8260C)	HCl	3 - 40 mL glass vials	Yes
PCBs (8270D-SIM)	None	2 - 1L Ambers	Yes
OBSERVATIONS / NOTES:		**MAP:**	

Highlight if Applicable:

MS/MSD	**Duplicate**	

Signature: Antonio Zarrelli

AECOM

SURFACE WATER SAMPLE LOG SHEET

Project Site Name: Lockheed Martin Corporation Middle River Complex
Project No.: 60555202
Sample ID No.: MRC-SW6A-S-20210413
Sample Location: MRC-SW6A-S
Sampled By: Antonio Zarrelli

[] Domestic Well Data
[] Monitoring Well Data
[X] Other: Tidal Creek - Freshwater
[] QA Sample Type:

Type of Sample:
[X] Low Concentration
[] High Concentration

SAMPLING DATA:

Date: 04/13/2021 Time: 0955	**Color** (Visual)	**pH** (S.U.)	**S.C.** (mS/cm)	**Temp.** (°C)	**Turbidity** (NTU)	**DO** (mg/l)	**Salinity** (ppt)	**ORP** (mV)
Method: Grab Sample Depth: 1 ft below water surface Static Water Level: MRC-STAFF01 start: 2.2 stop: 0.4	**Clear**	**7.70**	**2.98**	**16.50**	**7.12**	**7.06**	**1.55**	**195**

SAMPLE COLLECTION INFORMATION:

Analysis	**Preservative**	**Container Requirements**	**Collected**
VOCs (8260C)	HCl	3 - 40 mL glass vials	Yes
PCBs (8270D-SIM)	None	2 - 1L Ambers	Yes
1,4-Dioxane	None	2 - 1L Ambers	Yes

OBSERVATIONS / NOTES:

MAP:

Highlight if Applicable:

MS/MSD	**Duplicate**	

Signature: Antonio Zarrelli

AECOM

SURFACE WATER SAMPLE LOG SHEET

Project Site Name: Lockheed Martin Corporation Middle River Complex Sample ID No.: MRC-SW6B-S-20210413
Project No.: 60555202 Sample Location: MRC-SW6B-S
Sampled By: Antonio Zarrelli

[] Domestic Well Data
[] Monitoring Well Data
[X] Other: Tidal Creek - Freshwater
[] QA Sample Type: _____

Type of Sample:
[X] Low Concentration
[] High Concentration

SAMPLING DATA:

Date: 04/13/2021 Time: 1025	**Color** (Visual)	**pH** (S.U.)	**S.C.** (mS/cm)	**Temp.** (°C)	**Turbidity** (NTU)	**DO** (mg/l)	**Salinity** (ppt)	**ORP** (mV)
Method: Grab Sample Depth: 1 ft below water surface Static Water Level: MRC-STAFF01 start: 2.2 stop: 0.4	**Clear**	**8.01**	**2.97**	**16.54**	**6.90**	**6.84**	**1.54**	**178**

SAMPLE COLLECTION INFORMATION:

Analysis	Preservative	Container Requirements	Collected
VOCs (8260C)	HCl	3 - 40 mL glass vials	Yes
PCBs (8270D-SIM)	None	2 - 1L Ambers	Yes
1,4-Dioxane	None	2 - 1L Ambers	Yes

OBSERVATIONS / NOTES:

MAP:

Highlight if Applicable:

MS/MSD	Duplicate	

Signature: Antonio Zarrelli

AECOM

SURFACE WATER SAMPLE LOG SHEET

Project Site Name: Lockheed Martin Corporation Middle River Complex
Project No.: 60555202
Sample ID No.: MRC-SW7A-S-20210413
Sample Location: MRC-SW7A-S
Sampled By: Antonio Zarrelli

[] Domestic Well Data
[] Monitoring Well Data
[X] Other: Tidal Creek - Freshwater
[] QA Sample Type: _____

Type of Sample:
[X] Low Concentration
[] High Concentration

SAMPLING DATA:

Date: 04/13/2021 Time: 0911	**Color** (Visual)	**pH** (S.U.)	**S.C.** (mS/cm)	**Temp.** (°C)	**Turbidity** (NTU)	**DO** (mg/l)	**Salinity** (ppt)	**ORP** (mV)
Method: Grab Sample Depth: 1 ft below water surface Static Water Level: MRC-STAFF01 start: 2.2 stop: 0.4	**Clear**	**6.40**	**2.95**	**16.39**	**11.00**	**8.15**	**1.53**	**223**

SAMPLE COLLECTION INFORMATION:

Analysis	**Preservative**	**Container Requirements**	**Collected**
VOCs (8260C)	HCl	3 - 40 mL glass vials	Yes
PCBs (8270D-SIM)	None	2 - 1L Ambers	Yes
OBSERVATIONS / NOTES:		**MAP:**	

Highlight if Applicable:

MS/MSD	**Duplicate**	

Signature: Antonio Zarrelli

AECOM

SURFACE WATER SAMPLE LOG SHEET

Project Site Name: Lockheed Martin Corporation Middle River Complex Sample ID No.: MRC-SW8A-S-20210413
Project No.: 60555202 Sample Location: MRC-SW8A-S
Sampled By: Antonio Zarrelli

[] Domestic Well Data
[] Monitoring Well Data
[X] Other: Tidal Creek - Freshwater
[] QA Sample Type: _____

Type of Sample:
[X] Low Concentration
[] High Concentration

SAMPLING DATA:

Date: 04/13/2021 Time: 1045	**Color** (Visual)	**pH** (S.U.)	**S.C.** (mS/cm)	**Temp.** (°C)	**Turbidity** (NTU)	**DO** (mg/l)	**Salinity** (ppt)	**ORP** (mV)
Method: Grab Sample Depth: 1 ft below water surface Static Water Level: MRC-STAFF01 start: 2.2 stop: 0.4	**Clear**	**8.12**	**2.95**	**16.57**	**5.80**	**7.49**	**1.53**	**189**

SAMPLE COLLECTION INFORMATION:

Analysis	**Preservative**	**Container Requirements**	**Collected**
VOCs (8260C)	HCl	3 - 40 mL glass vials	Yes
PCBs (8270D-SIM)	None	2 - 1L Ambers	Yes
1,4-Dioxane	None	2 - 1L Ambers	Yes

OBSERVATIONS / NOTES:

MAP:

Highlight if Applicable:

MS/MSD	**Duplicate**	

Signature: Antonio Zarrelli

AECOM

SURFACE WATER SAMPLE LOG SHEET

Project Site Name: Lockheed Martin Corporation Middle River Complex
Project No.: 60555202
Sample ID No.: MRC-SW8B-S-20210413
Sample Location: MRC-SW8B-S
Sampled By: Antonio Zarrelli

[] Domestic Well Data
[] Monitoring Well Data
[X] Other: Tidal Creek - Freshwater
[] QA Sample Type:

Type of Sample:
[X] Low Concentration
[] High Concentration

SAMPLING DATA:

Date: 04/13/2021 Time: 1105 and 1125	**Color** (Visual)	**pH** (S.U.)	**S.C.** (mS/cm)	**Temp.** (°C)	**Turbidity** (NTU)	**DO** (mg/l)	**Salinity** (ppt)	**ORP** (mV)
Method: Grab Sample Depth: 1 ft below water surface Static Water Level: MRC-STAFF01 start: 2.2 stop: 0.4	**Clear**	**8.25**	**2.97**	**16.72**	**5.90**	**7.30**	**1.54**	**187**

SAMPLE COLLECTION INFORMATION:

Analysis	**Preservative**	**Container Requirements**	**Collected**
VOCs (8260C)	HCl	12 - 40 mL glass vials	Yes
PCBs (8270D-SIM)	None	8 - 1L Ambers	Yes
1,4-Dioxane	None	8 - 1L Ambers	Yes

OBSERVATIONS / NOTES:

MAP:

Highlight if Applicable:

MS/MSD	**Duplicate**	

Signature: Antonio Zarrelli

AECOM

SURFACE WATER SAMPLE LOG SHEET

Project Site Name: Lockheed Martin Corporation Middle River Complex
Project No.: 60555202
Sample ID No.: MRC-SW9A-S-20210413
Sample Location: MRC-SW9A-S
Sampled By: Antonio Zarrelli

[] Domestic Well Data
[] Monitoring Well Data
[X] Other: Tidal Creek - Freshwater
[] QA Sample Type: _____

Type of Sample:
[X] Low Concentration
[] High Concentration

SAMPLING DATA:

Date: 04/13/2021 Time: 0931	**Color** (Visual)	**pH** (S.U.)	**S.C.** (mS/cm)	**Temp.** (°C)	**Turbidity** (NTU)	**DO** (mg/l)	**Salinity** (ppt)	**ORP** (mV)
Method: Grab Sample Depth: 1 ft below water surface Static Water Level: MRC-STAFF01 start: 2.2 stop: 0.4	**Clear**	**7.14**	**2.95**	**16.36**	**6.30**	**8.34**	**1.54**	**199**

SAMPLE COLLECTION INFORMATION:

Analysis	**Preservative**	**Container Requirements**	**Collected**
VOCs (8260C)	HCl	3 - 40 mL glass vials	Yes
PCBs (8270D-SIM)	None	2 - 1L Ambers	Yes

OBSERVATIONS / NOTES:

MAP:

Highlight if Applicable:

MS/MSD	**Duplicate**	

Signature: Antonio Zarrelli

AECOM

SURFACE WATER SAMPLE LOG SHEET

Project Site Name: Lockheed Martin Corporation Middle River Complex
Project No.: 60555202
Sample ID No.: MRC-SW11A-S-20210413
Sample Location: MRC-SW11A
Sampled By: Antonio Zarrellik

[] Domestic Well Data
[] Monitoring Well Data
[X] Other: Tidal Creek - Freshwater
[] QA Sample Type: _____

Type of Sample:
[X] Low Concentration
[] High Concentration

SAMPLING DATA:

Date: 04/13/2021 Time: 1225	**Color** (Visual)	**pH** (S.U.)	**S.C.** (mS/cm)	**Temp.** (°C)	**Turbidity** (NTU)	**DO** (mg/l)	**Salinity** (ppt)	**ORP** (mV)
Method: Grab Sample Depth: 1 ft below water surface Static Water Level: MRC-STAFF01 start: 2.2 stop: 0.4	**Clear**	**8.26**	**2.97**	**16.93**	**5.20**	**7.36**	**1.54**	**185**

SAMPLE COLLECTION INFORMATION:

Analysis	**Preservative**	**Container Requirements**	**Collected**
VOCs (8260C)	HCl	3 - 40 mL glass vials	Yes
PCBs (8270D-SIM)	None	2 - 1L Ambers	Yes

OBSERVATIONS / NOTES:

MAP:

Highlight if Applicable:

MS/MSD.	**Duplicate.**	

Signature: Antonio Zarrelli

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SURFACE WATER SAMPLE LOG SHEET

Project Site Name: Lockheed Martin Corporation Middle River Complex
Project No.: 60555202
Sample ID No.: MRC-SW11B-S-20210413
Sample Location: MRC-SW11B
Sampled By: Antonio Zarrelli

[] Domestic Well Data
[] Monitoring Well Data
[X] Other: Tidal Creek - Freshwater
[] QA Sample Type: _____

Type of Sample:
[X] Low Concentration
[] High Concentration

SAMPLING DATA:

Date: 04/13/2021 Time: 1245	**Color** (Visual)	**pH** (S.U.)	**S.C.** (mS/cm)	**Temp.** (°C)	**Turbidity** (NTU)	**DO** (mg/l)	**Salinity** (ppt)	**ORP** (mV)
Method: Grab Sample Depth: 1 ft below water surface Static Water Level: MRC-STAFF01 start: 2.2 stop: 0.4	**Clear**	**8.35**	**2.97**	**17.21**	**4.40**	**7.92**	**1.54**	**190**

SAMPLE COLLECTION INFORMATION:

Analysis	Preservative	Container Requirements	Collected
VOCs (8260C)	HCl	3 - 40 mL glass vials	Yes
PCBs (8270D-SIM)	None	2 - 1L Ambers	Yes

OBSERVATIONS / NOTES:

MAP:

Highlight if Applicable:

MS/MSD	Duplicate	

Signature: Antonio Zarrelli

AECOM

SURFACE WATER SAMPLE LOG SHEET

Project Site Name: Lockheed Martin Corporation Middle River Complex
Project No.: 60555202
Sample ID No.: MRC-SW12A-S-20210413
Sample Location: MRC-SW12A
Sampled By: Antonio Zarrelli

[] Domestic Well Data
[] Monitoring Well Data
[X] Other: Tidal Creek - Freshwater
[] QA Sample Type: _____

Type of Sample:
[X] Low Concentration
[] High Concentration

SAMPLING DATA:

Date: 04/13/2021 Time: 1300	**Color** (Visual)	**pH** (S.U.)	**S.C.** (mS/cm)	**Temp.** (°C)	**Turbidity** (NTU)	**DO** (mg/l)	**Salinity** (ppt)	**ORP** (mV)
Method: Grab Sample Depth: 1 ft below water surface Static Water Level: MRC-STAFF01 start: 2.2 stop: 0.4	**Clear**	**8.45**	**2.97**	**17.06**	**4.80**	**7.47**	**1.54**	**193**

SAMPLE COLLECTION INFORMATION:

Analysis	**Preservative**	**Container Requirements**	**Collected**
VOCs (8260C)	HCl	3 - 40 mL glass vials	Yes
PCBs (8270D-SIM)	None	2 - 1L Ambers	Yes

OBSERVATIONS / NOTES:

MAP:

Highlight if Applicable:

MS/MSD	**Duplicate**	

Signature: Antonio Zarrelli

AECOM

SURFACE WATER SAMPLE LOG SHEET

Project Site Name: Lockheed Martin Corporation Middle River Complex
Project No.: 60555202
Sample ID No.: MRC-SW13A-S-20210413
Sample Location: MRC-SW13A
Sampled By: Antonio Zarrelli

[] Domestic Well Data
[] Monitoring Well Data
[X] Other: Tidal Creek - Freshwater
[] QA Sample Type: _____

Type of Sample:
[X] Low Concentration
[] High Concentration

SAMPLING DATA:

Date: 04/13/2021 Time: 1330	**Color** (Visual)	**pH** (S.U.)	**S.C.** (mS/cm)	**Temp.** (°C)	**Turbidity** (NTU)	**DO** (mg/l)	**Salinity** (ppt)	**ORP** (mV)
Method: Grab Sample Depth: 1 ft below water surface Static Water Level: MRC-STAFF01 start: 2.2 stop: 0.4	**Clear**	**8.51**	**2.96**	**17.11**	**3.90**	**7.38**	**1.54**	**191**

SAMPLE COLLECTION INFORMATION:

Analysis	**Preservative**	**Container Requirements**	**Collected**
VOCs (8260C)	HCl	3 - 40 mL glass vials	Yes
PCBs (8270D-SIM)	None	2 - 1L Ambers	Yes

OBSERVATIONS / NOTES:

MAP:

Highlight if Applicable:

MS/MSD.	**Duplicate.**	

Signature: Antonio Zarrelli

AECOM

SURFACE WATER SAMPLE LOG SHEET

Project Site Name: Lockheed Martin Corporation Middle River Complex
Project No.: 60555202
Sample ID No.: MRC-SW14A-S-20210413
Sample Location: MRC-SW14A-S
Sampled By: Antonio Zarrelli

[] Domestic Well Data
[] Monitoring Well Data
[X] Other: Tidal Creek - Freshwater
[] QA Sample Type:

Type of Sample:
[X] Low Concentration
[] High Concentration

SAMPLING DATA:

Date: 04/13/2021 Time: 1350	**Color** (Visual)	**pH** (S.U.)	**S.C.** (mS/cm)	**Temp.** (°C)	**Turbidity** (NTU)	**DO** (mg/l)	**Salinity** (ppt)	**ORP** (mV)
Method: Grab Sample Depth: 1 ft below water surface Static Water Level: MRC-STAFF01 start: 2.2 stop: 0.4	**Clear**	**8.41**	**2.95**	**17.36**	**4.40**	**8.74**	**1.54**	**189**

SAMPLE COLLECTION INFORMATION:

Analysis	**Preservative**	**Container Requirements**	**Collected**
VOCs (8260C)	HCl	3 - 40 mL glass vials	Yes

OBSERVATIONS / NOTES:

MAP:

Highlight if Applicable:

MS/MSD	**Duplicate**	

Signature: Antonio Zarrelli

AECOM

SURFACE WATER SAMPLE LOG SHEET

Project Site Name: Lockheed Martin Corporation Middle River Complex Sample ID No.: MRC-SW15A-S-20210413
Project No.: 60555202 Sample Location: MRC-SW15A-S
Sampled By: Antonio Zarrelli

[] Domestic Well Data
[] Monitoring Well Data
[X] Other: Tidal Creek - Freshwater
[] QA Sample Type: _____

Type of Sample:
[X] Low Concentration
[] High Concentration

SAMPLING DATA:

Date: 04/13/2021 Time: 1210	**Color** (Visual)	**pH** (S.U.)	**S.C.** (mS/cm)	**Temp.** (°C)	**Turbidity** (NTU)	**DO** (mg/l)	**Salinity** (ppt)	**ORP** (mV)
Method: Grab Sample Depth: 1 ft below water surface Static Water Level: MRC-STAFF01 start: 2.2 stop: 0.4	**Clear**	**8.10**	**2.95**	**16.92**	**4.70**	**6.68**	**1.53**	**189**

SAMPLE COLLECTION INFORMATION:

Analysis	**Preservative**	**Container Requirements**	**Collected**
VOCs (8260C)	HCl	3 - 40 mL glass vials	Yes
PCBs (8270D-SIM)	None	2 - 1L Ambers	Yes

OBSERVATIONS / NOTES:

MAP:

Highlight if Applicable:

MS/MSD	**Duplicate**	

Signature: Antonio Zarrelli

AECOM

SURFACE WATER SAMPLE LOG SHEET

Project Site Name: Lockheed Martin Corporation Middle River Complex Sample ID No.: MRC-SW16A-S-20210413
Project No.: 60555202 Sample Location: MRC-SW16A-S
Sampled By: Antonio Zarrelli

[] Domestic Well Data
[] Monitoring Well Data
[X] Other: Tidal Creek - Freshwater
[] QA Sample Type: _____

Type of Sample:
[X] Low Concentration
[] High Concentration

SAMPLING DATA:

Date: 04/13/2021 Time: 1200	**Color** (Visual)	**pH** (S.U.)	**S.C.** (mS/cm)	**Temp.** (°C)	**Turbidity** (NTU)	**DO** (mg/l)	**Salinity** (ppt	**ORP** (mV)
Method: Grab Sample Depth: 1 ft below water surface Static Water Level: MRC-STAFF01 start: 2.2 stop: 0.4	**Clear**	**8.33**	**2.96**	**16.88**	**4.70**	**8.03**	**1.53**	**187**

SAMPLE COLLECTION INFORMATION:

Analysis	**Preservative**	**Container Requirements**	**Collected**
VOCs (8260C)	HCl	3 - 40 mL glass vials	Yes
PCBs (8270D-SIM)	None	2 - 1L Ambers	Yes

OBSERVATIONS / NOTES:

MAP:

Highlight if Applicable:

MS/MSD	**Duplicate**	

Signature: Antonio Zarrelli

AECOM

SURFACE WATER SAMPLE LOG SHEET

Project Site Name: Lockheed Martin Corporation Middle River Complex Sample ID No.: MRC-SW18A-S-20210413
Project No.: 60555202 Sample Location: MRC-SW18A-S
Sampled By: Antonio Zarrelli

[] Domestic Well Data
[] Monitoring Well Data
[X] Other: Tidal Creek - Freshwater
[] QA Sample Type: _____

Type of Sample:
[X] Low Concentration
[] High Concentration

SAMPLING DATA:

Date: 04/13/2021 Time: 1410 and 1430	**Color** (Visual)	**pH** (S.U.)	**S.C.** (mS/cm)	**Temp.** (°C)	**Turbidity** (NTU)	**DO** (mg/l)	**Salinity** (ppt)	**ORP** (mV)
Method: Grab Sample Depth: 1 ft below water surface Static Water Level: MRC-STAFF01 start: 2.2 stop: 0.4	**Clear**	**8.60**	**2.95**	**17.46**	**4.80**	**7.59**	**1.53**	**184**

SAMPLE COLLECTION INFORMATION:

Analysis	**Preservative**	**Container Requirements**	**Collected**
VOCs (8260C)	HCl	12 - 40 mL glass vials	Yes
PCBs (8270D-SIM)	None	8 -1L Ambers	Yes

OBSERVATIONS / NOTES:

MAP:

Highlight if Applicable:

MS/MSD	**Duplicate**	

Signature: Antonio Zarrelli

AECOM

SURFACE WATER SAMPLE LOG SHEET

Project Site Name: Lockheed Martin Corporation Middle River Complex Sample ID No.: MRC-SW17A-20210413
Project No.: 60555202 Sample Location: MRC-SW17A
Sampled By: Antonio Zarrelli

[] Domestic Well Data
[] Monitoring Well Data
[X] Other: Tidal Creek - Freshwater
[] QA Sample Type: _____

Type of Sample:
[X] Low Concentration
[] High Concentration

SAMPLING DATA:

Date: 04/13/2021 Time: 1650	**Color** (Visual)	**pH** (S.U.)	**S.C.** (mS/cm)	**Temp.** (°C)	**Turbidity** (NTU)	**DO** (mg/l)	**Salinity** (ppt	**ORP** (mV)
Method: Grab Sample Depth: 1 ft below water surface Static Water Level: MRC-STAFF02 start: 0.4 stop: 0.4	**Clear**	**8.63**	**0.56**	**14.53**	**12.70**	**8.99**	**0.27**	**125**

SAMPLE COLLECTION INFORMATION:

Analysis	**Preservative**	**Container Requirements**	**Collected**
VOCs (8260C)	HCl	3 - 40 mL glass vials	Yes
1,4-Dioxane (8270E-SIM)	None	2 - 1L Ambers	Yes

OBSERVATIONS / NOTES:

MAP:

Highlight if Applicable:

MS/MSD	**Duplicate**	

Signature: Antonio Zarrelli

AECOM

SURFACE WATER SAMPLE LOG SHEET

Project Site Name: Lockheed Martin Corporation Middle River Complex
Project No.: 60555202
Sample ID No.: MRC-SW20A-S-20210413
Sample Location: MRC-SW20A
Sampled By: Antonio Zarrelli

[] Domestic Well Data
[] Monitoring Well Data
[X] Other: Tidal Creek - Freshwater
[] QA Sample Type: _____

Type of Sample:
[X] Low Concentration
[] High Concentration

SAMPLING DATA:

Date: 04/13/2021 Time: 1400	**Color** (Visual)	**pH** (S.U.)	**S.C.** (mS/cm)	**Temp.** (°C)	**Turbidity** (NTU)	**DO** (mg/l)	**Salinity** (ppt)	**ORP** (mV)
Method: Grab Sample Depth: 1 ft below water surface Static Water Level: MRC-STAFF01 start: 2.2 stop: 0.4	**Clear**	**8.53**	**2.97**	**17.44**	**4.90**	**8.27**	**1.54**	**182**

SAMPLE COLLECTION INFORMATION:

Analysis	Preservative	Container Requirements	Collected
VOCs (8260C)	HCl	3 - 40 mL glass vials	Yes
PCBs (8270D-SIM)	None	2 -1L Ambers	Yes

OBSERVATIONS / NOTES:

MAP:

Highlight if Applicable:

MS/MSD.	Duplicate.	

Signature: Antonio Zarrelli

APPENDIX B
Data Validation Report

Data Validation and Usability Report

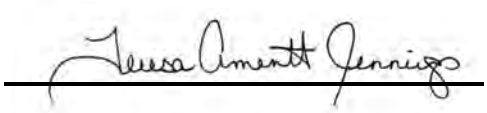
April 2021 – Triannual Surface Water Sampling

Lockheed Martin Corporation
Middle River Complex
Middle River, Maryland

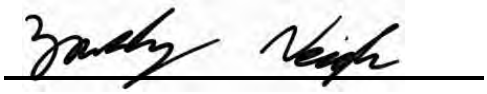
June 2021

IDENTIFICATION FORM

Data Validation and Data Usability Review



Teresa Amentt Jennings
Data Validator
AECOM
06/10/2021



Zachary Neigh
Project Chemist
AECOM
06/10/2021

Table of Contents

I. Executive Summary

AECOM performed data validation on 100% of the surface water field investigative samples collected on April 13, 2021 at the Lockheed Martin Middle River Complex located in Middle River, Maryland. The validation was performed to a United States Environmental Protection Agency (USEPA) Region III Inorganic Level I and Organic Level I based on the specifics of the analytical methods referenced and qualified according to the USEPA Contract Laboratory Program (CLP) National Functional Guidelines for Organic/Inorganic (January 2017) Superfund Data Review, with the exception of blank detections which were qualified according to the USEPA Region III modifications to the National Functional Guidelines defining the use of the "B" flag.

The review was assisted using an electronic data management tool that compiles batch-level quality control (QC) data submitted with the laboratory deliverables and identifies anomalies for verification and qualification by the data reviewer. This information is provided in the form of a structured workbook that includes field sample analytical results, QC sample results, batch associations, and QC criteria. Prior to validation, the quality assurance procedures applied to the process itself consist of reviewing the output for data completeness based on laboratory deliverables and chain of custody reports; verification of QC criteria based on the aforementioned data validation guidelines and project-specific Quality Assurance Project Plan (QAPP); and strict control of data management permissions. The resulting data validation workbooks were evaluated and validated using the AECOM automated validation assistant (AVA) tool. The specific data elements that were reviewed include:

- Holding times and sample preservation
- Blanks (Method, Trip, Field, and Equipment)
- Matrix spike (MS) and/or matrix spike duplicate (MSD) results
- Laboratory control sample (LCS)/laboratory control sample duplicate (LCSD) results
- Surrogate spike results
- Field duplicates
- Laboratory duplicates
- Sensitivity

Data validation qualifiers were applied to results where a QC nonconformance required qualification per USEPA guidance. QC anomalies were assessed for their impact on data quality in regard to precision, accuracy, representativeness, completeness, comparability, and sensitivity (PARCCS) as discussed in **II: PARCCS Data Quality**. A detailed list of the QC non-conformances can be found in **III: Data Validation Findings**. The associated field sample results that required qualification are listed in **IV: Qualified Field Sample Results**. The data validation qualifiers and reason codes are defined in **Appendix A.**

II. PARCCS Data Quality

Precision

Precision is the degree of agreement among repeated measurements of the same characteristic on the same sample or on separate samples collected as close as possible in time and place. Field sampling precision is measured using the field duplicate relative percent differences; laboratory precision is measured using laboratory duplicate relative percent differences and/or laboratory control spike and matrix spike duplicate relative percent differences (RPD). Quality control criteria impacting precision were met for the data reviewed.

Accuracy

Accuracy is a measure of confidence in a measurement. The smaller the difference between the measurement of a parameter and its "true" or expected value, the more accurate the measurement. Analytical accuracy was assessed through the measurement of percent recoveries in the surrogate spikes, laboratory control spike pairs (LCS/LCSD) and the matrix spike pairs (MS/MSD).

During the volatile organic compound (VOC) analysis, the MS/MSDs performed on parent samples MRC-SW18A-S-20210413 and MRC-SW8B-S-20210413 displayed several percent recoveries greater than the QC limits. The parent sample results associated with percent recoveries greater than the QC limits were non-detect, therefore, no data qualifying action was required.

Representativeness

Representativeness is the qualitative expression of the degree to which data accurately reflect site conditions. Factors that affect the representativeness of analytical data include appropriate sample population definitions, proper sample collection and preservation techniques, analytical holding times, use of standard analytical methods, and determination of matrix or analyte interferences. Representativeness is also monitored using negative controls such as trip blanks, field blanks, and equipment blanks, along with adherence to the standard operating procedures and sampling plans.

Method blanks were prepared at a frequency of one per laboratory QC batch and a total of one (1) trip blank was analyzed, at a rate of one per VOC sample cooler. These blanks were used as negative controls to assess data quality. The method blank prepared in batch WQ89524 displayed a detection greater than the reporting limit (RL) for 1,4-dioxane. The associated positive field sample results that displayed a concentration within five times the method blank detection were qualified B,bl. The qualified field sample results are usable as reported and should be considered potential false positives.

The aforementioned 1,4-dioxane method blank detection was discovered during the initial cursory review performed upon receipt of the laboratory deliverables. Although method blank detections are more commonly observed in low-level analyses such as 1,4-dioxane by SW-846 8270E-SIM, the concentration of the method blank was greater than the RL which, as a standard practice, should

have triggered a re-extraction and reanalysis of all associated field samples with detections of the target analyte. However, only the method blank was reanalyzed, confirming the contamination and no further corrective action or reanalysis of the associated field samples was performed at that time. AECOM reviewed the laboratory's Standard Operating Procedures (SOP) and found that the language pertaining to the reanalysis of samples associated with blank-contamination was not consistent with the recommended actions in the promulgated method (SW-846 8270E-SIM) and inappropriately included an exception to re-extraction and reanalysis for samples that had J-qualified results. Since the associated field sample results had been reported at concentrations between the method detection limit and the RL, they were J-flagged by the laboratory to be reported as estimated concentrations and were therefore wrongly excluded from being re-extracted and reanalyzed. The QA investigation initiated by the laboratory at the request of the AECOM project chemist confirmed that the SOP language was not in compliance with the laboratory's Quality Assurance Management Plan or the current USEPA method. The laboratory is currently in the process of revising their SOP before sending to AECOM for review. The corrective action report is attached in **Appendix B.**

Upon discovering the QC non-conformance, AECOM requested that the remaining volume for the affected samples be re-extracted and re-analyzed for 1,4-dioxane outside of the required extraction holding time of 14 days. At the time of re-extraction, 29 days had elapsed since sample collection. With the exception of MRC-SW17A, all re-extracted and reanalyzed results were non-detect. The associated method blank was also non-detect. The positive associated field sample result was flagged J-,h, while the non-detects were flagged UJ,h. The qualified results are potentially impacted by a negative bias from the holding time exceedance. Due to the historical presence of 1,4-dioxane in surface water samples from the same locations, only the initial results, qualified B,bl due to the method blank detection, are considered to be representative as conservative estimates and are recommended for use.

Comparability

Comparability is the extent to which data from one study can be compared directly to either past data from the current project or data from another study. Using standardized sampling and analytical methods, units of reporting, and site selection procedures helps ensure comparability. Standard field sampling methods and current CLP analytical methods by an accredited laboratory were used in this investigation.

Completeness

Completeness is a measure of the amount of valid data obtained from a measurement system compared to the amount of data expected under normal conditions. It is expected that laboratories will provide data meeting system quality control acceptance criteria for all samples tested. Project completeness is determined by evaluating the planned versus actual quantities of usable data. A total of 24 field samples were validated, including twenty-one (21) investigative surface water

samples, two (2) field duplicates, and one (1) trip blank. The data are usable, as qualified, for their intended purpose based on the data reviewed.

Sensitivity

Sensitivity reflects the ability of the analytical method to detect analytes of interest below the level of concern. This goal is achieved by identifying the level of concern, choosing a method with appropriate method detection limits, and ensuring that the laboratory analyzes calibration standards at or below the level of concern. The laboratory was able to achieve the lowest reporting limits based on the analytical methods employed and the variety of matrices encountered. No field sample results were reported from dilutions. Analytes detected below the reporting limit and above the method detection limit were reported and qualified “J” as estimated values by the laboratory.

Overall Impact on Data Usability

Overall data usability met the completeness requirement outlined in the QAPP at 100%. During the data validation, minor anomalies were noted which is to be anticipated based on statistical predictability of standard analytical procedures. A limited number of field sample results were qualified due to these minor anomalies. The data are considered usable as qualified, for their intended purpose based on the data reviewed.

III. Data Validation Findings

Volatile Organic Compounds

SW846-8260D	Description	Sample ID	Analyte	Value (Control Limit)
Holding Times	*No Anomalies*			
Method Blanks	*No Anomalies*			
Trip Blank	*No Anomalies*			
LCS/LCSD	*No Anomalies*			
MS/MSD	MS/MSD % Recovery	MRC-SW18A-S-20210413	1,2-Dichloroethane	218%/213% (70-130%)
		MRC-SW18A-S-20210413	Bromomethane	140%/132% (70-130%)
		MRC-SW18A-S-20210413	Chloromethane	141%/129% (60-140%)
		MRC-SW18A-S-20210413	Vinyl chloride	154%/145% (70-130%)
		MRC-SW18A-S-20210413	1,1-Dichloroethane	222%/208% (70-130%)
		MRC-SW8B-20210413	Ethylbenzene	233%/234% (70-130%)
		MRC-SW8B-20210413	Chlorobenzene	216/215% (70-130%)
		MRC-SW8B-20210413	Vinyl chloride	145%/136% (70-130%)
		MRC-SW8B-20210413	o-Xylene	232%/228% (70-130%)
Surrogate Spike	*No Anomalies*			
Laboratory Duplicates	*No Anomalies*			
Field Duplicates	*No Anomalies*			

1,4-Dioxane

SW846-8270E-SIM	Description	Sample ID	Analyte	Value (Control Limit)
Holding Times	Re-Extraction Method Exceedance	MRC-SW6-S-20210413	1,4-Dioxane	29 days (14 days)
		MRC-SW6B-S-20210413	1,4-Dioxane	29 days (14 days)
		MRC-SW8A-S-20210413	1,4-Dioxane	29 days (14 days)
		MRC-SW8B-S-20210413	1,4-Dioxane	29 days (14 days)
		MRC-SW8B-S-DUP-20210413	1,4-Dioxane	29 days (14 days)
		MRC-SW17A-20210413	1,4-Dioxane	29 days (14 days)
		MRC-SW1A-20210413	1,4-Dioxane	29 days (14 days)
		MRC-SW2A-20210413	1,4-Dioxane	29 days (14 days)
Method Blank	Detection > RL	WQ89524	1,4-Dioxane	0.24 µg/l (0.20 µg/l)
LCS/LCSD	*No Anomalies*			
MS/MSD	*No Anomalies*			
Surrogate Spike	*No Anomalies*			
Field Duplicates	*No Anomalies*			

PCB Homologs

SW-8270D SIM	Description	Sample ID	Analyte	Value (Control Limit)
Holding Times	*No Anomalies*			
Method Blank	*No Anomalies*			
LCS/LCSD	*No Anomalies*			
MS/MSD	*No Anomalies*			
Surrogate Spike	*No Anomalies*			
Field Duplicates	*No Anomalies*			

IV. Qualified Field Sample Results

Field Sample ID	Analytical Method	Analyte	Result	Units	Qualifier	Reason Code
MRC-SW17A-20210413	SW8270D SIM	1,4-Dioxane	0.18	µg/l	B	bl
MRC-SW6A-20210413	SW8270D SIM	1,4-Dioxane	0.099	µg/l	B	bl
MRC-SW6B-20210413	SW8270D SIM	1,4-Dioxane	0.088	µg/l	B	bl
MRC-SW8A-20210413	SW8270D SIM	1,4-Dioxane	0.12	µg/l	B	bl
MRC-SW1A-20210413	SW8270D SIM	1,4-Dioxane	0.15	µg/l	B	bl
MRC-SW2A-20210413	SW8270D SIM	1,4-Dioxane	0.15	µg/l	B	bl
MRC-SW8B-20210413	SW8270D SIM	1,4-Dioxane	0.15	µg/l	B	bl
MRC-SW8B-S-DUP-20210413	SW8270D SIM	1,4-Dioxane	0.13	µg/l	B	bl
MRC-SW17A-20210413	SW8270D SIM	1,4-Dioxane	0.086	µg/l	J-	h
MRC-SW6A-20210413	SW8270D SIM	1,4-Dioxane	ND	µg/l	UJ	h
MRC-SW6B-20210413	SW8270D SIM	1,4-Dioxane	ND	µg/l	UJ	h
MRC-SW8A-20210413	SW8270D SIM	1,4-Dioxane	ND	µg/l	UJ	h
MRC-SW1A-20210413	SW8270D SIM	1,4-Dioxane	ND	µg/l	UJ	h
MRC-SW2A-20210413	SW8270D SIM	1,4-Dioxane	ND	µg/l	UJ	h
MRC-SW8B-20210413	SW8270D SIM	1,4-Dioxane	ND	µg/l	UJ	h
MRC-SW8B-S-DUP-20210413	SW8270D SIM	1,4-Dioxane	ND	µg/l	UJ	h

Appendix A
Data Validation Qualifiers and Reason Codes

Data Qualifying Codes

Two types of data qualifying codes or flags are applied in the course of the data review. The data validation flags indicate data that are not usable for decision-making, more than normally biased and/or variable, or not representative of field conditions. These codes and their definitions are presented below in the hierarchy stipulated in the USEPA Contract Laboratory Program National Functional Guidelines for Organic (August 2014) Data Review and the USEPA Region III Guidelines for Organic (September 1994) for blank qualifications only.

Data Validation Flags

Flag	Interpretation
R	The sample results are unusable due to the quality of the data generated because certain criteria were not met. The analyte may or may not be present in the sample.
B	The analyte was analyzed for, but not detected at a level greater than or equal to the level of the adjusted Detection Limit (DL) for sample and method.
J+	Reported value may not be accurate or precise, but the result may be biased high.
J-	Reported value may not be accurate or precise, but the result may be biased low.
J	The analyte was positively identified and the associated numerical value is the approximate concentration of the analyte in the sample (due either to the quality of the data generated because certain quality control criteria were not met, or the concentration of the analyte was below the Limit of Detection (LOD).
NJ	The analysis indicates the presence of an analyte that has been “tentatively identified” and the associated numerical value represents its approximate concentration.
UJ	The analyte was not detected at a level greater than or equal to the adjusted DL. However, the reported adjusted DL is approximate and may be inaccurate or imprecise.
C	This qualifier applies to pesticide and Aroclor results when the identification has been confirmed by gas Chromatograph/Mass Spectrometer (GC/MS)
X	This qualifier applies to pesticide and Aroclor results when GC/MS analysis was attempted but was unsuccessful.

The other type of code used by AECOM is a “Reason Code”. The reason code indicates the type of quality control failure that led to the application of the data validation flag.

Reason Codes

Code	*Description*	*Code*	*Description*
a	Tracer recovery (radiochemical data only)	**ld**	Laboratory duplicate RPDs (matrix duplicate, MSD, LCSD)
be	Equipment blank contamination	**lp**	Laboratory control sample/laboratory control sample duplicate RPDs
bf	Field blank contamination	**m**	Matrix spike recovery
bi	Bias indeterminate	**md**	Matrix spike/matrix spike duplicate RPD
bl	Laboratory blank contamination	**nb**	Negative laboratory blank contamination
bm	Missing Blank Information	**p**	Chemical preservation issue
bt	Trip Blank	**pe**	Post Extraction Spike
c	Calibration issue	**ps**	Performance Evaluation Sample
cl	Clean-up standard recovery	**q**	Quantitation issue
cp	Insufficient in growth (radiochemical data only)	**r**	Dual column RPD
cr	Chromatographic resolution	**rp**	Re-extraction precision issue [PAHs only]
d	Reporting limit raised due to chromatographic interference	**rt**	SIM ions not within + 2 seconds
dt	Dissolved result > total over limit	**s**	Surrogate recovery
e	Ether interference	**sc**	Sample collection issues
fd	Field duplicate RPDs	**sp**	Sample preparation issue
h	Holding times	**su**	Evidence of ion suppression
hs	Sample headspace did not meet receiving requirements	**t**	Temperature Preservation Issue
i	Internal standard areas	**u**	High combined sample result uncertainty (radiochemical data only)
ii	Injection internal standard area or retention time exceedance	**v**	Compound identification issue
k	Estimated Maximum Possible Concentrations	**x**	Low % solids
l	LCS recoveries	**y**	Serial dilution results
lc	Labeled compound recovery	**z**	ICS results

Appendix B
Corrective Action Report

ID 22111
Current Step is Close
Date Expires is 9/2/2021 12:00:00 AM
Initiated by Catherine Dover
Submit For Quality Review by Catherine Dover on 5/25/2021 1:02:54 PM
Proceed to Correction by Kelly Nance on 5/25/2021 1:36:25 PM
Proceed to Cause Analysis by Kristina Bouknight on 5/25/2021 1:50:13 PM
Submit for Quality Review by Bradley Belding on 6/2/2021 9:49:28 AM
Proceed to Corrective Action by Kristina Bouknight on 6/2/2021 10:33:24 AM
Proceed to Risk Assessment by Kristina Bouknight on 6/2/2021 10:41:49 AM
Proceed to Effectiveness Review by Kristina Bouknight on 6/2/2021 10:44:39 AM
Close CAPA by Kristina Bouknight on 6/2/2021 10:45:47 AM

Close

ENV - Location
West Columbia

ENV - Quality Manager
Kelly Nance(3337)

ENV - Describe Problem
Enter the details of the problem only.
E-mail text from client for 1-4-dioxane Method blank issue (lot WD15023)

"I wanted to follow up about the method blank detection in SDG WD15023 for 1,4-dioxane that was greater than the RL. Our issue is with the rationale that was listed in the case narrative and provided by Karen while you were out: "We only re-extract the samples if the hits are greater than the LOQ and/or less than 10X the blank contamination; when the result is estimated with a J flag, we do not re-extract."

The laboratory's 8270 SOP and the QAMP (attached) do not support the decision not to re-extract the MB and all associated samples that had detections since they do show evidence of being impacted by the contamination. The sample detections were all reported from the same batch as the MB detection and were less than the RL. The criteria applied also does not agree with the suggested acceptance criteria in the method. According to the QAMP, action should have been taken to investigate and reduce the source of contamination as well.

ENV - Source
Select the option that initiated the process.
Customer Request

ENV - VoC Case Number
If feedback originated from Salesforce, enter VoC Case Number; otherwise enter "NA"
NA

ENV - Customer Information
If problem raised by customer, enter customer information

Company Name	Customer Name	Project Name	Pace Account Executive
AECOM	Zach Neigh/Teresa Amentt Jennings	MRC SW	Michael McFadden(3350)

ENV - Attach External File(s)
Upload additional information for use during CAPA Process

ENV - Inbox Display
Add a description for the CAPA that will show in the Inbox Display
Client request for 1,4-dioxane SIM sample re-extraction due to method blank detect in original analysis

ENV - Proceed with CAPA process?
Yes

ENV - Decision Rationale
Describe decision points used to make data recall determination
Client-requested. The client is correct, the SOP states:

The method blank must not contain any analyte of interest at or above ½ the LOQ or project specific-requirements. (Note: see appendices for state or program specific
requirements). If the method blank contains an analyte of interest at or above ½ the LOQ, then the method blank and associated samples must be reanalyzed. If the method blank contamination is confirmed, the entire batch must be re-prepared and reanalyzed. Reanalysis or re-extraction is not required if the samples are not impacted. Where
permitted by the program area or client, the following exceptions apply. Any method blank that does not meet acceptance criteria, is flagged on the data report with a B flag.
9.4.1.1. The method blank detection is not present in the sample.
9.4.1.2. The sample concentration is ≥10x the blank concentration

Due to this non-conformance, the client should have been notified of the method blank contamination as soon as the PM received the NCM documenting the issue.
The 8270 SOP requires clarification of section 9.4.1 as follows:
The statement – "Reanalysis or re-extraction is not required if the samples are not impacted" needs to be removed. The following language needs added to 9.4.1.1:
"If J flags are requested on samples associated with a method blank with a detection at or above ½ the LOQ any sample with a reportable result (including J value result) must be re-extracted and re-analyzed."

ENV - CAPA Leader (Quality)
Kristina Bouknight(3330)

ENV - Instructions for CAPA Leader
Need up determine whether to update process or clarify the SOP.

ENV - Correction
Describe Actions Taken to Contain The Problem
NA

ENV - Date Correction Completed 5/25/2021

ENV - Close After Correction?
No

ENV - Cause Analysis Leader
Bradley Belding(3293)

ENV - Date Due (Cause Analysis) 5/28/2021

ENV - Cause Analysis Team
Cause Analysis Team

Cause Analysis Team Leader	Cause Analysis Team Member (Familiar)	Cause Analysis Team Member (Unfamiliar)
Bradley Belding(3293)	Kelly Nance(3337)	Kristina Bouknight(3330)

ENV - Cause Analysis Method
5 Why

ENV - Root Cause Classification
Select the primary reason the problem occurred
No SOP / Procedure

ENV - Attach Cause Analysis Worksheet
22569 ME003TL-01 Root Cause Analysis 1_4_D.pdf

ENV - Attach Corrective Action Plan
22570 ME003TL-01 Root Cause Analysis 1_4_D1.pdf

ENV - Is Cause Analysis Acceptable?
Yes

ENV - Is Corrective Action Plan Acceptable?
Yes

ENV - Quality Review Comments
SOP update to clarify J flag hits.

ENV - Corrective Action(s) Leader
Kristina Bouknight(3330)

ENV - Corrective Actions Due Date 6/11/2021

ENV - Corrective Action Details

Describe Corrective Action Taken	Date Corrective Action Completed	Attach Objective Evidence (CA)	Work Area-Macro	Work Area-Micro	Process
Method SOP is in revision and suggested changes will be made to the SOP. The SOP needs to be reviewed by supervisor and go through approval process prior to publishing.	6/2/2021	22574 ME0014Q-15 Semivolatile Organic Compounds by GC MS Analysis EPA Methods 625.1 SW-846 8270D SW-846 8270E.pdf View	Quality	SVOA	SOP Writing / Review / Approval

ENV - Risk Assessment

Risk Assessment - Probability	Risk Assessment - Impact	Risk Assessment - Result
Unlikely - 30%	Marginal	Green- No Risk - PA Not Required

ENV - Risk Assessment Comments
Provide details of risks identified
Low risk

ENV - Is Preventive Action Required?
No

ENV - Preventive Action(s) Leader

ENV - Preventive Action Due Date

ENV - Preventive Action Instructions

ENV - Preventive Action Details
Enter details in the following field when preventive actions are needed

Describe Preventive Action Taken	Date PA Complete	Attach Objective Evidence (PA)	Work Area-Macro	Work Area-Micro	Process

ENV - Effectiveness Review Tracking
Did the corrective action taken address the root cause? And is it sustainable?

ENV - Effectiveness Check Stage	ENV - Effectiveness Review Method	ENV - Effectiveness Review Results
Initial	Verification Check	Acceptable

ENV - Effectiveness Failure Reason
If corrective actions were not effective, select the option that best matches the reason
Effectiveness Review was Acceptable

ENV - Effectiveness Review Comments
SOP is in the process of being updated. Follow up after publication.

ENV - Next Effectiveness Review Recheck Date
Select Future CAR Effectiveness Review Date
9/2/2021

ENV - Supplemental CAPA Needed
Describe actions taken to supplement original CAPA to resolve recurrence of problem

ENV - Date Supplemental CAPA Complete

ENV - Supplemental CAPA Objective Evidence

ENV - Audit Details

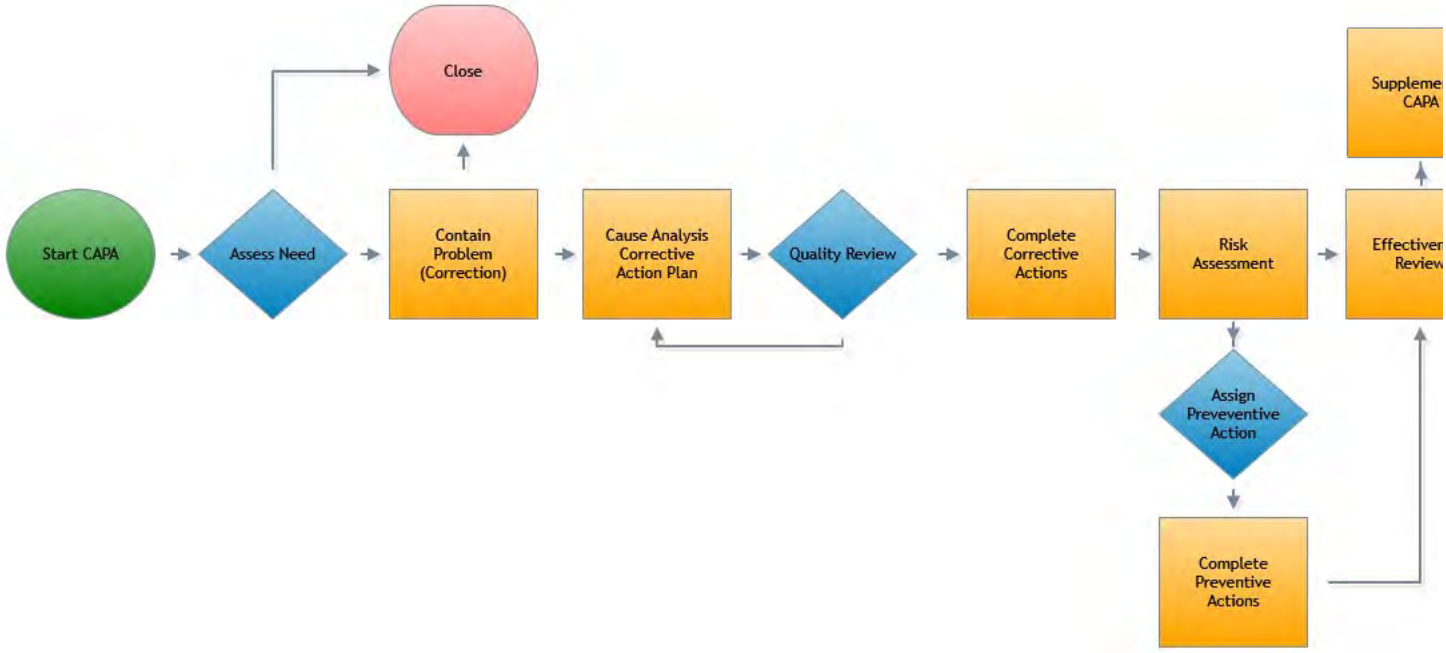
Audit Type	Audit Response Due Date	Audit Report Date	Assessment Body	Auditor(s)	Audit Start Date	Audit End Date

ENV - Audit Deficiency Details

Deficiency Classification	Problem	Requirement Reference	Enter Other Standard Reference	Work Area - General	Work Area - Specific	Test Method Reference

ENV - Problem Details

Describe Problem	Work Area	Test Method


Close
Start CAPA
Assess Need
Contain Problem (Correction)
Cause Analysis Corrective Action Plan
Quality Review
Complete Corrective Actions
Risk Assessment
Assign Preveventive Action
Complete Preventive Actions

APPENDIX C
Laboratory Analytical Report

ANALYTICAL REPORT

Lab Number:	L2118833
Client:	Pace Analytical Services 106 Vantage Point Drive West Columbia, SC 29172
ATTN:	Cathy Dover
Phone:	(803) 227-3160
Project Name:	MRC SWS 2021
Project Number:	60638276.007.1
Report Date:	04/30/21

Certifications & Approvals: MA (M-MA030), NH NELAP (2062), CT (PH-0141), DoD (L2474), FL (E87814), IL (200081), LA (85084), ME (MA00030), MD (350), NJ (MA015), NY (11627), NC (685), OH (CL106), PA (68-02089), RI (LAO00299), TX (T104704419), VT (VT-0015), VA (460194), WA (C954), US Army Corps of Engineers, USDA (Permit #P330-17-00150), USFWS (Permit #206964).

320 Forbes Boulevard, Mansfield, MA 02048-1806
508-822-9300 (Fax) 508-822-3288 800-624-9220 - www.alphalab.com

Project Name: MRC SWS 2021
Project Number: 60638276.007.1

Lab Number: L2118833
Report Date: 04/30/21

Alpha Sample ID	Client ID	Matrix	Sample Location	Collection Date/Time	Receive Date
L2118833-01	MRC-SW5A1-S-20210413	SURFACE WATER	MIDDLE RIVER, MD	04/13/21 15:10	04/14/21
L2118833-02	MRC-SW5A2-S-20210413	SURFACE WATER	MIDDLE RIVER, MD	04/13/21 14:40	04/14/21
L2118833-03	MRC-SW5B-S-20210413	SURFACE WATER	MIDDLE RIVER, MD	04/13/21 14:55	04/14/21
L2118833-04	MRC-SW6A-S-20210413	SURFACE WATER	MIDDLE RIVER, MD	04/13/21 09:55	04/14/21
L2118833-05	MRC-SW6B-S-20210413	SURFACE WATER	MIDDLE RIVER, MD	04/13/21 10:25	04/14/21
L2118833-06	MRC-SW7A-S-20210413	SURFACE WATER	MIDDLE RIVER, MD	04/13/21 09:11	04/14/21
L2118833-07	MRC-SW8A-S-20210413	SURFACE WATER	MIDDLE RIVER, MD	04/13/21 10:45	04/14/21
L2118833-08	MRC-SW8B-S-20210413	SURFACE WATER	MIDDLE RIVER, MD	04/13/21 11:05	04/14/21
L2118833-09	MRC-SW8B-S-DUP-20210413	SURFACE WATER	MIDDLE RIVER, MD	04/13/21 11:25	04/14/21
L2118833-10	MRC-SW9A-S-20210413	SURFACE WATER	MIDDLE RIVER, MD	04/13/21 09:31	04/14/21
L2118833-11	MRC-SW11A-S-20210413	SURFACE WATER	MIDDLE RIVER, MD	04/13/21 12:25	04/14/21
L2118833-12	MRC-SW11B-S-20210413	SURFACE WATER	MIDDLE RIVER, MD	04/13/21 12:45	04/14/21
L2118833-13	MRC-SW12A-S-20210413	SURFACE WATER	MIDDLE RIVER, MD	04/13/21 13:00	04/14/21
L2118833-14	MRC-SW13A-S-20210413	SURFACE WATER	MIDDLE RIVER, MD	04/13/21 13:30	04/14/21
L2118833-15	MRC-SW20A-S-20210413	SURFACE WATER	MIDDLE RIVER, MD	04/13/21 14:00	04/14/21
L2118833-16	MRC-SW15A-S-20210413	SURFACE WATER	MIDDLE RIVER, MD	04/13/21 12:10	04/14/21
L2118833-17	MRC-SW16A-S-20210413	SURFACE WATER	MIDDLE RIVER, MD	04/13/21 12:00	04/14/21
L2118833-18	MRC-SW18A-S-20210413	SURFACE WATER	MIDDLE RIVER, MD	04/13/21 14:10	04/14/21

Project Name:	MRC SWS 2021	**Lab Number:**	L2118833
Project Number:	60638276.007.1	**Report Date:**	04/30/21

Case Narrative

The samples were received in accordance with the Chain of Custody and no significant deviations were encountered during the preparation or analysis unless otherwise noted. Sample Receipt, Container Information, and the Chain of Custody are located at the back of the report.

Results contained within this report relate only to the samples submitted under this Alpha Lab Number and meet NELAP requirements for all NELAP accredited parameters unless otherwise noted in the following narrative. The data presented in this report is organized by parameter (i.e. VOC, SVOC, etc.). Sample specific Quality Control data (i.e. Surrogate Spike Recovery) is reported at the end of the target analyte list for each individual sample, followed by the Laboratory Batch Quality Control at the end of each parameter. Tentatively Identified Compounds (TICs), if requested, are reported for compounds identified to be present and are not part of the method/program Target Compound List, even if only a subset of the TCL are being reported. If a sample was re-analyzed or re-extracted due to a required quality control corrective action and if both sets of data are reported, the Laboratory ID of the re-analysis or re-extraction is designated with an "R" or "RE", respectively.

When multiple Batch Quality Control elements are reported (e.g. more than one LCS), the associated samples for each element are noted in the grey shaded header line of each data table. Any Laboratory Batch, Sample Specific % recovery or RPD value that is outside the listed Acceptance Criteria is bolded in the report. In reference to questions H (CAM) or 4 (RCP) when "NO" is checked, the performance criteria for CAM and RCP methods allow for some quality control failures to occur and still be within method compliance. In these instances, the specific failure is not narrated but noted in the associated QC Outlier Summary Report, located directly after the Case Narrative. QC information is also incorporated in the Data Usability Assessment table (Format 11) of our Data Merger tool, where it can be reviewed in conjunction with the sample result, associated regulatory criteria and any associated data usability implications.

Soil/sediments, solids and tissues are reported on a dry weight basis unless otherwise noted. Definitions of all data qualifiers and acronyms used in this report are provided in the Glossary located at the back of the report.

HOLD POLICY - For samples submitted on hold, Alpha's policy is to hold samples (with the exception of Air canisters) free of charge for 21 calendar days from the date the project is completed. After 21 calendar days, we will dispose of all samples submitted including those put on hold unless you have contacted your Alpha Project Manager and made arrangements for Alpha to continue to hold the samples. Air canisters will be disposed after 3 business days from the date the project is completed.

Please contact Project Management at 800-624-9220 with any questions.

Project Name:	MRC SWS 2021	**Lab Number:**	L2118833
Project Number:	60638276.007.1	**Report Date:**	04/30/21

Case Narrative (continued)

Report Submission

All non-detect (ND) or estimated concentrations (J-qualified) have been quantitated to the limit noted in the MDL column.

I, the undersigned, attest under the pains and penalties of perjury that, to the best of my knowledge and belief and based upon my personal inquiry of those responsible for providing the information contained in this analytical report, such information is accurate and complete. This certificate of analysis is not complete unless this page accompanies any and all pages of this report.

Authorized Signature: Susan E O'Neil Susan O' Neil

Title: Technical Director/Representative Date: 04/30/21

ORGANICS

PCBS

Project Name: MRC SWS 2021 **Lab Number:** L2118833

Project Number: 60638276.007.1 **Report Date:** 04/30/21

SAMPLE RESULTS

Lab ID: L2118833-01
Client ID: MRC-SW5A1-S-20210413
Sample Location: MIDDLE RIVER, MD

Date Collected: 04/13/21 15:10
Date Received: 04/14/21
Field Prep: Not Specified

Sample Depth:
Matrix: Surface Water
Analytical Method: 105,8270D-SIM/680(M)
Analytical Date: 04/22/21 14:48
Analyst: CC

Extraction Method: EPA 3510C
Extraction Date: 04/20/21 09:30

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
PCB Congeners/Homologs - Mansfield Lab						
Monochlorobiphenyls	ND		ng/l	0.500	0.250	1
Dichlorobiphenyls	ND		ng/l	0.500	0.250	1
Trichlorobiphenyls	ND		ng/l	0.500	0.250	1
Tetrachlorobiphenyls	ND		ng/l	0.500	0.250	1
Pentachlorobiphenyls	ND		ng/l	0.500	0.250	1
Hexachlorobiphenyls	ND		ng/l	0.500	0.250	1
Heptachlorobiphenyls	ND		ng/l	0.500	0.250	1
Octachlorobiphenyls	ND		ng/l	0.500	0.250	1
Nonachlorobiphenyls	ND		ng/l	0.500	0.250	1
Decachlorobiphenyl	ND		ng/l	0.500	0.250	1
Total PCB	ND		ng/l	0.500	NA	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
Cl3-BZ#19-C13 (surr)	75		50-125
Cl8-BZ#202-C13 (surr)	83		50-125

Project Name: MRC SWS 2021 **Lab Number:** L2118833

Project Number: 60638276.007.1 **Report Date:** 04/30/21

SAMPLE RESULTS

Lab ID: L2118833-02
Client ID: MRC-SW5A2-S-20210413
Sample Location: MIDDLE RIVER, MD

Date Collected: 04/13/21 14:40
Date Received: 04/14/21
Field Prep: Not Specified

Sample Depth:
Matrix: Surface Water
Analytical Method: 105,8270D-SIM/680(M)
Analytical Date: 04/22/21 16:04
Analyst: CC

Extraction Method: EPA 3510C
Extraction Date: 04/20/21 09:30

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
PCB Congeners/Homologs - Mansfield Lab						
Monochlorobiphenyls	ND		ng/l	0.500	0.250	1
Dichlorobiphenyls	0.286	J	ng/l	0.500	0.250	1
Trichlorobiphenyls	0.352	J	ng/l	0.500	0.250	1
Tetrachlorobiphenyls	ND		ng/l	0.500	0.250	1
Pentachlorobiphenyls	ND		ng/l	0.500	0.250	1
Hexachlorobiphenyls	0.304	J	ng/l	0.500	0.250	1
Heptachlorobiphenyls	ND		ng/l	0.500	0.250	1
Octachlorobiphenyls	ND		ng/l	0.500	0.250	1
Nonachlorobiphenyls	ND		ng/l	0.500	0.250	1
Decachlorobiphenyl	ND		ng/l	0.500	0.250	1
Total PCB	0.942		ng/l	0.500	NA	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
Cl3-BZ#19-C13 (surr)	81		50-125
Cl8-BZ#202-C13 (surr)	86		50-125

Project Name: MRC SWS 2021 **Lab Number:** L2118833

Project Number: 60638276.007.1 **Report Date:** 04/30/21

SAMPLE RESULTS

Lab ID: L2118833-03
Client ID: MRC-SW5B-S-20210413
Sample Location: MIDDLE RIVER, MD

Date Collected: 04/13/21 14:55
Date Received: 04/14/21
Field Prep: Not Specified

Sample Depth:
Matrix: Surface Water
Analytical Method: 105,8270D-SIM/680(M)
Analytical Date: 04/22/21 17:21
Analyst: CC

Extraction Method: EPA 3510C
Extraction Date: 04/20/21 09:30

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
PCB Congeners/Homologs - Mansfield Lab						
Monochlorobiphenyls	ND		ng/l	0.490	0.245	1
Dichlorobiphenyls	0.274	J	ng/l	0.490	0.245	1
Trichlorobiphenyls	0.327	J	ng/l	0.490	0.245	1
Tetrachlorobiphenyls	ND		ng/l	0.490	0.245	1
Pentachlorobiphenyls	ND		ng/l	0.490	0.245	1
Hexachlorobiphenyls	ND		ng/l	0.490	0.245	1
Heptachlorobiphenyls	ND		ng/l	0.490	0.245	1
Octachlorobiphenyls	ND		ng/l	0.490	0.245	1
Nonachlorobiphenyls	ND		ng/l	0.490	0.245	1
Decachlorobiphenyl	ND		ng/l	0.490	0.245	1
Total PCB	0.601		ng/l	0.490	NA	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
Cl3-BZ#19-C13 (surr)	78		50-125
Cl8-BZ#202-C13 (surr)	83		50-125

Project Name: MRC SWS 2021 **Lab Number:** L2118833

Project Number: 60638276.007.1 **Report Date:** 04/30/21

SAMPLE RESULTS

Lab ID: L2118833-04
Client ID: MRC-SW6A-S-20210413
Sample Location: MIDDLE RIVER, MD

Date Collected: 04/13/21 09:55
Date Received: 04/14/21
Field Prep: Not Specified

Sample Depth:
Matrix: Surface Water
Analytical Method: 105,8270D-SIM/680(M)
Analytical Date: 04/22/21 18:38
Analyst: CC

Extraction Method: EPA 3510C
Extraction Date: 04/20/21 09:30

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
PCB Congeners/Homologs - Mansfield Lab						
Monochlorobiphenyls	ND		ng/l	0.526	0.263	1
Dichlorobiphenyls	0.269	J	ng/l	0.526	0.263	1
Trichlorobiphenyls	0.330	J	ng/l	0.526	0.263	1
Tetrachlorobiphenyls	ND		ng/l	0.526	0.263	1
Pentachlorobiphenyls	ND		ng/l	0.526	0.263	1
Hexachlorobiphenyls	ND		ng/l	0.526	0.263	1
Heptachlorobiphenyls	ND		ng/l	0.526	0.263	1
Octachlorobiphenyls	ND		ng/l	0.526	0.263	1
Nonachlorobiphenyls	ND		ng/l	0.526	0.263	1
Decachlorobiphenyl	ND		ng/l	0.526	0.263	1
Total PCB	0.599		ng/l	0.526	NA	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
Cl3-BZ#19-C13 (surr)	81		50-125
Cl8-BZ#202-C13 (surr)	87		50-125

Project Name: MRC SWS 2021 **Lab Number:** L2118833

Project Number: 60638276.007.1 **Report Date:** 04/30/21

SAMPLE RESULTS

Lab ID: L2118833-05
Client ID: MRC-SW6B-S-20210413
Sample Location: MIDDLE RIVER, MD

Date Collected: 04/13/21 10:25
Date Received: 04/14/21
Field Prep: Not Specified

Sample Depth:
Matrix: Surface Water
Analytical Method: 105,8270D-SIM/680(M)
Analytical Date: 04/22/21 19:54
Analyst: CC

Extraction Method: EPA 3510C
Extraction Date: 04/20/21 09:30

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
PCB Congeners/Homologs - Mansfield Lab						
Monochlorobiphenyls	ND		ng/l	0.526	0.263	1
Dichlorobiphenyls	ND		ng/l	0.526	0.263	1
Trichlorobiphenyls	0.317	J	ng/l	0.526	0.263	1
Tetrachlorobiphenyls	ND		ng/l	0.526	0.263	1
Pentachlorobiphenyls	ND		ng/l	0.526	0.263	1
Hexachlorobiphenyls	0.352	J	ng/l	0.526	0.263	1
Heptachlorobiphenyls	0.279	J	ng/l	0.526	0.263	1
Octachlorobiphenyls	ND		ng/l	0.526	0.263	1
Nonachlorobiphenyls	ND		ng/l	0.526	0.263	1
Decachlorobiphenyl	ND		ng/l	0.526	0.263	1
Total PCB	0.948		ng/l	0.526	NA	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
Cl3-BZ#19-C13 (surr)	75		50-125
Cl8-BZ#202-C13 (surr)	81		50-125

Project Name: MRC SWS 2021 **Lab Number:** L2118833

Project Number: 60638276.007.1 **Report Date:** 04/30/21

SAMPLE RESULTS

Lab ID: L2118833-06
Client ID: MRC-SW7A-S-20210413
Sample Location: MIDDLE RIVER, MD

Date Collected: 04/13/21 09:11
Date Received: 04/14/21
Field Prep: Not Specified

Sample Depth:
Matrix: Surface Water
Analytical Method: 105,8270D-SIM/680(M)
Analytical Date: 04/22/21 21:11
Analyst: CC

Extraction Method: EPA 3510C
Extraction Date: 04/20/21 09:30

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
PCB Congeners/Homologs - Mansfield Lab						
Monochlorobiphenyls	ND		ng/l	0.526	0.263	1
Dichlorobiphenyls	0.312	J	ng/l	0.526	0.263	1
Trichlorobiphenyls	0.324	J	ng/l	0.526	0.263	1
Tetrachlorobiphenyls	ND		ng/l	0.526	0.263	1
Pentachlorobiphenyls	ND		ng/l	0.526	0.263	1
Hexachlorobiphenyls	ND		ng/l	0.526	0.263	1
Heptachlorobiphenyls	ND		ng/l	0.526	0.263	1
Octachlorobiphenyls	ND		ng/l	0.526	0.263	1
Nonachlorobiphenyls	ND		ng/l	0.526	0.263	1
Decachlorobiphenyl	ND		ng/l	0.526	0.263	1
Total PCB	0.636		ng/l	0.526	NA	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
Cl3-BZ#19-C13 (surr)	81		50-125
Cl8-BZ#202-C13 (surr)	90		50-125

Project Name: MRC SWS 2021 **Lab Number:** L2118833

Project Number: 60638276.007.1 **Report Date:** 04/30/21

SAMPLE RESULTS

Lab ID: L2118833-07
Client ID: MRC-SW8A-S-20210413
Sample Location: MIDDLE RIVER, MD

Date Collected: 04/13/21 10:45
Date Received: 04/14/21
Field Prep: Not Specified

Sample Depth:
Matrix: Surface Water
Analytical Method: 105,8270D-SIM/680(M)
Analytical Date: 04/23/21 00:50
Analyst: CC

Extraction Method: EPA 3510C
Extraction Date: 04/20/21 09:30

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
PCB Congeners/Homologs - Mansfield Lab						
Monochlorobiphenyls	ND		ng/l	0.526	0.263	1
Dichlorobiphenyls	0.273	J	ng/l	0.526	0.263	1
Trichlorobiphenyls	0.306	J	ng/l	0.526	0.263	1
Tetrachlorobiphenyls	ND		ng/l	0.526	0.263	1
Pentachlorobiphenyls	ND		ng/l	0.526	0.263	1
Hexachlorobiphenyls	ND		ng/l	0.526	0.263	1
Heptachlorobiphenyls	ND		ng/l	0.526	0.263	1
Octachlorobiphenyls	ND		ng/l	0.526	0.263	1
Nonachlorobiphenyls	ND		ng/l	0.526	0.263	1
Decachlorobiphenyl	ND		ng/l	0.526	0.263	1
Total PCB	0.579		ng/l	0.526	NA	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
Cl3-BZ#19-C13 (surr)	78		50-125
Cl8-BZ#202-C13 (surr)	84		50-125

Project Name: MRC SWS 2021 **Lab Number:** L2118833

Project Number: 60638276.007.1 **Report Date:** 04/30/21

SAMPLE RESULTS

Lab ID: L2118833-08
Client ID: MRC-SW8B-S-20210413
Sample Location: MIDDLE RIVER, MD

Date Collected: 04/13/21 11:05
Date Received: 04/14/21
Field Prep: Not Specified

Sample Depth:
Matrix: Surface Water
Analytical Method: 105,8270D-SIM/680(M)
Analytical Date: 04/23/21 02:07
Analyst: CC

Extraction Method: EPA 3510C
Extraction Date: 04/20/21 09:30

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
PCB Congeners/Homologs - Mansfield Lab						
Monochlorobiphenyls	ND		ng/l	0.490	0.245	1
Dichlorobiphenyls	0.264	J	ng/l	0.490	0.245	1
Trichlorobiphenyls	0.334	J	ng/l	0.490	0.245	1
Tetrachlorobiphenyls	ND		ng/l	0.490	0.245	1
Pentachlorobiphenyls	ND		ng/l	0.490	0.245	1
Hexachlorobiphenyls	0.248	J	ng/l	0.490	0.245	1
Heptachlorobiphenyls	ND		ng/l	0.490	0.245	1
Octachlorobiphenyls	ND		ng/l	0.490	0.245	1
Nonachlorobiphenyls	ND		ng/l	0.490	0.245	1
Decachlorobiphenyl	ND		ng/l	0.490	0.245	1
Total PCB	0.846		ng/l	0.490	NA	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
Cl3-BZ#19-C13 (surr)	75		50-125
Cl8-BZ#202-C13 (surr)	83		50-125

Project Name: MRC SWS 2021 **Lab Number:** L2118833

Project Number: 60638276.007.1 **Report Date:** 04/30/21

SAMPLE RESULTS

Lab ID: L2118833-09
Client ID: MRC-SW8B-S-DUP-20210413
Sample Location: MIDDLE RIVER, MD

Date Collected: 04/13/21 11:25
Date Received: 04/14/21
Field Prep: Not Specified

Sample Depth:
Matrix: Surface Water
Analytical Method: 105,8270D-SIM/680(M)
Analytical Date: 04/23/21 03:23
Analyst: CC

Extraction Method: EPA 3510C
Extraction Date: 04/20/21 09:30

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
PCB Congeners/Homologs - Mansfield Lab						
Monochlorobiphenyls	ND		ng/l	0.526	0.263	1
Dichlorobiphenyls	0.268	J	ng/l	0.526	0.263	1
Trichlorobiphenyls	0.307	J	ng/l	0.526	0.263	1
Tetrachlorobiphenyls	ND		ng/l	0.526	0.263	1
Pentachlorobiphenyls	ND		ng/l	0.526	0.263	1
Hexachlorobiphenyls	ND		ng/l	0.526	0.263	1
Heptachlorobiphenyls	ND		ng/l	0.526	0.263	1
Octachlorobiphenyls	ND		ng/l	0.526	0.263	1
Nonachlorobiphenyls	ND		ng/l	0.526	0.263	1
Decachlorobiphenyl	ND		ng/l	0.526	0.263	1
Total PCB	0.575		ng/l	0.526	NA	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
Cl3-BZ#19-C13 (surr)	79		50-125
Cl8-BZ#202-C13 (surr)	86		50-125

Project Name: MRC SWS 2021 **Lab Number:** L2118833

Project Number: 60638276.007.1 **Report Date:** 04/30/21

SAMPLE RESULTS

Lab ID: L2118833-10
Client ID: MRC-SW9A-S-20210413
Sample Location: MIDDLE RIVER, MD

Date Collected: 04/13/21 09:31
Date Received: 04/14/21
Field Prep: Not Specified

Sample Depth:
Matrix: Surface Water
Analytical Method: 105,8270D-SIM/680(M)
Analytical Date: 04/23/21 04:40
Analyst: CC

Extraction Method: EPA 3510C
Extraction Date: 04/20/21 09:30

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
PCB Congeners/Homologs - Mansfield Lab						
Monochlorobiphenyls	ND		ng/l	0.526	0.263	1
Dichlorobiphenyls	0.285	J	ng/l	0.526	0.263	1
Trichlorobiphenyls	0.378	J	ng/l	0.526	0.263	1
Tetrachlorobiphenyls	ND		ng/l	0.526	0.263	1
Pentachlorobiphenyls	ND		ng/l	0.526	0.263	1
Hexachlorobiphenyls	0.345	J	ng/l	0.526	0.263	1
Heptachlorobiphenyls	ND		ng/l	0.526	0.263	1
Octachlorobiphenyls	ND		ng/l	0.526	0.263	1
Nonachlorobiphenyls	ND		ng/l	0.526	0.263	1
Decachlorobiphenyl	ND		ng/l	0.526	0.263	1
Total PCB	1.01		ng/l	0.526	NA	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
Cl3-BZ#19-C13 (surr)	78		50-125
Cl8-BZ#202-C13 (surr)	86		50-125

Project Name: MRC SWS 2021 **Lab Number:** L2118833

Project Number: 60638276.007.1 **Report Date:** 04/30/21

SAMPLE RESULTS

Lab ID: L2118833-11
Client ID: MRC-SW11A-S-20210413
Sample Location: MIDDLE RIVER, MD

Date Collected: 04/13/21 12:25
Date Received: 04/14/21
Field Prep: Not Specified

Sample Depth:
Matrix: Surface Water
Analytical Method: 105,8270D-SIM/680(M)
Analytical Date: 04/23/21 05:57
Analyst: CC

Extraction Method: EPA 3510C
Extraction Date: 04/20/21 09:30

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
PCB Congeners/Homologs - Mansfield Lab						
Monochlorobiphenyls	ND		ng/l	0.526	0.263	1
Dichlorobiphenyls	ND		ng/l	0.526	0.263	1
Trichlorobiphenyls	0.350	J	ng/l	0.526	0.263	1
Tetrachlorobiphenyls	ND		ng/l	0.526	0.263	1
Pentachlorobiphenyls	ND		ng/l	0.526	0.263	1
Hexachlorobiphenyls	0.287	J	ng/l	0.526	0.263	1
Heptachlorobiphenyls	ND		ng/l	0.526	0.263	1
Octachlorobiphenyls	ND		ng/l	0.526	0.263	1
Nonachlorobiphenyls	ND		ng/l	0.526	0.263	1
Decachlorobiphenyl	ND		ng/l	0.526	0.263	1
Total PCB	0.637		ng/l	0.526	NA	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
Cl3-BZ#19-C13 (surr)	75		50-125
Cl8-BZ#202-C13 (surr)	86		50-125

Project Name: MRC SWS 2021 **Lab Number:** L2118833

Project Number: 60638276.007.1 **Report Date:** 04/30/21

SAMPLE RESULTS

Lab ID: L2118833-12
Client ID: MRC-SW11B-S-20210413
Sample Location: MIDDLE RIVER, MD

Date Collected: 04/13/21 12:45
Date Received: 04/14/21
Field Prep: Not Specified

Sample Depth:
Matrix: Surface Water
Analytical Method: 105,8270D-SIM/680(M)
Analytical Date: 04/23/21 07:13
Analyst: CC

Extraction Method: EPA 3510C
Extraction Date: 04/20/21 09:30

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
PCB Congeners/Homologs - Mansfield Lab						
Monochlorobiphenyls	ND		ng/l	0.526	0.263	1
Dichlorobiphenyls	0.295	J	ng/l	0.526	0.263	1
Trichlorobiphenyls	0.316	J	ng/l	0.526	0.263	1
Tetrachlorobiphenyls	ND		ng/l	0.526	0.263	1
Pentachlorobiphenyls	ND		ng/l	0.526	0.263	1
Hexachlorobiphenyls	ND		ng/l	0.526	0.263	1
Heptachlorobiphenyls	ND		ng/l	0.526	0.263	1
Octachlorobiphenyls	ND		ng/l	0.526	0.263	1
Nonachlorobiphenyls	ND		ng/l	0.526	0.263	1
Decachlorobiphenyl	ND		ng/l	0.526	0.263	1
Total PCB	0.611		ng/l	0.526	NA	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
Cl3-BZ#19-C13 (surr)	77		50-125
Cl8-BZ#202-C13 (surr)	90		50-125

Project Name: MRC SWS 2021 **Lab Number:** L2118833

Project Number: 60638276.007.1 **Report Date:** 04/30/21

SAMPLE RESULTS

Lab ID: L2118833-13
Client ID: MRC-SW12A-S-20210413
Sample Location: MIDDLE RIVER, MD

Date Collected: 04/13/21 13:00
Date Received: 04/14/21
Field Prep: Not Specified

Sample Depth:
Matrix: Surface Water
Analytical Method: 105,8270D-SIM/680(M)
Analytical Date: 04/23/21 08:30
Analyst: CC

Extraction Method: EPA 3510C
Extraction Date: 04/20/21 09:30

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
PCB Congeners/Homologs - Mansfield Lab						
Monochlorobiphenyls	ND		ng/l	0.500	0.250	1
Dichlorobiphenyls	0.299	J	ng/l	0.500	0.250	1
Trichlorobiphenyls	0.510		ng/l	0.500	0.250	1
Tetrachlorobiphenyls	ND		ng/l	0.500	0.250	1
Pentachlorobiphenyls	ND		ng/l	0.500	0.250	1
Hexachlorobiphenyls	ND		ng/l	0.500	0.250	1
Heptachlorobiphenyls	0.289	J	ng/l	0.500	0.250	1
Octachlorobiphenyls	ND		ng/l	0.500	0.250	1
Nonachlorobiphenyls	ND		ng/l	0.500	0.250	1
Decachlorobiphenyl	ND		ng/l	0.500	0.250	1
Total PCB	1.10		ng/l	0.500	NA	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
Cl3-BZ#19-C13 (surr)	73		50-125
Cl8-BZ#202-C13 (surr)	79		50-125

Project Name: MRC SWS 2021 **Lab Number:** L2118833

Project Number: 60638276.007.1 **Report Date:** 04/30/21

SAMPLE RESULTS

Lab ID: L2118833-14
Client ID: MRC-SW13A-S-20210413
Sample Location: MIDDLE RIVER, MD

Date Collected: 04/13/21 13:30
Date Received: 04/14/21
Field Prep: Not Specified

Sample Depth:
Matrix: Surface Water
Analytical Method: 105,8270D-SIM/680(M)
Analytical Date: 04/23/21 09:46
Analyst: CC

Extraction Method: EPA 3510C
Extraction Date: 04/20/21 09:30

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
PCB Congeners/Homologs - Mansfield Lab						
Monochlorobiphenyls	ND		ng/l	0.515	0.258	1
Dichlorobiphenyls	0.301	J	ng/l	0.515	0.258	1
Trichlorobiphenyls	0.589		ng/l	0.515	0.258	1
Tetrachlorobiphenyls	ND		ng/l	0.515	0.258	1
Pentachlorobiphenyls	ND		ng/l	0.515	0.258	1
Hexachlorobiphenyls	ND		ng/l	0.515	0.258	1
Heptachlorobiphenyls	ND		ng/l	0.515	0.258	1
Octachlorobiphenyls	ND		ng/l	0.515	0.258	1
Nonachlorobiphenyls	ND		ng/l	0.515	0.258	1
Decachlorobiphenyl	ND		ng/l	0.515	0.258	1
Total PCB	0.890		ng/l	0.515	NA	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
Cl3-BZ#19-C13 (surr)	77		50-125
Cl8-BZ#202-C13 (surr)	84		50-125

Project Name: MRC SWS 2021 **Lab Number:** L2118833

Project Number: 60638276.007.1 **Report Date:** 04/30/21

SAMPLE RESULTS

Lab ID: L2118833-15
Client ID: MRC-SW20A-S-20210413
Sample Location: MIDDLE RIVER, MD

Date Collected: 04/13/21 14:00
Date Received: 04/14/21
Field Prep: Not Specified

Sample Depth:
Matrix: Surface Water
Analytical Method: 105,8270D-SIM/680(M)
Analytical Date: 04/23/21 11:03
Analyst: CC

Extraction Method: EPA 3510C
Extraction Date: 04/20/21 09:30

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
PCB Congeners/Homologs - Mansfield Lab						
Monochlorobiphenyls	ND		ng/l	0.515	0.258	1
Dichlorobiphenyls	0.314	J	ng/l	0.515	0.258	1
Trichlorobiphenyls	0.582		ng/l	0.515	0.258	1
Tetrachlorobiphenyls	ND		ng/l	0.515	0.258	1
Pentachlorobiphenyls	ND		ng/l	0.515	0.258	1
Hexachlorobiphenyls	ND		ng/l	0.515	0.258	1
Heptachlorobiphenyls	ND		ng/l	0.515	0.258	1
Octachlorobiphenyls	ND		ng/l	0.515	0.258	1
Nonachlorobiphenyls	ND		ng/l	0.515	0.258	1
Decachlorobiphenyl	ND		ng/l	0.515	0.258	1
Total PCB	0.896		ng/l	0.515	NA	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
Cl3-BZ#19-C13 (surr)	78		50-125
Cl8-BZ#202-C13 (surr)	86		50-125

Project Name: MRC SWS 2021 **Lab Number:** L2118833

Project Number: 60638276.007.1 **Report Date:** 04/30/21

SAMPLE RESULTS

Lab ID: L2118833-16
Client ID: MRC-SW15A-S-20210413
Sample Location: MIDDLE RIVER, MD

Date Collected: 04/13/21 12:10
Date Received: 04/14/21
Field Prep: Not Specified

Sample Depth:
Matrix: Surface Water
Analytical Method: 105,8270D-SIM/680(M)
Analytical Date: 04/23/21 12:20
Analyst: CC

Extraction Method: EPA 3510C
Extraction Date: 04/20/21 09:30

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
PCB Congeners/Homologs - Mansfield Lab						
Monochlorobiphenyls	ND		ng/l	0.526	0.263	1
Dichlorobiphenyls	0.305	J	ng/l	0.526	0.263	1
Trichlorobiphenyls	0.313	J	ng/l	0.526	0.263	1
Tetrachlorobiphenyls	ND		ng/l	0.526	0.263	1
Pentachlorobiphenyls	ND		ng/l	0.526	0.263	1
Hexachlorobiphenyls	0.355	J	ng/l	0.526	0.263	1
Heptachlorobiphenyls	ND		ng/l	0.526	0.263	1
Octachlorobiphenyls	ND		ng/l	0.526	0.263	1
Nonachlorobiphenyls	ND		ng/l	0.526	0.263	1
Decachlorobiphenyl	ND		ng/l	0.526	0.263	1
Total PCB	0.973		ng/l	0.526	NA	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
Cl3-BZ#19-C13 (surr)	74		50-125
Cl8-BZ#202-C13 (surr)	78		50-125

Project Name: MRC SWS 2021 **Lab Number:** L2118833

Project Number: 60638276.007.1 **Report Date:** 04/30/21

SAMPLE RESULTS

Lab ID: L2118833-17
Client ID: MRC-SW16A-S-20210413
Sample Location: MIDDLE RIVER, MD

Date Collected: 04/13/21 12:00
Date Received: 04/14/21
Field Prep: Not Specified

Sample Depth:
Matrix: Surface Water
Analytical Method: 105,8270D-SIM/680(M)
Analytical Date: 04/23/21 17:15
Analyst: CC

Extraction Method: EPA 3510C
Extraction Date: 04/20/21 09:30

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
PCB Congeners/Homologs - Mansfield Lab						
Monochlorobiphenyls	ND		ng/l	0.526	0.263	1
Dichlorobiphenyls	0.317	J	ng/l	0.526	0.263	1
Trichlorobiphenyls	0.604		ng/l	0.526	0.263	1
Tetrachlorobiphenyls	ND		ng/l	0.526	0.263	1
Pentachlorobiphenyls	ND		ng/l	0.526	0.263	1
Hexachlorobiphenyls	ND		ng/l	0.526	0.263	1
Heptachlorobiphenyls	ND		ng/l	0.526	0.263	1
Octachlorobiphenyls	ND		ng/l	0.526	0.263	1
Nonachlorobiphenyls	ND		ng/l	0.526	0.263	1
Decachlorobiphenyl	ND		ng/l	0.526	0.263	1
Total PCB	0.921		ng/l	0.526	NA	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
Cl3-BZ#19-C13 (surr)	56		50-125
Cl8-BZ#202-C13 (surr)	69		50-125

Project Name: MRC SWS 2021 **Lab Number:** L2118833

Project Number: 60638276.007.1 **Report Date:** 04/30/21

SAMPLE RESULTS

Lab ID: L2118833-18
Client ID: MRC-SW18A-S-20210413
Sample Location: MIDDLE RIVER, MD

Date Collected: 04/13/21 14:10
Date Received: 04/14/21
Field Prep: Not Specified

Sample Depth:
Matrix: Surface Water
Analytical Method: 105,8270D-SIM/680(M)
Analytical Date: 04/23/21 18:32
Analyst: CC

Extraction Method: EPA 3510C
Extraction Date: 04/20/21 09:30

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
PCB Congeners/Homologs - Mansfield Lab						
Monochlorobiphenyls	ND		ng/l	0.500	0.250	1
Dichlorobiphenyls	0.265	J	ng/l	0.500	0.250	1
Trichlorobiphenyls	0.350	J	ng/l	0.500	0.250	1
Tetrachlorobiphenyls	ND		ng/l	0.500	0.250	1
Pentachlorobiphenyls	ND		ng/l	0.500	0.250	1
Hexachlorobiphenyls	ND		ng/l	0.500	0.250	1
Heptachlorobiphenyls	ND		ng/l	0.500	0.250	1
Octachlorobiphenyls	ND		ng/l	0.500	0.250	1
Nonachlorobiphenyls	ND		ng/l	0.500	0.250	1
Decachlorobiphenyl	ND		ng/l	0.500	0.250	1
Total PCB	0.615		ng/l	0.500	NA	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
Cl3-BZ#19-C13 (surr)	66		50-125
Cl8-BZ#202-C13 (surr)	79		50-125

Project Name: MRC SWS 2021 **Lab Number:** L2118833

Project Number: 60638276.007.1 **Report Date:** 04/30/21

Method Blank Analysis
Batch Quality Control

Analytical Method: 105,8270D-SIM/680(M)
Analytical Date: 04/22/21 10:58
Analyst: CC

Extraction Method: EPA 3510C
Extraction Date: 04/20/21 09:30

Parameter	Result	Qualifier	Units	RL	MDL
PCB Congeners/Homologs - Mansfield Lab for sample(s): 01-18 Batch: WG1488353-1					
Monochlorobiphenyls	ND		ng/l	0.500	0.250
Dichlorobiphenyls	ND		ng/l	0.500	0.250
Trichlorobiphenyls	ND		ng/l	0.500	0.250
Tetrachlorobiphenyls	ND		ng/l	0.500	0.250
Pentachlorobiphenyls	ND		ng/l	0.500	0.250
Hexachlorobiphenyls	ND		ng/l	0.500	0.250
Heptachlorobiphenyls	ND		ng/l	0.500	0.250
Octachlorobiphenyls	ND		ng/l	0.500	0.250
Nonachlorobiphenyls	ND		ng/l	0.500	0.250
Decachlorobiphenyl	ND		ng/l	0.500	0.250
Total PCB	ND		ng/l	0.500	NA

Surrogate	%Recovery	Qualifier	Acceptance Criteria
Cl3-BZ#19-C13 (surr)	72		50-125
Cl8-BZ#202-C13 (surr)	81		50-125

Lab Control Sample Analysis

Batch Quality Control

Project Name: MRC SWS 2021

Project Number: 60638276.007.1

Lab Number: L2118833

Report Date: 04/30/21

Parameter	LCS %Recovery	Qual	LCSD %Recovery	Qual	%Recovery Limits	RPD	Qual	RPD Limits
PCB Congeners/Homologs - Mansfield Lab Associated sample(s): 01-18 Batch: WG1488353-2 WG1488353-3								
Cl1-BZ#1	76		75		40-140	1		30
Cl1-BZ#2	77		78		40-140	1		30
CL1-BZ#3	78		79		40-140	1		30
Cl2-BZ#4/#10	72		74		40-140	3		30
Cl2-BZ#9	74		76		40-140	3		30
Cl2-BZ#7	75		77		40-140	3		30
Cl2-BZ#6	74		76		40-140	3		30
Cl2-BZ#5	76		77		40-140	1		30
Cl2-BZ#8	76		78		40-140	3		30
Cl3-BZ#19	70		72		40-140	3		30
Cl2-BZ#14	78		80		40-140	3		30
Cl3-BZ#30	72		75		40-140	4		30
Cl3-BZ#18	74		77		40-140	4		30
Cl2-BZ#11	76		78		40-140	3		30
Cl3-BZ#17	76		78		40-140	3		30
Cl2-BZ#12	77		79		40-140	3		30
Cl3-BZ#27	76		79		40-140	4		30
Cl2-BZ#13	79		82		40-140	4		30
Cl3-BZ#24	76		79		40-140	4		30
Cl3-BZ#16	75		77		40-140	3		30
Cl3-BZ#32	75		78		40-140	4		30
Cl2-BZ#15	70		73		40-140	4		30
Cl3-BZ#34	74		76		40-140	3		30

Lab Control Sample Analysis
Batch Quality Control

Project Name: MRC SWS 2021
Project Number: 60638276.007.1

Lab Number: L2118833
Report Date: 04/30/21

Parameter	LCS %Recovery	Qual	LCSD %Recovery	Qual	%Recovery Limits	RPD	Qual	RPD Limits
PCB Congeners/Homologs - Mansfield Lab Associated sample(s): 01-18 Batch: WG1488353-2 WG1488353-3								
Cl3-BZ#23	74		77		40-140	4		30
Cl4-BZ#54	71		74		40-140	4		30
Cl3-BZ#29	76		78		40-140	3		30
Cl4-BZ#50	73		76		40-140	4		30
Cl3-BZ#26	77		80		40-140	4		30
Cl3-BZ#25	76		79		40-140	4		30
Cl4-BZ#53	75		78		40-140	4		30
Cl3-BZ#-31	77		80		40-140	4		30
Cl3-BZ#28	76		78		40-140	3		30
Cl3-BZ#33	76		79		40-140	4		30
Cl4-BZ#51	76		79		40-140	4		30
Cl3-BZ#21/#20	79		83		40-140	5		30
Cl4-BZ#45	73		77		40-140	5		30
Cl3-BZ#22	75		79		40-140	5		30
Cl4-BZ#73/#46	77		81		40-140	5		30
Cl4-BZ#69	79		79		40-140	0		30
Cl4-BZ#43	76		72		40-140	5		30
Cl3-BZ#36	76		80		40-140	5		30
Cl4-BZ#52	72		77		40-140	7		30
Cl4-BZ#48	74		79		40-140	7		30
Cl4-BZ#49	74		78		40-140	5		30
Cl5-BZ#104	77		80		40-140	4		30
Cl4-BZ#47	85		89		40-140	5		30

Lab Control Sample Analysis

Batch Quality Control

Project Name: MRC SWS 2021

Project Number: 60638276.007.1

Lab Number: L2118833

Report Date: 04/30/21

Parameter	LCS %Recovery	Qual	LCSD %Recovery	Qual	%Recovery Limits	RPD	Qual	RPD Limits
PCB Congeners/Homologs - Mansfield Lab Associated sample(s): 01-18 Batch: WG1488353-2 WG1488353-3								
Cl4-BZ#65/#75/#62	77		80		40-140	4		30
Cl3-BZ#39	75		79		40-140	5		30
Cl3-BZ#38	76		79		40-140	4		30
Cl4-BZ#44	75		79		40-140	5		30
Cl4-BZ#59	78		82		40-140	5		30
Cl4-BZ#42	76		82		40-140	8		30
Cl4-BZ#71	76		81		40-140	6		30
Cl3-BZ#35	77		80		40-140	4		30
Cl4-BZ#41	79		82		40-140	4		30
Cl4-BZ#72	78		81		40-140	4		30
Cl5-BZ#96	80		85		40-140	6		30
Cl5-BZ#103	80		86		40-140	7		30
Cl4-BZ#68/#64	80		84		40-140	5		30
Cl4-BZ#40	76		81		40-140	6		30
Cl3-BZ#37	80		84		40-140	5		30
Cl5-BZ#100	82		87		40-140	6		30
Cl5-BZ#94	78		83		40-140	6		30
Cl4-BZ#57	80		84		40-140	5		30
Cl4-BZ#67/#58	80		84		40-140	5		30
Cl5-BZ#102	80		85		40-140	6		30
Cl4-BZ#61	78		82		40-140	5		30
Cl5-BZ#98	84		89		40-140	6		30
Cl4-BZ#76	80		85		40-140	6		30

Lab Control Sample Analysis

Batch Quality Control

Project Name: MRC SWS 2021

Project Number: 60638276.007.1

Lab Number: L2118833

Report Date: 04/30/21

Parameter	LCS %Recovery	Qual	LCSD %Recovery	Qual	%Recovery Limits	RPD	Qual	RPD Limits
PCB Congeners/Homologs - Mansfield Lab Associated sample(s): 01-18 Batch: WG1488353-2 WG1488353-3								
Cl5-BZ#93	70		76		40-140	8		30
Cl4-BZ#63	77		81		40-140	5		30
Cl5-BZ#121/#95/#88	84		89		40-140	6		30
Cl4-BZ#74	76		81		40-140	6		30
Cl6-BZ#155	78		83		40-140	6		30
Cl4-BZ#70	78		84		40-140	7		30
Cl5-BZ#91	80		84		40-140	5		30
Cl4-BZ#66	78		82		40-140	5		30
Cl4-BZ#80	77		82		40-140	6		30
Cl4-BZ#55	78		84		40-140	7		30
Cl5-BZ#92	84		90		40-140	7		30
Cl5-BZ#89/#84	83		88		40-140	6		30
Cl5-BZ#101/#90	87		94		40-140	8		30
Cl4-BZ#56	78		84		40-140	7		30
Cl5-BZ#113	76		83		40-140	9		30
Cl5-BZ#99	82		88		40-140	7		30
Cl6-BZ#150	78		83		40-140	6		30
Cl4-BZ#60	80		86		40-140	7		30
Cl6-BZ#152	79		83		40-140	5		30
Cl5-BZ#119	88		93		40-140	6		30
Cl5-BZ#83/#125/#112	87		95		40-140	9		30
Cl5-BZ#86/#109	83		90		40-140	8		30
Cl6-BZ#145	79		84		40-140	6		30

Lab Control Sample Analysis

Batch Quality Control

Project Name: MRC SWS 2021

Project Number: 60638276.007.1

Lab Number: L2118833

Report Date: 04/30/21

Parameter	LCS %Recovery	Qual	LCSD %Recovery	Qual	%Recovery Limits	RPD	Qual	RPD Limits
PCB Congeners/Homologs - Mansfield Lab Associated sample(s): 01-18 Batch: WG1488353-2 WG1488353-3								
Cl5-BZ#97	82		88		40-140	7		30
Cl6-BZ#148	79		86		40-140	8		30
Cl4-BZ#79	77		84		40-140	9		30
Cl5-BZ#116	80		85		40-140	6		30
Cl6-BZ#154	81		90		40-140	11		30
Cl4-BZ#78	81		87		40-140	7		30
Cl5-BZ#87/#111	85		92		40-140	8		30
Cl6-BZ#136	79		84		40-140	6		30
Cl5-BZ#117	87		93		40-140	7		30
Cl5-BZ#115	84		92		40-140	9		30
Cl5-BZ#85	82		73		40-140	12		30
Cl5-BZ#120	79		85		40-140	7		30
Cl5-BZ#110	83		89		40-140	7		30
Cl4-BZ#81	80		86		40-140	7		30
Cl6-BZ#151	88		94		40-140	7		30
Cl6-BZ#135	83		88		40-140	6		30
Cl5-BZ#82	84		91		40-140	8		30
Cl6-BZ#144	85		90		40-140	6		30
Cl6-BZ#147/#149	85		92		40-140	8		30
Cl4-BZ#77	74		79		40-140	7		30
Cl6-BZ#143/#139	85		92		40-140	8		30
Cl5-BZ#124	90		96		40-140	6		30
Cl6-BZ#140	85		91		40-140	7		30

Lab Control Sample Analysis

Batch Quality Control

Project Name: MRC SWS 2021

Project Number: 60638276.007.1

Lab Number: L2118833

Report Date: 04/30/21

Parameter	LCS %Recovery	Qual	LCSD %Recovery	Qual	%Recovery Limits	RPD	Qual	RPD Limits
PCB Congeners/Homologs - Mansfield Lab Associated sample(s): 01-18 Batch: WG1488353-2 WG1488353-3								
Cl5-BZ#108	93		98		40-140	5		30
Cl5-BZ#107/#123	79		84		40-140	6		30
Cl7-BZ#188	81		88		40-140	8		30
Cl6-BZ#134	88		97		40-140	10		30
Cl5-BZ#106	81		90		40-140	11		30
Cl6-BZ#133	86		88		40-140	2		30
Cl6-BZ#142	89		95		40-140	7		30
Cl5-BZ#118	88		94		40-140	7		30
Cl6-BZ#131	85		92		40-140	8		30
Cl7-BZ#184	82		89		40-140	8		30
Cl6-BZ#165	86		94		40-140	9		30
Cl6-BZ#146	82		88		40-140	7		30
Cl6-BZ#161	87		95		40-140	9		30
Cl5-BZ#122	90		95		40-140	5		30
Cl6-BZ#168	95		102		40-140	7		30
Cl5-BZ#114	92		98		40-140	6		30
Cl6-BZ#153	81		87		40-140	7		30
Cl6-BZ#132	88		94		40-140	7		30
Cl7-BZ#179	83		90		40-140	8		30
Cl6-BZ#141	84		91		40-140	8		30
Cl7-BZ#176	84		90		40-140	7		30
Cl5-BZ#105	88		96		40-140	9		30
Cl6-BZ#137	87		94		40-140	8		30

Lab Control Sample Analysis

Batch Quality Control

Project Name: MRC SWS 2021

Project Number: 60638276.007.1

Lab Number: L2118833

Report Date: 04/30/21

Parameter	LCS %Recovery	Qual	LCSD %Recovery	Qual	%Recovery Limits	RPD	Qual	RPD Limits
PCB Congeners/Homologs - Mansfield Lab Associated sample(s): 01-18 Batch: WG1488353-2 WG1488353-3								
Cl5-BZ#127	89		96		40-140	8		30
Cl7-BZ#186	84		91		40-140	8		30
Cl6-BZ#130/#164	88		95		40-140	8		30
Cl7-BZ#178	82		89		40-140	8		30
Cl6-BZ#138	92		98		40-140	6		30
Cl6-BZ#163/#160	89		97		40-140	9		30
Cl6-BZ#129/#158	89		97		40-140	9		30
Cl7-BZ#182/#175	90		98		40-140	9		30
Cl7-BZ#187	84		91		40-140	8		30
Cl7-BZ#183	87		94		40-140	8		30
Cl6-BZ#166	82		89		40-140	8		30
Cl6-BZ#159	88		95		40-140	8		30
Cl5-BZ#126	88		95		40-140	8		30
Cl7-BZ#185	83		91		40-140	9		30
Cl6-BZ#162	88		95		40-140	8		30
Cl7-BZ#174	88		95		40-140	8		30
Cl6-BZ#128	85		91		40-140	7		30
Cl8-BZ#202	85		93		40-140	9		30
Cl6-BZ#167	86		93		40-140	8		30
Cl7-BZ#181	86		92		40-140	7		30
Cl7-BZ#177	88		95		40-140	8		30
Cl8-BZ#204/#200-CAL	84		92		40-140	9		30
Cl7-BZ#171	85		92		40-140	8		30

Lab Control Sample Analysis

Batch Quality Control

Project Name: MRC SWS 2021

Project Number: 60638276.007.1

Lab Number: L2118833

Report Date: 04/30/21

Parameter	LCS %Recovery	Qual	LCSD %Recovery	Qual	%Recovery Limits	RPD	Qual	RPD Limits
PCB Congeners/Homologs - Mansfield Lab Associated sample(s): 01-18 Batch: WG1488353-2 WG1488353-3								
Cl7-BZ#173	85		92		40-140	8		30
Cl8-BZ#197	86		93		40-140	8		30
Cl7-BZ#172	80		87		40-140	8		30
Cl7-BZ#192	88		95		40-140	8		30
Cl6-BZ#156	88		96		40-140	9		30
Cl6-BZ#157	78		84		40-140	7		30
Cl7-BZ#180	82		84		40-140	2		30
Cl7-BZ#193	75		87		40-140	15		30
Cl8-BZ#199	82		90		40-140	9		30
Cl7-BZ#191	84		91		40-140	8		30
Cl8-BZ#198	88		95		40-140	8		30
Cl8-BZ#201	79		87		40-140	10		30
Cl7-BZ#170	86		93		40-140	8		30
Cl7-BZ#190	85		91		40-140	7		30
Cl8-BZ#196	94		100		40-140	6		30
Cl8-BZ#203	76		85		40-140	11		30
Cl6-BZ#169	79		86		40-140	8		30
Cl9-BZ#208	84		90		40-140	7		30
Cl9-BZ#207	80		87		40-140	8		30
Cl7-BZ#189	77		84		40-140	9		30
Cl8-BZ#195	83		89		40-140	7		30
Cl8-BZ#194	77		81		40-140	5		30
Cl8-BZ#205	79		85		40-140	7		30

Lab Control Sample Analysis

Batch Quality Control

Project Name: MRC SWS 2021

Project Number: 60638276.007.1

Lab Number: L2118833

Report Date: 04/30/21

Parameter	LCS %Recovery	Qual	LCSD %Recovery	Qual	%Recovery Limits	RPD	Qual	RPD Limits
PCB Congeners/Homologs - Mansfield Lab Associated sample(s): 01-18 Batch: WG1488353-2 WG1488353-3								
Cl9-BZ#206	81		89		40-140	9		30
Cl10-BZ#209	77		81		40-140	5		30

Surrogate	LCS %Recovery	Qual	LCSD %Recovery	Qual	Acceptance Criteria
Cl3-BZ#19-C13 (surr)	71		72		50-125
Cl8-BZ#202-C13 (surr)	82		88		50-125

Matrix Spike Analysis

Batch Quality Control

Project Name: MRC SWS 2021

Project Number: 60638276.007.1

Lab Number: L2118833

Report Date: 04/30/21

Parameter	Native Sample	MS Added	MS Found	MS %Recovery	Qual	MSD Found	MSD %Recovery	Qual	Recovery Limits	RPD	Qual	RPD Limits
PCB Congeners/Homologs - Mansfield Lab Associated sample(s): 01-18 QC Batch ID: WG1488353-4 WG1488353-5 QC Sample: L2118833-08 Client ID: MRC-SW8B-S-20210413												
Cl1-BZ#1	ND	94.3	51.1	54		62.3	62		40-140	20		30
Cl1-BZ#2	ND	94.3	52.0	55		60.7	61		40-140	15		30
CL1-BZ#3	ND	94.3	49.0	52		58.4	58		40-140	18		30
Cl2-BZ#4/#10	ND	189	152	81		150	75		40-140	1		30
Cl2-BZ#9	ND	94.3	82.5	88		82.0	82		40-140	1		30
Cl2-BZ#7	ND	94.3	74.8	79		75.3	75		40-140	1		30
Cl2-BZ#6	ND	94.3	79.6	84		79.3	79		40-140	0		30
Cl2-BZ#5	ND	94.3	77.3	82		78.6	79		40-140	2		30
Cl2-BZ#8	0.264J	94.3	80.2	85		79.1	79		40-140	1		30
Cl3-BZ#19	ND	94.3	74.7	79		73.8	74		40-140	1		30
Cl2-BZ#14	ND	94.3	80.8	86		81.3	81		40-140	1		30
Cl3-BZ#30	ND	94.3	78.7	83		77.5	78		40-140	2		30
Cl3-BZ#18	0.334J	94.3	79.9	85		79.6	80		40-140	0		30
Cl2-BZ#11	ND	94.3	74.3	79		74.8	75		40-140	1		30
Cl3-BZ#17	ND	94.3	81.1	86		79.4	79		40-140	2		30
Cl2-BZ#12	ND	94.3	76.1	81		77.8	78		40-140	2		30
Cl3-BZ#27	ND	94.3	81.0	86		79.6	80		40-140	2		30
Cl2-BZ#13	ND	94.3	82.2	87		82.2	82		40-140	0		30
Cl3-BZ#24	ND	94.3	80.2	85		79.6	80		40-140	1		30
Cl3-BZ#16	ND	94.3	78.3	83		78.5	78		40-140	0		30
Cl3-BZ#32	ND	94.3	80.0	85		79.1	79		40-140	1		30
Cl2-BZ#15	ND	94.3	71.9	76		71.8	72		40-140	0		30
Cl3-BZ#34	ND	94.3	78.1	83		77.7	78		40-140	1		30

Matrix Spike Analysis

Batch Quality Control

Project Name: MRC SWS 2021

Project Number: 60638276.007.1

Lab Number: L2118833

Report Date: 04/30/21

Parameter	Native Sample	MS Added	MS Found	MS %Recovery	Qual	MSD Found	MSD %Recovery	Qual	Recovery Limits	RPD	Qual	RPD Limits
PCB Congeners/Homologs - Mansfield Lab Associated sample(s): 01-18 QC Batch ID: WG1488353-4 WG1488353-5 QC Sample: L2118833-08 Client ID: MRC-SW8B-S-20210413												
Cl3-BZ#23	ND	94.3	78.5	83		77.4	77		40-140	1		30
Cl4-BZ#54	ND	94.3	76.2	81		75.0	75		40-140	2		30
Cl3-BZ#29	ND	94.3	80.0	85		80.0	80		40-140	0		30
Cl4-BZ#50	ND	94.3	78.4	83		78.0	78		40-140	1		30
Cl3-BZ#26	ND	94.3	81.6	86		80.9	81		40-140	1		30
Cl3-BZ#25	ND	94.3	80.1	85		79.6	80		40-140	1		30
Cl4-BZ#53	ND	94.3	80.2	85		79.7	80		40-140	1		30
Cl3-BZ#-31	ND	94.3	79.2	84		79.3	79		40-140	0		30
Cl3-BZ#28	ND	94.3	83.0	88		83.7	84		40-140	1		30
Cl3-BZ#33	ND	94.3	87.2	92		87.9	88		40-140	1		30
Cl4-BZ#51	ND	94.3	80.3	85		79.8	80		40-140	1		30
Cl3-BZ#21/#20	ND	189	155	82		153	76		40-140	1		30
Cl4-BZ#45	ND	94.3	79.1	84		79.2	79		40-140	0		30
Cl3-BZ#22	ND	94.3	79.6	84		80.2	80		40-140	1		30
Cl4-BZ#73/#46	ND	189	164	87		163	82		40-140	1		30
Cl4-BZ#69	ND	94.3	83.9	89		84.0	84		40-140	0		30
Cl4-BZ#43	ND	94.3	82.5	88		64.1	64		40-140	25		30
Cl3-BZ#36	ND	94.3	77.0	82		78.0	78		40-140	1		30
Cl4-BZ#52	ND	94.3	70.7	75		73.2	73		40-140	3		30
Cl4-BZ#48	ND	94.3	73.7	78		75.5	76		40-140	2		30
Cl4-BZ#49	ND	94.3	76.1	81		78.5	78		40-140	3		30
Cl5-BZ#104	ND	94.3	81.8	87		82.3	82		40-140	1		30
Cl4-BZ#47	ND	94.3	89.5	95		90.0	90		40-140	1		30

Matrix Spike Analysis

Batch Quality Control

Project Name: MRC SWS 2021

Project Number: 60638276.007.1

Lab Number: L2118833

Report Date: 04/30/21

Parameter	Native Sample	MS Added	MS Found	MS %Recovery	Qual	MSD Found	MSD %Recovery	Qual	Recovery Limits	RPD	Qual	RPD Limits
PCB Congeners/Homologs - Mansfield Lab Associated sample(s): 01-18 QC Batch ID: WG1488353-4 WG1488353-5 QC Sample: L2118833-08 Client ID: MRC-SW8B-S-20210413												
Cl4-BZ#65/#75/#62	ND	283	231	82		244	81		40-140	5		30
Cl3-BZ#39	ND	94.3	80.0	85		81.2	81		40-140	1		30
Cl3-BZ#38	ND	94.3	75.2	80		76.4	76		40-140	2		30
Cl4-BZ#44	ND	94.3	79.6	84		81.1	81		40-140	2		30
Cl4-BZ#59	ND	94.3	85.4	90		87.8	88		40-140	3		30
Cl4-BZ#42	ND	94.3	76.5	81		78.2	78		40-140	2		30
Cl4-BZ#71	ND	94.3	81.5	86		83.5	84		40-140	2		30
Cl3-BZ#35	ND	94.3	79.9	85		81.7	82		40-140	2		30
Cl4-BZ#41	ND	94.3	88.4	94		89.5	90		40-140	1		30
Cl4-BZ#72	ND	94.3	77.6	82		80.4	80		40-140	4		30
Cl5-BZ#96	ND	94.3	84.6	90		89.2	89		40-140	5		30
Cl5-BZ#103	ND	94.3	83.6	89		82.8	83		40-140	1		30
Cl4-BZ#68/#64	ND	189	166	88		172	86		40-140	4		30
Cl4-BZ#40	ND	94.3	75.5	80		78.6	79		40-140	4		30
Cl3-BZ#37	ND	94.3	83.6	89		86.5	86		40-140	3		30
Cl5-BZ#100	ND	94.3	89.1	94		90.6	91		40-140	2		30
Cl5-BZ#94	ND	94.3	81.4	86		83.0	83		40-140	2		30
Cl4-BZ#57	ND	94.3	84.0	89		86.8	87		40-140	3		30
Cl4-BZ#67/#58	ND	189	167	88		174	87		40-140	4		30
Cl5-BZ#102	ND	94.3	85.6	91		87.5	88		40-140	2		30
Cl4-BZ#61	ND	94.3	83.0	88		86.6	87		40-140	4		30
Cl5-BZ#98	ND	94.3	89.8	95		93.0	93		40-140	4		30
Cl4-BZ#76	ND	94.3	80.4	85		84.4	84		40-140	5		30

Matrix Spike Analysis

Batch Quality Control

Project Name: MRC SWS 2021

Project Number: 60638276.007.1

Lab Number: L2118833

Report Date: 04/30/21

Parameter	Native Sample	MS Added	MS Found	MS %Recovery	Qual	MSD Found	MSD %Recovery	Qual	Recovery Limits	RPD	Qual	RPD Limits
PCB Congeners/Homologs - Mansfield Lab Associated sample(s): 01-18 QC Batch ID: WG1488353-4 WG1488353-5 QC Sample: L2118833-08 Client ID: MRC-SW8B-S-20210413												
Cl5-BZ#93	ND	94.3	87.5	93		90.4	90		40-140	3		30
Cl4-BZ#63	ND	94.3	75.9	80		76.4	76		40-140	1		30
Cl5-BZ#121/#95/#88	ND	283	264	93		271	90		40-140	3		30
Cl4-BZ#74	ND	94.3	77.6	82		81.1	81		40-140	4		30
Cl6-BZ#155	ND	94.3	82.5	88		85.3	85		40-140	3		30
Cl4-BZ#70	ND	94.3	82.6	88		85.2	85		40-140	3		30
Cl5-BZ#91	ND	94.3	85.2	90		89.1	89		40-140	4		30
Cl4-BZ#66	ND	94.3	82.9	88		87.2	87		40-140	5		30
Cl4-BZ#80	ND	94.3	80.4	85		85.3	85		40-140	6		30
Cl4-BZ#55	ND	94.3	83.7	89		88.5	88		40-140	6		30
Cl5-BZ#92	ND	94.3	88.2	94		92.0	92		40-140	4		30
Cl5-BZ#89/#84	ND	189	178	94		187	94		40-140	5		30
Cl5-BZ#101/#90	ND	189	181	96		190	95		40-140	5		30
Cl4-BZ#56	ND	94.3	85.7	91		89.9	90		40-140	5		30
Cl5-BZ#113	ND	94.3	82.3	87		84.8	85		40-140	3		30
Cl5-BZ#99	ND	94.3	86.9	92		91.8	92		40-140	5		30
Cl6-BZ#150	ND	94.3	82.4	87		85.6	86		40-140	4		30
Cl4-BZ#60	ND	94.3	84.8	90		88.5	88		40-140	4		30
Cl6-BZ#152	ND	94.3	83.1	88		86.8	87		40-140	4		30
Cl5-BZ#119	ND	94.3	92.6	98		95.9	96		40-140	4		30
Cl5-BZ#83/#125/#112	ND	283	286	101		292	97		40-140	2		30
Cl5-BZ#86/#109	ND	189	176	93		193	96		40-140	9		30
Cl6-BZ#145	ND	94.3	80.1	85		84.7	85		40-140	6		30

Matrix Spike Analysis

Batch Quality Control

Project Name: MRC SWS 2021

Project Number: 60638276.007.1

Lab Number: L2118833

Report Date: 04/30/21

Parameter	Native Sample	MS Added	MS Found	MS %Recovery	Qual	MSD Found	MSD %Recovery	Qual	Recovery Limits	RPD	Qual	RPD Limits
PCB Congeners/Homologs - Mansfield Lab Associated sample(s): 01-18 QC Batch ID: WG1488353-4 WG1488353-5 QC Sample: L2118833-08 Client ID: MRC-SW8B-S-20210413												
Cl5-BZ#97	ND	94.3	81.6	86		85.4	85		40-140	5		30
Cl6-BZ#148	ND	94.3	84.5	90		88.9	89		40-140	5		30
Cl4-BZ#79	ND	94.3	77.9	83		84.3	84		40-140	8		30
Cl5-BZ#116	ND	94.3	83.1	88		87.6	88		40-140	5		30
Cl6-BZ#154	ND	94.3	85.6	91		91.6	92		40-140	7		30
Cl4-BZ#78	ND	94.3	86.9	92		91.7	92		40-140	5		30
Cl5-BZ#87/#111	ND	189	189	100		199	100		40-140	5		30
Cl6-BZ#136	ND	94.3	82.2	87		86.2	86		40-140	5		30
Cl5-BZ#117	ND	94.3	94.2	100		99.6	100		40-140	6		30
Cl5-BZ#115	ND	94.3	88.6	94		92.5	92		40-140	4		30
Cl5-BZ#85	ND	94.3	59.9	64		63.8	64		40-140	6		30
Cl5-BZ#120	ND	94.3	73.8	78		80.7	81		40-140	9		30
Cl5-BZ#110	ND	94.3	84.7	90		91.8	92		40-140	8		30
Cl4-BZ#81	ND	94.3	82.6	88		89.6	90		40-140	8		30
Cl6-BZ#151	ND	94.3	98.0	104		101	101		40-140	3		30
Cl6-BZ#135	ND	94.3	80.0	85		86.2	86		40-140	7		30
Cl5-BZ#82	ND	94.3	91.3	97		96.3	96		40-140	5		30
Cl6-BZ#144	ND	94.3	89.8	95		93.9	94		40-140	4		30
Cl6-BZ#147/#149	ND	189	180	95		187	94		40-140	4		30
Cl4-BZ#77	ND	94.3	71.4	76		73.8	74		40-140	3		30
Cl6-BZ#143/#139	ND	189	176	93		184	92		40-140	4		30
Cl5-BZ#124	ND	94.3	95.7	101		101	101		40-140	5		30
Cl6-BZ#140	ND	94.3	87.1	92		92.1	92		40-140	6		30

Matrix Spike Analysis

Batch Quality Control

Project Name: MRC SWS 2021

Project Number: 60638276.007.1

Lab Number: L2118833

Report Date: 04/30/21

Parameter	Native Sample	MS Added	MS Found	MS %Recovery	Qual	MSD Found	MSD %Recovery	Qual	Recovery Limits	RPD	Qual	RPD Limits
PCB Congeners/Homologs - Mansfield Lab Associated sample(s): 01-18 QC Batch ID: WG1488353-4 WG1488353-5 QC Sample: L2118833-08 Client ID: MRC-SW8B-S-20210413												
Cl5-BZ#108	ND	94.3	110	117		117	117		40-140	6		30
Cl5-BZ#107/#123	ND	189	188	100		162	81		40-140	15		30
Cl7-BZ#188	ND	94.3	85.3	90		89.5	90		40-140	5		30
Cl6-BZ#134	ND	94.3	95.2	101		100	100		40-140	5		30
Cl5-BZ#106	ND	94.3	84.9	90		87.9	88		40-140	3		30
Cl6-BZ#133	ND	94.3	95.0	101		101	101		40-140	6		30
Cl6-BZ#142	ND	94.3	89.2	95		91.3	91		40-140	2		30
Cl5-BZ#118	ND	94.3	90.6	96		93.3	93		40-140	3		30
Cl6-BZ#131	ND	94.3	79.3	84		83.2	83		40-140	5		30
Cl7-BZ#184	ND	94.3	88.2	94		92.0	92		40-140	4		30
Cl6-BZ#165	ND	94.3	90.1	96		95.0	95		40-140	5		30
Cl6-BZ#146	ND	94.3	74.9	79		79.0	79		40-140	5		30
Cl6-BZ#161	ND	94.3	89.1	94		94.8	95		40-140	6		30
Cl5-BZ#122	ND	94.3	94.7	100		99.5	100		40-140	5		30
Cl6-BZ#168	ND	94.3	96.2	102		100	100		40-140	4		30
Cl5-BZ#114	ND	94.3	95.8	102		99.6	100		40-140	4		30
Cl6-BZ#153	0.248J	94.3	74.3	79		90.8	91		40-140	20		30
Cl6-BZ#132	ND	94.3	93.0	99		98.3	98		40-140	6		30
Cl7-BZ#179	ND	94.3	88.9	94		93.4	93		40-140	5		30
Cl6-BZ#141	ND	94.3	89.6	95		95.8	96		40-140	7		30
Cl7-BZ#176	ND	94.3	88.6	94		94.4	94		40-140	6		30
Cl5-BZ#105	ND	94.3	92.7	98		97.8	98		40-140	5		30
Cl6-BZ#137	ND	94.3	87.0	92		92.4	92		40-140	6		30

Matrix Spike Analysis

Batch Quality Control

Project Name: MRC SWS 2021

Project Number: 60638276.007.1

Lab Number: L2118833

Report Date: 04/30/21

Parameter	Native Sample	MS Added	MS Found	MS %Recovery	Qual	MSD Found	MSD %Recovery	Qual	Recovery Limits	RPD	Qual	RPD Limits
PCB Congeners/Homologs - Mansfield Lab Associated sample(s): 01-18 QC Batch ID: WG1488353-4 WG1488353-5 QC Sample: L2118833-08 Client ID: MRC-SW8B-S-20210413												
Cl5-BZ#127	ND	94.3	92.5	98		98.8	99		40-140	7		30
Cl7-BZ#186	ND	94.3	89.0	94		93.1	93		40-140	5		30
Cl6-BZ#130/#164	ND	189	184	98		192	96		40-140	4		30
Cl7-BZ#178	ND	94.3	89.0	94		92.6	93		40-140	4		30
Cl6-BZ#138	ND	94.3	107	113		114	114		40-140	6		30
Cl6-BZ#163/#160	ND	189	186	99		196	98		40-140	5		30
Cl6-BZ#129/#158	ND	189	179	95		188	94		40-140	5		30
Cl7-BZ#182/#175	ND	189	184	98		192	96		40-140	4		30
Cl7-BZ#187	ND	94.3	86.6	92		90.6	91		40-140	5		30
Cl7-BZ#183	ND	94.3	92.7	98		98.6	99		40-140	6		30
Cl6-BZ#166	ND	94.3	86.1	91		92.3	92		40-140	7		30
Cl6-BZ#159	ND	94.3	93.4	99		98.5	98		40-140	5		30
Cl5-BZ#126	ND	94.3	89.9	95		96.4	96		40-140	7		30
Cl7-BZ#185	ND	94.3	85.7	91		90.5	90		40-140	5		30
Cl6-BZ#162	ND	94.3	87.2	92		91.5	92		40-140	5		30
Cl7-BZ#174	ND	94.3	90.2	96		94.8	95		40-140	5		30
Cl6-BZ#128	ND	94.3	86.2	91		89.8	90		40-140	4		30
Cl8-BZ#202	ND	94.3	87.5	93		91.4	91		40-140	4		30
Cl6-BZ#167	ND	94.3	82.4	87		86.4	86		40-140	5		30
Cl7-BZ#181	ND	94.3	90.1	96		94.3	94		40-140	5		30
Cl7-BZ#177	ND	94.3	88.8	94		94.4	94		40-140	6		30
Cl8-BZ#204/#200-CAL	ND	189	175	93		185	92		40-140	6		30
Cl7-BZ#171	ND	94.3	85.4	90		89.4	89		40-140	5		30

Matrix Spike Analysis

Batch Quality Control

Project Name: MRC SWS 2021

Project Number: 60638276.007.1

Lab Number: L2118833

Report Date: 04/30/21

Parameter	Native Sample	MS Added	MS Found	MS %Recovery	Qual	MSD Found	MSD %Recovery	Qual	Recovery Limits	RPD	Qual	RPD Limits
PCB Congeners/Homologs - Mansfield Lab Associated sample(s): 01-18 QC Batch ID: WG1488353-4 WG1488353-5 QC Sample: L2118833-08 Client ID: MRC-SW8B-S-20210413												
Cl7-BZ#173	ND	94.3	85.7	91		92.2	92		40-140	7		30
Cl8-BZ#197	ND	94.3	87.5	93		92.0	92		40-140	5		30
Cl7-BZ#172	ND	94.3	79.9	85		86.8	87		40-140	8		30
Cl7-BZ#192	ND	94.3	90.5	96		95.3	95		40-140	5		30
Cl6-BZ#156	ND	94.3	88.1	93		95.2	95		40-140	8		30
Cl6-BZ#157	ND	94.3	76.5	81		80.9	81		40-140	6		30
Cl7-BZ#180	ND	94.3	81.9	87		86.1	86		40-140	5		30
Cl7-BZ#193	ND	94.3	74.7	79		79.2	79		40-140	6		30
Cl8-BZ#199	ND	94.3	84.4	90		88.5	88		40-140	5		30
Cl7-BZ#191	ND	94.3	87.8	93		92.4	92		40-140	5		30
Cl8-BZ#198	ND	94.3	94.7	100		104	104		40-140	9		30
Cl8-BZ#201	ND	94.3	73.7	78		77.5	78		40-140	5		30
Cl7-BZ#170	ND	94.3	90.6	96		96.8	97		40-140	7		30
Cl7-BZ#190	ND	94.3	88.0	93		92.6	93		40-140	5		30
Cl8-BZ#196	ND	94.3	97.4	103		103	103		40-140	6		30
Cl8-BZ#203	ND	94.3	76.6	81		80.4	80		40-140	5		30
Cl6-BZ#169	ND	94.3	82.3	87		89.1	89		40-140	8		30
Cl9-BZ#208	ND	94.3	87.9	93		92.1	92		40-140	5		30
Cl9-BZ#207	ND	94.3	83.2	88		87.9	88		40-140	5		30
Cl7-BZ#189	ND	94.3	76.5	81		82.2	82		40-140	7		30
Cl8-BZ#195	ND	94.3	84.8	90		88.0	88		40-140	4		30
Cl8-BZ#194	ND	94.3	79.8	85		84.2	84		40-140	5		30
Cl8-BZ#205	ND	94.3	82.0	87		88.0	88		40-140	7		30

Matrix Spike Analysis

Batch Quality Control

Project Name: MRC SWS 2021

Project Number: 60638276.007.1

Lab Number: L2118833

Report Date: 04/30/21

Parameter	*Native Sample*	*MS Added*	*MS Found*	*MS %Recovery*	*Qual*	*MSD Found*	*MSD %Recovery*	*Qual*	*Recovery Limits*	*RPD*	*Qual*	*RPD Limits*
PCB Congeners/Homologs - Mansfield Lab Associated sample(s): 01-18 QC Batch ID: WG1488353-4 WG1488353-5 QC Sample: L2118833-08 Client ID: MRC-SW8B-S-20210413												
Cl9-BZ#206	ND	94.3	83.6	89		89.2	89		40-140	6		30
Cl10-BZ#209	ND	94.3	79.0	84		83.0	83		40-140	5		30

Surrogate	*MS % Recovery*	*MS Qualifier*	*MSD % Recovery*	*MSD Qualifier*	*Acceptance Criteria*
Cl3-BZ#19-C13 (surr)	79		76		50-125
Cl8-BZ#202-C13 (surr)	87		89		50-125

Project Name: MRC SWS 2021
Project Number: 60638276.007.1

Lab Number: L2118833
Report Date: 04/30/21

Sample Receipt and Container Information

Were project specific reporting limits specified? YES

Cooler Information

Cooler	Custody Seal
A	Absent
B	Absent
C	Absent
D	Absent

Container Information

Container ID	Container Type	Cooler	Initial pH	Final pH	Temp deg C	Pres	Seal	Frozen Date/Time	Analysis(*)
L2118833-01A	Amber 1000ml unpreserved	C	7	7	1.6	Y	Absent		A2-PCB209-C/H-8270(7)
L2118833-01B	Amber 1000ml unpreserved	C	7	7	1.6	Y	Absent		A2-PCB209-C/H-8270(7)
L2118833-02A	Amber 1000ml unpreserved	C	7	7	1.6	Y	Absent		A2-PCB209-C/H-8270(7)
L2118833-02B	Amber 1000ml unpreserved	C	7	7	1.6	Y	Absent		A2-PCB209-C/H-8270(7)
L2118833-03A	Amber 1000ml unpreserved	B	7	7	3.1	Y	Absent		A2-PCB209-C/H-8270(7)
L2118833-03B	Amber 1000ml unpreserved	B	7	7	3.1	Y	Absent		A2-PCB209-C/H-8270(7)
L2118833-04A	Amber 1000ml unpreserved	B	7	7	3.1	Y	Absent		A2-PCB209-C/H-8270(7)
L2118833-04B	Amber 1000ml unpreserved	B	7	7	3.1	Y	Absent		A2-PCB209-C/H-8270(7)
L2118833-05A	Amber 1000ml unpreserved	B	7	7	3.1	Y	Absent		A2-PCB209-C/H-8270(7)
L2118833-05B	Amber 1000ml unpreserved	B	7	7	3.1	Y	Absent		A2-PCB209-C/H-8270(7)
L2118833-06A	Amber 1000ml unpreserved	B	7	7	3.1	Y	Absent		A2-PCB209-C/H-8270(7)
L2118833-06B	Amber 1000ml unpreserved	B	7	7	3.1	Y	Absent		A2-PCB209-C/H-8270(7)
L2118833-07A	Amber 1000ml unpreserved	B	7	7	3.1	Y	Absent		A2-PCB209-C/H-8270(7)
L2118833-07B	Amber 1000ml unpreserved	B	7	7	3.1	Y	Absent		A2-PCB209-C/H-8270(7)
L2118833-08A	Amber 1000ml unpreserved	C	7	7	1.6	Y	Absent		A2-PCB209-C/H-8270(7)
L2118833-08A1	Amber 1000ml unpreserved	C	7	7	1.6	Y	Absent		A2-PCB209-C/H-8270(7)
L2118833-08A2	Amber 1000ml unpreserved	C	7	7	1.6	Y	Absent		A2-PCB209-C/H-8270(7)
L2118833-08B	Amber 1000ml unpreserved	C	7	7	1.6	Y	Absent		A2-PCB209-C/H-8270(7)
L2118833-08B1	Amber 1000ml unpreserved	D	7	7	2.4	Y	Absent		A2-PCB209-C/H-8270(7)
L2118833-08B2	Amber 1000ml unpreserved	D	7	7	2.4	Y	Absent		A2-PCB209-C/H-8270(7)

*Values in parentheses indicate holding time in days

Project Name: MRC SWS 2021
Project Number: 60638276.007.1

Lab Number: L2118833
Report Date: 04/30/21

Container Information

Container ID	Container Type	Cooler	Initial pH	Final pH	Temp deg C	Pres	Seal	Frozen Date/Time	Analysis(*)
L2118833-09A	Amber 1000ml unpreserved	C	7	7	1.6	Y	Absent		A2-PCB209-C/H-8270(7)
L2118833-09B	Amber 1000ml unpreserved	C	7	7	1.6	Y	Absent		A2-PCB209-C/H-8270(7)
L2118833-10A	Amber 1000ml unpreserved	D	7	7	2.4	Y	Absent		A2-PCB209-C/H-8270(7)
L2118833-10B	Amber 1000ml unpreserved	D	7	7	2.4	Y	Absent		A2-PCB209-C/H-8270(7)
L2118833-11A	Amber 1000ml unpreserved	A	7	7	2.6	Y	Absent		A2-PCB209-C/H-8270(7)
L2118833-11B	Amber 1000ml unpreserved	A	7	7	2.6	Y	Absent		A2-PCB209-C/H-8270(7)
L2118833-12A	Amber 1000ml unpreserved	A	7	7	2.6	Y	Absent		A2-PCB209-C/H-8270(7)
L2118833-12B	Amber 1000ml unpreserved	A	7	7	2.6	Y	Absent		A2-PCB209-C/H-8270(7)
L2118833-13A	Amber 1000ml unpreserved	A	7	7	2.6	Y	Absent		A2-PCB209-C/H-8270(7)
L2118833-13B	Amber 1000ml unpreserved	A	7	7	2.6	Y	Absent		A2-PCB209-C/H-8270(7)
L2118833-14A	Amber 1000ml unpreserved	A	7	7	2.6	Y	Absent		A2-PCB209-C/H-8270(7)
L2118833-14B	Amber 1000ml unpreserved	A	7	7	2.6	Y	Absent		A2-PCB209-C/H-8270(7)
L2118833-15A	Amber 1000ml unpreserved	A	7	7	2.6	Y	Absent		A2-PCB209-C/H-8270(7)
L2118833-15B	Amber 1000ml unpreserved	A	7	7	2.6	Y	Absent		A2-PCB209-C/H-8270(7)
L2118833-16A	Amber 1000ml unpreserved	D	7	7	2.4	Y	Absent		A2-PCB209-C/H-8270(7)
L2118833-16B	Amber 1000ml unpreserved	D	7	7	2.4	Y	Absent		A2-PCB209-C/H-8270(7)
L2118833-17A	Amber 1000ml unpreserved	D	7	7	2.4	Y	Absent		A2-PCB209-C/H-8270(7)
L2118833-17B	Amber 1000ml unpreserved	D	7	7	2.4	Y	Absent		A2-PCB209-C/H-8270(7)
L2118833-18A	Amber 1000ml unpreserved	D	7	7	2.4	Y	Absent		A2-PCB209-C/H-8270(7)
L2118833-18B	Amber 1000ml unpreserved	D	7	7	2.4	Y	Absent		A2-PCB209-C/H-8270(7)

*Values in parentheses indicate holding time in days

Project Name:	MRC SWS 2021	**Lab Number:**	L2118833
Project Number:	60638276.007.1	**Report Date:**	04/30/21

GLOSSARY

Acronyms

DL - Detection Limit: This value represents the level to which target analyte concentrations are reported as estimated values, when those target analyte concentrations are quantified below the limit of quantitation (LOQ). The DL includes any adjustments from dilutions, concentrations or moisture content, where applicable. (DoD report formats only.)

EDL - Estimated Detection Limit: This value represents the level to which target analyte concentrations are reported as estimated values, when those target analyte concentrations are quantified below the reporting limit (RL). The EDL includes any adjustments from dilutions, concentrations or moisture content, where applicable. The use of EDLs is specific to the analysis of PAHs using Solid-Phase Microextraction (SPME).

EMPC - Estimated Maximum Possible Concentration: The concentration that results from the signal present at the retention time of an analyte when the ions meet all of the identification criteria except the ion abundance ratio criteria. An EMPC is a worst-case estimate of the concentration.

EPA - Environmental Protection Agency.

LCS - Laboratory Control Sample: A sample matrix, free from the analytes of interest, spiked with verified known amounts of analytes or a material containing known and verified amounts of analytes.

LCSD - Laboratory Control Sample Duplicate: Refer to LCS.

LFB - Laboratory Fortified Blank: A sample matrix, free from the analytes of interest, spiked with verified known amounts of analytes or a material containing known and verified amounts of analytes.

LOD - Limit of Detection: This value represents the level to which a target analyte can reliably be detected for a specific analyte in a specific matrix by a specific method. The LOD includes any adjustments from dilutions, concentrations or moisture content, where applicable. (DoD report formats only.)

LOQ - Limit of Quantitation: The value at which an instrument can accurately measure an analyte at a specific concentration. The LOQ includes any adjustments from dilutions, concentrations or moisture content, where applicable. (DoD report formats only.)

Limit of Quantitation: The value at which an instrument can accurately measure an analyte at a specific concentration. The LOQ includes any adjustments from dilutions, concentrations or moisture content, where applicable. (DoD report formats only.)

MDL - Method Detection Limit: This value represents the level to which target analyte concentrations are reported as estimated values, when those target analyte concentrations are quantified below the reporting limit (RL). The MDL includes any adjustments from dilutions, concentrations or moisture content, where applicable.

MS - Matrix Spike Sample: A sample prepared by adding a known mass of target analyte to a specified amount of matrix sample for which an independent estimate of target analyte concentration is available. For Method 332.0, the spike recovery is calculated using the native concentration, including estimated values.

MSD - Matrix Spike Sample Duplicate: Refer to MS.

NA - Not Applicable.

NC - Not Calculated: Term is utilized when one or more of the results utilized in the calculation are non-detect at the parameter's reporting unit.

NDPA/DPA - N-Nitrosodiphenylamine/Diphenylamine.

NI - Not Ignitable.

NP - Non-Plastic: Term is utilized for the analysis of Atterberg Limits in soil.

NR - No Results: Term is utilized when 'No Target Compounds Requested' is reported for the analysis of Volatile or Semivolatile Organic TIC only requests.

RL - Reporting Limit: The value at which an instrument can accurately measure an analyte at a specific concentration. The RL includes any adjustments from dilutions, concentrations or moisture content, where applicable.

RPD - Relative Percent Difference: The results from matrix and/or matrix spike duplicates are primarily designed to assess the precision of analytical results in a given matrix and are expressed as relative percent difference (RPD). Values which are less than five times the reporting limit for any individual parameter are evaluated by utilizing the absolute difference between the values; although the RPD value will be provided in the report.

SRM - Standard Reference Material: A reference sample of a known or certified value that is of the same or similar matrix as the associated field samples.

STLP - Semi-dynamic Tank Leaching Procedure per EPA Method 1315.

TEF - Toxic Equivalency Factors: The values assigned to each dioxin and furan to evaluate their toxicity relative to 2,3,7,8-TCDD.

TEQ - Toxic Equivalent: The measure of a sample's toxicity derived by multiplying each dioxin and furan by its corresponding TEF and then summing the resulting values.

TIC - Tentatively Identified Compound: A compound that has been identified to be present and is not part of the target compound list (TCL) for the method and/or program. All TICs are qualitatively identified and reported as estimated concentrations.

Report Format: DU Report with 'J' Qualifiers

Project Name:	MRC SWS 2021	**Lab Number:**	L2118833
Project Number:	60638276.007.1	**Report Date:**	04/30/21

Footnotes

1 - The reference for this analyte should be considered modified since this analyte is absent from the target analyte list of the original method.

Terms

Analytical Method: Both the document from which the method originates and the analytical reference method. (Example: EPA 8260B is shown as 1,8260B.) The codes for the reference method documents are provided in the References section of the Addendum.

Difference: With respect to Total Oxidizable Precursor (TOP) Assay analysis, the difference is defined as the Post-Treatment value minus the Pre-Treatment value.

Final pH: As it pertains to Sample Receipt & Container Information section of the report, Final pH reflects pH of container determined after adjustment at the laboratory, if applicable. If no adjustment required, value reflects Initial pH.

Frozen Date/Time: With respect to Volatile Organics in soil, Frozen Date/Time reflects the date/time at which associated Reagent Water-preserved vials were initially frozen. Note: If frozen date/time is beyond 48 hours from sample collection, value will be reflected in 'bold'.

Initial pH: As it pertains to Sample Receipt & Container Information section of the report, Initial pH reflects pH of container determined upon receipt, if applicable.

PAH Total: With respect to Alkylated PAH analyses, the 'PAHs, Total' result is defined as the summation of results for all or a subset of the following compounds: Naphthalene, C1-C4 Naphthalenes, 2-Methylnaphthalene, 1-Methylnaphthalene, Biphenyl, Acenaphthylene, Acenaphthene, Fluorene, C1-C3 Fluorenes, Phenanthrene, C1-C4 Phenanthrenes/Anthracenes, Anthracene, Fluoranthene, Pyrene, C1-C4 Fluoranthenes/Pyrenes, Benz(a)anthracene, Chrysene, C1-C4 Chrysenes, Benzo(b)fluoranthene, Benzo(j)+(k)fluoranthene, Benzo(e)pyrene, Benzo(a)pyrene, Perylene, Indeno(1,2,3-cd)pyrene, Dibenz(ah)+(ac)anthracene, Benzo(g,h,i)perylene. If a 'Total' result is requested, the results of its individual components will also be reported.

PFAS Total: With respect to PFAS analyses, the 'PFAS, Total (5)' result is defined as the summation of results for: PFHpA, PFHxS, PFOA, PFNA and PFOS. In addition, the 'PFAS, Total (6)' result is defined as the summation of results at or above the RL for: PFHpA, PFHxS, PFOA, PFNA, PFDA and PFOS. (Note: 'PFAS, Total (6)' is applicable to MassDEP DW compliance analysis only.). If a 'Total' result is requested, the results of its individual components will also be reported.

The target compound Chlordane (CAS No. 57-74-9) is reported for GC ECD analyses. Per EPA,this compound "refers to a mixture of chlordane isomers, other chlorinated hydrocarbons and numerous other components." (Reference: USEPA Toxicological Review of Chlordane, In Support of Summary Information on the Integrated Risk Information System (IRIS), December 1997.)

Total: With respect to Organic analyses, a 'Total' result is defined as the summation of results for individual isomers or Aroclors. If a 'Total' result is requested, the results of its individual components will also be reported. This is applicable to 'Total' results for methods 8260, 8081 and 8082.

Data Qualifiers

A - Spectra identified as "Aldol Condensates" are byproducts of the extraction/concentration procedures when acetone is introduced in the process.

B - The analyte was detected above the reporting limit in the associated method blank. Flag only applies to associated field samples that have detectable concentrations of the analyte at less than ten times (10x) the concentration found in the blank. For MCP-related projects, flag only applies to associated field samples that have detectable concentrations of the analyte at less than ten times (10x) the concentration found in the blank. For DOD-related projects, flag only applies to associated field samples that have detectable concentrations of the analyte at less than ten times (10x) the concentration found in the blank AND the analyte was detected above one-half the reporting limit (or above the reporting limit for common lab contaminants) in the associated method blank. For NJ-Air-related projects, flag only applies to associated field samples that have detectable concentrations of the analyte above the reporting limit. For NJ-related projects (excluding Air), flag only applies to associated field samples that have detectable concentrations of the analyte, which was detected above the reporting limit in the associated method blank or above five times the reporting limit for common lab contaminants (Phthalates, Acetone, Methylene Chloride, 2-Butanone).

C - Co-elution: The target analyte co-elutes with a known lab standard (i.e. surrogate, internal standards, etc.) for co-extracted analyses.

D - Concentration of analyte was quantified from diluted analysis. Flag only applies to field samples that have detectable concentrations of the analyte.

E - Concentration of analyte exceeds the range of the calibration curve and/or linear range of the instrument.

F - The ratio of quantifier ion response to qualifier ion response falls outside of the laboratory criteria. Results are considered to be an estimated maximum concentration.

G - The concentration may be biased high due to matrix interferences (i.e, co-elution) with non-target compound(s). The result should be considered estimated.

H - The analysis of pH was performed beyond the regulatory-required holding time of 15 minutes from the time of sample collection.

I - The lower value for the two columns has been reported due to obvious interference.

J - Estimated value. The Target analyte concentration is below the quantitation limit (RL), but above the Method Detection Limit (MDL) or Estimated Detection Limit (EDL) for SPME-related analyses. This represents an estimated concentration for Tentatively Identified Compounds (TICs).

M - Reporting Limit (RL) exceeds the MCP CAM Reporting Limit for this analyte.

ND - Not detected at the method detection limit (MDL) for the sample, or estimated detection limit (EDL) for SPME-related analyses.

Report Format: DU Report with 'J' Qualifiers

Project Name:	MRC SWS 2021	**Lab Number:**	L2118833
Project Number:	60638276.007.1	**Report Date:**	04/30/21

Data Qualifiers

NJ - Presumptive evidence of compound. This represents an estimated concentration for Tentatively Identified Compounds (TICs), where the identification is based on a mass spectral library search.

P - The RPD between the results for the two columns exceeds the method-specified criteria.

Q - The quality control sample exceeds the associated acceptance criteria. For DOD-related projects, LCS and/or Continuing Calibration Standard exceedences are also qualified on all associated sample results. Note: This flag is not applicable for matrix spike recoveries when the sample concentration is greater than 4x the spike added or for batch duplicate RPD when the sample concentrations are less than 5x the RL. (Metals only.)

R - Analytical results are from sample re-analysis.

RE - Analytical results are from sample re-extraction.

S - Analytical results are from modified screening analysis.

Project Name:	MRC SWS 2021	**Lab Number:**	L2118833
Project Number:	60638276.007.1	**Report Date:**	04/30/21

REFERENCES

105 Test Methods for Evaluating Solid Waste: Physical/Chemical Methods. EPA SW-846. Third Edition. Updates I - IIIA, 1997 in conjunction with NOAA Technical Memorandum NMFS-NWFSC-59: Extraction, Cleanup and GC/MS Analysis of Sediments and Tissues for Organic Contaminants, March 2004 and the Determination of Pesticides and PCBs in Water and Oil/Sediment by GC/MS: Method 680, EPA 01A0005295, November 1985.

LIMITATION OF LIABILITIES

Alpha Analytical performs services with reasonable care and diligence normal to the analytical testing laboratory industry. In the event of an error, the sole and exclusive responsibility of Alpha Analytical shall be to re-perform the work at it's own expense. In no event shall Alpha Analytical be held liable for any incidental, consequential or special damages, including but not limited to, damages in any way connected with the use of, interpretation of, information or analysis provided by Alpha Analytical.

We strongly urge our clients to comply with EPA protocol regarding sample volume, preservation, cooling, containers, sampling procedures, holding time and splitting of samples in the field.

Certification Information

The following analytes are not included in our Primary NELAP Scope of Accreditation:

Westborough Facility
EPA 624/624.1: m/p-xylene, o-xylene, Naphthalene
EPA 625/625.1: alpha-Terpineol
EPA 8260C/8260D: NPW: 1,2,4,5-Tetramethylbenzene; 4-Ethyltoluene, Azobenzene; SCM: Iodomethane (methyl iodide), 1,2,4,5-Tetramethylbenzene; 4-Ethyltoluene.
EPA 8270D/8270E: NPW: Dimethylnaphthalene,1,4-Diphenylhydrazine, alpha-Terpineol; SCM: Dimethylnaphthalene,1,4-Diphenylhydrazine.
SM4500: NPW: Amenable Cyanide; SCM: Total Phosphorus, TKN, NO2, NO3.

Mansfield Facility
SM 2540D: TSS
EPA 8082A: NPW: PCB: 1, 5, 31, 87,101, 110, 141, 151, 153, 180, 183, 187.
EPA TO-15: Halothane, 2,4,4-Trimethyl-2-pentene, 2,4,4-Trimethyl-1-pentene, Thiophene, 2-Methylthiophene, 3-Methylthiophene, 2-Ethylthiophene, 1,2,3-Trimethylbenzene, Indan, Indene, 1,2,4,5-Tetramethylbenzene, Benzothiophene, 1-Methylnaphthalene.
Biological Tissue Matrix: EPA 3050B

The following analytes are included in our Massachusetts DEP Scope of Accreditation

Westborough Facility:

Drinking Water
EPA 300.0: Chloride, Nitrate-N, Fluoride, Sulfate; **EPA 353.2**: Nitrate-N, Nitrite-N; **SM4500NO3-F**: Nitrate-N, Nitrite-N; **SM4500F-C, SM4500CN-CE, EPA 180.1, SM2130B, SM4500Cl-D, SM2320B, SM2540C, SM4500H-B, SM4500NO2-B**
EPA 332: Perchlorate; **EPA 524.2:** THMs and VOCs; **EPA 504.1:** EDB, DBCP.
Microbiology: **SM9215B; SM9223-P/A, SM9223B-Colilert-QT,SM9222D**.

Non-Potable Water
SM4500H,B, EPA 120.1, SM2510B, SM2540C, SM2320B, SM4500CL-E, SM4500F-BC, SM4500NH3-BH: Ammonia-N and Kjeldahl-N, **EPA 350.1**: Ammonia-N, **LACHAT 10-107-06-1-B**: Ammonia-N, **EPA 351.1, SM4500NO3-F, EPA 353.2**: Nitrate-N**, SM4500P-E, SM4500P-B, E, SM4500SO4-E, SM5220D, EPA 410.4, SM5210B, SM5310C, SM4500CL-D, EPA 1664, EPA 420.1, SM4500-CN-CE, SM2540D, EPA 300: Chloride, Sulfate, Nitrate.**
EPA 624.1: Volatile Halocarbons & Aromatics,
EPA 608.3: Chlordane, Toxaphene, Aldrin, alpha-BHC, beta-BHC, gamma-BHC, delta-BHC, Dieldrin, DDD, DDE, DDT, Endosulfan I, Endosulfan II, Endosulfan sulfate, Endrin, Endrin Aldehyde, Heptachlor, Heptachlor Epoxide, PCBs
EPA 625.1: SVOC (Acid/Base/Neutral Extractables), **EPA 600/4-81-045**: PCB-Oil.
Microbiology: **SM9223B-Colilert-QT; Enterolert-QT, SM9221E, EPA 1600, EPA 1603, SM9222D.**

Mansfield Facility:

Drinking Water
EPA 200.7: Al, Ba, Cd, Cr, Cu, Fe, Mn, Ni, Na, Ag, Ca, Zn. **EPA 200.8:** Al, Sb, As, Ba, Be, Cd, Cr, Cu, Pb, Mn, Ni, Se, Ag, TL, Zn. **EPA 245.1** Hg.
EPA 522, EPA 537.1.

Non-Potable Water
EPA 200.7: Al, Sb, As, Be, Cd, Ca, Cr, Co, Cu, Fe, Pb, Mg, Mn, Mo, Ni, K, Se, Ag, Na, Sr, TL, Ti, V, Zn.
EPA 200.8: Al, Sb**,** As, Be, Cd, Cr, Cu, Fe, Pb, Mn, Ni, K, Se, Ag, Na, TL, Zn.
EPA 245.1 Hg.
SM2340B

For a complete listing of analytes and methods, please contact your Alpha Project Manager.

MANSFIELD CHAIN OF CUSTODY

PAGE 1 OF 2

Date Rec'd in Lab: 4/15/21

ALPHA Job #: L2118833

Westborough, MA
TEL: 508-898-9220
FAX: 508-898-9193

Mansfield, MA
TEL: 508-822-9300
FAX: 508-822-3288

Project Information

Project Name: MRC SWS 2021

Project Location: Middle River, MD

Project #: 60638276.007.1

Project Manager: Patrick Gratton

ALPHA Quote #: 132771

Client Information

Client: AECOM

Address: 500 Enterprise Dr, Suite 1A

Rocky Hill, CT 06067

Phone: 3012502934

Fax:

Email: patrick.gratton@aecom.com

☐ These samples have been Previously analyzed by Alpha

Turn-Around Time

☒ Standard ☐ Rush (ONLY IF PRE-APPROVED)

Due Date: Time:

Report Information / Data Deliverables

☐ FAX ☒ EMAIL

☐ ADEx ☐ Add'l Deliverables

Billing Information

☒ Same as Client info PO#: 132771

Regulatory Requirements/Report Limits

State/Fed Program | Criteria

Other Project Specific Requirements/Comments/Detection Limits:
SW - Run for Homologs w/ future cong. reporting capability

☒ MS/MSD (at unit cost) will be omitted unless you check here

ANALYSIS

PCB Homologs by 8270D-SIM

SAMPLE HANDLING
Filtration
☐ Done
☒ Not Needed
☐ Lab to do
Preservation
☐ Lab to do
(Please specify below)

ALPHA Lab ID (Lab Use Only)	Sample ID	Collection Date	Collection Time	Sample Matrix	Sampler's Initials	PCB Homologs by 8270D-SIM	Sample Specific Comments	TOTAL # BOTTLES
18333-01	MRC-SW5A1-S-20210413	4/13/21	1510	SW	AZ	☒		2
02	MRC-SW5A2-S-20210413	4/13/21	1440	SW	AZ	☒		2
03	MRC-SW5B-S-20210413	4/13/21	1455	SW	AZ	☒		2
04	MRC-SW6A-S-20210413	4/13/21	0955	SW	AZ	☒		2
05	MRC-SW6B-S-20210413	4/13/21	1025	SW	AZ	☒		2
06	MRC-SW7A-S-20210413	4/13/21	0911	SW	AZ	☒		2
07	MRC-SW8A-S-20210413	4/13/21	1045	SW	AZ	☒		2
08	MRC-SW8B-S-20210413	4/13/21	1105	SW	AZ	☒	MS/MSD	6
09	MRC-SW8B-S-DUP-20210413	4/13/21	1125	SW	AZ	☒	Field Duplicate	2
10	MRC-SW9A-S-20210413	4/13/21	0931	SW	AZ	☒		2

Container Type

Preservative

Relinquished By:	Date/Time	Received By:	Date/Time
AECOM	4/14/21 1110	AAL	4/14/21 1110
AAL	4/14/21 1800		4/14/21 1800
	4/14/21 2030	AAL	4/14/21 22:00
AAL	4/15/21 03:45		4/15/21 03:45

Please print clearly, legibly and completely. Samples can not be logged in and turnaround time clock will not start until any ambiguities are resolved. All samples submitted are subject to Alpha's Payment Terms.

MANSFIELD CHAIN OF CUSTODY

PAGE 2 OF 2

Date Rec'd in Lab: 4/15/21

ALPHA Job #: L2118833

Westborough, MA TEL: 508-898-9220 FAX: 508-898-9193
Mansfield, MA TEL: 508-822-9300 FAX: 508-822-3288

Project Information

Project Name: MRC SWS 2021

Project Location: Middle River, MD

Project #: 60638276.007.1

Project Manager: Patrick Gratton

ALPHA Quote #: 132771

Client Information

Client: AECOM

Address: 500 Enterprise Dr, Suite 1A

Rocky Hill, CT 06067

Phone: 3012502934

Fax:

Email: patrick.gratton@aecom.com

☐ These samples have been Previously analyzed by Alpha

Turn-Around Time

☒ Standard ☐ Rush (ONLY IF PRE-APPROVED)

Due Date: Time:

Report Information — Data Deliverables

☐ FAX ☒ EMAIL

☐ ADEx ☐ Add'l Deliverables

Billing Information

☒ Same as Client info PO #: 132771

Regulatory Requirements/Report Limits

State/Fed Program | Criteria

Other Project Specific Requirements/Comments/Detection Limits:
SW - Run for Homologs w/ future cong. reporting capability

☐ MS/MSD (at unit cost) will be omitted unless you check here

ANALYSIS

PCB Homologs by 8270D-SIM

SAMPLE HANDLING
Filtration
☐ Done
☒ Not Needed
☐ Lab to do
Preservation
☐ Lab to do
(Please specify below)

Sample Specific Comments

TOTAL # BOTTLES

ALPHA Lab ID (Lab Use Only)	Sample ID	Collection Date	Collection Time	Sample Matrix	Sampler's Initials	PCB Homologs by 8270D-SIM	TOTAL # BOTTLES
11	MRC-SW11A-S-20210413	4/13/21	1225	SW	AZ	☒	2
12	MRC-SW11B-S-20210413	4/13/21	1245	SW	AZ	☒	2
13	MRC-SW12A-S-20210413	4/13/21	1300	SW	AZ	☒	2
14	MRC-SW13A-S-20210413	4/13/21	1330	SW	AZ	☒	2
15	MRC-SW20A-S-20210413	4/13/21	1400	SW	AZ	☒	2
16	MRC-SW15A-S-20210413	4/13/21	1210	SW	AZ	☒	2
17	MRC-SW16A-S-20210413	4/13/21	1200	SW	AZ	☒	2
18	MRC-SW18A-S-20210413	4/13/21	1410	SW	AZ	☒	2
						☐	
						☐	

Container Type

Preservative

Relinquished By:	Date/Time	Received By:	Date/Time
AECOM	4-14-21 1110		4/14/21 1110
AAL	4/14/21 1800		4/14/21 1800
AAL	4/15/21 0345		4/15/21 0345

Please print clearly, legibly and completely. Samples can not be logged in and turnaround time clock will not start until any ambiguities are resolved. All samples submitted are subject to Alpha's Payment Terms.

Report of Analysis

AECOM
1600 Perimeter Park Drive, Suite 400
Morrisville, NC 27560
Attention: Zachary Neigh

Project Name: MRC SWS 2021

Project Number: 60638276.007.1

Lot Number:**WD15023**

Date Completed:04/26/2021
Revision Date: 05/14/2021

05/17/2021 12:20 AM
Approved and released by:
Project Manager II: **Cathy S. Dover**

Pace Analytical Services, LLC (*formerly Shealy Environmental Services, Inc.*)
106 Vantage Point Drive West Columbia, SC 29172
Tel: 803-791-9700 Fax: 803-791-9111 www.pacelabs.com

Case Narrative
AECOM
Lot Number: WD15023

This Report of Analysis contains the analytical result(s) for the sample(s) listed on the Sample Summary following this Case Narrative. The sample receiving date is documented in the header information associated with each sample.

All results listed in this report relate only to the samples that are contained within this report.

Sample receipt, sample analysis, and data review have been performed in accordance with the most current approved The NELAC Institute (TNI) standards, the Pace Analytical Services, LLC ("Pace") Laboratory Quality Manual, standard operating procedures (SOPs), and Pace policies. Any exceptions to the TNI standards, the Laboratory Quality Manual, SOPs or policies are qualified on the results page or discussed below.

This PDF report has been revised to report the re-extraction analysis for the 1,4-dioxane SIM samples. See details in the SVOA section of this narrative. All other sample results are as reported in the original PDF report. This report supersedes and replaces any prior reports issued under this lot number.

VOA 8260D
The MS/MSD for batch 89607 and parent sample WD15023-008 (MRC-SW8B-S-20210413), recovered biased high outside control limits for several analytes. The associated LCS passed all acceptance criteria.

The MS/MSD for batch 89759 and parent sample WD15023-018 (MRC-SW18A-S-20210413), recovered biased high outside control limits for several analytes. The associated LCS passed all acceptance criteria.

1,4-dioxane SIM 8270E
The method blank for analytical batch 90037 (prep batch 89524), contained 1,4 Dioxane greater than the acceptance criteria. The associated samples: WD15023-004 (MRC-SW6A-S-20210413), WD15023-005 (MRC-SW6B-S-20210413), WD15023-007 (MRC-SW8A-S-20210413), WD15023-008 (MRC-SW8B-S-20210413), WD15023-009 (MRC-SW8B-S-DUP-20210413), WD15023-021 (MRC-SW17A-20210413), WD15023-022 (MRC-SW1A-20210413), and WD15023-023 (MRC-SW2A-20210413), did not contain detections for the target analyte above the LOQ. The samples listed above were re-extracted and re-analyzed. all of the associated QC for the re-extraction passed all acceptance criteria. Both sets of data have been reported.

If you have any questions regarding this report please contact the Pace Project Manager listed on the cover page.

Sample Summary

AECOM

Lot Number: WD15023

Project Name: MRC SWS 2021

Project Number: 60638276.007.1

Sample Number	Sample ID	Matrix	Date Sampled	Date Received
001	MRC-SW5A1-S-20210413	Aqueous	04/13/2021 1310	04/15/2021
002	MRC-SW5A2-S-20210413	Aqueous	04/13/2021 1440	04/15/2021
003	MRC-SW5B-S-20210413	Aqueous	04/13/2021 1455	04/15/2021
004	MRC-SW6A-S-20210413	Aqueous	04/13/2021 0955	04/15/2021
005	MRC-SW6B-S-20210413	Aqueous	04/13/2021 1025	04/15/2021
006	MRC-SW7A-S-20210413	Aqueous	04/13/2021 0911	04/15/2021
007	MRC-SW8A-S-20210413	Aqueous	04/13/2021 1045	04/15/2021
008	MRC-SW8B-S-20210413	Aqueous	04/13/2021 1105	04/15/2021
009	MRC-SW8B-S-DUP-20210413	Aqueous	04/13/2021 1125	04/15/2021
010	MRC-SW9A-S-20210413	Aqueous	04/13/2021 0931	04/15/2021
011	MRC-SW11A-S-20210413	Aqueous	04/13/2021 1225	04/15/2021
012	MRC-SW11B-S-20210413	Aqueous	04/13/2021 1245	04/15/2021
013	MRC-SW12A-S-20210413	Aqueous	04/13/2021 1300	04/15/2021
014	MRC-SW13A-S-20210413	Aqueous	04/13/2021 1330	04/15/2021
015	MRC-SW20A-S-20210413	Aqueous	04/13/2021 1400	04/15/2021
016	MRC-SW15A-S-20210413	Aqueous	04/13/2021 1210	04/15/2021
017	MRC-SW16A-S-20210413	Aqueous	04/13/2021 1200	04/15/2021
018	MRC-SW18A-S-20210413	Aqueous	04/13/2021 1410	04/15/2021
019	MRC-SW18A-S-DUP-20210413	Aqueous	04/13/2021 1430	04/15/2021
020	MRC-SW14A-S-20210413	Aqueous	04/13/2021 1350	04/15/2021
021	MRC-SW17A-20210413	Aqueous	04/13/2021 1650	04/15/2021
022	MRC-SW1A-20210413	Aqueous	04/13/2021 1550	04/15/2021
023	MRC-SW2A-20210413	Aqueous	04/13/2021 1535	04/15/2021
024	TB-20210413	Aqueous	04/13/2021 0700	04/15/2021

(24 samples)

Detection Summary

AECOM

Lot Number: WD15023

Project Name: MRC SWS 2021

Project Number: 60638276.007.1

Sample	Sample ID	Matrix	Parameter	Method	Result	Q	Units	Page
004	MRC-SW6A-S-20210413	Aqueous	Trichloroethene	8260D	0.51		ug/L	12
004	MRC-SW6A-S-20210413	Aqueous	1,4-Dioxane	8270E (SIM)	0.099	BJ	ug/L	13
005	MRC-SW6B-S-20210413	Aqueous	Trichloroethene	8260D	0.86		ug/L	16
005	MRC-SW6B-S-20210413	Aqueous	1,4-Dioxane	8270E (SIM)	0.088	BJ	ug/L	17
007	MRC-SW8A-S-20210413	Aqueous	Trichloroethene	8260D	0.88		ug/L	22
007	MRC-SW8A-S-20210413	Aqueous	1,4-Dioxane	8270E (SIM)	0.12	BJ	ug/L	23
008	MRC-SW8B-S-20210413	Aqueous	Trichloroethene	8260D	0.59		ug/L	26
008	MRC-SW8B-S-20210413	Aqueous	1,4-Dioxane	8270E (SIM)	0.15	BJ	ug/L	27
009	MRC-SW8B-S-DUP-20210413	Aqueous	Trichloroethene	8260D	0.56		ug/L	30
009	MRC-SW8B-S-DUP-20210413	Aqueous	1,4-Dioxane	8270E (SIM)	0.13	BJ	ug/L	31
010	MRC-SW9A-S-20210413	Aqueous	Trichloroethene	8260D	1.1		ug/L	34
011	MRC-SW11A-S-20210413	Aqueous	Trichloroethene	8260D	0.53		ug/L	36
013	MRC-SW12A-S-20210413	Aqueous	Trichloroethene	8260D	1.2		ug/L	40
014	MRC-SW13A-S-20210413	Aqueous	Trichloroethene	8260D	0.57		ug/L	42
016	MRC-SW15A-S-20210413	Aqueous	Trichloroethene	8260D	0.86		ug/L	46
017	MRC-SW16A-S-20210413	Aqueous	Trichloroethene	8260D	0.85		ug/L	48
020	MRC-SW14A-S-20210413	Aqueous	Trichloroethene	8260D	0.53		ug/L	54
021	MRC-SW17A-20210413	Aqueous	Chloroform	8260D	0.40	J	ug/L	55
021	MRC-SW17A-20210413	Aqueous	1,4-Dioxane	8270E (SIM)	0.18	BJ	ug/L	57
022	MRC-SW1A-20210413	Aqueous	1,4-Dioxane	8270E (SIM)	0.15	BJ	ug/L	61
023	MRC-SW2A-20210413	Aqueous	1,4-Dioxane	8270E (SIM)	0.15	BJ	ug/L	65

(21 detections)

Volatile Organic Compounds by GC/MS

Client: **AECOM** Laboratory ID: **WD15023-001**

Description: **MRC-SW5A1-S-20210413** Matrix: **Aqueous**

Date Sampled: **04/13/2021 1310** Project Name: **MRC SWS 2021**

Date Received: **04/15/2021** Project Number: **60638276.007.1**

Run	Prep Method	Analytical Method	Dilution	Analysis Date	Analyst	Prep Date	Batch
1	5030B	8260D	1	04/20/2021 1150	BWS		89607

Parameter	CAS Number	Analytical Method	Result	Q	LOQ	DL	Units	Run
Acetone	67-64-1	8260D	ND		10	4.0	ug/L	1
tert-Amyl methyl ether (TAME)	994-05-8	8260D	ND		10	0.42	ug/L	1
Benzene	71-43-2	8260D	ND		0.50	0.40	ug/L	1
Bromobenzene	108-86-1	8260D	ND		0.50	0.40	ug/L	1
Bromochloromethane	74-97-5	8260D	ND		0.50	0.40	ug/L	1
Bromodichloromethane	75-27-4	8260D	ND		0.50	0.40	ug/L	1
Bromoform	75-25-2	8260D	ND		0.50	0.40	ug/L	1
Bromomethane (Methyl bromide)	74-83-9	8260D	ND		0.50	0.40	ug/L	1
2-Butanone (MEK)	78-93-3	8260D	ND		10	2.0	ug/L	1
n-Butylbenzene	104-51-8	8260D	ND		0.50	0.40	ug/L	1
sec-Butylbenzene	135-98-8	8260D	ND		0.50	0.40	ug/L	1
tert-Butylbenzene	98-06-6	8260D	ND		0.50	0.40	ug/L	1
Carbon disulfide	75-15-0	8260D	ND		0.50	0.40	ug/L	1
Carbon tetrachloride	56-23-5	8260D	ND		0.50	0.40	ug/L	1
Chlorobenzene	108-90-7	8260D	ND		0.50	0.40	ug/L	1
Chloroethane	75-00-3	8260D	ND		0.50	0.40	ug/L	1
Chloroform	67-66-3	8260D	ND		0.50	0.40	ug/L	1
Chloromethane (Methyl chloride)	74-87-3	8260D	ND		0.50	0.40	ug/L	1
2-Chlorotoluene	95-49-8	8260D	ND		0.50	0.40	ug/L	1
4-Chlorotoluene	106-43-4	8260D	ND		0.50	0.40	ug/L	1
Cyclohexane	110-82-7	8260D	ND		0.50	0.40	ug/L	1
1,2-Dibromo-3-chloropropane (DBCP)	96-12-8	8260D	ND		0.50	0.40	ug/L	1
Dibromochloromethane	124-48-1	8260D	ND		0.50	0.40	ug/L	1
1,2-Dibromoethane (EDB)	106-93-4	8260D	ND		0.50	0.40	ug/L	1
Dibromomethane (Methylene bromide)	74-95-3	8260D	ND		0.50	0.40	ug/L	1
1,2-Dichlorobenzene	95-50-1	8260D	ND		0.50	0.40	ug/L	1
1,3-Dichlorobenzene	541-73-1	8260D	ND		0.50	0.40	ug/L	1
1,4-Dichlorobenzene	106-46-7	8260D	ND		0.50	0.40	ug/L	1
Dichlorodifluoromethane	75-71-8	8260D	ND		0.50	0.40	ug/L	1
1,1-Dichloroethane	75-34-3	8260D	ND		0.50	0.40	ug/L	1
1,2-Dichloroethane	107-06-2	8260D	ND		0.50	0.40	ug/L	1
1,2-Dichloroethene (total)		8260D	ND		0.50	0.40	ug/L	1
1,1-Dichloroethene	75-35-4	8260D	ND		0.50	0.40	ug/L	1
cis-1,2-Dichloroethene	156-59-2	8260D	ND		0.50	0.40	ug/L	1
trans-1,2-Dichloroethene	156-60-5	8260D	ND		0.50	0.40	ug/L	1
1,2-Dichloropropane	78-87-5	8260D	ND		0.50	0.40	ug/L	1
1,3-Dichloropropane	142-28-9	8260D	ND		0.50	0.40	ug/L	1
2,2-Dichloropropane	594-20-7	8260D	ND		0.50	0.40	ug/L	1
cis-1,3-Dichloropropene	10061-01-5	8260D	ND		0.50	0.40	ug/L	1
trans-1,3-Dichloropropene	10061-02-6	8260D	ND		0.50	0.40	ug/L	1
Diisopropyl ether (IPE)	108-20-3	8260D	ND		0.50	0.40	ug/L	1
Ethylbenzene	100-41-4	8260D	ND		0.50	0.40	ug/L	1
Ethyl-tert-butyl ether (ETBE)	637-92-3	8260D	ND		1.0	0.40	ug/L	1
Hexachlorobutadiene	87-68-3	8260D	ND		0.50	0.40	ug/L	1

LOQ = Limit of Quantitation
B = Detected in the method blank
E = Quantitation of compound exceeded the calibration range
DL = Detection Limit
Q = Surrogate failure
ND = Not detected at or above the DL
N = Recovery is out of criteria
P = The RPD between two GC columns exceeds 40%
J = Estimated result < LOQ and ≥ DL
L = LCS/LCSD failure
H = Out of holding time
W = Reported on wet weight basis
S = MS/MSD failure

Pace Analytical Services, LLC *(formerly Shealy Environmental Services, Inc.)*
106 Vantage Point Drive West Columbia, SC 29172 (803) 791-9700 Fax (803) 791-9111 www.pacelabs.com

Volatile Organic Compounds by GC/MS

Client: **AECOM** Laboratory ID: **WD15023-001**

Description: **MRC-SW5A1-S-20210413** Matrix: **Aqueous**

Date Sampled: **04/13/2021 1310** Project Name: **MRC SWS 2021**

Date Received: **04/15/2021** Project Number: **60638276.007.1**

Run	Prep Method	Analytical Method	Dilution	Analysis Date	Analyst	Prep Date	Batch
1	5030B	8260D	1	04/20/2021 1150	BWS		89607

Parameter	CAS Number	Analytical Method	Result	Q	LOQ	DL	Units	Run
2-Hexanone	591-78-6	8260D	ND		10	2.0	ug/L	1
Isopropylbenzene	98-82-8	8260D	ND		0.50	0.40	ug/L	1
p-Isopropyltoluene	99-87-6	8260D	ND		0.50	0.40	ug/L	1
Methyl acetate	79-20-9	8260D	ND		1.0	0.40	ug/L	1
Methyl tertiary butyl ether (MTBE)	1634-04-4	8260D	ND		0.50	0.40	ug/L	1
4-Methyl-2-pentanone	108-10-1	8260D	ND		10	2.0	ug/L	1
Methylcyclohexane	108-87-2	8260D	ND		5.0	0.40	ug/L	1
Methylene chloride	75-09-2	8260D	ND		0.50	0.40	ug/L	1
Naphthalene	91-20-3	8260D	ND		0.50	0.40	ug/L	1
n-Propylbenzene	103-65-1	8260D	ND		0.50	0.40	ug/L	1
Styrene	100-42-5	8260D	ND		0.50	0.41	ug/L	1
tert-butyl alcohol (TBA)	75-65-0	8260D	ND		20	8.0	ug/L	1
1,1,1,2-Tetrachloroethane	630-20-6	8260D	ND		0.50	0.40	ug/L	1
1,1,2,2-Tetrachloroethane	79-34-5	8260D	ND		0.50	0.40	ug/L	1
Tetrachloroethene	127-18-4	8260D	ND		0.50	0.40	ug/L	1
Toluene	108-88-3	8260D	ND		0.50	0.40	ug/L	1
1,1,2-Trichloro-1,2,2-Trifluoroethane	76-13-1	8260D	ND		1.0	0.42	ug/L	1
1,2,3-Trichlorobenzene	87-61-6	8260D	ND		0.50	0.40	ug/L	1
1,2,4-Trichlorobenzene	120-82-1	8260D	ND		0.50	0.40	ug/L	1
1,1,1-Trichloroethane	71-55-6	8260D	ND		0.50	0.40	ug/L	1
1,1,2-Trichloroethane	79-00-5	8260D	ND		0.50	0.40	ug/L	1
Trichloroethene	79-01-6	8260D	ND		0.50	0.40	ug/L	1
Trichlorofluoromethane	75-69-4	8260D	ND		0.50	0.40	ug/L	1
1,2,3-Trichloropropane	96-18-4	8260D	ND		0.50	0.40	ug/L	1
1,2,4-Trimethylbenzene	95-63-6	8260D	ND		0.50	0.40	ug/L	1
Vinyl acetate	108-05-4	8260D	ND		5.0	1.2	ug/L	1
Vinyl chloride	75-01-4	8260D	ND		0.50	0.40	ug/L	1
Xylenes (total)	1330-20-7	8260D	ND		1.0	0.40	ug/L	1
m+p - Xylenes	179601-23-1	8260D	ND		0.50	0.40	ug/L	1
o - Xylenes	95-47-6	8260D	ND		0.50	0.40	ug/L	1

Surrogate	Q	Run 1 % Recovery	Acceptance Limits
Bromofluorobenzene		97	70-130
1,2-Dichloroethane-d4		103	70-130
Toluene-d8		106	70-130

LOQ = Limit of Quantitation
ND = Not detected at or above the DL
H = Out of holding time
B = Detected in the method blank
N = Recovery is out of criteria
W = Reported on wet weight basis
E = Quantitation of compound exceeded the calibration range
P = The RPD between two GC columns exceeds 40%
DL = Detection Limit
J = Estimated result < LOQ and ≥ DL
Q = Surrogate failure
L = LCS/LCSD failure
S = MS/MSD failure

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Volatile Organic Compounds by GC/MS

Client: **AECOM** Laboratory ID: **WD15023-002**

Description: **MRC-SW5A2-S-20210413** Matrix: **Aqueous**

Date Sampled: **04/13/2021 1440** Project Name: **MRC SWS 2021**

Date Received: **04/15/2021** Project Number: **60638276.007.1**

Run	Prep Method	Analytical Method	Dilution	Analysis Date	Analyst	Prep Date	Batch
1	5030B	8260D	1	04/20/2021 1215	BWS		89607

Parameter	CAS Number	Analytical Method	Result	Q	LOQ	DL	Units	Run
Acetone	67-64-1	8260D	ND		10	4.0	ug/L	1
tert-Amyl methyl ether (TAME)	994-05-8	8260D	ND		10	0.42	ug/L	1
Benzene	71-43-2	8260D	ND		0.50	0.40	ug/L	1
Bromobenzene	108-86-1	8260D	ND		0.50	0.40	ug/L	1
Bromochloromethane	74-97-5	8260D	ND		0.50	0.40	ug/L	1
Bromodichloromethane	75-27-4	8260D	ND		0.50	0.40	ug/L	1
Bromoform	75-25-2	8260D	ND		0.50	0.40	ug/L	1
Bromomethane (Methyl bromide)	74-83-9	8260D	ND		0.50	0.40	ug/L	1
2-Butanone (MEK)	78-93-3	8260D	ND		10	2.0	ug/L	1
n-Butylbenzene	104-51-8	8260D	ND		0.50	0.40	ug/L	1
sec-Butylbenzene	135-98-8	8260D	ND		0.50	0.40	ug/L	1
tert-Butylbenzene	98-06-6	8260D	ND		0.50	0.40	ug/L	1
Carbon disulfide	75-15-0	8260D	ND		0.50	0.40	ug/L	1
Carbon tetrachloride	56-23-5	8260D	ND		0.50	0.40	ug/L	1
Chlorobenzene	108-90-7	8260D	ND		0.50	0.40	ug/L	1
Chloroethane	75-00-3	8260D	ND		0.50	0.40	ug/L	1
Chloroform	67-66-3	8260D	ND		0.50	0.40	ug/L	1
Chloromethane (Methyl chloride)	74-87-3	8260D	ND		0.50	0.40	ug/L	1
2-Chlorotoluene	95-49-8	8260D	ND		0.50	0.40	ug/L	1
4-Chlorotoluene	106-43-4	8260D	ND		0.50	0.40	ug/L	1
Cyclohexane	110-82-7	8260D	ND		0.50	0.40	ug/L	1
1,2-Dibromo-3-chloropropane (DBCP)	96-12-8	8260D	ND		0.50	0.40	ug/L	1
Dibromochloromethane	124-48-1	8260D	ND		0.50	0.40	ug/L	1
1,2-Dibromoethane (EDB)	106-93-4	8260D	ND		0.50	0.40	ug/L	1
Dibromomethane (Methylene bromide)	74-95-3	8260D	ND		0.50	0.40	ug/L	1
1,2-Dichlorobenzene	95-50-1	8260D	ND		0.50	0.40	ug/L	1
1,3-Dichlorobenzene	541-73-1	8260D	ND		0.50	0.40	ug/L	1
1,4-Dichlorobenzene	106-46-7	8260D	ND		0.50	0.40	ug/L	1
Dichlorodifluoromethane	75-71-8	8260D	ND		0.50	0.40	ug/L	1
1,1-Dichloroethane	75-34-3	8260D	ND		0.50	0.40	ug/L	1
1,2-Dichloroethane	107-06-2	8260D	ND		0.50	0.40	ug/L	1
1,2-Dichloroethene (total)		8260D	ND		0.50	0.40	ug/L	1
1,1-Dichloroethene	75-35-4	8260D	ND		0.50	0.40	ug/L	1
cis-1,2-Dichloroethene	156-59-2	8260D	ND		0.50	0.40	ug/L	1
trans-1,2-Dichloroethene	156-60-5	8260D	ND		0.50	0.40	ug/L	1
1,2-Dichloropropane	78-87-5	8260D	ND		0.50	0.40	ug/L	1
1,3-Dichloropropane	142-28-9	8260D	ND		0.50	0.40	ug/L	1
2,2-Dichloropropane	594-20-7	8260D	ND		0.50	0.40	ug/L	1
cis-1,3-Dichloropropene	10061-01-5	8260D	ND		0.50	0.40	ug/L	1
trans-1,3-Dichloropropene	10061-02-6	8260D	ND		0.50	0.40	ug/L	1
Diisopropyl ether (IPE)	108-20-3	8260D	ND		0.50	0.40	ug/L	1
Ethylbenzene	100-41-4	8260D	ND		0.50	0.40	ug/L	1
Ethyl-tert-butyl ether (ETBE)	637-92-3	8260D	ND		1.0	0.40	ug/L	1
Hexachlorobutadiene	87-68-3	8260D	ND		0.50	0.40	ug/L	1

LOQ = Limit of Quantitation
B = Detected in the method blank
E = Quantitation of compound exceeded the calibration range
DL = Detection Limit
Q = Surrogate failure
ND = Not detected at or above the DL
N = Recovery is out of criteria
P = The RPD between two GC columns exceeds 40%
J = Estimated result < LOQ and ≥ DL
L = LCS/LCSD failure
H = Out of holding time
W = Reported on wet weight basis
S = MS/MSD failure

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Volatile Organic Compounds by GC/MS

Client: **AECOM** Laboratory ID: **WD15023-002**

Description: **MRC-SW5A2-S-20210413** Matrix: **Aqueous**

Date Sampled: **04/13/2021 1440** Project Name: **MRC SWS 2021**

Date Received: **04/15/2021** Project Number: **60638276.007.1**

Run	Prep Method	Analytical Method	Dilution	Analysis Date	Analyst	Prep Date	Batch
1	5030B	8260D	1	04/20/2021 1215	BWS		89607

Parameter	CAS Number	Analytical Method	Result	Q	LOQ	DL	Units	Run
2-Hexanone	591-78-6	8260D	ND		10	2.0	ug/L	1
Isopropylbenzene	98-82-8	8260D	ND		0.50	0.40	ug/L	1
p-Isopropyltoluene	99-87-6	8260D	ND		0.50	0.40	ug/L	1
Methyl acetate	79-20-9	8260D	ND		1.0	0.40	ug/L	1
Methyl tertiary butyl ether (MTBE)	1634-04-4	8260D	ND		0.50	0.40	ug/L	1
4-Methyl-2-pentanone	108-10-1	8260D	ND		10	2.0	ug/L	1
Methylcyclohexane	108-87-2	8260D	ND		5.0	0.40	ug/L	1
Methylene chloride	75-09-2	8260D	ND		0.50	0.40	ug/L	1
Naphthalene	91-20-3	8260D	ND		0.50	0.40	ug/L	1
n-Propylbenzene	103-65-1	8260D	ND		0.50	0.40	ug/L	1
Styrene	100-42-5	8260D	ND		0.50	0.41	ug/L	1
tert-butyl alcohol (TBA)	75-65-0	8260D	ND		20	8.0	ug/L	1
1,1,1,2-Tetrachloroethane	630-20-6	8260D	ND		0.50	0.40	ug/L	1
1,1,2,2-Tetrachloroethane	79-34-5	8260D	ND		0.50	0.40	ug/L	1
Tetrachloroethene	127-18-4	8260D	ND		0.50	0.40	ug/L	1
Toluene	108-88-3	8260D	ND		0.50	0.40	ug/L	1
1,1,2-Trichloro-1,2,2-Trifluoroethane	76-13-1	8260D	ND		1.0	0.42	ug/L	1
1,2,3-Trichlorobenzene	87-61-6	8260D	ND		0.50	0.40	ug/L	1
1,2,4-Trichlorobenzene	120-82-1	8260D	ND		0.50	0.40	ug/L	1
1,1,1-Trichloroethane	71-55-6	8260D	ND		0.50	0.40	ug/L	1
1,1,2-Trichloroethane	79-00-5	8260D	ND		0.50	0.40	ug/L	1
Trichloroethene	79-01-6	8260D	ND		0.50	0.40	ug/L	1
Trichlorofluoromethane	75-69-4	8260D	ND		0.50	0.40	ug/L	1
1,2,3-Trichloropropane	96-18-4	8260D	ND		0.50	0.40	ug/L	1
1,2,4-Trimethylbenzene	95-63-6	8260D	ND		0.50	0.40	ug/L	1
Vinyl acetate	108-05-4	8260D	ND		5.0	1.2	ug/L	1
Vinyl chloride	75-01-4	8260D	ND		0.50	0.40	ug/L	1
Xylenes (total)	1330-20-7	8260D	ND		1.0	0.40	ug/L	1
m+p - Xylenes	179601-23-1	8260D	ND		0.50	0.40	ug/L	1
o - Xylenes	95-47-6	8260D	ND		0.50	0.40	ug/L	1

Surrogate	Q	Run 1 % Recovery	Acceptance Limits
Bromofluorobenzene		99	70-130
1,2-Dichloroethane-d4		103	70-130
Toluene-d8		107	70-130

LOQ = Limit of Quantitation
ND = Not detected at or above the DL
H = Out of holding time
B = Detected in the method blank
N = Recovery is out of criteria
W = Reported on wet weight basis
E = Quantitation of compound exceeded the calibration range
P = The RPD between two GC columns exceeds 40%
DL = Detection Limit
J = Estimated result < LOQ and ≥ DL
Q = Surrogate failure
L = LCS/LCSD failure
S = MS/MSD failure

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Volatile Organic Compounds by GC/MS

Client: **AECOM** Laboratory ID: **WD15023-003**

Description: **MRC-SW5B-S-20210413** Matrix: **Aqueous**

Date Sampled: **04/13/2021 1455** Project Name: **MRC SWS 2021**

Date Received: **04/15/2021** Project Number: **60638276.007.1**

Run	Prep Method	Analytical Method	Dilution	Analysis Date	Analyst	Prep Date	Batch
1	5030B	8260D	1	04/20/2021 1240	BWS		89607

Parameter	CAS Number	Analytical Method	Result	Q	LOQ	DL	Units	Run
Acetone	67-64-1	8260D	ND		10	4.0	ug/L	1
tert-Amyl methyl ether (TAME)	994-05-8	8260D	ND		10	0.42	ug/L	1
Benzene	71-43-2	8260D	ND		0.50	0.40	ug/L	1
Bromobenzene	108-86-1	8260D	ND		0.50	0.40	ug/L	1
Bromochloromethane	74-97-5	8260D	ND		0.50	0.40	ug/L	1
Bromodichloromethane	75-27-4	8260D	ND		0.50	0.40	ug/L	1
Bromoform	75-25-2	8260D	ND		0.50	0.40	ug/L	1
Bromomethane (Methyl bromide)	74-83-9	8260D	ND		0.50	0.40	ug/L	1
2-Butanone (MEK)	78-93-3	8260D	ND		10	2.0	ug/L	1
n-Butylbenzene	104-51-8	8260D	ND		0.50	0.40	ug/L	1
sec-Butylbenzene	135-98-8	8260D	ND		0.50	0.40	ug/L	1
tert-Butylbenzene	98-06-6	8260D	ND		0.50	0.40	ug/L	1
Carbon disulfide	75-15-0	8260D	ND		0.50	0.40	ug/L	1
Carbon tetrachloride	56-23-5	8260D	ND		0.50	0.40	ug/L	1
Chlorobenzene	108-90-7	8260D	ND		0.50	0.40	ug/L	1
Chloroethane	75-00-3	8260D	ND		0.50	0.40	ug/L	1
Chloroform	67-66-3	8260D	ND		0.50	0.40	ug/L	1
Chloromethane (Methyl chloride)	74-87-3	8260D	ND		0.50	0.40	ug/L	1
2-Chlorotoluene	95-49-8	8260D	ND		0.50	0.40	ug/L	1
4-Chlorotoluene	106-43-4	8260D	ND		0.50	0.40	ug/L	1
Cyclohexane	110-82-7	8260D	ND		0.50	0.40	ug/L	1
1,2-Dibromo-3-chloropropane (DBCP)	96-12-8	8260D	ND		0.50	0.40	ug/L	1
Dibromochloromethane	124-48-1	8260D	ND		0.50	0.40	ug/L	1
1,2-Dibromoethane (EDB)	106-93-4	8260D	ND		0.50	0.40	ug/L	1
Dibromomethane (Methylene bromide)	74-95-3	8260D	ND		0.50	0.40	ug/L	1
1,2-Dichlorobenzene	95-50-1	8260D	ND		0.50	0.40	ug/L	1
1,3-Dichlorobenzene	541-73-1	8260D	ND		0.50	0.40	ug/L	1
1,4-Dichlorobenzene	106-46-7	8260D	ND		0.50	0.40	ug/L	1
Dichlorodifluoromethane	75-71-8	8260D	ND		0.50	0.40	ug/L	1
1,1-Dichloroethane	75-34-3	8260D	ND		0.50	0.40	ug/L	1
1,2-Dichloroethane	107-06-2	8260D	ND		0.50	0.40	ug/L	1
1,2-Dichloroethene (total)		8260D	ND		0.50	0.40	ug/L	1
1,1-Dichloroethene	75-35-4	8260D	ND		0.50	0.40	ug/L	1
cis-1,2-Dichloroethene	156-59-2	8260D	ND		0.50	0.40	ug/L	1
trans-1,2-Dichloroethene	156-60-5	8260D	ND		0.50	0.40	ug/L	1
1,2-Dichloropropane	78-87-5	8260D	ND		0.50	0.40	ug/L	1
1,3-Dichloropropane	142-28-9	8260D	ND		0.50	0.40	ug/L	1
2,2-Dichloropropane	594-20-7	8260D	ND		0.50	0.40	ug/L	1
cis-1,3-Dichloropropene	10061-01-5	8260D	ND		0.50	0.40	ug/L	1
trans-1,3-Dichloropropene	10061-02-6	8260D	ND		0.50	0.40	ug/L	1
Diisopropyl ether (IPE)	108-20-3	8260D	ND		0.50	0.40	ug/L	1
Ethylbenzene	100-41-4	8260D	ND		0.50	0.40	ug/L	1
Ethyl-tert-butyl ether (ETBE)	637-92-3	8260D	ND		1.0	0.40	ug/L	1
Hexachlorobutadiene	87-68-3	8260D	ND		0.50	0.40	ug/L	1

LOQ = Limit of Quantitation
B = Detected in the method blank
E = Quantitation of compound exceeded the calibration range
DL = Detection Limit
Q = Surrogate failure
ND = Not detected at or above the DL
N = Recovery is out of criteria
P = The RPD between two GC columns exceeds 40%
J = Estimated result < LOQ and ≥ DL
L = LCS/LCSD failure
H = Out of holding time
W = Reported on wet weight basis
S = MS/MSD failure

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Volatile Organic Compounds by GC/MS

Client: **AECOM** Laboratory ID: **WD15023-003**

Description: **MRC-SW5B-S-20210413** Matrix: **Aqueous**

Date Sampled: **04/13/2021 1455** Project Name: **MRC SWS 2021**

Date Received: **04/15/2021** Project Number: **60638276.007.1**

Run	Prep Method	Analytical Method	Dilution	Analysis Date	Analyst	Prep Date	Batch
1	5030B	8260D	1	04/20/2021 1240	BWS		89607

Parameter	CAS Number	Analytical Method	Result	Q	LOQ	DL	Units	Run
2-Hexanone	591-78-6	8260D	ND		10	2.0	ug/L	1
Isopropylbenzene	98-82-8	8260D	ND		0.50	0.40	ug/L	1
p-Isopropyltoluene	99-87-6	8260D	ND		0.50	0.40	ug/L	1
Methyl acetate	79-20-9	8260D	ND		1.0	0.40	ug/L	1
Methyl tertiary butyl ether (MTBE)	1634-04-4	8260D	ND		0.50	0.40	ug/L	1
4-Methyl-2-pentanone	108-10-1	8260D	ND		10	2.0	ug/L	1
Methylcyclohexane	108-87-2	8260D	ND		5.0	0.40	ug/L	1
Methylene chloride	75-09-2	8260D	ND		0.50	0.40	ug/L	1
Naphthalene	91-20-3	8260D	ND		0.50	0.40	ug/L	1
n-Propylbenzene	103-65-1	8260D	ND		0.50	0.40	ug/L	1
Styrene	100-42-5	8260D	ND		0.50	0.41	ug/L	1
tert-butyl alcohol (TBA)	75-65-0	8260D	ND		20	8.0	ug/L	1
1,1,1,2-Tetrachloroethane	630-20-6	8260D	ND		0.50	0.40	ug/L	1
1,1,2,2-Tetrachloroethane	79-34-5	8260D	ND		0.50	0.40	ug/L	1
Tetrachloroethene	127-18-4	8260D	ND		0.50	0.40	ug/L	1
Toluene	108-88-3	8260D	ND		0.50	0.40	ug/L	1
1,1,2-Trichloro-1,2,2-Trifluoroethane	76-13-1	8260D	ND		1.0	0.42	ug/L	1
1,2,3-Trichlorobenzene	87-61-6	8260D	ND		0.50	0.40	ug/L	1
1,2,4-Trichlorobenzene	120-82-1	8260D	ND		0.50	0.40	ug/L	1
1,1,1-Trichloroethane	71-55-6	8260D	ND		0.50	0.40	ug/L	1
1,1,2-Trichloroethane	79-00-5	8260D	ND		0.50	0.40	ug/L	1
Trichloroethene	79-01-6	8260D	ND		0.50	0.40	ug/L	1
Trichlorofluoromethane	75-69-4	8260D	ND		0.50	0.40	ug/L	1
1,2,3-Trichloropropane	96-18-4	8260D	ND		0.50	0.40	ug/L	1
1,2,4-Trimethylbenzene	95-63-6	8260D	ND		0.50	0.40	ug/L	1
Vinyl acetate	108-05-4	8260D	ND		5.0	1.2	ug/L	1
Vinyl chloride	75-01-4	8260D	ND		0.50	0.40	ug/L	1
Xylenes (total)	1330-20-7	8260D	ND		1.0	0.40	ug/L	1
m+p - Xylenes	179601-23-1	8260D	ND		0.50	0.40	ug/L	1
o - Xylenes	95-47-6	8260D	ND		0.50	0.40	ug/L	1

Surrogate	Q	Run 1 % Recovery	Acceptance Limits
Bromofluorobenzene		95	70-130
1,2-Dichloroethane-d4		106	70-130
Toluene-d8		105	70-130

LOQ = Limit of Quantitation
ND = Not detected at or above the DL
H = Out of holding time
B = Detected in the method blank
N = Recovery is out of criteria
W = Reported on wet weight basis
E = Quantitation of compound exceeded the calibration range
P = The RPD between two GC columns exceeds 40%
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Volatile Organic Compounds by GC/MS

Client: **AECOM** Laboratory ID: **WD15023-004**

Description: **MRC-SW6A-S-20210413** Matrix: **Aqueous**

Date Sampled: **04/13/2021 0955** Project Name: **MRC SWS 2021**

Date Received: **04/15/2021** Project Number: **60638276.007.1**

Run	Prep Method	Analytical Method	Dilution	Analysis Date	Analyst	Prep Date	Batch
1	5030B	8260D	1	04/20/2021 1305	BWS		89607

Parameter	CAS Number	Analytical Method	Result	Q	LOQ	DL	Units	Run
Acetone	67-64-1	8260D	ND		10	4.0	ug/L	1
tert-Amyl methyl ether (TAME)	994-05-8	8260D	ND		10	0.42	ug/L	1
Benzene	71-43-2	8260D	ND		0.50	0.40	ug/L	1
Bromobenzene	108-86-1	8260D	ND		0.50	0.40	ug/L	1
Bromochloromethane	74-97-5	8260D	ND		0.50	0.40	ug/L	1
Bromodichloromethane	75-27-4	8260D	ND		0.50	0.40	ug/L	1
Bromoform	75-25-2	8260D	ND		0.50	0.40	ug/L	1
Bromomethane (Methyl bromide)	74-83-9	8260D	ND		0.50	0.40	ug/L	1
2-Butanone (MEK)	78-93-3	8260D	ND		10	2.0	ug/L	1
n-Butylbenzene	104-51-8	8260D	ND		0.50	0.40	ug/L	1
sec-Butylbenzene	135-98-8	8260D	ND		0.50	0.40	ug/L	1
tert-Butylbenzene	98-06-6	8260D	ND		0.50	0.40	ug/L	1
Carbon disulfide	75-15-0	8260D	ND		0.50	0.40	ug/L	1
Carbon tetrachloride	56-23-5	8260D	ND		0.50	0.40	ug/L	1
Chlorobenzene	108-90-7	8260D	ND		0.50	0.40	ug/L	1
Chloroethane	75-00-3	8260D	ND		0.50	0.40	ug/L	1
Chloroform	67-66-3	8260D	ND		0.50	0.40	ug/L	1
Chloromethane (Methyl chloride)	74-87-3	8260D	ND		0.50	0.40	ug/L	1
2-Chlorotoluene	95-49-8	8260D	ND		0.50	0.40	ug/L	1
4-Chlorotoluene	106-43-4	8260D	ND		0.50	0.40	ug/L	1
Cyclohexane	110-82-7	8260D	ND		0.50	0.40	ug/L	1
1,2-Dibromo-3-chloropropane (DBCP)	96-12-8	8260D	ND		0.50	0.40	ug/L	1
Dibromochloromethane	124-48-1	8260D	ND		0.50	0.40	ug/L	1
1,2-Dibromoethane (EDB)	106-93-4	8260D	ND		0.50	0.40	ug/L	1
Dibromomethane (Methylene bromide)	74-95-3	8260D	ND		0.50	0.40	ug/L	1
1,2-Dichlorobenzene	95-50-1	8260D	ND		0.50	0.40	ug/L	1
1,3-Dichlorobenzene	541-73-1	8260D	ND		0.50	0.40	ug/L	1
1,4-Dichlorobenzene	106-46-7	8260D	ND		0.50	0.40	ug/L	1
Dichlorodifluoromethane	75-71-8	8260D	ND		0.50	0.40	ug/L	1
1,1-Dichloroethane	75-34-3	8260D	ND		0.50	0.40	ug/L	1
1,2-Dichloroethane	107-06-2	8260D	ND		0.50	0.40	ug/L	1
1,2-Dichloroethene (total)		8260D	ND		0.50	0.40	ug/L	1
1,1-Dichloroethene	75-35-4	8260D	ND		0.50	0.40	ug/L	1
cis-1,2-Dichloroethene	156-59-2	8260D	ND		0.50	0.40	ug/L	1
trans-1,2-Dichloroethene	156-60-5	8260D	ND		0.50	0.40	ug/L	1
1,2-Dichloropropane	78-87-5	8260D	ND		0.50	0.40	ug/L	1
1,3-Dichloropropane	142-28-9	8260D	ND		0.50	0.40	ug/L	1
2,2-Dichloropropane	594-20-7	8260D	ND		0.50	0.40	ug/L	1
cis-1,3-Dichloropropene	10061-01-5	8260D	ND		0.50	0.40	ug/L	1
trans-1,3-Dichloropropene	10061-02-6	8260D	ND		0.50	0.40	ug/L	1
Diisopropyl ether (IPE)	108-20-3	8260D	ND		0.50	0.40	ug/L	1
Ethylbenzene	100-41-4	8260D	ND		0.50	0.40	ug/L	1
Ethyl-tert-butyl ether (ETBE)	637-92-3	8260D	ND		1.0	0.40	ug/L	1
Hexachlorobutadiene	87-68-3	8260D	ND		0.50	0.40	ug/L	1

LOQ = Limit of Quantitation
B = Detected in the method blank
E = Quantitation of compound exceeded the calibration range
DL = Detection Limit
Q = Surrogate failure
ND = Not detected at or above the DL
N = Recovery is out of criteria
P = The RPD between two GC columns exceeds 40%
J = Estimated result < LOQ and ≥ DL
L = LCS/LCSD failure
H = Out of holding time
W = Reported on wet weight basis
S = MS/MSD failure

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Volatile Organic Compounds by GC/MS

Client: **AECOM** Laboratory ID: **WD15023-004**

Description: **MRC-SW6A-S-20210413** Matrix: **Aqueous**

Date Sampled: **04/13/2021 0955** Project Name: **MRC SWS 2021**

Date Received: **04/15/2021** Project Number: **60638276.007.1**

Run	Prep Method	Analytical Method	Dilution	Analysis Date	Analyst	Prep Date	Batch
1	5030B	8260D	1	04/20/2021 1305	BWS		89607

Parameter	CAS Number	Analytical Method	Result	Q	LOQ	DL	Units	Run
2-Hexanone	591-78-6	8260D	ND		10	2.0	ug/L	1
Isopropylbenzene	98-82-8	8260D	ND		0.50	0.40	ug/L	1
p-Isopropyltoluene	99-87-6	8260D	ND		0.50	0.40	ug/L	1
Methyl acetate	79-20-9	8260D	ND		1.0	0.40	ug/L	1
Methyl tertiary butyl ether (MTBE)	1634-04-4	8260D	ND		0.50	0.40	ug/L	1
4-Methyl-2-pentanone	108-10-1	8260D	ND		10	2.0	ug/L	1
Methylcyclohexane	108-87-2	8260D	ND		5.0	0.40	ug/L	1
Methylene chloride	75-09-2	8260D	ND		0.50	0.40	ug/L	1
Naphthalene	91-20-3	8260D	ND		0.50	0.40	ug/L	1
n-Propylbenzene	103-65-1	8260D	ND		0.50	0.40	ug/L	1
Styrene	100-42-5	8260D	ND		0.50	0.41	ug/L	1
tert-butyl alcohol (TBA)	75-65-0	8260D	ND		20	8.0	ug/L	1
1,1,1,2-Tetrachloroethane	630-20-6	8260D	ND		0.50	0.40	ug/L	1
1,1,2,2-Tetrachloroethane	79-34-5	8260D	ND		0.50	0.40	ug/L	1
Tetrachloroethene	127-18-4	8260D	ND		0.50	0.40	ug/L	1
Toluene	108-88-3	8260D	ND		0.50	0.40	ug/L	1
1,1,2-Trichloro-1,2,2-Trifluoroethane	76-13-1	8260D	ND		1.0	0.42	ug/L	1
1,2,3-Trichlorobenzene	87-61-6	8260D	ND		0.50	0.40	ug/L	1
1,2,4-Trichlorobenzene	120-82-1	8260D	ND		0.50	0.40	ug/L	1
1,1,1-Trichloroethane	71-55-6	8260D	ND		0.50	0.40	ug/L	1
1,1,2-Trichloroethane	79-00-5	8260D	ND		0.50	0.40	ug/L	1
Trichloroethene	**79-01-6**	**8260D**	**0.51**		**0.50**	**0.40**	**ug/L**	**1**
Trichlorofluoromethane	75-69-4	8260D	ND		0.50	0.40	ug/L	1
1,2,3-Trichloropropane	96-18-4	8260D	ND		0.50	0.40	ug/L	1
1,2,4-Trimethylbenzene	95-63-6	8260D	ND		0.50	0.40	ug/L	1
Vinyl acetate	108-05-4	8260D	ND		5.0	1.2	ug/L	1
Vinyl chloride	75-01-4	8260D	ND		0.50	0.40	ug/L	1
Xylenes (total)	1330-20-7	8260D	ND		1.0	0.40	ug/L	1
m+p - Xylenes	179601-23-1	8260D	ND		0.50	0.40	ug/L	1
o - Xylenes	95-47-6	8260D	ND		0.50	0.40	ug/L	1

Surrogate	Q	Run 1 % Recovery	Acceptance Limits
Bromofluorobenzene		99	70-130
1,2-Dichloroethane-d4		102	70-130
Toluene-d8		106	70-130

LOQ = Limit of Quantitation
ND = Not detected at or above the DL
H = Out of holding time
B = Detected in the method blank
N = Recovery is out of criteria
W = Reported on wet weight basis
E = Quantitation of compound exceeded the calibration range
P = The RPD between two GC columns exceeds 40%
DL = Detection Limit
J = Estimated result < LOQ and ≥ DL
Q = Surrogate failure
L = LCS/LCSD failure
S = MS/MSD failure

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Semivolatile Organic Compounds by GC/MS (SIM)

Client: **AECOM** Laboratory ID: **WD15023-004**

Description: **MRC-SW6A-S-20210413** Matrix: **Aqueous**

Date Sampled: **04/13/2021 0955** Project Name: **MRC SWS 2021**

Date Received: **04/15/2021** Project Number: **60638276.007.1**

Run	Prep Method	Analytical Method	Dilution	Analysis Date	Analyst	Prep Date	Batch
1	3520C	8270E (SIM)	1	04/23/2021 1722	JCG	04/19/2021 1600	89524
2	3520C	8270E (SIM)	1	05/14/2021 1156	JCG	05/12/2021 1321	92007

Parameter	CAS Number	Analytical Method	Result	Q	LOQ	DL	Units	Run
1,4-Dioxane	**123-91-1**	**8270E (SIM)**	**0.099**	**BJ**	**0.20**	**0.068**	**ug/L**	**1**

Surrogate	Q	Run 1 % Recovery	Acceptance Limits	Q	Run 2 % Recovery	Acceptance Limits
1,4-Dioxane-d8		47	40-90	H	54	40-90

LOQ = Limit of Quantitation
ND = Not detected at or above the DL
H = Out of holding time
B = Detected in the method blank
N = Recovery is out of criteria
W = Reported on wet weight basis
E = Quantitation of compound exceeded the calibration range
P = The RPD between two GC columns exceeds 40%
DL = Detection Limit
J = Estimated result < LOQ and ≥ DL
Q = Surrogate failure
L = LCS/LCSD failure
S = MS/MSD failure

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Semivolatile Organic Compounds by GC/MS (SIM)

Client: **AECOM** Laboratory ID: **WD15023-004**

Description: **MRC-SW6A-S-20210413** Matrix: **Aqueous**

Date Sampled: **04/13/2021 0955** Project Name: **MRC SWS 2021**

Date Received: **04/15/2021** Project Number: **60638276.007.1**

Run	Prep Method	Analytical Method	Dilution	Analysis Date	Analyst	Prep Date	Batch
1	3520C	8270E (SIM)	1	04/23/2021 1722	JCG	04/19/2021 1600	89524
2	3520C	8270E (SIM)	1	05/14/2021 1156	JCG	05/12/2021 1321	92007

Parameter	CAS Number	Analytical Method	Result	Q	LOQ	DL	Units	Run
1,4-Dioxane	123-91-1	8270E (SIM)	ND	H	0.20	0.068	ug/L	2

Surrogate	Q	Run 1 % Recovery	Acceptance Limits	Q	Run 2 % Recovery	Acceptance Limits
1,4-Dioxane-d8		47	40-90	H	54	40-90

LOQ = Limit of Quantitation
ND = Not detected at or above the DL
H = Out of holding time
B = Detected in the method blank
N = Recovery is out of criteria
W = Reported on wet weight basis
E = Quantitation of compound exceeded the calibration range
P = The RPD between two GC columns exceeds 40%
DL = Detection Limit
J = Estimated result < LOQ and ≥ DL
Q = Surrogate failure
L = LCS/LCSD failure
S = MS/MSD failure

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Volatile Organic Compounds by GC/MS

Client: **AECOM** Laboratory ID: **WD15023-005**

Description: **MRC-SW6B-S-20210413** Matrix: **Aqueous**

Date Sampled: **04/13/2021 1025** Project Name: **MRC SWS 2021**

Date Received: **04/15/2021** Project Number: **60638276.007.1**

Run	Prep Method	Analytical Method	Dilution	Analysis Date	Analyst	Prep Date	Batch
1	5030B	8260D	1	04/20/2021 1330	BWS		89607

Parameter	CAS Number	Analytical Method	Result	Q	LOQ	DL	Units	Run
Acetone	67-64-1	8260D	ND		10	4.0	ug/L	1
tert-Amyl methyl ether (TAME)	994-05-8	8260D	ND		10	0.42	ug/L	1
Benzene	71-43-2	8260D	ND		0.50	0.40	ug/L	1
Bromobenzene	108-86-1	8260D	ND		0.50	0.40	ug/L	1
Bromochloromethane	74-97-5	8260D	ND		0.50	0.40	ug/L	1
Bromodichloromethane	75-27-4	8260D	ND		0.50	0.40	ug/L	1
Bromoform	75-25-2	8260D	ND		0.50	0.40	ug/L	1
Bromomethane (Methyl bromide)	74-83-9	8260D	ND		0.50	0.40	ug/L	1
2-Butanone (MEK)	78-93-3	8260D	ND		10	2.0	ug/L	1
n-Butylbenzene	104-51-8	8260D	ND		0.50	0.40	ug/L	1
sec-Butylbenzene	135-98-8	8260D	ND		0.50	0.40	ug/L	1
tert-Butylbenzene	98-06-6	8260D	ND		0.50	0.40	ug/L	1
Carbon disulfide	75-15-0	8260D	ND		0.50	0.40	ug/L	1
Carbon tetrachloride	56-23-5	8260D	ND		0.50	0.40	ug/L	1
Chlorobenzene	108-90-7	8260D	ND		0.50	0.40	ug/L	1
Chloroethane	75-00-3	8260D	ND		0.50	0.40	ug/L	1
Chloroform	67-66-3	8260D	ND		0.50	0.40	ug/L	1
Chloromethane (Methyl chloride)	74-87-3	8260D	ND		0.50	0.40	ug/L	1
2-Chlorotoluene	95-49-8	8260D	ND		0.50	0.40	ug/L	1
4-Chlorotoluene	106-43-4	8260D	ND		0.50	0.40	ug/L	1
Cyclohexane	110-82-7	8260D	ND		0.50	0.40	ug/L	1
1,2-Dibromo-3-chloropropane (DBCP)	96-12-8	8260D	ND		0.50	0.40	ug/L	1
Dibromochloromethane	124-48-1	8260D	ND		0.50	0.40	ug/L	1
1,2-Dibromoethane (EDB)	106-93-4	8260D	ND		0.50	0.40	ug/L	1
Dibromomethane (Methylene bromide)	74-95-3	8260D	ND		0.50	0.40	ug/L	1
1,2-Dichlorobenzene	95-50-1	8260D	ND		0.50	0.40	ug/L	1
1,3-Dichlorobenzene	541-73-1	8260D	ND		0.50	0.40	ug/L	1
1,4-Dichlorobenzene	106-46-7	8260D	ND		0.50	0.40	ug/L	1
Dichlorodifluoromethane	75-71-8	8260D	ND		0.50	0.40	ug/L	1
1,1-Dichloroethane	75-34-3	8260D	ND		0.50	0.40	ug/L	1
1,2-Dichloroethane	107-06-2	8260D	ND		0.50	0.40	ug/L	1
1,2-Dichloroethene (total)		8260D	ND		0.50	0.40	ug/L	1
1,1-Dichloroethene	75-35-4	8260D	ND		0.50	0.40	ug/L	1
cis-1,2-Dichloroethene	156-59-2	8260D	ND		0.50	0.40	ug/L	1
trans-1,2-Dichloroethene	156-60-5	8260D	ND		0.50	0.40	ug/L	1
1,2-Dichloropropane	78-87-5	8260D	ND		0.50	0.40	ug/L	1
1,3-Dichloropropane	142-28-9	8260D	ND		0.50	0.40	ug/L	1
2,2-Dichloropropane	594-20-7	8260D	ND		0.50	0.40	ug/L	1
cis-1,3-Dichloropropene	10061-01-5	8260D	ND		0.50	0.40	ug/L	1
trans-1,3-Dichloropropene	10061-02-6	8260D	ND		0.50	0.40	ug/L	1
Diisopropyl ether (IPE)	108-20-3	8260D	ND		0.50	0.40	ug/L	1
Ethylbenzene	100-41-4	8260D	ND		0.50	0.40	ug/L	1
Ethyl-tert-butyl ether (ETBE)	637-92-3	8260D	ND		1.0	0.40	ug/L	1
Hexachlorobutadiene	87-68-3	8260D	ND		0.50	0.40	ug/L	1

LOQ = Limit of Quantitation
B = Detected in the method blank
E = Quantitation of compound exceeded the calibration range
DL = Detection Limit
Q = Surrogate failure
ND = Not detected at or above the DL
N = Recovery is out of criteria
P = The RPD between two GC columns exceeds 40%
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W = Reported on wet weight basis
S = MS/MSD failure

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Volatile Organic Compounds by GC/MS

Client: **AECOM** Laboratory ID: **WD15023-005**

Description: **MRC-SW6B-S-20210413** Matrix: **Aqueous**

Date Sampled: **04/13/2021 1025** Project Name: **MRC SWS 2021**

Date Received: **04/15/2021** Project Number: **60638276.007.1**

Run	Prep Method	Analytical Method	Dilution	Analysis Date	Analyst	Prep Date	Batch
1	5030B	8260D	1	04/20/2021 1330	BWS		89607

Parameter	CAS Number	Analytical Method	Result	Q	LOQ	DL	Units	Run
2-Hexanone	591-78-6	8260D	ND		10	2.0	ug/L	1
Isopropylbenzene	98-82-8	8260D	ND		0.50	0.40	ug/L	1
p-Isopropyltoluene	99-87-6	8260D	ND		0.50	0.40	ug/L	1
Methyl acetate	79-20-9	8260D	ND		1.0	0.40	ug/L	1
Methyl tertiary butyl ether (MTBE)	1634-04-4	8260D	ND		0.50	0.40	ug/L	1
4-Methyl-2-pentanone	108-10-1	8260D	ND		10	2.0	ug/L	1
Methylcyclohexane	108-87-2	8260D	ND		5.0	0.40	ug/L	1
Methylene chloride	75-09-2	8260D	ND		0.50	0.40	ug/L	1
Naphthalene	91-20-3	8260D	ND		0.50	0.40	ug/L	1
n-Propylbenzene	103-65-1	8260D	ND		0.50	0.40	ug/L	1
Styrene	100-42-5	8260D	ND		0.50	0.41	ug/L	1
tert-butyl alcohol (TBA)	75-65-0	8260D	ND		20	8.0	ug/L	1
1,1,1,2-Tetrachloroethane	630-20-6	8260D	ND		0.50	0.40	ug/L	1
1,1,2,2-Tetrachloroethane	79-34-5	8260D	ND		0.50	0.40	ug/L	1
Tetrachloroethene	127-18-4	8260D	ND		0.50	0.40	ug/L	1
Toluene	108-88-3	8260D	ND		0.50	0.40	ug/L	1
1,1,2-Trichloro-1,2,2-Trifluoroethane	76-13-1	8260D	ND		1.0	0.42	ug/L	1
1,2,3-Trichlorobenzene	87-61-6	8260D	ND		0.50	0.40	ug/L	1
1,2,4-Trichlorobenzene	120-82-1	8260D	ND		0.50	0.40	ug/L	1
1,1,1-Trichloroethane	71-55-6	8260D	ND		0.50	0.40	ug/L	1
1,1,2-Trichloroethane	79-00-5	8260D	ND		0.50	0.40	ug/L	1
Trichloroethene	**79-01-6**	**8260D**	**0.86**		**0.50**	**0.40**	**ug/L**	**1**
Trichlorofluoromethane	75-69-4	8260D	ND		0.50	0.40	ug/L	1
1,2,3-Trichloropropane	96-18-4	8260D	ND		0.50	0.40	ug/L	1
1,2,4-Trimethylbenzene	95-63-6	8260D	ND		0.50	0.40	ug/L	1
Vinyl acetate	108-05-4	8260D	ND		5.0	1.2	ug/L	1
Vinyl chloride	75-01-4	8260D	ND		0.50	0.40	ug/L	1
Xylenes (total)	1330-20-7	8260D	ND		1.0	0.40	ug/L	1
m+p - Xylenes	179601-23-1	8260D	ND		0.50	0.40	ug/L	1
o - Xylenes	95-47-6	8260D	ND		0.50	0.40	ug/L	1

Surrogate	Q	Run 1 % Recovery	Acceptance Limits
Bromofluorobenzene		98	70-130
1,2-Dichloroethane-d4		105	70-130
Toluene-d8		105	70-130

LOQ = Limit of Quantitation
B = Detected in the method blank
E = Quantitation of compound exceeded the calibration range
DL = Detection Limit
Q = Surrogate failure
ND = Not detected at or above the DL
N = Recovery is out of criteria
P = The RPD between two GC columns exceeds 40%
J = Estimated result < LOQ and ≥ DL
L = LCS/LCSD failure
H = Out of holding time
W = Reported on wet weight basis
S = MS/MSD failure

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Semivolatile Organic Compounds by GC/MS (SIM)

Client: **AECOM** Laboratory ID: **WD15023-005**

Description: **MRC-SW6B-S-20210413** Matrix: **Aqueous**

Date Sampled: **04/13/2021 1025** Project Name: **MRC SWS 2021**

Date Received: **04/15/2021** Project Number: **60638276.007.1**

Run	Prep Method	Analytical Method	Dilution	Analysis Date	Analyst	Prep Date	Batch
1	3520C	8270E (SIM)	1	04/23/2021 1742	JCG	04/19/2021 1600	89524
2	3520C	8270E (SIM)	1	05/14/2021 1217	JCG	05/12/2021 1321	92007

Parameter	CAS Number	Analytical Method	Result	Q	LOQ	DL	Units	Run
1,4-Dioxane	**123-91-1**	**8270E (SIM)**	**0.088**	**BJ**	**0.20**	**0.068**	**ug/L**	**1**

Surrogate	Q	Run 1 % Recovery	Acceptance Limits	Q	Run 2 % Recovery	Acceptance Limits
1,4-Dioxane-d8		45	40-90	H	47	40-90

LOQ = Limit of Quantitation
ND = Not detected at or above the DL
H = Out of holding time
B = Detected in the method blank
N = Recovery is out of criteria
W = Reported on wet weight basis
E = Quantitation of compound exceeded the calibration range
P = The RPD between two GC columns exceeds 40%
DL = Detection Limit
J = Estimated result < LOQ and ≥ DL
Q = Surrogate failure
L = LCS/LCSD failure
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Semivolatile Organic Compounds by GC/MS (SIM)

Client: **AECOM** Laboratory ID: **WD15023-005**

Description: **MRC-SW6B-S-20210413** Matrix: **Aqueous**

Date Sampled: **04/13/2021 1025** Project Name: **MRC SWS 2021**

Date Received: **04/15/2021** Project Number: **60638276.007.1**

Run	Prep Method	Analytical Method	Dilution	Analysis Date	Analyst	Prep Date	Batch
1	3520C	8270E (SIM)	1	04/23/2021 1742	JCG	04/19/2021 1600	89524
2	3520C	8270E (SIM)	1	05/14/2021 1217	JCG	05/12/2021 1321	92007

Parameter	CAS Number	Analytical Method	Result	Q	LOQ	DL	Units	Run
1,4-Dioxane	123-91-1	8270E (SIM)	ND	H	0.20	0.068	ug/L	2

Surrogate	Q	Run 1 % Recovery	Acceptance Limits	Q	Run 2 % Recovery	Acceptance Limits
1,4-Dioxane-d8		45	40-90	H	47	40-90

LOQ = Limit of Quantitation
ND = Not detected at or above the DL
H = Out of holding time
B = Detected in the method blank
N = Recovery is out of criteria
W = Reported on wet weight basis
E = Quantitation of compound exceeded the calibration range
P = The RPD between two GC columns exceeds 40%
DL = Detection Limit
J = Estimated result < LOQ and ≥ DL
Q = Surrogate failure
L = LCS/LCSD failure
S = MS/MSD failure

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Volatile Organic Compounds by GC/MS

Client: **AECOM** Laboratory ID: **WD15023-006**

Description: **MRC-SW7A-S-20210413** Matrix: **Aqueous**

Date Sampled: **04/13/2021 0911** Project Name: **MRC SWS 2021**

Date Received: **04/15/2021** Project Number: **60638276.007.1**

Run	Prep Method	Analytical Method	Dilution	Analysis Date	Analyst	Prep Date	Batch
1	5030B	8260D	1	04/20/2021 1355	BWS		89607

Parameter	CAS Number	Analytical Method	Result	Q	LOQ	DL	Units	Run
Acetone	67-64-1	8260D	ND		10	4.0	ug/L	1
tert-Amyl methyl ether (TAME)	994-05-8	8260D	ND		10	0.42	ug/L	1
Benzene	71-43-2	8260D	ND		0.50	0.40	ug/L	1
Bromobenzene	108-86-1	8260D	ND		0.50	0.40	ug/L	1
Bromochloromethane	74-97-5	8260D	ND		0.50	0.40	ug/L	1
Bromodichloromethane	75-27-4	8260D	ND		0.50	0.40	ug/L	1
Bromoform	75-25-2	8260D	ND		0.50	0.40	ug/L	1
Bromomethane (Methyl bromide)	74-83-9	8260D	ND		0.50	0.40	ug/L	1
2-Butanone (MEK)	78-93-3	8260D	ND		10	2.0	ug/L	1
n-Butylbenzene	104-51-8	8260D	ND		0.50	0.40	ug/L	1
sec-Butylbenzene	135-98-8	8260D	ND		0.50	0.40	ug/L	1
tert-Butylbenzene	98-06-6	8260D	ND		0.50	0.40	ug/L	1
Carbon disulfide	75-15-0	8260D	ND		0.50	0.40	ug/L	1
Carbon tetrachloride	56-23-5	8260D	ND		0.50	0.40	ug/L	1
Chlorobenzene	108-90-7	8260D	ND		0.50	0.40	ug/L	1
Chloroethane	75-00-3	8260D	ND		0.50	0.40	ug/L	1
Chloroform	67-66-3	8260D	ND		0.50	0.40	ug/L	1
Chloromethane (Methyl chloride)	74-87-3	8260D	ND		0.50	0.40	ug/L	1
2-Chlorotoluene	95-49-8	8260D	ND		0.50	0.40	ug/L	1
4-Chlorotoluene	106-43-4	8260D	ND		0.50	0.40	ug/L	1
Cyclohexane	110-82-7	8260D	ND		0.50	0.40	ug/L	1
1,2-Dibromo-3-chloropropane (DBCP)	96-12-8	8260D	ND		0.50	0.40	ug/L	1
Dibromochloromethane	124-48-1	8260D	ND		0.50	0.40	ug/L	1
1,2-Dibromoethane (EDB)	106-93-4	8260D	ND		0.50	0.40	ug/L	1
Dibromomethane (Methylene bromide)	74-95-3	8260D	ND		0.50	0.40	ug/L	1
1,2-Dichlorobenzene	95-50-1	8260D	ND		0.50	0.40	ug/L	1
1,3-Dichlorobenzene	541-73-1	8260D	ND		0.50	0.40	ug/L	1
1,4-Dichlorobenzene	106-46-7	8260D	ND		0.50	0.40	ug/L	1
Dichlorodifluoromethane	75-71-8	8260D	ND		0.50	0.40	ug/L	1
1,1-Dichloroethane	75-34-3	8260D	ND		0.50	0.40	ug/L	1
1,2-Dichloroethane	107-06-2	8260D	ND		0.50	0.40	ug/L	1
1,2-Dichloroethene (total)		8260D	ND		0.50	0.40	ug/L	1
1,1-Dichloroethene	75-35-4	8260D	ND		0.50	0.40	ug/L	1
cis-1,2-Dichloroethene	156-59-2	8260D	ND		0.50	0.40	ug/L	1
trans-1,2-Dichloroethene	156-60-5	8260D	ND		0.50	0.40	ug/L	1
1,2-Dichloropropane	78-87-5	8260D	ND		0.50	0.40	ug/L	1
1,3-Dichloropropane	142-28-9	8260D	ND		0.50	0.40	ug/L	1
2,2-Dichloropropane	594-20-7	8260D	ND		0.50	0.40	ug/L	1
cis-1,3-Dichloropropene	10061-01-5	8260D	ND		0.50	0.40	ug/L	1
trans-1,3-Dichloropropene	10061-02-6	8260D	ND		0.50	0.40	ug/L	1
Diisopropyl ether (IPE)	108-20-3	8260D	ND		0.50	0.40	ug/L	1
Ethylbenzene	100-41-4	8260D	ND		0.50	0.40	ug/L	1
Ethyl-tert-butyl ether (ETBE)	637-92-3	8260D	ND		1.0	0.40	ug/L	1
Hexachlorobutadiene	87-68-3	8260D	ND		0.50	0.40	ug/L	1

LOQ = Limit of Quantitation
B = Detected in the method blank
E = Quantitation of compound exceeded the calibration range
DL = Detection Limit
Q = Surrogate failure
ND = Not detected at or above the DL
N = Recovery is out of criteria
P = The RPD between two GC columns exceeds 40%
J = Estimated result < LOQ and ≥ DL
L = LCS/LCSD failure
H = Out of holding time
W = Reported on wet weight basis
S = MS/MSD failure

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Volatile Organic Compounds by GC/MS

Client: **AECOM** Laboratory ID: **WD15023-006**

Description: **MRC-SW7A-S-20210413** Matrix: **Aqueous**

Date Sampled: **04/13/2021 0911** Project Name: **MRC SWS 2021**

Date Received: **04/15/2021** Project Number: **60638276.007.1**

Run	Prep Method	Analytical Method	Dilution	Analysis Date	Analyst	Prep Date	Batch
1	5030B	8260D	1	04/20/2021 1355	BWS		89607

Parameter	CAS Number	Analytical Method	Result	Q	LOQ	DL	Units	Run
2-Hexanone	591-78-6	8260D	ND		10	2.0	ug/L	1
Isopropylbenzene	98-82-8	8260D	ND		0.50	0.40	ug/L	1
p-Isopropyltoluene	99-87-6	8260D	ND		0.50	0.40	ug/L	1
Methyl acetate	79-20-9	8260D	ND		1.0	0.40	ug/L	1
Methyl tertiary butyl ether (MTBE)	1634-04-4	8260D	ND		0.50	0.40	ug/L	1
4-Methyl-2-pentanone	108-10-1	8260D	ND		10	2.0	ug/L	1
Methylcyclohexane	108-87-2	8260D	ND		5.0	0.40	ug/L	1
Methylene chloride	75-09-2	8260D	ND		0.50	0.40	ug/L	1
Naphthalene	91-20-3	8260D	ND		0.50	0.40	ug/L	1
n-Propylbenzene	103-65-1	8260D	ND		0.50	0.40	ug/L	1
Styrene	100-42-5	8260D	ND		0.50	0.41	ug/L	1
tert-butyl alcohol (TBA)	75-65-0	8260D	ND		20	8.0	ug/L	1
1,1,1,2-Tetrachloroethane	630-20-6	8260D	ND		0.50	0.40	ug/L	1
1,1,2,2-Tetrachloroethane	79-34-5	8260D	ND		0.50	0.40	ug/L	1
Tetrachloroethene	127-18-4	8260D	ND		0.50	0.40	ug/L	1
Toluene	108-88-3	8260D	ND		0.50	0.40	ug/L	1
1,1,2-Trichloro-1,2,2-Trifluoroethane	76-13-1	8260D	ND		1.0	0.42	ug/L	1
1,2,3-Trichlorobenzene	87-61-6	8260D	ND		0.50	0.40	ug/L	1
1,2,4-Trichlorobenzene	120-82-1	8260D	ND		0.50	0.40	ug/L	1
1,1,1-Trichloroethane	71-55-6	8260D	ND		0.50	0.40	ug/L	1
1,1,2-Trichloroethane	79-00-5	8260D	ND		0.50	0.40	ug/L	1
Trichloroethene	79-01-6	8260D	ND		0.50	0.40	ug/L	1
Trichlorofluoromethane	75-69-4	8260D	ND		0.50	0.40	ug/L	1
1,2,3-Trichloropropane	96-18-4	8260D	ND		0.50	0.40	ug/L	1
1,2,4-Trimethylbenzene	95-63-6	8260D	ND		0.50	0.40	ug/L	1
Vinyl acetate	108-05-4	8260D	ND		5.0	1.2	ug/L	1
Vinyl chloride	75-01-4	8260D	ND		0.50	0.40	ug/L	1
Xylenes (total)	1330-20-7	8260D	ND		1.0	0.40	ug/L	1
m+p - Xylenes	179601-23-1	8260D	ND		0.50	0.40	ug/L	1
o - Xylenes	95-47-6	8260D	ND		0.50	0.40	ug/L	1

Surrogate	Q	Run 1 % Recovery	Acceptance Limits
Bromofluorobenzene		99	70-130
1,2-Dichloroethane-d4		96	70-130
Toluene-d8		106	70-130

LOQ = Limit of Quantitation
ND = Not detected at or above the DL
H = Out of holding time
B = Detected in the method blank
N = Recovery is out of criteria
W = Reported on wet weight basis
E = Quantitation of compound exceeded the calibration range
P = The RPD between two GC columns exceeds 40%
DL = Detection Limit
J = Estimated result < LOQ and ≥ DL
Q = Surrogate failure
L = LCS/LCSD failure
S = MS/MSD failure

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Volatile Organic Compounds by GC/MS

Client: **AECOM** Laboratory ID: **WD15023-007**

Description: **MRC-SW8A-S-20210413** Matrix: **Aqueous**

Date Sampled: **04/13/2021 1045** Project Name: **MRC SWS 2021**

Date Received: **04/15/2021** Project Number: **60638276.007.1**

Run	Prep Method	Analytical Method	Dilution	Analysis Date	Analyst	Prep Date	Batch
1	5030B	8260D	1	04/20/2021 1420	BWS		89607

Parameter	CAS Number	Analytical Method	Result	Q	LOQ	DL	Units	Run
Acetone	67-64-1	8260D	ND		10	4.0	ug/L	1
tert-Amyl methyl ether (TAME)	994-05-8	8260D	ND		10	0.42	ug/L	1
Benzene	71-43-2	8260D	ND		0.50	0.40	ug/L	1
Bromobenzene	108-86-1	8260D	ND		0.50	0.40	ug/L	1
Bromochloromethane	74-97-5	8260D	ND		0.50	0.40	ug/L	1
Bromodichloromethane	75-27-4	8260D	ND		0.50	0.40	ug/L	1
Bromoform	75-25-2	8260D	ND		0.50	0.40	ug/L	1
Bromomethane (Methyl bromide)	74-83-9	8260D	ND		0.50	0.40	ug/L	1
2-Butanone (MEK)	78-93-3	8260D	ND		10	2.0	ug/L	1
n-Butylbenzene	104-51-8	8260D	ND		0.50	0.40	ug/L	1
sec-Butylbenzene	135-98-8	8260D	ND		0.50	0.40	ug/L	1
tert-Butylbenzene	98-06-6	8260D	ND		0.50	0.40	ug/L	1
Carbon disulfide	75-15-0	8260D	ND		0.50	0.40	ug/L	1
Carbon tetrachloride	56-23-5	8260D	ND		0.50	0.40	ug/L	1
Chlorobenzene	108-90-7	8260D	ND		0.50	0.40	ug/L	1
Chloroethane	75-00-3	8260D	ND		0.50	0.40	ug/L	1
Chloroform	67-66-3	8260D	ND		0.50	0.40	ug/L	1
Chloromethane (Methyl chloride)	74-87-3	8260D	ND		0.50	0.40	ug/L	1
2-Chlorotoluene	95-49-8	8260D	ND		0.50	0.40	ug/L	1
4-Chlorotoluene	106-43-4	8260D	ND		0.50	0.40	ug/L	1
Cyclohexane	110-82-7	8260D	ND		0.50	0.40	ug/L	1
1,2-Dibromo-3-chloropropane (DBCP)	96-12-8	8260D	ND		0.50	0.40	ug/L	1
Dibromochloromethane	124-48-1	8260D	ND		0.50	0.40	ug/L	1
1,2-Dibromoethane (EDB)	106-93-4	8260D	ND		0.50	0.40	ug/L	1
Dibromomethane (Methylene bromide)	74-95-3	8260D	ND		0.50	0.40	ug/L	1
1,2-Dichlorobenzene	95-50-1	8260D	ND		0.50	0.40	ug/L	1
1,3-Dichlorobenzene	541-73-1	8260D	ND		0.50	0.40	ug/L	1
1,4-Dichlorobenzene	106-46-7	8260D	ND		0.50	0.40	ug/L	1
Dichlorodifluoromethane	75-71-8	8260D	ND		0.50	0.40	ug/L	1
1,1-Dichloroethane	75-34-3	8260D	ND		0.50	0.40	ug/L	1
1,2-Dichloroethane	107-06-2	8260D	ND		0.50	0.40	ug/L	1
1,2-Dichloroethene (total)		8260D	ND		0.50	0.40	ug/L	1
1,1-Dichloroethene	75-35-4	8260D	ND		0.50	0.40	ug/L	1
cis-1,2-Dichloroethene	156-59-2	8260D	ND		0.50	0.40	ug/L	1
trans-1,2-Dichloroethene	156-60-5	8260D	ND		0.50	0.40	ug/L	1
1,2-Dichloropropane	78-87-5	8260D	ND		0.50	0.40	ug/L	1
1,3-Dichloropropane	142-28-9	8260D	ND		0.50	0.40	ug/L	1
2,2-Dichloropropane	594-20-7	8260D	ND		0.50	0.40	ug/L	1
cis-1,3-Dichloropropene	10061-01-5	8260D	ND		0.50	0.40	ug/L	1
trans-1,3-Dichloropropene	10061-02-6	8260D	ND		0.50	0.40	ug/L	1
Diisopropyl ether (IPE)	108-20-3	8260D	ND		0.50	0.40	ug/L	1
Ethylbenzene	100-41-4	8260D	ND		0.50	0.40	ug/L	1
Ethyl-tert-butyl ether (ETBE)	637-92-3	8260D	ND		1.0	0.40	ug/L	1
Hexachlorobutadiene	87-68-3	8260D	ND		0.50	0.40	ug/L	1

LOQ = Limit of Quantitation
B = Detected in the method blank
E = Quantitation of compound exceeded the calibration range
DL = Detection Limit
Q = Surrogate failure
ND = Not detected at or above the DL
N = Recovery is out of criteria
P = The RPD between two GC columns exceeds 40%
J = Estimated result < LOQ and ≥ DL
L = LCS/LCSD failure
H = Out of holding time
W = Reported on wet weight basis
S = MS/MSD failure

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Volatile Organic Compounds by GC/MS

Client: **AECOM** Laboratory ID: **WD15023-007**

Description: **MRC-SW8A-S-20210413** Matrix: **Aqueous**

Date Sampled: **04/13/2021 1045** Project Name: **MRC SWS 2021**

Date Received: **04/15/2021** Project Number: **60638276.007.1**

Run	Prep Method	Analytical Method	Dilution	Analysis Date	Analyst	Prep Date	Batch
1	5030B	8260D	1	04/20/2021 1420	BWS		89607

Parameter	CAS Number	Analytical Method	Result	Q	LOQ	DL	Units	Run
2-Hexanone	591-78-6	8260D	ND		10	2.0	ug/L	1
Isopropylbenzene	98-82-8	8260D	ND		0.50	0.40	ug/L	1
p-Isopropyltoluene	99-87-6	8260D	ND		0.50	0.40	ug/L	1
Methyl acetate	79-20-9	8260D	ND		1.0	0.40	ug/L	1
Methyl tertiary butyl ether (MTBE)	1634-04-4	8260D	ND		0.50	0.40	ug/L	1
4-Methyl-2-pentanone	108-10-1	8260D	ND		10	2.0	ug/L	1
Methylcyclohexane	108-87-2	8260D	ND		5.0	0.40	ug/L	1
Methylene chloride	75-09-2	8260D	ND		0.50	0.40	ug/L	1
Naphthalene	91-20-3	8260D	ND		0.50	0.40	ug/L	1
n-Propylbenzene	103-65-1	8260D	ND		0.50	0.40	ug/L	1
Styrene	100-42-5	8260D	ND		0.50	0.41	ug/L	1
tert-butyl alcohol (TBA)	75-65-0	8260D	ND		20	8.0	ug/L	1
1,1,1,2-Tetrachloroethane	630-20-6	8260D	ND		0.50	0.40	ug/L	1
1,1,2,2-Tetrachloroethane	79-34-5	8260D	ND		0.50	0.40	ug/L	1
Tetrachloroethene	127-18-4	8260D	ND		0.50	0.40	ug/L	1
Toluene	108-88-3	8260D	ND		0.50	0.40	ug/L	1
1,1,2-Trichloro-1,2,2-Trifluoroethane	76-13-1	8260D	ND		1.0	0.42	ug/L	1
1,2,3-Trichlorobenzene	87-61-6	8260D	ND		0.50	0.40	ug/L	1
1,2,4-Trichlorobenzene	120-82-1	8260D	ND		0.50	0.40	ug/L	1
1,1,1-Trichloroethane	71-55-6	8260D	ND		0.50	0.40	ug/L	1
1,1,2-Trichloroethane	79-00-5	8260D	ND		0.50	0.40	ug/L	1
Trichloroethene	**79-01-6**	**8260D**	**0.88**		**0.50**	**0.40**	**ug/L**	**1**
Trichlorofluoromethane	75-69-4	8260D	ND		0.50	0.40	ug/L	1
1,2,3-Trichloropropane	96-18-4	8260D	ND		0.50	0.40	ug/L	1
1,2,4-Trimethylbenzene	95-63-6	8260D	ND		0.50	0.40	ug/L	1
Vinyl acetate	108-05-4	8260D	ND		5.0	1.2	ug/L	1
Vinyl chloride	75-01-4	8260D	ND		0.50	0.40	ug/L	1
Xylenes (total)	1330-20-7	8260D	ND		1.0	0.40	ug/L	1
m+p - Xylenes	179601-23-1	8260D	ND		0.50	0.40	ug/L	1
o - Xylenes	95-47-6	8260D	ND		0.50	0.40	ug/L	1

Surrogate	Q	Run 1 % Recovery	Acceptance Limits
Bromofluorobenzene		99	70-130
1,2-Dichloroethane-d4		105	70-130
Toluene-d8		106	70-130

LOQ = Limit of Quantitation
ND = Not detected at or above the DL
H = Out of holding time
B = Detected in the method blank
N = Recovery is out of criteria
W = Reported on wet weight basis
E = Quantitation of compound exceeded the calibration range
P = The RPD between two GC columns exceeds 40%
DL = Detection Limit
J = Estimated result < LOQ and ≥ DL
Q = Surrogate failure
L = LCS/LCSD failure
S = MS/MSD failure

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Semivolatile Organic Compounds by GC/MS (SIM)

Client: **AECOM** Laboratory ID: **WD15023-007**

Description: **MRC-SW8A-S-20210413** Matrix: **Aqueous**

Date Sampled: **04/13/2021 1045** Project Name: **MRC SWS 2021**

Date Received: **04/15/2021** Project Number: **60638276.007.1**

Run	Prep Method	Analytical Method	Dilution	Analysis Date	Analyst	Prep Date	Batch
1	3520C	8270E (SIM)	1	04/23/2021 2026	JCG	04/19/2021 1600	89524
2	3520C	8270E (SIM)	1	05/14/2021 1238	JCG	05/12/2021 1321	92007

Parameter	CAS Number	Analytical Method	Result	Q	LOQ	DL	Units	Run
1,4-Dioxane	**123-91-1**	**8270E (SIM)**	**0.12**	**BJ**	**0.20**	**0.068**	**ug/L**	**1**

Surrogate	Q	Run 1 % Recovery	Acceptance Limits	Q	Run 2 % Recovery	Acceptance Limits
1,4-Dioxane-d8		57	40-90	H	53	40-90

LOQ = Limit of Quantitation
ND = Not detected at or above the DL
H = Out of holding time
B = Detected in the method blank
N = Recovery is out of criteria
W = Reported on wet weight basis
E = Quantitation of compound exceeded the calibration range
P = The RPD between two GC columns exceeds 40%
DL = Detection Limit
J = Estimated result < LOQ and ≥ DL
Q = Surrogate failure
L = LCS/LCSD failure
S = MS/MSD failure

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Semivolatile Organic Compounds by GC/MS (SIM)

Client: **AECOM** Laboratory ID: **WD15023-007**

Description: **MRC-SW8A-S-20210413** Matrix: **Aqueous**

Date Sampled: **04/13/2021 1045** Project Name: **MRC SWS 2021**

Date Received: **04/15/2021** Project Number: **60638276.007.1**

Run	Prep Method	Analytical Method	Dilution	Analysis Date	Analyst	Prep Date	Batch
1	3520C	8270E (SIM)	1	04/23/2021 2026	JCG	04/19/2021 1600	89524
2	3520C	8270E (SIM)	1	05/14/2021 1238	JCG	05/12/2021 1321	92007

Parameter	CAS Number	Analytical Method	Result	Q	LOQ	DL	Units	Run
1,4-Dioxane	123-91-1	8270E (SIM)	ND	H	0.20	0.068	ug/L	2

Surrogate	Q	Run 1 % Recovery	Acceptance Limits	Q	Run 2 % Recovery	Acceptance Limits
1,4-Dioxane-d8		57	40-90	H	53	40-90

LOQ = Limit of Quantitation	B = Detected in the method blank	E = Quantitation of compound exceeded the calibration range	DL = Detection Limit	Q = Surrogate failure
ND = Not detected at or above the DL	N = Recovery is out of criteria	P = The RPD between two GC columns exceeds 40%	J = Estimated result < LOQ and ≥ DL	L = LCS/LCSD failure
H = Out of holding time	W = Reported on wet weight basis			S = MS/MSD failure

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Volatile Organic Compounds by GC/MS

Client: **AECOM** Laboratory ID: **WD15023-008**

Description: **MRC-SW8B-S-20210413** Matrix: **Aqueous**

Date Sampled: **04/13/2021 1105** Project Name: **MRC SWS 2021**

Date Received: **04/15/2021** Project Number: **60638276.007.1**

Run	Prep Method	Analytical Method	Dilution	Analysis Date	Analyst	Prep Date	Batch
1	5030B	8260D	1	04/20/2021 1445	BWS		89607

Parameter	CAS Number	Analytical Method	Result	Q	LOQ	DL	Units	Run
Acetone	67-64-1	8260D	ND		10	4.0	ug/L	1
tert-Amyl methyl ether (TAME)	994-05-8	8260D	ND		10	0.42	ug/L	1
Benzene	71-43-2	8260D	ND		0.50	0.40	ug/L	1
Bromobenzene	108-86-1	8260D	ND		0.50	0.40	ug/L	1
Bromochloromethane	74-97-5	8260D	ND		0.50	0.40	ug/L	1
Bromodichloromethane	75-27-4	8260D	ND		0.50	0.40	ug/L	1
Bromoform	75-25-2	8260D	ND		0.50	0.40	ug/L	1
Bromomethane (Methyl bromide)	74-83-9	8260D	ND	S	0.50	0.40	ug/L	1
2-Butanone (MEK)	78-93-3	8260D	ND		10	2.0	ug/L	1
n-Butylbenzene	104-51-8	8260D	ND		0.50	0.40	ug/L	1
sec-Butylbenzene	135-98-8	8260D	ND		0.50	0.40	ug/L	1
tert-Butylbenzene	98-06-6	8260D	ND		0.50	0.40	ug/L	1
Carbon disulfide	75-15-0	8260D	ND		0.50	0.40	ug/L	1
Carbon tetrachloride	56-23-5	8260D	ND		0.50	0.40	ug/L	1
Chlorobenzene	108-90-7	8260D	ND	S	0.50	0.40	ug/L	1
Chloroethane	75-00-3	8260D	ND		0.50	0.40	ug/L	1
Chloroform	67-66-3	8260D	ND		0.50	0.40	ug/L	1
Chloromethane (Methyl chloride)	74-87-3	8260D	ND		0.50	0.40	ug/L	1
2-Chlorotoluene	95-49-8	8260D	ND		0.50	0.40	ug/L	1
4-Chlorotoluene	106-43-4	8260D	ND		0.50	0.40	ug/L	1
Cyclohexane	110-82-7	8260D	ND		0.50	0.40	ug/L	1
1,2-Dibromo-3-chloropropane (DBCP)	96-12-8	8260D	ND		0.50	0.40	ug/L	1
Dibromochloromethane	124-48-1	8260D	ND		0.50	0.40	ug/L	1
1,2-Dibromoethane (EDB)	106-93-4	8260D	ND		0.50	0.40	ug/L	1
Dibromomethane (Methylene bromide)	74-95-3	8260D	ND		0.50	0.40	ug/L	1
1,2-Dichlorobenzene	95-50-1	8260D	ND		0.50	0.40	ug/L	1
1,3-Dichlorobenzene	541-73-1	8260D	ND		0.50	0.40	ug/L	1
1,4-Dichlorobenzene	106-46-7	8260D	ND		0.50	0.40	ug/L	1
Dichlorodifluoromethane	75-71-8	8260D	ND		0.50	0.40	ug/L	1
1,1-Dichloroethane	75-34-3	8260D	ND		0.50	0.40	ug/L	1
1,2-Dichloroethane	107-06-2	8260D	ND		0.50	0.40	ug/L	1
1,2-Dichloroethene (total)		8260D	ND		0.50	0.40	ug/L	1
1,1-Dichloroethene	75-35-4	8260D	ND		0.50	0.40	ug/L	1
cis-1,2-Dichloroethene	156-59-2	8260D	ND		0.50	0.40	ug/L	1
trans-1,2-Dichloroethene	156-60-5	8260D	ND		0.50	0.40	ug/L	1
1,2-Dichloropropane	78-87-5	8260D	ND		0.50	0.40	ug/L	1
1,3-Dichloropropane	142-28-9	8260D	ND		0.50	0.40	ug/L	1
2,2-Dichloropropane	594-20-7	8260D	ND		0.50	0.40	ug/L	1
cis-1,3-Dichloropropene	10061-01-5	8260D	ND		0.50	0.40	ug/L	1
trans-1,3-Dichloropropene	10061-02-6	8260D	ND		0.50	0.40	ug/L	1
Diisopropyl ether (IPE)	108-20-3	8260D	ND		0.50	0.40	ug/L	1
Ethylbenzene	100-41-4	8260D	ND	S	0.50	0.40	ug/L	1
Ethyl-tert-butyl ether (ETBE)	637-92-3	8260D	ND		1.0	0.40	ug/L	1
Hexachlorobutadiene	87-68-3	8260D	ND		0.50	0.40	ug/L	1

LOQ = Limit of Quantitation
B = Detected in the method blank
E = Quantitation of compound exceeded the calibration range
DL = Detection Limit
Q = Surrogate failure
ND = Not detected at or above the DL
N = Recovery is out of criteria
P = The RPD between two GC columns exceeds 40%
J = Estimated result < LOQ and ≥ DL
L = LCS/LCSD failure
H = Out of holding time
W = Reported on wet weight basis
S = MS/MSD failure

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Volatile Organic Compounds by GC/MS

Client: **AECOM** Laboratory ID: **WD15023-008**

Description: **MRC-SW8B-S-20210413** Matrix: **Aqueous**

Date Sampled: **04/13/2021 1105** Project Name: **MRC SWS 2021**

Date Received: **04/15/2021** Project Number: **60638276.007.1**

Run	Prep Method	Analytical Method	Dilution	Analysis Date	Analyst	Prep Date	Batch
1	5030B	8260D	1	04/20/2021 1445	BWS		89607

Parameter	CAS Number	Analytical Method	Result	Q	LOQ	DL	Units	Run
2-Hexanone	591-78-6	8260D	ND		10	2.0	ug/L	1
Isopropylbenzene	98-82-8	8260D	ND		0.50	0.40	ug/L	1
p-Isopropyltoluene	99-87-6	8260D	ND		0.50	0.40	ug/L	1
Methyl acetate	79-20-9	8260D	ND		1.0	0.40	ug/L	1
Methyl tertiary butyl ether (MTBE)	1634-04-4	8260D	ND		0.50	0.40	ug/L	1
4-Methyl-2-pentanone	108-10-1	8260D	ND		10	2.0	ug/L	1
Methylcyclohexane	108-87-2	8260D	ND		5.0	0.40	ug/L	1
Methylene chloride	75-09-2	8260D	ND		0.50	0.40	ug/L	1
Naphthalene	91-20-3	8260D	ND		0.50	0.40	ug/L	1
n-Propylbenzene	103-65-1	8260D	ND		0.50	0.40	ug/L	1
Styrene	100-42-5	8260D	ND		0.50	0.41	ug/L	1
tert-butyl alcohol (TBA)	75-65-0	8260D	ND		20	8.0	ug/L	1
1,1,1,2-Tetrachloroethane	630-20-6	8260D	ND		0.50	0.40	ug/L	1
1,1,2,2-Tetrachloroethane	79-34-5	8260D	ND		0.50	0.40	ug/L	1
Tetrachloroethene	127-18-4	8260D	ND		0.50	0.40	ug/L	1
Toluene	108-88-3	8260D	ND		0.50	0.40	ug/L	1
1,1,2-Trichloro-1,2,2-Trifluoroethane	76-13-1	8260D	ND		1.0	0.42	ug/L	1
1,2,3-Trichlorobenzene	87-61-6	8260D	ND		0.50	0.40	ug/L	1
1,2,4-Trichlorobenzene	120-82-1	8260D	ND		0.50	0.40	ug/L	1
1,1,1-Trichloroethane	71-55-6	8260D	ND		0.50	0.40	ug/L	1
1,1,2-Trichloroethane	79-00-5	8260D	ND		0.50	0.40	ug/L	1
Trichloroethene	**79-01-6**	**8260D**	**0.59**		**0.50**	**0.40**	**ug/L**	**1**
Trichlorofluoromethane	75-69-4	8260D	ND		0.50	0.40	ug/L	1
1,2,3-Trichloropropane	96-18-4	8260D	ND		0.50	0.40	ug/L	1
1,2,4-Trimethylbenzene	95-63-6	8260D	ND		0.50	0.40	ug/L	1
Vinyl acetate	108-05-4	8260D	ND		5.0	1.2	ug/L	1
Vinyl chloride	75-01-4	8260D	ND	S	0.50	0.40	ug/L	1
Xylenes (total)	1330-20-7	8260D	ND		1.0	0.40	ug/L	1
m+p - Xylenes	179601-23-1	8260D	ND		0.50	0.40	ug/L	1
o - Xylenes	95-47-6	8260D	ND	S	0.50	0.40	ug/L	1

Surrogate	Q	Run 1 % Recovery	Acceptance Limits
Bromofluorobenzene		99	70-130
1,2-Dichloroethane-d4		109	70-130
Toluene-d8		98	70-130

LOQ = Limit of Quantitation
B = Detected in the method blank
E = Quantitation of compound exceeded the calibration range
DL = Detection Limit
Q = Surrogate failure
ND = Not detected at or above the DL
N = Recovery is out of criteria
P = The RPD between two GC columns exceeds 40%
J = Estimated result < LOQ and ≥ DL
L = LCS/LCSD failure
H = Out of holding time
W = Reported on wet weight basis
S = MS/MSD failure

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Semivolatile Organic Compounds by GC/MS (SIM)

Client: **AECOM** Laboratory ID: **WD15023-008**

Description: **MRC-SW8B-S-20210413** Matrix: **Aqueous**

Date Sampled: **04/13/2021 1105** Project Name: **MRC SWS 2021**

Date Received: **04/15/2021** Project Number: **60638276.007.1**

Run	Prep Method	Analytical Method	Dilution	Analysis Date	Analyst	Prep Date	Batch
1	3520C	8270E (SIM)	1	04/23/2021 2046	JCG	04/19/2021 1600	89524
2	3520C	8270E (SIM)	1	05/14/2021 1258	JCG	05/12/2021 1321	92007

Parameter	CAS Number	Analytical Method	Result	Q	LOQ	DL	Units	Run
1,4-Dioxane	**123-91-1**	**8270E (SIM)**	**0.15**	**BJ**	**0.20**	**0.068**	**ug/L**	**1**

Surrogate	Q	Run 1 % Recovery	Acceptance Limits	Q	Run 2 % Recovery	Acceptance Limits
1,4-Dioxane-d8		50	40-90	H	53	40-90

LOQ = Limit of Quantitation
ND = Not detected at or above the DL
H = Out of holding time
B = Detected in the method blank
N = Recovery is out of criteria
W = Reported on wet weight basis
E = Quantitation of compound exceeded the calibration range
P = The RPD between two GC columns exceeds 40%
DL = Detection Limit
J = Estimated result < LOQ and ≥ DL
Q = Surrogate failure
L = LCS/LCSD failure
S = MS/MSD failure

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Semivolatile Organic Compounds by GC/MS (SIM)

Client: **AECOM** Laboratory ID: **WD15023-008**

Description: **MRC-SW8B-S-20210413** Matrix: **Aqueous**

Date Sampled: **04/13/2021 1105** Project Name: **MRC SWS 2021**

Date Received: **04/15/2021** Project Number: **60638276.007.1**

Run	Prep Method	Analytical Method	Dilution	Analysis Date	Analyst	Prep Date	Batch
1	3520C	8270E (SIM)	1	04/23/2021 2046	JCG	04/19/2021 1600	89524
2	3520C	8270E (SIM)	1	05/14/2021 1258	JCG	05/12/2021 1321	92007

Parameter	CAS Number	Analytical Method	Result	Q	LOQ	DL	Units	Run
1,4-Dioxane	123-91-1	8270E (SIM)	ND	H	0.20	0.068	ug/L	2

Surrogate	Q	Run 1 % Recovery	Acceptance Limits	Q	Run 2 % Recovery	Acceptance Limits
1,4-Dioxane-d8		50	40-90	H	53	40-90

LOQ = Limit of Quantitation
ND = Not detected at or above the DL
H = Out of holding time
B = Detected in the method blank
N = Recovery is out of criteria
W = Reported on wet weight basis
E = Quantitation of compound exceeded the calibration range
P = The RPD between two GC columns exceeds 40%
DL = Detection Limit
J = Estimated result < LOQ and ≥ DL
Q = Surrogate failure
L = LCS/LCSD failure
S = MS/MSD failure

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Volatile Organic Compounds by GC/MS

Client: **AECOM** Laboratory ID: **WD15023-009**

Description: **MRC-SW8B-S-DUP-20210413** Matrix: **Aqueous**

Date Sampled: **04/13/2021 1125** Project Name: **MRC SWS 2021**

Date Received: **04/15/2021** Project Number: **60638276.007.1**

Run	Prep Method	Analytical Method	Dilution	Analysis Date	Analyst	Prep Date	Batch
1	5030B	8260D	1	04/20/2021 1510	BWS		89607

Parameter	CAS Number	Analytical Method	Result	Q	LOQ	DL	Units	Run
Acetone	67-64-1	8260D	ND		10	4.0	ug/L	1
tert-Amyl methyl ether (TAME)	994-05-8	8260D	ND		10	0.42	ug/L	1
Benzene	71-43-2	8260D	ND		0.50	0.40	ug/L	1
Bromobenzene	108-86-1	8260D	ND		0.50	0.40	ug/L	1
Bromochloromethane	74-97-5	8260D	ND		0.50	0.40	ug/L	1
Bromodichloromethane	75-27-4	8260D	ND		0.50	0.40	ug/L	1
Bromoform	75-25-2	8260D	ND		0.50	0.40	ug/L	1
Bromomethane (Methyl bromide)	74-83-9	8260D	ND		0.50	0.40	ug/L	1
2-Butanone (MEK)	78-93-3	8260D	ND		10	2.0	ug/L	1
n-Butylbenzene	104-51-8	8260D	ND		0.50	0.40	ug/L	1
sec-Butylbenzene	135-98-8	8260D	ND		0.50	0.40	ug/L	1
tert-Butylbenzene	98-06-6	8260D	ND		0.50	0.40	ug/L	1
Carbon disulfide	75-15-0	8260D	ND		0.50	0.40	ug/L	1
Carbon tetrachloride	56-23-5	8260D	ND		0.50	0.40	ug/L	1
Chlorobenzene	108-90-7	8260D	ND		0.50	0.40	ug/L	1
Chloroethane	75-00-3	8260D	ND		0.50	0.40	ug/L	1
Chloroform	67-66-3	8260D	ND		0.50	0.40	ug/L	1
Chloromethane (Methyl chloride)	74-87-3	8260D	ND		0.50	0.40	ug/L	1
2-Chlorotoluene	95-49-8	8260D	ND		0.50	0.40	ug/L	1
4-Chlorotoluene	106-43-4	8260D	ND		0.50	0.40	ug/L	1
Cyclohexane	110-82-7	8260D	ND		0.50	0.40	ug/L	1
1,2-Dibromo-3-chloropropane (DBCP)	96-12-8	8260D	ND		0.50	0.40	ug/L	1
Dibromochloromethane	124-48-1	8260D	ND		0.50	0.40	ug/L	1
1,2-Dibromoethane (EDB)	106-93-4	8260D	ND		0.50	0.40	ug/L	1
Dibromomethane (Methylene bromide)	74-95-3	8260D	ND		0.50	0.40	ug/L	1
1,2-Dichlorobenzene	95-50-1	8260D	ND		0.50	0.40	ug/L	1
1,3-Dichlorobenzene	541-73-1	8260D	ND		0.50	0.40	ug/L	1
1,4-Dichlorobenzene	106-46-7	8260D	ND		0.50	0.40	ug/L	1
Dichlorodifluoromethane	75-71-8	8260D	ND		0.50	0.40	ug/L	1
1,1-Dichloroethane	75-34-3	8260D	ND		0.50	0.40	ug/L	1
1,2-Dichloroethane	107-06-2	8260D	ND		0.50	0.40	ug/L	1
1,2-Dichloroethene (total)		8260D	ND		0.50	0.40	ug/L	1
1,1-Dichloroethene	75-35-4	8260D	ND		0.50	0.40	ug/L	1
cis-1,2-Dichloroethene	156-59-2	8260D	ND		0.50	0.40	ug/L	1
trans-1,2-Dichloroethene	156-60-5	8260D	ND		0.50	0.40	ug/L	1
1,2-Dichloropropane	78-87-5	8260D	ND		0.50	0.40	ug/L	1
1,3-Dichloropropane	142-28-9	8260D	ND		0.50	0.40	ug/L	1
2,2-Dichloropropane	594-20-7	8260D	ND		0.50	0.40	ug/L	1
cis-1,3-Dichloropropene	10061-01-5	8260D	ND		0.50	0.40	ug/L	1
trans-1,3-Dichloropropene	10061-02-6	8260D	ND		0.50	0.40	ug/L	1
Diisopropyl ether (IPE)	108-20-3	8260D	ND		0.50	0.40	ug/L	1
Ethylbenzene	100-41-4	8260D	ND		0.50	0.40	ug/L	1
Ethyl-tert-butyl ether (ETBE)	637-92-3	8260D	ND		1.0	0.40	ug/L	1
Hexachlorobutadiene	87-68-3	8260D	ND		0.50	0.40	ug/L	1

LOQ = Limit of Quantitation
B = Detected in the method blank
E = Quantitation of compound exceeded the calibration range
DL = Detection Limit
Q = Surrogate failure
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Volatile Organic Compounds by GC/MS

Client: **AECOM** Laboratory ID: **WD15023-009**

Description: **MRC-SW8B-S-DUP-20210413** Matrix: **Aqueous**

Date Sampled: **04/13/2021 1125** Project Name: **MRC SWS 2021**

Date Received: **04/15/2021** Project Number: **60638276.007.1**

Run	Prep Method	Analytical Method	Dilution	Analysis Date	Analyst	Prep Date	Batch
1	5030B	8260D	1	04/20/2021 1510	BWS		89607

Parameter	CAS Number	Analytical Method	Result	Q	LOQ	DL	Units	Run
2-Hexanone	591-78-6	8260D	ND		10	2.0	ug/L	1
Isopropylbenzene	98-82-8	8260D	ND		0.50	0.40	ug/L	1
p-Isopropyltoluene	99-87-6	8260D	ND		0.50	0.40	ug/L	1
Methyl acetate	79-20-9	8260D	ND		1.0	0.40	ug/L	1
Methyl tertiary butyl ether (MTBE)	1634-04-4	8260D	ND		0.50	0.40	ug/L	1
4-Methyl-2-pentanone	108-10-1	8260D	ND		10	2.0	ug/L	1
Methylcyclohexane	108-87-2	8260D	ND		5.0	0.40	ug/L	1
Methylene chloride	75-09-2	8260D	ND		0.50	0.40	ug/L	1
Naphthalene	91-20-3	8260D	ND		0.50	0.40	ug/L	1
n-Propylbenzene	103-65-1	8260D	ND		0.50	0.40	ug/L	1
Styrene	100-42-5	8260D	ND		0.50	0.41	ug/L	1
tert-butyl alcohol (TBA)	75-65-0	8260D	ND		20	8.0	ug/L	1
1,1,1,2-Tetrachloroethane	630-20-6	8260D	ND		0.50	0.40	ug/L	1
1,1,2,2-Tetrachloroethane	79-34-5	8260D	ND		0.50	0.40	ug/L	1
Tetrachloroethene	127-18-4	8260D	ND		0.50	0.40	ug/L	1
Toluene	108-88-3	8260D	ND		0.50	0.40	ug/L	1
1,1,2-Trichloro-1,2,2-Trifluoroethane	76-13-1	8260D	ND		1.0	0.42	ug/L	1
1,2,3-Trichlorobenzene	87-61-6	8260D	ND		0.50	0.40	ug/L	1
1,2,4-Trichlorobenzene	120-82-1	8260D	ND		0.50	0.40	ug/L	1
1,1,1-Trichloroethane	71-55-6	8260D	ND		0.50	0.40	ug/L	1
1,1,2-Trichloroethane	79-00-5	8260D	ND		0.50	0.40	ug/L	1
Trichloroethene	**79-01-6**	**8260D**	**0.56**		**0.50**	**0.40**	**ug/L**	**1**
Trichlorofluoromethane	75-69-4	8260D	ND		0.50	0.40	ug/L	1
1,2,3-Trichloropropane	96-18-4	8260D	ND		0.50	0.40	ug/L	1
1,2,4-Trimethylbenzene	95-63-6	8260D	ND		0.50	0.40	ug/L	1
Vinyl acetate	108-05-4	8260D	ND		5.0	1.2	ug/L	1
Vinyl chloride	75-01-4	8260D	ND		0.50	0.40	ug/L	1
Xylenes (total)	1330-20-7	8260D	ND		1.0	0.40	ug/L	1
m+p - Xylenes	179601-23-1	8260D	ND		0.50	0.40	ug/L	1
o - Xylenes	95-47-6	8260D	ND		0.50	0.40	ug/L	1

Surrogate	Q	Run 1 % Recovery	Acceptance Limits
Bromofluorobenzene		97	70-130
1,2-Dichloroethane-d4		103	70-130
Toluene-d8		104	70-130

LOQ = Limit of Quantitation
B = Detected in the method blank
E = Quantitation of compound exceeded the calibration range
DL = Detection Limit
Q = Surrogate failure
ND = Not detected at or above the DL
N = Recovery is out of criteria
P = The RPD between two GC columns exceeds 40%
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L = LCS/LCSD failure
H = Out of holding time
W = Reported on wet weight basis
S = MS/MSD failure

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Semivolatile Organic Compounds by GC/MS (SIM)

Client: **AECOM** Laboratory ID: **WD15023-009**

Description: **MRC-SW8B-S-DUP-20210413** Matrix: **Aqueous**

Date Sampled: **04/13/2021 1125** Project Name: **MRC SWS 2021**

Date Received: **04/15/2021** Project Number: **60638276.007.1**

Run	Prep Method	Analytical Method	Dilution	Analysis Date	Analyst	Prep Date	Batch
1	3520C	8270E (SIM)	1	04/23/2021 2107	JCG	04/19/2021 1600	89524
2	3520C	8270E (SIM)	1	05/14/2021 1400	JCG	05/12/2021 1321	92007

Parameter	CAS Number	Analytical Method	Result	Q	LOQ	DL	Units	Run
1,4-Dioxane	**123-91-1**	**8270E (SIM)**	**0.13**	**BJ**	**0.20**	**0.068**	**ug/L**	**1**

Surrogate	Q	Run 1 % Recovery	Acceptance Limits	Q	Run 2 % Recovery	Acceptance Limits
1,4-Dioxane-d8		52	40-90	H	48	40-90

LOQ = Limit of Quantitation
ND = Not detected at or above the DL
H = Out of holding time
B = Detected in the method blank
N = Recovery is out of criteria
W = Reported on wet weight basis
E = Quantitation of compound exceeded the calibration range
P = The RPD between two GC columns exceeds 40%
DL = Detection Limit
J = Estimated result < LOQ and ≥ DL
Q = Surrogate failure
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Semivolatile Organic Compounds by GC/MS (SIM)

Client: **AECOM** Laboratory ID: **WD15023-009**

Description: **MRC-SW8B-S-DUP-20210413** Matrix: **Aqueous**

Date Sampled: **04/13/2021 1125** Project Name: **MRC SWS 2021**

Date Received: **04/15/2021** Project Number: **60638276.007.1**

Run	Prep Method	Analytical Method	Dilution	Analysis Date	Analyst	Prep Date	Batch
1	3520C	8270E (SIM)	1	04/23/2021 2107	JCG	04/19/2021 1600	89524
2	3520C	8270E (SIM)	1	05/14/2021 1400	JCG	05/12/2021 1321	92007

Parameter	CAS Number	Analytical Method	Result	Q	LOQ	DL	Units	Run
1,4-Dioxane	123-91-1	8270E (SIM)	ND	H	0.20	0.068	ug/L	2

Surrogate	Q	Run 1 % Recovery	Acceptance Limits	Q	Run 2 % Recovery	Acceptance Limits
1,4-Dioxane-d8		52	40-90	H	48	40-90

LOQ = Limit of Quantitation
ND = Not detected at or above the DL
H = Out of holding time
B = Detected in the method blank
N = Recovery is out of criteria
W = Reported on wet weight basis
E = Quantitation of compound exceeded the calibration range
P = The RPD between two GC columns exceeds 40%
DL = Detection Limit
J = Estimated result < LOQ and ≥ DL
Q = Surrogate failure
L = LCS/LCSD failure
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Volatile Organic Compounds by GC/MS

Client: **AECOM** Laboratory ID: **WD15023-010**

Description: **MRC-SW9A-S-20210413** Matrix: **Aqueous**

Date Sampled: **04/13/2021 0931** Project Name: **MRC SWS 2021**

Date Received: **04/15/2021** Project Number: **60638276.007.1**

Run	Prep Method	Analytical Method	Dilution	Analysis Date	Analyst	Prep Date	Batch
1	5030B	8260D	1	04/20/2021 1535	BWS		89607

Parameter	CAS Number	Analytical Method	Result	Q	LOQ	DL	Units	Run
Acetone	67-64-1	8260D	ND		10	4.0	ug/L	1
tert-Amyl methyl ether (TAME)	994-05-8	8260D	ND		10	0.42	ug/L	1
Benzene	71-43-2	8260D	ND		0.50	0.40	ug/L	1
Bromobenzene	108-86-1	8260D	ND		0.50	0.40	ug/L	1
Bromochloromethane	74-97-5	8260D	ND		0.50	0.40	ug/L	1
Bromodichloromethane	75-27-4	8260D	ND		0.50	0.40	ug/L	1
Bromoform	75-25-2	8260D	ND		0.50	0.40	ug/L	1
Bromomethane (Methyl bromide)	74-83-9	8260D	ND		0.50	0.40	ug/L	1
2-Butanone (MEK)	78-93-3	8260D	ND		10	2.0	ug/L	1
n-Butylbenzene	104-51-8	8260D	ND		0.50	0.40	ug/L	1
sec-Butylbenzene	135-98-8	8260D	ND		0.50	0.40	ug/L	1
tert-Butylbenzene	98-06-6	8260D	ND		0.50	0.40	ug/L	1
Carbon disulfide	75-15-0	8260D	ND		0.50	0.40	ug/L	1
Carbon tetrachloride	56-23-5	8260D	ND		0.50	0.40	ug/L	1
Chlorobenzene	108-90-7	8260D	ND		0.50	0.40	ug/L	1
Chloroethane	75-00-3	8260D	ND		0.50	0.40	ug/L	1
Chloroform	67-66-3	8260D	ND		0.50	0.40	ug/L	1
Chloromethane (Methyl chloride)	74-87-3	8260D	ND		0.50	0.40	ug/L	1
2-Chlorotoluene	95-49-8	8260D	ND		0.50	0.40	ug/L	1
4-Chlorotoluene	106-43-4	8260D	ND		0.50	0.40	ug/L	1
Cyclohexane	110-82-7	8260D	ND		0.50	0.40	ug/L	1
1,2-Dibromo-3-chloropropane (DBCP)	96-12-8	8260D	ND		0.50	0.40	ug/L	1
Dibromochloromethane	124-48-1	8260D	ND		0.50	0.40	ug/L	1
1,2-Dibromoethane (EDB)	106-93-4	8260D	ND		0.50	0.40	ug/L	1
Dibromomethane (Methylene bromide)	74-95-3	8260D	ND		0.50	0.40	ug/L	1
1,2-Dichlorobenzene	95-50-1	8260D	ND		0.50	0.40	ug/L	1
1,3-Dichlorobenzene	541-73-1	8260D	ND		0.50	0.40	ug/L	1
1,4-Dichlorobenzene	106-46-7	8260D	ND		0.50	0.40	ug/L	1
Dichlorodifluoromethane	75-71-8	8260D	ND		0.50	0.40	ug/L	1
1,1-Dichloroethane	75-34-3	8260D	ND		0.50	0.40	ug/L	1
1,2-Dichloroethane	107-06-2	8260D	ND		0.50	0.40	ug/L	1
1,2-Dichloroethene (total)		8260D	ND		0.50	0.40	ug/L	1
1,1-Dichloroethene	75-35-4	8260D	ND		0.50	0.40	ug/L	1
cis-1,2-Dichloroethene	156-59-2	8260D	ND		0.50	0.40	ug/L	1
trans-1,2-Dichloroethene	156-60-5	8260D	ND		0.50	0.40	ug/L	1
1,2-Dichloropropane	78-87-5	8260D	ND		0.50	0.40	ug/L	1
1,3-Dichloropropane	142-28-9	8260D	ND		0.50	0.40	ug/L	1
2,2-Dichloropropane	594-20-7	8260D	ND		0.50	0.40	ug/L	1
cis-1,3-Dichloropropene	10061-01-5	8260D	ND		0.50	0.40	ug/L	1
trans-1,3-Dichloropropene	10061-02-6	8260D	ND		0.50	0.40	ug/L	1
Diisopropyl ether (IPE)	108-20-3	8260D	ND		0.50	0.40	ug/L	1
Ethylbenzene	100-41-4	8260D	ND		0.50	0.40	ug/L	1
Ethyl-tert-butyl ether (ETBE)	637-92-3	8260D	ND		1.0	0.40	ug/L	1
Hexachlorobutadiene	87-68-3	8260D	ND		0.50	0.40	ug/L	1

LOQ = Limit of Quantitation
B = Detected in the method blank
E = Quantitation of compound exceeded the calibration range
DL = Detection Limit
Q = Surrogate failure
ND = Not detected at or above the DL
N = Recovery is out of criteria
P = The RPD between two GC columns exceeds 40%
J = Estimated result < LOQ and ≥ DL
L = LCS/LCSD failure
H = Out of holding time
W = Reported on wet weight basis
S = MS/MSD failure

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Volatile Organic Compounds by GC/MS

Client: **AECOM** Laboratory ID: **WD15023-010**

Description: **MRC-SW9A-S-20210413** Matrix: **Aqueous**

Date Sampled: **04/13/2021 0931** Project Name: **MRC SWS 2021**

Date Received: **04/15/2021** Project Number: **60638276.007.1**

Run	Prep Method	Analytical Method	Dilution	Analysis Date	Analyst	Prep Date	Batch
1	5030B	8260D	1	04/20/2021 1535	BWS		89607

Parameter	CAS Number	Analytical Method	Result	Q	LOQ	DL	Units	Run
2-Hexanone	591-78-6	8260D	ND		10	2.0	ug/L	1
Isopropylbenzene	98-82-8	8260D	ND		0.50	0.40	ug/L	1
p-Isopropyltoluene	99-87-6	8260D	ND		0.50	0.40	ug/L	1
Methyl acetate	79-20-9	8260D	ND		1.0	0.40	ug/L	1
Methyl tertiary butyl ether (MTBE)	1634-04-4	8260D	ND		0.50	0.40	ug/L	1
4-Methyl-2-pentanone	108-10-1	8260D	ND		10	2.0	ug/L	1
Methylcyclohexane	108-87-2	8260D	ND		5.0	0.40	ug/L	1
Methylene chloride	75-09-2	8260D	ND		0.50	0.40	ug/L	1
Naphthalene	91-20-3	8260D	ND		0.50	0.40	ug/L	1
n-Propylbenzene	103-65-1	8260D	ND		0.50	0.40	ug/L	1
Styrene	100-42-5	8260D	ND		0.50	0.41	ug/L	1
tert-butyl alcohol (TBA)	75-65-0	8260D	ND		20	8.0	ug/L	1
1,1,1,2-Tetrachloroethane	630-20-6	8260D	ND		0.50	0.40	ug/L	1
1,1,2,2-Tetrachloroethane	79-34-5	8260D	ND		0.50	0.40	ug/L	1
Tetrachloroethene	127-18-4	8260D	ND		0.50	0.40	ug/L	1
Toluene	108-88-3	8260D	ND		0.50	0.40	ug/L	1
1,1,2-Trichloro-1,2,2-Trifluoroethane	76-13-1	8260D	ND		1.0	0.42	ug/L	1
1,2,3-Trichlorobenzene	87-61-6	8260D	ND		0.50	0.40	ug/L	1
1,2,4-Trichlorobenzene	120-82-1	8260D	ND		0.50	0.40	ug/L	1
1,1,1-Trichloroethane	71-55-6	8260D	ND		0.50	0.40	ug/L	1
1,1,2-Trichloroethane	79-00-5	8260D	ND		0.50	0.40	ug/L	1
Trichloroethene	**79-01-6**	**8260D**	**1.1**		**0.50**	**0.40**	**ug/L**	**1**
Trichlorofluoromethane	75-69-4	8260D	ND		0.50	0.40	ug/L	1
1,2,3-Trichloropropane	96-18-4	8260D	ND		0.50	0.40	ug/L	1
1,2,4-Trimethylbenzene	95-63-6	8260D	ND		0.50	0.40	ug/L	1
Vinyl acetate	108-05-4	8260D	ND		5.0	1.2	ug/L	1
Vinyl chloride	75-01-4	8260D	ND		0.50	0.40	ug/L	1
Xylenes (total)	1330-20-7	8260D	ND		1.0	0.40	ug/L	1
m+p - Xylenes	179601-23-1	8260D	ND		0.50	0.40	ug/L	1
o - Xylenes	95-47-6	8260D	ND		0.50	0.40	ug/L	1

Surrogate	Q	Run 1 % Recovery	Acceptance Limits
Bromofluorobenzene		96	70-130
1,2-Dichloroethane-d4		110	70-130
Toluene-d8		107	70-130

LOQ = Limit of Quantitation
B = Detected in the method blank
E = Quantitation of compound exceeded the calibration range
DL = Detection Limit
Q = Surrogate failure
ND = Not detected at or above the DL
N = Recovery is out of criteria
P = The RPD between two GC columns exceeds 40%
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L = LCS/LCSD failure
H = Out of holding time
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S = MS/MSD failure

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Volatile Organic Compounds by GC/MS

Client: **AECOM** Laboratory ID: **WD15023-011**

Description: **MRC-SW11A-S-20210413** Matrix: **Aqueous**

Date Sampled: **04/13/2021 1225** Project Name: **MRC SWS 2021**

Date Received: **04/15/2021** Project Number: **60638276.007.1**

Run	Prep Method	Analytical Method	Dilution	Analysis Date	Analyst	Prep Date	Batch
1	5030B	8260D	1	04/20/2021 1600	BWS		89607

Parameter	CAS Number	Analytical Method	Result	Q	LOQ	DL	Units	Run
Acetone	67-64-1	8260D	ND		10	4.0	ug/L	1
tert-Amyl methyl ether (TAME)	994-05-8	8260D	ND		10	0.42	ug/L	1
Benzene	71-43-2	8260D	ND		0.50	0.40	ug/L	1
Bromobenzene	108-86-1	8260D	ND		0.50	0.40	ug/L	1
Bromochloromethane	74-97-5	8260D	ND		0.50	0.40	ug/L	1
Bromodichloromethane	75-27-4	8260D	ND		0.50	0.40	ug/L	1
Bromoform	75-25-2	8260D	ND		0.50	0.40	ug/L	1
Bromomethane (Methyl bromide)	74-83-9	8260D	ND		0.50	0.40	ug/L	1
2-Butanone (MEK)	78-93-3	8260D	ND		10	2.0	ug/L	1
n-Butylbenzene	104-51-8	8260D	ND		0.50	0.40	ug/L	1
sec-Butylbenzene	135-98-8	8260D	ND		0.50	0.40	ug/L	1
tert-Butylbenzene	98-06-6	8260D	ND		0.50	0.40	ug/L	1
Carbon disulfide	75-15-0	8260D	ND		0.50	0.40	ug/L	1
Carbon tetrachloride	56-23-5	8260D	ND		0.50	0.40	ug/L	1
Chlorobenzene	108-90-7	8260D	ND		0.50	0.40	ug/L	1
Chloroethane	75-00-3	8260D	ND		0.50	0.40	ug/L	1
Chloroform	67-66-3	8260D	ND		0.50	0.40	ug/L	1
Chloromethane (Methyl chloride)	74-87-3	8260D	ND		0.50	0.40	ug/L	1
2-Chlorotoluene	95-49-8	8260D	ND		0.50	0.40	ug/L	1
4-Chlorotoluene	106-43-4	8260D	ND		0.50	0.40	ug/L	1
Cyclohexane	110-82-7	8260D	ND		0.50	0.40	ug/L	1
1,2-Dibromo-3-chloropropane (DBCP)	96-12-8	8260D	ND		0.50	0.40	ug/L	1
Dibromochloromethane	124-48-1	8260D	ND		0.50	0.40	ug/L	1
1,2-Dibromoethane (EDB)	106-93-4	8260D	ND		0.50	0.40	ug/L	1
Dibromomethane (Methylene bromide)	74-95-3	8260D	ND		0.50	0.40	ug/L	1
1,2-Dichlorobenzene	95-50-1	8260D	ND		0.50	0.40	ug/L	1
1,3-Dichlorobenzene	541-73-1	8260D	ND		0.50	0.40	ug/L	1
1,4-Dichlorobenzene	106-46-7	8260D	ND		0.50	0.40	ug/L	1
Dichlorodifluoromethane	75-71-8	8260D	ND		0.50	0.40	ug/L	1
1,1-Dichloroethane	75-34-3	8260D	ND		0.50	0.40	ug/L	1
1,2-Dichloroethane	107-06-2	8260D	ND		0.50	0.40	ug/L	1
1,2-Dichloroethene (total)		8260D	ND		0.50	0.40	ug/L	1
1,1-Dichloroethene	75-35-4	8260D	ND		0.50	0.40	ug/L	1
cis-1,2-Dichloroethene	156-59-2	8260D	ND		0.50	0.40	ug/L	1
trans-1,2-Dichloroethene	156-60-5	8260D	ND		0.50	0.40	ug/L	1
1,2-Dichloropropane	78-87-5	8260D	ND		0.50	0.40	ug/L	1
1,3-Dichloropropane	142-28-9	8260D	ND		0.50	0.40	ug/L	1
2,2-Dichloropropane	594-20-7	8260D	ND		0.50	0.40	ug/L	1
cis-1,3-Dichloropropene	10061-01-5	8260D	ND		0.50	0.40	ug/L	1
trans-1,3-Dichloropropene	10061-02-6	8260D	ND		0.50	0.40	ug/L	1
Diisopropyl ether (IPE)	108-20-3	8260D	ND		0.50	0.40	ug/L	1
Ethylbenzene	100-41-4	8260D	ND		0.50	0.40	ug/L	1
Ethyl-tert-butyl ether (ETBE)	637-92-3	8260D	ND		1.0	0.40	ug/L	1
Hexachlorobutadiene	87-68-3	8260D	ND		0.50	0.40	ug/L	1

LOQ = Limit of Quantitation
B = Detected in the method blank
E = Quantitation of compound exceeded the calibration range
DL = Detection Limit
Q = Surrogate failure
ND = Not detected at or above the DL
N = Recovery is out of criteria
P = The RPD between two GC columns exceeds 40%
J = Estimated result < LOQ and ≥ DL
L = LCS/LCSD failure
H = Out of holding time
W = Reported on wet weight basis
S = MS/MSD failure

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Volatile Organic Compounds by GC/MS

Client: **AECOM** Laboratory ID: **WD15023-011**

Description: **MRC-SW11A-S-20210413** Matrix: **Aqueous**

Date Sampled: **04/13/2021 1225** Project Name: **MRC SWS 2021**

Date Received: **04/15/2021** Project Number: **60638276.007.1**

Run	Prep Method	Analytical Method	Dilution	Analysis Date	Analyst	Prep Date	Batch
1	5030B	8260D	1	04/20/2021 1600	BWS		89607

Parameter	CAS Number	Analytical Method	Result	Q	LOQ	DL	Units	Run
2-Hexanone	591-78-6	8260D	ND		10	2.0	ug/L	1
Isopropylbenzene	98-82-8	8260D	ND		0.50	0.40	ug/L	1
p-Isopropyltoluene	99-87-6	8260D	ND		0.50	0.40	ug/L	1
Methyl acetate	79-20-9	8260D	ND		1.0	0.40	ug/L	1
Methyl tertiary butyl ether (MTBE)	1634-04-4	8260D	ND		0.50	0.40	ug/L	1
4-Methyl-2-pentanone	108-10-1	8260D	ND		10	2.0	ug/L	1
Methylcyclohexane	108-87-2	8260D	ND		5.0	0.40	ug/L	1
Methylene chloride	75-09-2	8260D	ND		0.50	0.40	ug/L	1
Naphthalene	91-20-3	8260D	ND		0.50	0.40	ug/L	1
n-Propylbenzene	103-65-1	8260D	ND		0.50	0.40	ug/L	1
Styrene	100-42-5	8260D	ND		0.50	0.41	ug/L	1
tert-butyl alcohol (TBA)	75-65-0	8260D	ND		20	8.0	ug/L	1
1,1,1,2-Tetrachloroethane	630-20-6	8260D	ND		0.50	0.40	ug/L	1
1,1,2,2-Tetrachloroethane	79-34-5	8260D	ND		0.50	0.40	ug/L	1
Tetrachloroethene	127-18-4	8260D	ND		0.50	0.40	ug/L	1
Toluene	108-88-3	8260D	ND		0.50	0.40	ug/L	1
1,1,2-Trichloro-1,2,2-Trifluoroethane	76-13-1	8260D	ND		1.0	0.42	ug/L	1
1,2,3-Trichlorobenzene	87-61-6	8260D	ND		0.50	0.40	ug/L	1
1,2,4-Trichlorobenzene	120-82-1	8260D	ND		0.50	0.40	ug/L	1
1,1,1-Trichloroethane	71-55-6	8260D	ND		0.50	0.40	ug/L	1
1,1,2-Trichloroethane	79-00-5	8260D	ND		0.50	0.40	ug/L	1
Trichloroethene	**79-01-6**	**8260D**	**0.53**		**0.50**	**0.40**	**ug/L**	**1**
Trichlorofluoromethane	75-69-4	8260D	ND		0.50	0.40	ug/L	1
1,2,3-Trichloropropane	96-18-4	8260D	ND		0.50	0.40	ug/L	1
1,2,4-Trimethylbenzene	95-63-6	8260D	ND		0.50	0.40	ug/L	1
Vinyl acetate	108-05-4	8260D	ND		5.0	1.2	ug/L	1
Vinyl chloride	75-01-4	8260D	ND		0.50	0.40	ug/L	1
Xylenes (total)	1330-20-7	8260D	ND		1.0	0.40	ug/L	1
m+p - Xylenes	179601-23-1	8260D	ND		0.50	0.40	ug/L	1
o - Xylenes	95-47-6	8260D	ND		0.50	0.40	ug/L	1

Surrogate	Q	Run 1 % Recovery	Acceptance Limits
Bromofluorobenzene		95	70-130
1,2-Dichloroethane-d4		110	70-130
Toluene-d8		108	70-130

LOQ = Limit of Quantitation
ND = Not detected at or above the DL
H = Out of holding time
B = Detected in the method blank
N = Recovery is out of criteria
W = Reported on wet weight basis
E = Quantitation of compound exceeded the calibration range
P = The RPD between two GC columns exceeds 40%
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Volatile Organic Compounds by GC/MS

Client: **AECOM** Laboratory ID: **WD15023-012**

Description: **MRC-SW11B-S-20210413** Matrix: **Aqueous**

Date Sampled: **04/13/2021 1245** Project Name: **MRC SWS 2021**

Date Received: **04/15/2021** Project Number: **60638276.007.1**

Run	Prep Method	Analytical Method	Dilution	Analysis Date	Analyst	Prep Date	Batch
1	5030B	8260D	1	04/20/2021 1625	BWS		89607

Parameter	CAS Number	Analytical Method	Result	Q	LOQ	DL	Units	Run
Acetone	67-64-1	8260D	ND		10	4.0	ug/L	1
tert-Amyl methyl ether (TAME)	994-05-8	8260D	ND		10	0.42	ug/L	1
Benzene	71-43-2	8260D	ND		0.50	0.40	ug/L	1
Bromobenzene	108-86-1	8260D	ND		0.50	0.40	ug/L	1
Bromochloromethane	74-97-5	8260D	ND		0.50	0.40	ug/L	1
Bromodichloromethane	75-27-4	8260D	ND		0.50	0.40	ug/L	1
Bromoform	75-25-2	8260D	ND		0.50	0.40	ug/L	1
Bromomethane (Methyl bromide)	74-83-9	8260D	ND		0.50	0.40	ug/L	1
2-Butanone (MEK)	78-93-3	8260D	ND		10	2.0	ug/L	1
n-Butylbenzene	104-51-8	8260D	ND		0.50	0.40	ug/L	1
sec-Butylbenzene	135-98-8	8260D	ND		0.50	0.40	ug/L	1
tert-Butylbenzene	98-06-6	8260D	ND		0.50	0.40	ug/L	1
Carbon disulfide	75-15-0	8260D	ND		0.50	0.40	ug/L	1
Carbon tetrachloride	56-23-5	8260D	ND		0.50	0.40	ug/L	1
Chlorobenzene	108-90-7	8260D	ND		0.50	0.40	ug/L	1
Chloroethane	75-00-3	8260D	ND		0.50	0.40	ug/L	1
Chloroform	67-66-3	8260D	ND		0.50	0.40	ug/L	1
Chloromethane (Methyl chloride)	74-87-3	8260D	ND		0.50	0.40	ug/L	1
2-Chlorotoluene	95-49-8	8260D	ND		0.50	0.40	ug/L	1
4-Chlorotoluene	106-43-4	8260D	ND		0.50	0.40	ug/L	1
Cyclohexane	110-82-7	8260D	ND		0.50	0.40	ug/L	1
1,2-Dibromo-3-chloropropane (DBCP)	96-12-8	8260D	ND		0.50	0.40	ug/L	1
Dibromochloromethane	124-48-1	8260D	ND		0.50	0.40	ug/L	1
1,2-Dibromoethane (EDB)	106-93-4	8260D	ND		0.50	0.40	ug/L	1
Dibromomethane (Methylene bromide)	74-95-3	8260D	ND		0.50	0.40	ug/L	1
1,2-Dichlorobenzene	95-50-1	8260D	ND		0.50	0.40	ug/L	1
1,3-Dichlorobenzene	541-73-1	8260D	ND		0.50	0.40	ug/L	1
1,4-Dichlorobenzene	106-46-7	8260D	ND		0.50	0.40	ug/L	1
Dichlorodifluoromethane	75-71-8	8260D	ND		0.50	0.40	ug/L	1
1,1-Dichloroethane	75-34-3	8260D	ND		0.50	0.40	ug/L	1
1,2-Dichloroethane	107-06-2	8260D	ND		0.50	0.40	ug/L	1
1,2-Dichloroethene (total)		8260D	ND		0.50	0.40	ug/L	1
1,1-Dichloroethene	75-35-4	8260D	ND		0.50	0.40	ug/L	1
cis-1,2-Dichloroethene	156-59-2	8260D	ND		0.50	0.40	ug/L	1
trans-1,2-Dichloroethene	156-60-5	8260D	ND		0.50	0.40	ug/L	1
1,2-Dichloropropane	78-87-5	8260D	ND		0.50	0.40	ug/L	1
1,3-Dichloropropane	142-28-9	8260D	ND		0.50	0.40	ug/L	1
2,2-Dichloropropane	594-20-7	8260D	ND		0.50	0.40	ug/L	1
cis-1,3-Dichloropropene	10061-01-5	8260D	ND		0.50	0.40	ug/L	1
trans-1,3-Dichloropropene	10061-02-6	8260D	ND		0.50	0.40	ug/L	1
Diisopropyl ether (IPE)	108-20-3	8260D	ND		0.50	0.40	ug/L	1
Ethylbenzene	100-41-4	8260D	ND		0.50	0.40	ug/L	1
Ethyl-tert-butyl ether (ETBE)	637-92-3	8260D	ND		1.0	0.40	ug/L	1
Hexachlorobutadiene	87-68-3	8260D	ND		0.50	0.40	ug/L	1

LOQ = Limit of Quantitation
B = Detected in the method blank
E = Quantitation of compound exceeded the calibration range
DL = Detection Limit
Q = Surrogate failure
ND = Not detected at or above the DL
N = Recovery is out of criteria
P = The RPD between two GC columns exceeds 40%
J = Estimated result < LOQ and ≥ DL
L = LCS/LCSD failure
H = Out of holding time
W = Reported on wet weight basis
S = MS/MSD failure

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Volatile Organic Compounds by GC/MS

Client: **AECOM** Laboratory ID: **WD15023-012**

Description: **MRC-SW11B-S-20210413** Matrix: **Aqueous**

Date Sampled: **04/13/2021 1245** Project Name: **MRC SWS 2021**

Date Received: **04/15/2021** Project Number: **60638276.007.1**

Run	Prep Method	Analytical Method	Dilution	Analysis Date	Analyst	Prep Date	Batch
1	5030B	8260D	1	04/20/2021 1625	BWS		89607

Parameter	CAS Number	Analytical Method	Result	Q	LOQ	DL	Units	Run
2-Hexanone	591-78-6	8260D	ND		10	2.0	ug/L	1
Isopropylbenzene	98-82-8	8260D	ND		0.50	0.40	ug/L	1
p-Isopropyltoluene	99-87-6	8260D	ND		0.50	0.40	ug/L	1
Methyl acetate	79-20-9	8260D	ND		1.0	0.40	ug/L	1
Methyl tertiary butyl ether (MTBE)	1634-04-4	8260D	ND		0.50	0.40	ug/L	1
4-Methyl-2-pentanone	108-10-1	8260D	ND		10	2.0	ug/L	1
Methylcyclohexane	108-87-2	8260D	ND		5.0	0.40	ug/L	1
Methylene chloride	75-09-2	8260D	ND		0.50	0.40	ug/L	1
Naphthalene	91-20-3	8260D	ND		0.50	0.40	ug/L	1
n-Propylbenzene	103-65-1	8260D	ND		0.50	0.40	ug/L	1
Styrene	100-42-5	8260D	ND		0.50	0.41	ug/L	1
tert-butyl alcohol (TBA)	75-65-0	8260D	ND		20	8.0	ug/L	1
1,1,1,2-Tetrachloroethane	630-20-6	8260D	ND		0.50	0.40	ug/L	1
1,1,2,2-Tetrachloroethane	79-34-5	8260D	ND		0.50	0.40	ug/L	1
Tetrachloroethene	127-18-4	8260D	ND		0.50	0.40	ug/L	1
Toluene	108-88-3	8260D	ND		0.50	0.40	ug/L	1
1,1,2-Trichloro-1,2,2-Trifluoroethane	76-13-1	8260D	ND		1.0	0.42	ug/L	1
1,2,3-Trichlorobenzene	87-61-6	8260D	ND		0.50	0.40	ug/L	1
1,2,4-Trichlorobenzene	120-82-1	8260D	ND		0.50	0.40	ug/L	1
1,1,1-Trichloroethane	71-55-6	8260D	ND		0.50	0.40	ug/L	1
1,1,2-Trichloroethane	79-00-5	8260D	ND		0.50	0.40	ug/L	1
Trichloroethene	79-01-6	8260D	ND		0.50	0.40	ug/L	1
Trichlorofluoromethane	75-69-4	8260D	ND		0.50	0.40	ug/L	1
1,2,3-Trichloropropane	96-18-4	8260D	ND		0.50	0.40	ug/L	1
1,2,4-Trimethylbenzene	95-63-6	8260D	ND		0.50	0.40	ug/L	1
Vinyl acetate	108-05-4	8260D	ND		5.0	1.2	ug/L	1
Vinyl chloride	75-01-4	8260D	ND		0.50	0.40	ug/L	1
Xylenes (total)	1330-20-7	8260D	ND		1.0	0.40	ug/L	1
m+p - Xylenes	179601-23-1	8260D	ND		0.50	0.40	ug/L	1
o - Xylenes	95-47-6	8260D	ND		0.50	0.40	ug/L	1

Surrogate	Q	Run 1 % Recovery	Acceptance Limits
Bromofluorobenzene		97	70-130
1,2-Dichloroethane-d4		106	70-130
Toluene-d8		98	70-130

LOQ = Limit of Quantitation
ND = Not detected at or above the DL
H = Out of holding time
B = Detected in the method blank
N = Recovery is out of criteria
W = Reported on wet weight basis
E = Quantitation of compound exceeded the calibration range
P = The RPD between two GC columns exceeds 40%
DL = Detection Limit
J = Estimated result < LOQ and ≥ DL
Q = Surrogate failure
L = LCS/LCSD failure
S = MS/MSD failure

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Volatile Organic Compounds by GC/MS

Client: **AECOM** Laboratory ID: **WD15023-013**

Description: **MRC-SW12A-S-20210413** Matrix: **Aqueous**

Date Sampled: **04/13/2021 1300** Project Name: **MRC SWS 2021**

Date Received: **04/15/2021** Project Number: **60638276.007.1**

Run	Prep Method	Analytical Method	Dilution	Analysis Date	Analyst	Prep Date	Batch
1	5030B	8260D	1	04/20/2021 1650	BWS		89607

Parameter	CAS Number	Analytical Method	Result	Q	LOQ	DL	Units	Run
Acetone	67-64-1	8260D	ND		10	4.0	ug/L	1
tert-Amyl methyl ether (TAME)	994-05-8	8260D	ND		10	0.42	ug/L	1
Benzene	71-43-2	8260D	ND		0.50	0.40	ug/L	1
Bromobenzene	108-86-1	8260D	ND		0.50	0.40	ug/L	1
Bromochloromethane	74-97-5	8260D	ND		0.50	0.40	ug/L	1
Bromodichloromethane	75-27-4	8260D	ND		0.50	0.40	ug/L	1
Bromoform	75-25-2	8260D	ND		0.50	0.40	ug/L	1
Bromomethane (Methyl bromide)	74-83-9	8260D	ND		0.50	0.40	ug/L	1
2-Butanone (MEK)	78-93-3	8260D	ND		10	2.0	ug/L	1
n-Butylbenzene	104-51-8	8260D	ND		0.50	0.40	ug/L	1
sec-Butylbenzene	135-98-8	8260D	ND		0.50	0.40	ug/L	1
tert-Butylbenzene	98-06-6	8260D	ND		0.50	0.40	ug/L	1
Carbon disulfide	75-15-0	8260D	ND		0.50	0.40	ug/L	1
Carbon tetrachloride	56-23-5	8260D	ND		0.50	0.40	ug/L	1
Chlorobenzene	108-90-7	8260D	ND		0.50	0.40	ug/L	1
Chloroethane	75-00-3	8260D	ND		0.50	0.40	ug/L	1
Chloroform	67-66-3	8260D	ND		0.50	0.40	ug/L	1
Chloromethane (Methyl chloride)	74-87-3	8260D	ND		0.50	0.40	ug/L	1
2-Chlorotoluene	95-49-8	8260D	ND		0.50	0.40	ug/L	1
4-Chlorotoluene	106-43-4	8260D	ND		0.50	0.40	ug/L	1
Cyclohexane	110-82-7	8260D	ND		0.50	0.40	ug/L	1
1,2-Dibromo-3-chloropropane (DBCP)	96-12-8	8260D	ND		0.50	0.40	ug/L	1
Dibromochloromethane	124-48-1	8260D	ND		0.50	0.40	ug/L	1
1,2-Dibromoethane (EDB)	106-93-4	8260D	ND		0.50	0.40	ug/L	1
Dibromomethane (Methylene bromide)	74-95-3	8260D	ND		0.50	0.40	ug/L	1
1,2-Dichlorobenzene	95-50-1	8260D	ND		0.50	0.40	ug/L	1
1,3-Dichlorobenzene	541-73-1	8260D	ND		0.50	0.40	ug/L	1
1,4-Dichlorobenzene	106-46-7	8260D	ND		0.50	0.40	ug/L	1
Dichlorodifluoromethane	75-71-8	8260D	ND		0.50	0.40	ug/L	1
1,1-Dichloroethane	75-34-3	8260D	ND		0.50	0.40	ug/L	1
1,2-Dichloroethane	107-06-2	8260D	ND		0.50	0.40	ug/L	1
1,2-Dichloroethene (total)		8260D	ND		0.50	0.40	ug/L	1
1,1-Dichloroethene	75-35-4	8260D	ND		0.50	0.40	ug/L	1
cis-1,2-Dichloroethene	156-59-2	8260D	ND		0.50	0.40	ug/L	1
trans-1,2-Dichloroethene	156-60-5	8260D	ND		0.50	0.40	ug/L	1
1,2-Dichloropropane	78-87-5	8260D	ND		0.50	0.40	ug/L	1
1,3-Dichloropropane	142-28-9	8260D	ND		0.50	0.40	ug/L	1
2,2-Dichloropropane	594-20-7	8260D	ND		0.50	0.40	ug/L	1
cis-1,3-Dichloropropene	10061-01-5	8260D	ND		0.50	0.40	ug/L	1
trans-1,3-Dichloropropene	10061-02-6	8260D	ND		0.50	0.40	ug/L	1
Diisopropyl ether (IPE)	108-20-3	8260D	ND		0.50	0.40	ug/L	1
Ethylbenzene	100-41-4	8260D	ND		0.50	0.40	ug/L	1
Ethyl-tert-butyl ether (ETBE)	637-92-3	8260D	ND		1.0	0.40	ug/L	1
Hexachlorobutadiene	87-68-3	8260D	ND		0.50	0.40	ug/L	1

LOQ = Limit of Quantitation
B = Detected in the method blank
E = Quantitation of compound exceeded the calibration range
DL = Detection Limit
Q = Surrogate failure
ND = Not detected at or above the DL
N = Recovery is out of criteria
P = The RPD between two GC columns exceeds 40%
J = Estimated result < LOQ and ≥ DL
L = LCS/LCSD failure
H = Out of holding time
W = Reported on wet weight basis
S = MS/MSD failure

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Volatile Organic Compounds by GC/MS

Client: **AECOM** Laboratory ID: **WD15023-013**

Description: **MRC-SW12A-S-20210413** Matrix: **Aqueous**

Date Sampled: **04/13/2021 1300** Project Name: **MRC SWS 2021**

Date Received: **04/15/2021** Project Number: **60638276.007.1**

Run	Prep Method	Analytical Method	Dilution	Analysis Date	Analyst	Prep Date	Batch
1	5030B	8260D	1	04/20/2021 1650	BWS		89607

Parameter	CAS Number	Analytical Method	Result	Q	LOQ	DL	Units	Run
2-Hexanone	591-78-6	8260D	ND		10	2.0	ug/L	1
Isopropylbenzene	98-82-8	8260D	ND		0.50	0.40	ug/L	1
p-Isopropyltoluene	99-87-6	8260D	ND		0.50	0.40	ug/L	1
Methyl acetate	79-20-9	8260D	ND		1.0	0.40	ug/L	1
Methyl tertiary butyl ether (MTBE)	1634-04-4	8260D	ND		0.50	0.40	ug/L	1
4-Methyl-2-pentanone	108-10-1	8260D	ND		10	2.0	ug/L	1
Methylcyclohexane	108-87-2	8260D	ND		5.0	0.40	ug/L	1
Methylene chloride	75-09-2	8260D	ND		0.50	0.40	ug/L	1
Naphthalene	91-20-3	8260D	ND		0.50	0.40	ug/L	1
n-Propylbenzene	103-65-1	8260D	ND		0.50	0.40	ug/L	1
Styrene	100-42-5	8260D	ND		0.50	0.41	ug/L	1
tert-butyl alcohol (TBA)	75-65-0	8260D	ND		20	8.0	ug/L	1
1,1,1,2-Tetrachloroethane	630-20-6	8260D	ND		0.50	0.40	ug/L	1
1,1,2,2-Tetrachloroethane	79-34-5	8260D	ND		0.50	0.40	ug/L	1
Tetrachloroethene	127-18-4	8260D	ND		0.50	0.40	ug/L	1
Toluene	108-88-3	8260D	ND		0.50	0.40	ug/L	1
1,1,2-Trichloro-1,2,2-Trifluoroethane	76-13-1	8260D	ND		1.0	0.42	ug/L	1
1,2,3-Trichlorobenzene	87-61-6	8260D	ND		0.50	0.40	ug/L	1
1,2,4-Trichlorobenzene	120-82-1	8260D	ND		0.50	0.40	ug/L	1
1,1,1-Trichloroethane	71-55-6	8260D	ND		0.50	0.40	ug/L	1
1,1,2-Trichloroethane	79-00-5	8260D	ND		0.50	0.40	ug/L	1
Trichloroethene	**79-01-6**	**8260D**	**1.2**		**0.50**	**0.40**	**ug/L**	**1**
Trichlorofluoromethane	75-69-4	8260D	ND		0.50	0.40	ug/L	1
1,2,3-Trichloropropane	96-18-4	8260D	ND		0.50	0.40	ug/L	1
1,2,4-Trimethylbenzene	95-63-6	8260D	ND		0.50	0.40	ug/L	1
Vinyl acetate	108-05-4	8260D	ND		5.0	1.2	ug/L	1
Vinyl chloride	75-01-4	8260D	ND		0.50	0.40	ug/L	1
Xylenes (total)	1330-20-7	8260D	ND		1.0	0.40	ug/L	1
m+p - Xylenes	179601-23-1	8260D	ND		0.50	0.40	ug/L	1
o - Xylenes	95-47-6	8260D	ND		0.50	0.40	ug/L	1

Surrogate	Q	Run 1 % Recovery	Acceptance Limits
Bromofluorobenzene		90	70-130
1,2-Dichloroethane-d4		111	70-130
Toluene-d8		107	70-130

LOQ = Limit of Quantitation
ND = Not detected at or above the DL
H = Out of holding time
B = Detected in the method blank
N = Recovery is out of criteria
W = Reported on wet weight basis
E = Quantitation of compound exceeded the calibration range
P = The RPD between two GC columns exceeds 40%
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Volatile Organic Compounds by GC/MS

Client: **AECOM** Laboratory ID: **WD15023-014**

Description: **MRC-SW13A-S-20210413** Matrix: **Aqueous**

Date Sampled: **04/13/2021 1330** Project Name: **MRC SWS 2021**

Date Received: **04/15/2021** Project Number: **60638276.007.1**

Run	Prep Method	Analytical Method	Dilution	Analysis Date	Analyst	Prep Date	Batch
1	5030B	8260D	1	04/20/2021 1715	BWS		89607

Parameter	CAS Number	Analytical Method	Result	Q	LOQ	DL	Units	Run
Acetone	67-64-1	8260D	ND		10	4.0	ug/L	1
tert-Amyl methyl ether (TAME)	994-05-8	8260D	ND		10	0.42	ug/L	1
Benzene	71-43-2	8260D	ND		0.50	0.40	ug/L	1
Bromobenzene	108-86-1	8260D	ND		0.50	0.40	ug/L	1
Bromochloromethane	74-97-5	8260D	ND		0.50	0.40	ug/L	1
Bromodichloromethane	75-27-4	8260D	ND		0.50	0.40	ug/L	1
Bromoform	75-25-2	8260D	ND		0.50	0.40	ug/L	1
Bromomethane (Methyl bromide)	74-83-9	8260D	ND		0.50	0.40	ug/L	1
2-Butanone (MEK)	78-93-3	8260D	ND		10	2.0	ug/L	1
n-Butylbenzene	104-51-8	8260D	ND		0.50	0.40	ug/L	1
sec-Butylbenzene	135-98-8	8260D	ND		0.50	0.40	ug/L	1
tert-Butylbenzene	98-06-6	8260D	ND		0.50	0.40	ug/L	1
Carbon disulfide	75-15-0	8260D	ND		0.50	0.40	ug/L	1
Carbon tetrachloride	56-23-5	8260D	ND		0.50	0.40	ug/L	1
Chlorobenzene	108-90-7	8260D	ND		0.50	0.40	ug/L	1
Chloroethane	75-00-3	8260D	ND		0.50	0.40	ug/L	1
Chloroform	67-66-3	8260D	ND		0.50	0.40	ug/L	1
Chloromethane (Methyl chloride)	74-87-3	8260D	ND		0.50	0.40	ug/L	1
2-Chlorotoluene	95-49-8	8260D	ND		0.50	0.40	ug/L	1
4-Chlorotoluene	106-43-4	8260D	ND		0.50	0.40	ug/L	1
Cyclohexane	110-82-7	8260D	ND		0.50	0.40	ug/L	1
1,2-Dibromo-3-chloropropane (DBCP)	96-12-8	8260D	ND		0.50	0.40	ug/L	1
Dibromochloromethane	124-48-1	8260D	ND		0.50	0.40	ug/L	1
1,2-Dibromoethane (EDB)	106-93-4	8260D	ND		0.50	0.40	ug/L	1
Dibromomethane (Methylene bromide)	74-95-3	8260D	ND		0.50	0.40	ug/L	1
1,2-Dichlorobenzene	95-50-1	8260D	ND		0.50	0.40	ug/L	1
1,3-Dichlorobenzene	541-73-1	8260D	ND		0.50	0.40	ug/L	1
1,4-Dichlorobenzene	106-46-7	8260D	ND		0.50	0.40	ug/L	1
Dichlorodifluoromethane	75-71-8	8260D	ND		0.50	0.40	ug/L	1
1,1-Dichloroethane	75-34-3	8260D	ND		0.50	0.40	ug/L	1
1,2-Dichloroethane	107-06-2	8260D	ND		0.50	0.40	ug/L	1
1,2-Dichloroethene (total)		8260D	ND		0.50	0.40	ug/L	1
1,1-Dichloroethene	75-35-4	8260D	ND		0.50	0.40	ug/L	1
cis-1,2-Dichloroethene	156-59-2	8260D	ND		0.50	0.40	ug/L	1
trans-1,2-Dichloroethene	156-60-5	8260D	ND		0.50	0.40	ug/L	1
1,2-Dichloropropane	78-87-5	8260D	ND		0.50	0.40	ug/L	1
1,3-Dichloropropane	142-28-9	8260D	ND		0.50	0.40	ug/L	1
2,2-Dichloropropane	594-20-7	8260D	ND		0.50	0.40	ug/L	1
cis-1,3-Dichloropropene	10061-01-5	8260D	ND		0.50	0.40	ug/L	1
trans-1,3-Dichloropropene	10061-02-6	8260D	ND		0.50	0.40	ug/L	1
Diisopropyl ether (IPE)	108-20-3	8260D	ND		0.50	0.40	ug/L	1
Ethylbenzene	100-41-4	8260D	ND		0.50	0.40	ug/L	1
Ethyl-tert-butyl ether (ETBE)	637-92-3	8260D	ND		1.0	0.40	ug/L	1
Hexachlorobutadiene	87-68-3	8260D	ND		0.50	0.40	ug/L	1

LOQ = Limit of Quantitation
B = Detected in the method blank
E = Quantitation of compound exceeded the calibration range
DL = Detection Limit
Q = Surrogate failure
ND = Not detected at or above the DL
N = Recovery is out of criteria
P = The RPD between two GC columns exceeds 40%
J = Estimated result < LOQ and ≥ DL
L = LCS/LCSD failure
H = Out of holding time
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S = MS/MSD failure

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Volatile Organic Compounds by GC/MS

Client: **AECOM** Laboratory ID: **WD15023-014**

Description: **MRC-SW13A-S-20210413** Matrix: **Aqueous**

Date Sampled: **04/13/2021 1330** Project Name: **MRC SWS 2021**

Date Received: **04/15/2021** Project Number: **60638276.007.1**

Run	Prep Method	Analytical Method	Dilution	Analysis Date	Analyst	Prep Date	Batch
1	5030B	8260D	1	04/20/2021 1715	BWS		89607

Parameter	CAS Number	Analytical Method	Result	Q	LOQ	DL	Units	Run
2-Hexanone	591-78-6	8260D	ND		10	2.0	ug/L	1
Isopropylbenzene	98-82-8	8260D	ND		0.50	0.40	ug/L	1
p-Isopropyltoluene	99-87-6	8260D	ND		0.50	0.40	ug/L	1
Methyl acetate	79-20-9	8260D	ND		1.0	0.40	ug/L	1
Methyl tertiary butyl ether (MTBE)	1634-04-4	8260D	ND		0.50	0.40	ug/L	1
4-Methyl-2-pentanone	108-10-1	8260D	ND		10	2.0	ug/L	1
Methylcyclohexane	108-87-2	8260D	ND		5.0	0.40	ug/L	1
Methylene chloride	75-09-2	8260D	ND		0.50	0.40	ug/L	1
Naphthalene	91-20-3	8260D	ND		0.50	0.40	ug/L	1
n-Propylbenzene	103-65-1	8260D	ND		0.50	0.40	ug/L	1
Styrene	100-42-5	8260D	ND		0.50	0.41	ug/L	1
tert-butyl alcohol (TBA)	75-65-0	8260D	ND		20	8.0	ug/L	1
1,1,1,2-Tetrachloroethane	630-20-6	8260D	ND		0.50	0.40	ug/L	1
1,1,2,2-Tetrachloroethane	79-34-5	8260D	ND		0.50	0.40	ug/L	1
Tetrachloroethene	127-18-4	8260D	ND		0.50	0.40	ug/L	1
Toluene	108-88-3	8260D	ND		0.50	0.40	ug/L	1
1,1,2-Trichloro-1,2,2-Trifluoroethane	76-13-1	8260D	ND		1.0	0.42	ug/L	1
1,2,3-Trichlorobenzene	87-61-6	8260D	ND		0.50	0.40	ug/L	1
1,2,4-Trichlorobenzene	120-82-1	8260D	ND		0.50	0.40	ug/L	1
1,1,1-Trichloroethane	71-55-6	8260D	ND		0.50	0.40	ug/L	1
1,1,2-Trichloroethane	79-00-5	8260D	ND		0.50	0.40	ug/L	1
Trichloroethene	**79-01-6**	**8260D**	**0.57**		**0.50**	**0.40**	**ug/L**	**1**
Trichlorofluoromethane	75-69-4	8260D	ND		0.50	0.40	ug/L	1
1,2,3-Trichloropropane	96-18-4	8260D	ND		0.50	0.40	ug/L	1
1,2,4-Trimethylbenzene	95-63-6	8260D	ND		0.50	0.40	ug/L	1
Vinyl acetate	108-05-4	8260D	ND		5.0	1.2	ug/L	1
Vinyl chloride	75-01-4	8260D	ND		0.50	0.40	ug/L	1
Xylenes (total)	1330-20-7	8260D	ND		1.0	0.40	ug/L	1
m+p - Xylenes	179601-23-1	8260D	ND		0.50	0.40	ug/L	1
o - Xylenes	95-47-6	8260D	ND		0.50	0.40	ug/L	1

Surrogate	Q	Run 1 % Recovery	Acceptance Limits
Bromofluorobenzene		97	70-130
1,2-Dichloroethane-d4		105	70-130
Toluene-d8		106	70-130

LOQ = Limit of Quantitation
B = Detected in the method blank
E = Quantitation of compound exceeded the calibration range
DL = Detection Limit
Q = Surrogate failure
ND = Not detected at or above the DL
N = Recovery is out of criteria
P = The RPD between two GC columns exceeds 40%
J = Estimated result < LOQ and ≥ DL
L = LCS/LCSD failure
H = Out of holding time
W = Reported on wet weight basis
S = MS/MSD failure

Pace Analytical Services, LLC *(formerly Shealy Environmental Services, Inc.)*
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Volatile Organic Compounds by GC/MS

Client: **AECOM** Laboratory ID: **WD15023-015**

Description: **MRC-SW20A-S-20210413** Matrix: **Aqueous**

Date Sampled: **04/13/2021 1400** Project Name: **MRC SWS 2021**

Date Received: **04/15/2021** Project Number: **60638276.007.1**

Run	Prep Method	Analytical Method	Dilution	Analysis Date	Analyst	Prep Date	Batch
1	5030B	8260D	1	04/20/2021 1740	BWS		89607

Parameter	CAS Number	Analytical Method	Result	Q	LOQ	DL	Units	Run
Acetone	67-64-1	8260D	ND		10	4.0	ug/L	1
tert-Amyl methyl ether (TAME)	994-05-8	8260D	ND		10	0.42	ug/L	1
Benzene	71-43-2	8260D	ND		0.50	0.40	ug/L	1
Bromobenzene	108-86-1	8260D	ND		0.50	0.40	ug/L	1
Bromochloromethane	74-97-5	8260D	ND		0.50	0.40	ug/L	1
Bromodichloromethane	75-27-4	8260D	ND		0.50	0.40	ug/L	1
Bromoform	75-25-2	8260D	ND		0.50	0.40	ug/L	1
Bromomethane (Methyl bromide)	74-83-9	8260D	ND		0.50	0.40	ug/L	1
2-Butanone (MEK)	78-93-3	8260D	ND		10	2.0	ug/L	1
n-Butylbenzene	104-51-8	8260D	ND		0.50	0.40	ug/L	1
sec-Butylbenzene	135-98-8	8260D	ND		0.50	0.40	ug/L	1
tert-Butylbenzene	98-06-6	8260D	ND		0.50	0.40	ug/L	1
Carbon disulfide	75-15-0	8260D	ND		0.50	0.40	ug/L	1
Carbon tetrachloride	56-23-5	8260D	ND		0.50	0.40	ug/L	1
Chlorobenzene	108-90-7	8260D	ND		0.50	0.40	ug/L	1
Chloroethane	75-00-3	8260D	ND		0.50	0.40	ug/L	1
Chloroform	67-66-3	8260D	ND		0.50	0.40	ug/L	1
Chloromethane (Methyl chloride)	74-87-3	8260D	ND		0.50	0.40	ug/L	1
2-Chlorotoluene	95-49-8	8260D	ND		0.50	0.40	ug/L	1
4-Chlorotoluene	106-43-4	8260D	ND		0.50	0.40	ug/L	1
Cyclohexane	110-82-7	8260D	ND		0.50	0.40	ug/L	1
1,2-Dibromo-3-chloropropane (DBCP)	96-12-8	8260D	ND		0.50	0.40	ug/L	1
Dibromochloromethane	124-48-1	8260D	ND		0.50	0.40	ug/L	1
1,2-Dibromoethane (EDB)	106-93-4	8260D	ND		0.50	0.40	ug/L	1
Dibromomethane (Methylene bromide)	74-95-3	8260D	ND		0.50	0.40	ug/L	1
1,2-Dichlorobenzene	95-50-1	8260D	ND		0.50	0.40	ug/L	1
1,3-Dichlorobenzene	541-73-1	8260D	ND		0.50	0.40	ug/L	1
1,4-Dichlorobenzene	106-46-7	8260D	ND		0.50	0.40	ug/L	1
Dichlorodifluoromethane	75-71-8	8260D	ND		0.50	0.40	ug/L	1
1,1-Dichloroethane	75-34-3	8260D	ND		0.50	0.40	ug/L	1
1,2-Dichloroethane	107-06-2	8260D	ND		0.50	0.40	ug/L	1
1,2-Dichloroethene (total)		8260D	ND		0.50	0.40	ug/L	1
1,1-Dichloroethene	75-35-4	8260D	ND		0.50	0.40	ug/L	1
cis-1,2-Dichloroethene	156-59-2	8260D	ND		0.50	0.40	ug/L	1
trans-1,2-Dichloroethene	156-60-5	8260D	ND		0.50	0.40	ug/L	1
1,2-Dichloropropane	78-87-5	8260D	ND		0.50	0.40	ug/L	1
1,3-Dichloropropane	142-28-9	8260D	ND		0.50	0.40	ug/L	1
2,2-Dichloropropane	594-20-7	8260D	ND		0.50	0.40	ug/L	1
cis-1,3-Dichloropropene	10061-01-5	8260D	ND		0.50	0.40	ug/L	1
trans-1,3-Dichloropropene	10061-02-6	8260D	ND		0.50	0.40	ug/L	1
Diisopropyl ether (IPE)	108-20-3	8260D	ND		0.50	0.40	ug/L	1
Ethylbenzene	100-41-4	8260D	ND		0.50	0.40	ug/L	1
Ethyl-tert-butyl ether (ETBE)	637-92-3	8260D	ND		1.0	0.40	ug/L	1
Hexachlorobutadiene	87-68-3	8260D	ND		0.50	0.40	ug/L	1

LOQ = Limit of Quantitation
B = Detected in the method blank
E = Quantitation of compound exceeded the calibration range
DL = Detection Limit
Q = Surrogate failure
ND = Not detected at or above the DL
N = Recovery is out of criteria
P = The RPD between two GC columns exceeds 40%
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H = Out of holding time
W = Reported on wet weight basis
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Volatile Organic Compounds by GC/MS

Client: **AECOM** Laboratory ID: **WD15023-015**

Description: **MRC-SW20A-S-20210413** Matrix: **Aqueous**

Date Sampled: **04/13/2021 1400** Project Name: **MRC SWS 2021**

Date Received: **04/15/2021** Project Number: **60638276.007.1**

Run	Prep Method	Analytical Method	Dilution	Analysis Date	Analyst	Prep Date	Batch
1	5030B	8260D	1	04/20/2021 1740	BWS		89607

Parameter	CAS Number	Analytical Method	Result	Q	LOQ	DL	Units	Run
2-Hexanone	591-78-6	8260D	ND		10	2.0	ug/L	1
Isopropylbenzene	98-82-8	8260D	ND		0.50	0.40	ug/L	1
p-Isopropyltoluene	99-87-6	8260D	ND		0.50	0.40	ug/L	1
Methyl acetate	79-20-9	8260D	ND		1.0	0.40	ug/L	1
Methyl tertiary butyl ether (MTBE)	1634-04-4	8260D	ND		0.50	0.40	ug/L	1
4-Methyl-2-pentanone	108-10-1	8260D	ND		10	2.0	ug/L	1
Methylcyclohexane	108-87-2	8260D	ND		5.0	0.40	ug/L	1
Methylene chloride	75-09-2	8260D	ND		0.50	0.40	ug/L	1
Naphthalene	91-20-3	8260D	ND		0.50	0.40	ug/L	1
n-Propylbenzene	103-65-1	8260D	ND		0.50	0.40	ug/L	1
Styrene	100-42-5	8260D	ND		0.50	0.41	ug/L	1
tert-butyl alcohol (TBA)	75-65-0	8260D	ND		20	8.0	ug/L	1
1,1,1,2-Tetrachloroethane	630-20-6	8260D	ND		0.50	0.40	ug/L	1
1,1,2,2-Tetrachloroethane	79-34-5	8260D	ND		0.50	0.40	ug/L	1
Tetrachloroethene	127-18-4	8260D	ND		0.50	0.40	ug/L	1
Toluene	108-88-3	8260D	ND		0.50	0.40	ug/L	1
1,1,2-Trichloro-1,2,2-Trifluoroethane	76-13-1	8260D	ND		1.0	0.42	ug/L	1
1,2,3-Trichlorobenzene	87-61-6	8260D	ND		0.50	0.40	ug/L	1
1,2,4-Trichlorobenzene	120-82-1	8260D	ND		0.50	0.40	ug/L	1
1,1,1-Trichloroethane	71-55-6	8260D	ND		0.50	0.40	ug/L	1
1,1,2-Trichloroethane	79-00-5	8260D	ND		0.50	0.40	ug/L	1
Trichloroethene	79-01-6	8260D	ND		0.50	0.40	ug/L	1
Trichlorofluoromethane	75-69-4	8260D	ND		0.50	0.40	ug/L	1
1,2,3-Trichloropropane	96-18-4	8260D	ND		0.50	0.40	ug/L	1
1,2,4-Trimethylbenzene	95-63-6	8260D	ND		0.50	0.40	ug/L	1
Vinyl acetate	108-05-4	8260D	ND		5.0	1.2	ug/L	1
Vinyl chloride	75-01-4	8260D	ND		0.50	0.40	ug/L	1
Xylenes (total)	1330-20-7	8260D	ND		1.0	0.40	ug/L	1
m+p - Xylenes	179601-23-1	8260D	ND		0.50	0.40	ug/L	1
o - Xylenes	95-47-6	8260D	ND		0.50	0.40	ug/L	1

Surrogate	Q	Run 1 % Recovery	Acceptance Limits
Bromofluorobenzene		104	70-130
1,2-Dichloroethane-d4		104	70-130
Toluene-d8		107	70-130

LOQ = Limit of Quantitation
ND = Not detected at or above the DL
H = Out of holding time
B = Detected in the method blank
N = Recovery is out of criteria
W = Reported on wet weight basis
E = Quantitation of compound exceeded the calibration range
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Volatile Organic Compounds by GC/MS

Client: **AECOM** Laboratory ID: **WD15023-016**

Description: **MRC-SW15A-S-20210413** Matrix: **Aqueous**

Date Sampled: **04/13/2021 1210** Project Name: **MRC SWS 2021**

Date Received: **04/15/2021** Project Number: **60638276.007.1**

Run	Prep Method	Analytical Method	Dilution	Analysis Date	Analyst	Prep Date	Batch
1	5030B	8260D	1	04/20/2021 1804	BWS		89607

Parameter	CAS Number	Analytical Method	Result	Q	LOQ	DL	Units	Run
Acetone	67-64-1	8260D	ND		10	4.0	ug/L	1
tert-Amyl methyl ether (TAME)	994-05-8	8260D	ND		10	0.42	ug/L	1
Benzene	71-43-2	8260D	ND		0.50	0.40	ug/L	1
Bromobenzene	108-86-1	8260D	ND		0.50	0.40	ug/L	1
Bromochloromethane	74-97-5	8260D	ND		0.50	0.40	ug/L	1
Bromodichloromethane	75-27-4	8260D	ND		0.50	0.40	ug/L	1
Bromoform	75-25-2	8260D	ND		0.50	0.40	ug/L	1
Bromomethane (Methyl bromide)	74-83-9	8260D	ND		0.50	0.40	ug/L	1
2-Butanone (MEK)	78-93-3	8260D	ND		10	2.0	ug/L	1
n-Butylbenzene	104-51-8	8260D	ND		0.50	0.40	ug/L	1
sec-Butylbenzene	135-98-8	8260D	ND		0.50	0.40	ug/L	1
tert-Butylbenzene	98-06-6	8260D	ND		0.50	0.40	ug/L	1
Carbon disulfide	75-15-0	8260D	ND		0.50	0.40	ug/L	1
Carbon tetrachloride	56-23-5	8260D	ND		0.50	0.40	ug/L	1
Chlorobenzene	108-90-7	8260D	ND		0.50	0.40	ug/L	1
Chloroethane	75-00-3	8260D	ND		0.50	0.40	ug/L	1
Chloroform	67-66-3	8260D	ND		0.50	0.40	ug/L	1
Chloromethane (Methyl chloride)	74-87-3	8260D	ND		0.50	0.40	ug/L	1
2-Chlorotoluene	95-49-8	8260D	ND		0.50	0.40	ug/L	1
4-Chlorotoluene	106-43-4	8260D	ND		0.50	0.40	ug/L	1
Cyclohexane	110-82-7	8260D	ND		0.50	0.40	ug/L	1
1,2-Dibromo-3-chloropropane (DBCP)	96-12-8	8260D	ND		0.50	0.40	ug/L	1
Dibromochloromethane	124-48-1	8260D	ND		0.50	0.40	ug/L	1
1,2-Dibromoethane (EDB)	106-93-4	8260D	ND		0.50	0.40	ug/L	1
Dibromomethane (Methylene bromide)	74-95-3	8260D	ND		0.50	0.40	ug/L	1
1,2-Dichlorobenzene	95-50-1	8260D	ND		0.50	0.40	ug/L	1
1,3-Dichlorobenzene	541-73-1	8260D	ND		0.50	0.40	ug/L	1
1,4-Dichlorobenzene	106-46-7	8260D	ND		0.50	0.40	ug/L	1
Dichlorodifluoromethane	75-71-8	8260D	ND		0.50	0.40	ug/L	1
1,1-Dichloroethane	75-34-3	8260D	ND		0.50	0.40	ug/L	1
1,2-Dichloroethane	107-06-2	8260D	ND		0.50	0.40	ug/L	1
1,2-Dichloroethene (total)		8260D	ND		0.50	0.40	ug/L	1
1,1-Dichloroethene	75-35-4	8260D	ND		0.50	0.40	ug/L	1
cis-1,2-Dichloroethene	156-59-2	8260D	ND		0.50	0.40	ug/L	1
trans-1,2-Dichloroethene	156-60-5	8260D	ND		0.50	0.40	ug/L	1
1,2-Dichloropropane	78-87-5	8260D	ND		0.50	0.40	ug/L	1
1,3-Dichloropropane	142-28-9	8260D	ND		0.50	0.40	ug/L	1
2,2-Dichloropropane	594-20-7	8260D	ND		0.50	0.40	ug/L	1
cis-1,3-Dichloropropene	10061-01-5	8260D	ND		0.50	0.40	ug/L	1
trans-1,3-Dichloropropene	10061-02-6	8260D	ND		0.50	0.40	ug/L	1
Diisopropyl ether (IPE)	108-20-3	8260D	ND		0.50	0.40	ug/L	1
Ethylbenzene	100-41-4	8260D	ND		0.50	0.40	ug/L	1
Ethyl-tert-butyl ether (ETBE)	637-92-3	8260D	ND		1.0	0.40	ug/L	1
Hexachlorobutadiene	87-68-3	8260D	ND		0.50	0.40	ug/L	1

LOQ = Limit of Quantitation
B = Detected in the method blank
E = Quantitation of compound exceeded the calibration range
DL = Detection Limit
Q = Surrogate failure
ND = Not detected at or above the DL
N = Recovery is out of criteria
P = The RPD between two GC columns exceeds 40%
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Volatile Organic Compounds by GC/MS

Client: **AECOM** Laboratory ID: **WD15023-016**

Description: **MRC-SW15A-S-20210413** Matrix: **Aqueous**

Date Sampled: **04/13/2021 1210** Project Name: **MRC SWS 2021**

Date Received: **04/15/2021** Project Number: **60638276.007.1**

Run	Prep Method	Analytical Method	Dilution	Analysis Date	Analyst	Prep Date	Batch
1	5030B	8260D	1	04/20/2021 1804	BWS		89607

Parameter	CAS Number	Analytical Method	Result	Q	LOQ	DL	Units	Run
2-Hexanone	591-78-6	8260D	ND		10	2.0	ug/L	1
Isopropylbenzene	98-82-8	8260D	ND		0.50	0.40	ug/L	1
p-Isopropyltoluene	99-87-6	8260D	ND		0.50	0.40	ug/L	1
Methyl acetate	79-20-9	8260D	ND		1.0	0.40	ug/L	1
Methyl tertiary butyl ether (MTBE)	1634-04-4	8260D	ND		0.50	0.40	ug/L	1
4-Methyl-2-pentanone	108-10-1	8260D	ND		10	2.0	ug/L	1
Methylcyclohexane	108-87-2	8260D	ND		5.0	0.40	ug/L	1
Methylene chloride	75-09-2	8260D	ND		0.50	0.40	ug/L	1
Naphthalene	91-20-3	8260D	ND		0.50	0.40	ug/L	1
n-Propylbenzene	103-65-1	8260D	ND		0.50	0.40	ug/L	1
Styrene	100-42-5	8260D	ND		0.50	0.41	ug/L	1
tert-butyl alcohol (TBA)	75-65-0	8260D	ND		20	8.0	ug/L	1
1,1,1,2-Tetrachloroethane	630-20-6	8260D	ND		0.50	0.40	ug/L	1
1,1,2,2-Tetrachloroethane	79-34-5	8260D	ND		0.50	0.40	ug/L	1
Tetrachloroethene	127-18-4	8260D	ND		0.50	0.40	ug/L	1
Toluene	108-88-3	8260D	ND		0.50	0.40	ug/L	1
1,1,2-Trichloro-1,2,2-Trifluoroethane	76-13-1	8260D	ND		1.0	0.42	ug/L	1
1,2,3-Trichlorobenzene	87-61-6	8260D	ND		0.50	0.40	ug/L	1
1,2,4-Trichlorobenzene	120-82-1	8260D	ND		0.50	0.40	ug/L	1
1,1,1-Trichloroethane	71-55-6	8260D	ND		0.50	0.40	ug/L	1
1,1,2-Trichloroethane	79-00-5	8260D	ND		0.50	0.40	ug/L	1
Trichloroethene	**79-01-6**	**8260D**	**0.86**		**0.50**	**0.40**	**ug/L**	**1**
Trichlorofluoromethane	75-69-4	8260D	ND		0.50	0.40	ug/L	1
1,2,3-Trichloropropane	96-18-4	8260D	ND		0.50	0.40	ug/L	1
1,2,4-Trimethylbenzene	95-63-6	8260D	ND		0.50	0.40	ug/L	1
Vinyl acetate	108-05-4	8260D	ND		5.0	1.2	ug/L	1
Vinyl chloride	75-01-4	8260D	ND		0.50	0.40	ug/L	1
Xylenes (total)	1330-20-7	8260D	ND		1.0	0.40	ug/L	1
m+p - Xylenes	179601-23-1	8260D	ND		0.50	0.40	ug/L	1
o - Xylenes	95-47-6	8260D	ND		0.50	0.40	ug/L	1

Surrogate	Q	Run 1 % Recovery	Acceptance Limits
Bromofluorobenzene		98	70-130
1,2-Dichloroethane-d4		105	70-130
Toluene-d8		106	70-130

LOQ = Limit of Quantitation
ND = Not detected at or above the DL
H = Out of holding time
B = Detected in the method blank
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Volatile Organic Compounds by GC/MS

Client: **AECOM** Laboratory ID: **WD15023-017**

Description: **MRC-SW16A-S-20210413** Matrix: **Aqueous**

Date Sampled: **04/13/2021 1200** Project Name: **MRC SWS 2021**

Date Received: **04/15/2021** Project Number: **60638276.007.1**

Run	Prep Method	Analytical Method	Dilution	Analysis Date	Analyst	Prep Date	Batch
1	5030B	8260D	1	04/20/2021 1829	BWS		89607

Parameter	CAS Number	Analytical Method	Result	Q	LOQ	DL	Units	Run
Acetone	67-64-1	8260D	ND		10	4.0	ug/L	1
tert-Amyl methyl ether (TAME)	994-05-8	8260D	ND		10	0.42	ug/L	1
Benzene	71-43-2	8260D	ND		0.50	0.40	ug/L	1
Bromobenzene	108-86-1	8260D	ND		0.50	0.40	ug/L	1
Bromochloromethane	74-97-5	8260D	ND		0.50	0.40	ug/L	1
Bromodichloromethane	75-27-4	8260D	ND		0.50	0.40	ug/L	1
Bromoform	75-25-2	8260D	ND		0.50	0.40	ug/L	1
Bromomethane (Methyl bromide)	74-83-9	8260D	ND		0.50	0.40	ug/L	1
2-Butanone (MEK)	78-93-3	8260D	ND		10	2.0	ug/L	1
n-Butylbenzene	104-51-8	8260D	ND		0.50	0.40	ug/L	1
sec-Butylbenzene	135-98-8	8260D	ND		0.50	0.40	ug/L	1
tert-Butylbenzene	98-06-6	8260D	ND		0.50	0.40	ug/L	1
Carbon disulfide	75-15-0	8260D	ND		0.50	0.40	ug/L	1
Carbon tetrachloride	56-23-5	8260D	ND		0.50	0.40	ug/L	1
Chlorobenzene	108-90-7	8260D	ND		0.50	0.40	ug/L	1
Chloroethane	75-00-3	8260D	ND		0.50	0.40	ug/L	1
Chloroform	67-66-3	8260D	ND		0.50	0.40	ug/L	1
Chloromethane (Methyl chloride)	74-87-3	8260D	ND		0.50	0.40	ug/L	1
2-Chlorotoluene	95-49-8	8260D	ND		0.50	0.40	ug/L	1
4-Chlorotoluene	106-43-4	8260D	ND		0.50	0.40	ug/L	1
Cyclohexane	110-82-7	8260D	ND		0.50	0.40	ug/L	1
1,2-Dibromo-3-chloropropane (DBCP)	96-12-8	8260D	ND		0.50	0.40	ug/L	1
Dibromochloromethane	124-48-1	8260D	ND		0.50	0.40	ug/L	1
1,2-Dibromoethane (EDB)	106-93-4	8260D	ND		0.50	0.40	ug/L	1
Dibromomethane (Methylene bromide)	74-95-3	8260D	ND		0.50	0.40	ug/L	1
1,2-Dichlorobenzene	95-50-1	8260D	ND		0.50	0.40	ug/L	1
1,3-Dichlorobenzene	541-73-1	8260D	ND		0.50	0.40	ug/L	1
1,4-Dichlorobenzene	106-46-7	8260D	ND		0.50	0.40	ug/L	1
Dichlorodifluoromethane	75-71-8	8260D	ND		0.50	0.40	ug/L	1
1,1-Dichloroethane	75-34-3	8260D	ND		0.50	0.40	ug/L	1
1,2-Dichloroethane	107-06-2	8260D	ND		0.50	0.40	ug/L	1
1,2-Dichloroethene (total)		8260D	ND		0.50	0.40	ug/L	1
1,1-Dichloroethene	75-35-4	8260D	ND		0.50	0.40	ug/L	1
cis-1,2-Dichloroethene	156-59-2	8260D	ND		0.50	0.40	ug/L	1
trans-1,2-Dichloroethene	156-60-5	8260D	ND		0.50	0.40	ug/L	1
1,2-Dichloropropane	78-87-5	8260D	ND		0.50	0.40	ug/L	1
1,3-Dichloropropane	142-28-9	8260D	ND		0.50	0.40	ug/L	1
2,2-Dichloropropane	594-20-7	8260D	ND		0.50	0.40	ug/L	1
cis-1,3-Dichloropropene	10061-01-5	8260D	ND		0.50	0.40	ug/L	1
trans-1,3-Dichloropropene	10061-02-6	8260D	ND		0.50	0.40	ug/L	1
Diisopropyl ether (IPE)	108-20-3	8260D	ND		0.50	0.40	ug/L	1
Ethylbenzene	100-41-4	8260D	ND		0.50	0.40	ug/L	1
Ethyl-tert-butyl ether (ETBE)	637-92-3	8260D	ND		1.0	0.40	ug/L	1
Hexachlorobutadiene	87-68-3	8260D	ND		0.50	0.40	ug/L	1

LOQ = Limit of Quantitation
B = Detected in the method blank
E = Quantitation of compound exceeded the calibration range
DL = Detection Limit
Q = Surrogate failure
ND = Not detected at or above the DL
N = Recovery is out of criteria
P = The RPD between two GC columns exceeds 40%
J = Estimated result < LOQ and ≥ DL
L = LCS/LCSD failure
H = Out of holding time
W = Reported on wet weight basis
S = MS/MSD failure

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Volatile Organic Compounds by GC/MS

Client: **AECOM** Laboratory ID: **WD15023-017**

Description: **MRC-SW16A-S-20210413** Matrix: **Aqueous**

Date Sampled: **04/13/2021 1200** Project Name: **MRC SWS 2021**

Date Received: **04/15/2021** Project Number: **60638276.007.1**

Run	Prep Method	Analytical Method	Dilution	Analysis Date	Analyst	Prep Date	Batch
1	5030B	8260D	1	04/20/2021 1829	BWS		89607

Parameter	CAS Number	Analytical Method	Result	Q	LOQ	DL	Units	Run
2-Hexanone	591-78-6	8260D	ND		10	2.0	ug/L	1
Isopropylbenzene	98-82-8	8260D	ND		0.50	0.40	ug/L	1
p-Isopropyltoluene	99-87-6	8260D	ND		0.50	0.40	ug/L	1
Methyl acetate	79-20-9	8260D	ND		1.0	0.40	ug/L	1
Methyl tertiary butyl ether (MTBE)	1634-04-4	8260D	ND		0.50	0.40	ug/L	1
4-Methyl-2-pentanone	108-10-1	8260D	ND		10	2.0	ug/L	1
Methylcyclohexane	108-87-2	8260D	ND		5.0	0.40	ug/L	1
Methylene chloride	75-09-2	8260D	ND		0.50	0.40	ug/L	1
Naphthalene	91-20-3	8260D	ND		0.50	0.40	ug/L	1
n-Propylbenzene	103-65-1	8260D	ND		0.50	0.40	ug/L	1
Styrene	100-42-5	8260D	ND		0.50	0.41	ug/L	1
tert-butyl alcohol (TBA)	75-65-0	8260D	ND		20	8.0	ug/L	1
1,1,1,2-Tetrachloroethane	630-20-6	8260D	ND		0.50	0.40	ug/L	1
1,1,2,2-Tetrachloroethane	79-34-5	8260D	ND		0.50	0.40	ug/L	1
Tetrachloroethene	127-18-4	8260D	ND		0.50	0.40	ug/L	1
Toluene	108-88-3	8260D	ND		0.50	0.40	ug/L	1
1,1,2-Trichloro-1,2,2-Trifluoroethane	76-13-1	8260D	ND		1.0	0.42	ug/L	1
1,2,3-Trichlorobenzene	87-61-6	8260D	ND		0.50	0.40	ug/L	1
1,2,4-Trichlorobenzene	120-82-1	8260D	ND		0.50	0.40	ug/L	1
1,1,1-Trichloroethane	71-55-6	8260D	ND		0.50	0.40	ug/L	1
1,1,2-Trichloroethane	79-00-5	8260D	ND		0.50	0.40	ug/L	1
Trichloroethene	**79-01-6**	**8260D**	**0.85**		**0.50**	**0.40**	**ug/L**	**1**
Trichlorofluoromethane	75-69-4	8260D	ND		0.50	0.40	ug/L	1
1,2,3-Trichloropropane	96-18-4	8260D	ND		0.50	0.40	ug/L	1
1,2,4-Trimethylbenzene	95-63-6	8260D	ND		0.50	0.40	ug/L	1
Vinyl acetate	108-05-4	8260D	ND		5.0	1.2	ug/L	1
Vinyl chloride	75-01-4	8260D	ND		0.50	0.40	ug/L	1
Xylenes (total)	1330-20-7	8260D	ND		1.0	0.40	ug/L	1
m+p - Xylenes	179601-23-1	8260D	ND		0.50	0.40	ug/L	1
o - Xylenes	95-47-6	8260D	ND		0.50	0.40	ug/L	1

Surrogate	Q	Run 1 % Recovery	Acceptance Limits
Bromofluorobenzene		96	70-130
1,2-Dichloroethane-d4		105	70-130
Toluene-d8		104	70-130

LOQ = Limit of Quantitation
ND = Not detected at or above the DL
H = Out of holding time
B = Detected in the method blank
N = Recovery is out of criteria
W = Reported on wet weight basis
E = Quantitation of compound exceeded the calibration range
P = The RPD between two GC columns exceeds 40%
DL = Detection Limit
J = Estimated result < LOQ and ≥ DL
Q = Surrogate failure
L = LCS/LCSD failure
S = MS/MSD failure

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Volatile Organic Compounds by GC/MS

Client: **AECOM** Laboratory ID: **WD15023-018**

Description: **MRC-SW18A-S-20210413** Matrix: **Aqueous**

Date Sampled: **04/13/2021 1410** Project Name: **MRC SWS 2021**

Date Received: **04/15/2021** Project Number: **60638276.007.1**

Run	Prep Method	Analytical Method	Dilution	Analysis Date	Analyst	Prep Date	Batch
1	5030B	8260D	1	04/21/2021 1357	BWS		89759

Parameter	CAS Number	Analytical Method	Result	Q	LOQ	DL	Units	Run
Acetone	67-64-1	8260D	ND		10	4.0	ug/L	1
tert-Amyl methyl ether (TAME)	994-05-8	8260D	ND		10	0.42	ug/L	1
Benzene	71-43-2	8260D	ND		0.50	0.40	ug/L	1
Bromobenzene	108-86-1	8260D	ND		0.50	0.40	ug/L	1
Bromochloromethane	74-97-5	8260D	ND		0.50	0.40	ug/L	1
Bromodichloromethane	75-27-4	8260D	ND		0.50	0.40	ug/L	1
Bromoform	75-25-2	8260D	ND		0.50	0.40	ug/L	1
Bromomethane (Methyl bromide)	74-83-9	8260D	ND	S	0.50	0.40	ug/L	1
2-Butanone (MEK)	78-93-3	8260D	ND		10	2.0	ug/L	1
n-Butylbenzene	104-51-8	8260D	ND		0.50	0.40	ug/L	1
sec-Butylbenzene	135-98-8	8260D	ND		0.50	0.40	ug/L	1
tert-Butylbenzene	98-06-6	8260D	ND		0.50	0.40	ug/L	1
Carbon disulfide	75-15-0	8260D	ND		0.50	0.40	ug/L	1
Carbon tetrachloride	56-23-5	8260D	ND		0.50	0.40	ug/L	1
Chlorobenzene	108-90-7	8260D	ND		0.50	0.40	ug/L	1
Chloroethane	75-00-3	8260D	ND		0.50	0.40	ug/L	1
Chloroform	67-66-3	8260D	ND		0.50	0.40	ug/L	1
Chloromethane (Methyl chloride)	74-87-3	8260D	ND	S	0.50	0.40	ug/L	1
2-Chlorotoluene	95-49-8	8260D	ND		0.50	0.40	ug/L	1
4-Chlorotoluene	106-43-4	8260D	ND		0.50	0.40	ug/L	1
Cyclohexane	110-82-7	8260D	ND		0.50	0.40	ug/L	1
1,2-Dibromo-3-chloropropane (DBCP)	96-12-8	8260D	ND		0.50	0.40	ug/L	1
Dibromochloromethane	124-48-1	8260D	ND		0.50	0.40	ug/L	1
1,2-Dibromoethane (EDB)	106-93-4	8260D	ND		0.50	0.40	ug/L	1
Dibromomethane (Methylene bromide)	74-95-3	8260D	ND		0.50	0.40	ug/L	1
1,2-Dichlorobenzene	95-50-1	8260D	ND		0.50	0.40	ug/L	1
1,3-Dichlorobenzene	541-73-1	8260D	ND		0.50	0.40	ug/L	1
1,4-Dichlorobenzene	106-46-7	8260D	ND		0.50	0.40	ug/L	1
Dichlorodifluoromethane	75-71-8	8260D	ND		0.50	0.40	ug/L	1
1,1-Dichloroethane	75-34-3	8260D	ND	S	0.50	0.40	ug/L	1
1,2-Dichloroethane	107-06-2	8260D	ND	S	0.50	0.40	ug/L	1
1,2-Dichloroethene (total)		8260D	ND		0.50	0.40	ug/L	1
1,1-Dichloroethene	75-35-4	8260D	ND		0.50	0.40	ug/L	1
cis-1,2-Dichloroethene	156-59-2	8260D	ND		0.50	0.40	ug/L	1
trans-1,2-Dichloroethene	156-60-5	8260D	ND		0.50	0.40	ug/L	1
1,2-Dichloropropane	78-87-5	8260D	ND		0.50	0.40	ug/L	1
1,3-Dichloropropane	142-28-9	8260D	ND		0.50	0.40	ug/L	1
2,2-Dichloropropane	594-20-7	8260D	ND		0.50	0.40	ug/L	1
cis-1,3-Dichloropropene	10061-01-5	8260D	ND		0.50	0.40	ug/L	1
trans-1,3-Dichloropropene	10061-02-6	8260D	ND		0.50	0.40	ug/L	1
Diisopropyl ether (IPE)	108-20-3	8260D	ND		0.50	0.40	ug/L	1
Ethylbenzene	100-41-4	8260D	ND		0.50	0.40	ug/L	1
Ethyl-tert-butyl ether (ETBE)	637-92-3	8260D	ND		1.0	0.40	ug/L	1
Hexachlorobutadiene	87-68-3	8260D	ND		0.50	0.40	ug/L	1

LOQ = Limit of Quantitation
B = Detected in the method blank
E = Quantitation of compound exceeded the calibration range
DL = Detection Limit
Q = Surrogate failure
ND = Not detected at or above the DL
N = Recovery is out of criteria
P = The RPD between two GC columns exceeds 40%
J = Estimated result < LOQ and ≥ DL
L = LCS/LCSD failure
H = Out of holding time
W = Reported on wet weight basis
S = MS/MSD failure

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Volatile Organic Compounds by GC/MS

Client: **AECOM** Laboratory ID: **WD15023-018**

Description: **MRC-SW18A-S-20210413** Matrix: **Aqueous**

Date Sampled: **04/13/2021 1410** Project Name: **MRC SWS 2021**

Date Received: **04/15/2021** Project Number: **60638276.007.1**

Run	Prep Method	Analytical Method	Dilution	Analysis Date	Analyst	Prep Date	Batch
1	5030B	8260D	1	04/21/2021 1357	BWS		89759

Parameter	CAS Number	Analytical Method	Result	Q	LOQ	DL	Units	Run
2-Hexanone	591-78-6	8260D	ND		10	2.0	ug/L	1
Isopropylbenzene	98-82-8	8260D	ND		0.50	0.40	ug/L	1
p-Isopropyltoluene	99-87-6	8260D	ND		0.50	0.40	ug/L	1
Methyl acetate	79-20-9	8260D	ND		1.0	0.40	ug/L	1
Methyl tertiary butyl ether (MTBE)	1634-04-4	8260D	ND		0.50	0.40	ug/L	1
4-Methyl-2-pentanone	108-10-1	8260D	ND		10	2.0	ug/L	1
Methylcyclohexane	108-87-2	8260D	ND		5.0	0.40	ug/L	1
Methylene chloride	75-09-2	8260D	ND		0.50	0.40	ug/L	1
Naphthalene	91-20-3	8260D	ND		0.50	0.40	ug/L	1
n-Propylbenzene	103-65-1	8260D	ND		0.50	0.40	ug/L	1
Styrene	100-42-5	8260D	ND		0.50	0.41	ug/L	1
tert-butyl alcohol (TBA)	75-65-0	8260D	ND		20	8.0	ug/L	1
1,1,1,2-Tetrachloroethane	630-20-6	8260D	ND		0.50	0.40	ug/L	1
1,1,2,2-Tetrachloroethane	79-34-5	8260D	ND		0.50	0.40	ug/L	1
Tetrachloroethene	127-18-4	8260D	ND		0.50	0.40	ug/L	1
Toluene	108-88-3	8260D	ND		0.50	0.40	ug/L	1
1,1,2-Trichloro-1,2,2-Trifluoroethane	76-13-1	8260D	ND		1.0	0.42	ug/L	1
1,2,3-Trichlorobenzene	87-61-6	8260D	ND		0.50	0.40	ug/L	1
1,2,4-Trichlorobenzene	120-82-1	8260D	ND		0.50	0.40	ug/L	1
1,1,1-Trichloroethane	71-55-6	8260D	ND		0.50	0.40	ug/L	1
1,1,2-Trichloroethane	79-00-5	8260D	ND		0.50	0.40	ug/L	1
Trichloroethene	79-01-6	8260D	ND		0.50	0.40	ug/L	1
Trichlorofluoromethane	75-69-4	8260D	ND		0.50	0.40	ug/L	1
1,2,3-Trichloropropane	96-18-4	8260D	ND		0.50	0.40	ug/L	1
1,2,4-Trimethylbenzene	95-63-6	8260D	ND		0.50	0.40	ug/L	1
Vinyl acetate	108-05-4	8260D	ND		5.0	1.2	ug/L	1
Vinyl chloride	75-01-4	8260D	ND	S	0.50	0.40	ug/L	1
Xylenes (total)	1330-20-7	8260D	ND		1.0	0.40	ug/L	1
m+p - Xylenes	179601-23-1	8260D	ND		0.50	0.40	ug/L	1
o - Xylenes	95-47-6	8260D	ND		0.50	0.40	ug/L	1

Surrogate	Q	Run 1 % Recovery	Acceptance Limits
Bromofluorobenzene		99	70-130
1,2-Dichloroethane-d4		107	70-130
Toluene-d8		107	70-130

LOQ = Limit of Quantitation
ND = Not detected at or above the DL
H = Out of holding time
B = Detected in the method blank
N = Recovery is out of criteria
W = Reported on wet weight basis
E = Quantitation of compound exceeded the calibration range
P = The RPD between two GC columns exceeds 40%
DL = Detection Limit
J = Estimated result < LOQ and ≥ DL
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Volatile Organic Compounds by GC/MS

Client: **AECOM** Laboratory ID: **WD15023-019**

Description: **MRC-SW18A-S-DUP-20210413** Matrix: **Aqueous**

Date Sampled: **04/13/2021 1430** Project Name: **MRC SWS 2021**

Date Received: **04/15/2021** Project Number: **60638276.007.1**

Run	Prep Method	Analytical Method	Dilution	Analysis Date	Analyst	Prep Date	Batch
1	5030B	8260D	1	04/20/2021 1854	BWS		89607

Parameter	CAS Number	Analytical Method	Result	Q	LOQ	DL	Units	Run
Acetone	67-64-1	8260D	ND		10	4.0	ug/L	1
tert-Amyl methyl ether (TAME)	994-05-8	8260D	ND		10	0.42	ug/L	1
Benzene	71-43-2	8260D	ND		0.50	0.40	ug/L	1
Bromobenzene	108-86-1	8260D	ND		0.50	0.40	ug/L	1
Bromochloromethane	74-97-5	8260D	ND		0.50	0.40	ug/L	1
Bromodichloromethane	75-27-4	8260D	ND		0.50	0.40	ug/L	1
Bromoform	75-25-2	8260D	ND		0.50	0.40	ug/L	1
Bromomethane (Methyl bromide)	74-83-9	8260D	ND		0.50	0.40	ug/L	1
2-Butanone (MEK)	78-93-3	8260D	ND		10	2.0	ug/L	1
n-Butylbenzene	104-51-8	8260D	ND		0.50	0.40	ug/L	1
sec-Butylbenzene	135-98-8	8260D	ND		0.50	0.40	ug/L	1
tert-Butylbenzene	98-06-6	8260D	ND		0.50	0.40	ug/L	1
Carbon disulfide	75-15-0	8260D	ND		0.50	0.40	ug/L	1
Carbon tetrachloride	56-23-5	8260D	ND		0.50	0.40	ug/L	1
Chlorobenzene	108-90-7	8260D	ND		0.50	0.40	ug/L	1
Chloroethane	75-00-3	8260D	ND		0.50	0.40	ug/L	1
Chloroform	67-66-3	8260D	ND		0.50	0.40	ug/L	1
Chloromethane (Methyl chloride)	74-87-3	8260D	ND		0.50	0.40	ug/L	1
2-Chlorotoluene	95-49-8	8260D	ND		0.50	0.40	ug/L	1
4-Chlorotoluene	106-43-4	8260D	ND		0.50	0.40	ug/L	1
Cyclohexane	110-82-7	8260D	ND		0.50	0.40	ug/L	1
1,2-Dibromo-3-chloropropane (DBCP)	96-12-8	8260D	ND		0.50	0.40	ug/L	1
Dibromochloromethane	124-48-1	8260D	ND		0.50	0.40	ug/L	1
1,2-Dibromoethane (EDB)	106-93-4	8260D	ND		0.50	0.40	ug/L	1
Dibromomethane (Methylene bromide)	74-95-3	8260D	ND		0.50	0.40	ug/L	1
1,2-Dichlorobenzene	95-50-1	8260D	ND		0.50	0.40	ug/L	1
1,3-Dichlorobenzene	541-73-1	8260D	ND		0.50	0.40	ug/L	1
1,4-Dichlorobenzene	106-46-7	8260D	ND		0.50	0.40	ug/L	1
Dichlorodifluoromethane	75-71-8	8260D	ND		0.50	0.40	ug/L	1
1,1-Dichloroethane	75-34-3	8260D	ND		0.50	0.40	ug/L	1
1,2-Dichloroethane	107-06-2	8260D	ND		0.50	0.40	ug/L	1
1,2-Dichloroethene (total)		8260D	ND		0.50	0.40	ug/L	1
1,1-Dichloroethene	75-35-4	8260D	ND		0.50	0.40	ug/L	1
cis-1,2-Dichloroethene	156-59-2	8260D	ND		0.50	0.40	ug/L	1
trans-1,2-Dichloroethene	156-60-5	8260D	ND		0.50	0.40	ug/L	1
1,2-Dichloropropane	78-87-5	8260D	ND		0.50	0.40	ug/L	1
1,3-Dichloropropane	142-28-9	8260D	ND		0.50	0.40	ug/L	1
2,2-Dichloropropane	594-20-7	8260D	ND		0.50	0.40	ug/L	1
cis-1,3-Dichloropropene	10061-01-5	8260D	ND		0.50	0.40	ug/L	1
trans-1,3-Dichloropropene	10061-02-6	8260D	ND		0.50	0.40	ug/L	1
Diisopropyl ether (IPE)	108-20-3	8260D	ND		0.50	0.40	ug/L	1
Ethylbenzene	100-41-4	8260D	ND		0.50	0.40	ug/L	1
Ethyl-tert-butyl ether (ETBE)	637-92-3	8260D	ND		1.0	0.40	ug/L	1
Hexachlorobutadiene	87-68-3	8260D	ND		0.50	0.40	ug/L	1

LOQ = Limit of Quantitation
B = Detected in the method blank
E = Quantitation of compound exceeded the calibration range
DL = Detection Limit
Q = Surrogate failure
ND = Not detected at or above the DL
N = Recovery is out of criteria
P = The RPD between two GC columns exceeds 40%
J = Estimated result < LOQ and ≥ DL
L = LCS/LCSD failure
H = Out of holding time
W = Reported on wet weight basis
S = MS/MSD failure

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Volatile Organic Compounds by GC/MS

Client: **AECOM** Laboratory ID: **WD15023-019**

Description: **MRC-SW18A-S-DUP-20210413** Matrix: **Aqueous**

Date Sampled: **04/13/2021 1430** Project Name: **MRC SWS 2021**

Date Received: **04/15/2021** Project Number: **60638276.007.1**

Run	Prep Method	Analytical Method	Dilution	Analysis Date	Analyst	Prep Date	Batch
1	5030B	8260D	1	04/20/2021 1854	BWS		89607

Parameter	CAS Number	Analytical Method	Result	Q	LOQ	DL	Units	Run
2-Hexanone	591-78-6	8260D	ND		10	2.0	ug/L	1
Isopropylbenzene	98-82-8	8260D	ND		0.50	0.40	ug/L	1
p-Isopropyltoluene	99-87-6	8260D	ND		0.50	0.40	ug/L	1
Methyl acetate	79-20-9	8260D	ND		1.0	0.40	ug/L	1
Methyl tertiary butyl ether (MTBE)	1634-04-4	8260D	ND		0.50	0.40	ug/L	1
4-Methyl-2-pentanone	108-10-1	8260D	ND		10	2.0	ug/L	1
Methylcyclohexane	108-87-2	8260D	ND		5.0	0.40	ug/L	1
Methylene chloride	75-09-2	8260D	ND		0.50	0.40	ug/L	1
Naphthalene	91-20-3	8260D	ND		0.50	0.40	ug/L	1
n-Propylbenzene	103-65-1	8260D	ND		0.50	0.40	ug/L	1
Styrene	100-42-5	8260D	ND		0.50	0.41	ug/L	1
tert-butyl alcohol (TBA)	75-65-0	8260D	ND		20	8.0	ug/L	1
1,1,1,2-Tetrachloroethane	630-20-6	8260D	ND		0.50	0.40	ug/L	1
1,1,2,2-Tetrachloroethane	79-34-5	8260D	ND		0.50	0.40	ug/L	1
Tetrachloroethene	127-18-4	8260D	ND		0.50	0.40	ug/L	1
Toluene	108-88-3	8260D	ND		0.50	0.40	ug/L	1
1,1,2-Trichloro-1,2,2-Trifluoroethane	76-13-1	8260D	ND		1.0	0.42	ug/L	1
1,2,3-Trichlorobenzene	87-61-6	8260D	ND		0.50	0.40	ug/L	1
1,2,4-Trichlorobenzene	120-82-1	8260D	ND		0.50	0.40	ug/L	1
1,1,1-Trichloroethane	71-55-6	8260D	ND		0.50	0.40	ug/L	1
1,1,2-Trichloroethane	79-00-5	8260D	ND		0.50	0.40	ug/L	1
Trichloroethene	79-01-6	8260D	ND		0.50	0.40	ug/L	1
Trichlorofluoromethane	75-69-4	8260D	ND		0.50	0.40	ug/L	1
1,2,3-Trichloropropane	96-18-4	8260D	ND		0.50	0.40	ug/L	1
1,2,4-Trimethylbenzene	95-63-6	8260D	ND		0.50	0.40	ug/L	1
Vinyl acetate	108-05-4	8260D	ND		5.0	1.2	ug/L	1
Vinyl chloride	75-01-4	8260D	ND		0.50	0.40	ug/L	1
Xylenes (total)	1330-20-7	8260D	ND		1.0	0.40	ug/L	1
m+p - Xylenes	179601-23-1	8260D	ND		0.50	0.40	ug/L	1
o - Xylenes	95-47-6	8260D	ND		0.50	0.40	ug/L	1

Surrogate	Q	Run 1 % Recovery	Acceptance Limits
Bromofluorobenzene		96	70-130
1,2-Dichloroethane-d4		105	70-130
Toluene-d8		116	70-130

LOQ = Limit of Quantitation
ND = Not detected at or above the DL
H = Out of holding time
B = Detected in the method blank
N = Recovery is out of criteria
W = Reported on wet weight basis
E = Quantitation of compound exceeded the calibration range
P = The RPD between two GC columns exceeds 40%
DL = Detection Limit
J = Estimated result < LOQ and ≥ DL
Q = Surrogate failure
L = LCS/LCSD failure
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Volatile Organic Compounds by GC/MS

Client: **AECOM** Laboratory ID: **WD15023-020**

Description: **MRC-SW14A-S-20210413** Matrix: **Aqueous**

Date Sampled: **04/13/2021 1350** Project Name: **MRC SWS 2021**

Date Received: **04/15/2021** Project Number: **60638276.007.1**

Run	Prep Method	Analytical Method	Dilution	Analysis Date	Analyst	Prep Date	Batch
1	5030B	8260D	1	04/21/2021 1422	BWS		89759

Parameter	CAS Number	Analytical Method	Result	Q	LOQ	DL	Units	Run
Acetone	67-64-1	8260D	ND		10	4.0	ug/L	1
tert-Amyl methyl ether (TAME)	994-05-8	8260D	ND		10	0.42	ug/L	1
Benzene	71-43-2	8260D	ND		0.50	0.40	ug/L	1
Bromobenzene	108-86-1	8260D	ND		0.50	0.40	ug/L	1
Bromochloromethane	74-97-5	8260D	ND		0.50	0.40	ug/L	1
Bromodichloromethane	75-27-4	8260D	ND		0.50	0.40	ug/L	1
Bromoform	75-25-2	8260D	ND		0.50	0.40	ug/L	1
Bromomethane (Methyl bromide)	74-83-9	8260D	ND		0.50	0.40	ug/L	1
2-Butanone (MEK)	78-93-3	8260D	ND		10	2.0	ug/L	1
n-Butylbenzene	104-51-8	8260D	ND		0.50	0.40	ug/L	1
sec-Butylbenzene	135-98-8	8260D	ND		0.50	0.40	ug/L	1
tert-Butylbenzene	98-06-6	8260D	ND		0.50	0.40	ug/L	1
Carbon disulfide	75-15-0	8260D	ND		0.50	0.40	ug/L	1
Carbon tetrachloride	56-23-5	8260D	ND		0.50	0.40	ug/L	1
Chlorobenzene	108-90-7	8260D	ND		0.50	0.40	ug/L	1
Chloroethane	75-00-3	8260D	ND		0.50	0.40	ug/L	1
Chloroform	67-66-3	8260D	ND		0.50	0.40	ug/L	1
Chloromethane (Methyl chloride)	74-87-3	8260D	ND		0.50	0.40	ug/L	1
2-Chlorotoluene	95-49-8	8260D	ND		0.50	0.40	ug/L	1
4-Chlorotoluene	106-43-4	8260D	ND		0.50	0.40	ug/L	1
Cyclohexane	110-82-7	8260D	ND		0.50	0.40	ug/L	1
1,2-Dibromo-3-chloropropane (DBCP)	96-12-8	8260D	ND		0.50	0.40	ug/L	1
Dibromochloromethane	124-48-1	8260D	ND		0.50	0.40	ug/L	1
1,2-Dibromoethane (EDB)	106-93-4	8260D	ND		0.50	0.40	ug/L	1
Dibromomethane (Methylene bromide)	74-95-3	8260D	ND		0.50	0.40	ug/L	1
1,2-Dichlorobenzene	95-50-1	8260D	ND		0.50	0.40	ug/L	1
1,3-Dichlorobenzene	541-73-1	8260D	ND		0.50	0.40	ug/L	1
1,4-Dichlorobenzene	106-46-7	8260D	ND		0.50	0.40	ug/L	1
Dichlorodifluoromethane	75-71-8	8260D	ND		0.50	0.40	ug/L	1
1,1-Dichloroethane	75-34-3	8260D	ND		0.50	0.40	ug/L	1
1,2-Dichloroethane	107-06-2	8260D	ND		0.50	0.40	ug/L	1
1,2-Dichloroethene (total)		8260D	ND		0.50	0.40	ug/L	1
1,1-Dichloroethene	75-35-4	8260D	ND		0.50	0.40	ug/L	1
cis-1,2-Dichloroethene	156-59-2	8260D	ND		0.50	0.40	ug/L	1
trans-1,2-Dichloroethene	156-60-5	8260D	ND		0.50	0.40	ug/L	1
1,2-Dichloropropane	78-87-5	8260D	ND		0.50	0.40	ug/L	1
1,3-Dichloropropane	142-28-9	8260D	ND		0.50	0.40	ug/L	1
2,2-Dichloropropane	594-20-7	8260D	ND		0.50	0.40	ug/L	1
cis-1,3-Dichloropropene	10061-01-5	8260D	ND		0.50	0.40	ug/L	1
trans-1,3-Dichloropropene	10061-02-6	8260D	ND		0.50	0.40	ug/L	1
Diisopropyl ether (IPE)	108-20-3	8260D	ND		0.50	0.40	ug/L	1
Ethylbenzene	100-41-4	8260D	ND		0.50	0.40	ug/L	1
Ethyl-tert-butyl ether (ETBE)	637-92-3	8260D	ND		1.0	0.40	ug/L	1
Hexachlorobutadiene	87-68-3	8260D	ND		0.50	0.40	ug/L	1

LOQ = Limit of Quantitation
B = Detected in the method blank
E = Quantitation of compound exceeded the calibration range
DL = Detection Limit
Q = Surrogate failure
ND = Not detected at or above the DL
N = Recovery is out of criteria
P = The RPD between two GC columns exceeds 40%
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H = Out of holding time
W = Reported on wet weight basis
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Volatile Organic Compounds by GC/MS

Client: **AECOM** Laboratory ID: **WD15023-020**

Description: **MRC-SW14A-S-20210413** Matrix: **Aqueous**

Date Sampled: **04/13/2021 1350** Project Name: **MRC SWS 2021**

Date Received: **04/15/2021** Project Number: **60638276.007.1**

Run	Prep Method	Analytical Method	Dilution	Analysis Date	Analyst	Prep Date	Batch
1	5030B	8260D	1	04/21/2021 1422	BWS		89759

Parameter	CAS Number	Analytical Method	Result	Q	LOQ	DL	Units	Run
2-Hexanone	591-78-6	8260D	ND		10	2.0	ug/L	1
Isopropylbenzene	98-82-8	8260D	ND		0.50	0.40	ug/L	1
p-Isopropyltoluene	99-87-6	8260D	ND		0.50	0.40	ug/L	1
Methyl acetate	79-20-9	8260D	ND		1.0	0.40	ug/L	1
Methyl tertiary butyl ether (MTBE)	1634-04-4	8260D	ND		0.50	0.40	ug/L	1
4-Methyl-2-pentanone	108-10-1	8260D	ND		10	2.0	ug/L	1
Methylcyclohexane	108-87-2	8260D	ND		5.0	0.40	ug/L	1
Methylene chloride	75-09-2	8260D	ND		0.50	0.40	ug/L	1
Naphthalene	91-20-3	8260D	ND		0.50	0.40	ug/L	1
n-Propylbenzene	103-65-1	8260D	ND		0.50	0.40	ug/L	1
Styrene	100-42-5	8260D	ND		0.50	0.41	ug/L	1
tert-butyl alcohol (TBA)	75-65-0	8260D	ND		20	8.0	ug/L	1
1,1,1,2-Tetrachloroethane	630-20-6	8260D	ND		0.50	0.40	ug/L	1
1,1,2,2-Tetrachloroethane	79-34-5	8260D	ND		0.50	0.40	ug/L	1
Tetrachloroethene	127-18-4	8260D	ND		0.50	0.40	ug/L	1
Toluene	108-88-3	8260D	ND		0.50	0.40	ug/L	1
1,1,2-Trichloro-1,2,2-Trifluoroethane	76-13-1	8260D	ND		1.0	0.42	ug/L	1
1,2,3-Trichlorobenzene	87-61-6	8260D	ND		0.50	0.40	ug/L	1
1,2,4-Trichlorobenzene	120-82-1	8260D	ND		0.50	0.40	ug/L	1
1,1,1-Trichloroethane	71-55-6	8260D	ND		0.50	0.40	ug/L	1
1,1,2-Trichloroethane	79-00-5	8260D	ND		0.50	0.40	ug/L	1
Trichloroethene	**79-01-6**	**8260D**	**0.53**		**0.50**	**0.40**	**ug/L**	**1**
Trichlorofluoromethane	75-69-4	8260D	ND		0.50	0.40	ug/L	1
1,2,3-Trichloropropane	96-18-4	8260D	ND		0.50	0.40	ug/L	1
1,2,4-Trimethylbenzene	95-63-6	8260D	ND		0.50	0.40	ug/L	1
Vinyl acetate	108-05-4	8260D	ND		5.0	1.2	ug/L	1
Vinyl chloride	75-01-4	8260D	ND		0.50	0.40	ug/L	1
Xylenes (total)	1330-20-7	8260D	ND		1.0	0.40	ug/L	1
m+p - Xylenes	179601-23-1	8260D	ND		0.50	0.40	ug/L	1
o - Xylenes	95-47-6	8260D	ND		0.50	0.40	ug/L	1

Surrogate	Q	Run 1 % Recovery	Acceptance Limits
Bromofluorobenzene		97	70-130
1,2-Dichloroethane-d4		107	70-130
Toluene-d8		105	70-130

LOQ = Limit of Quantitation
B = Detected in the method blank
E = Quantitation of compound exceeded the calibration range
DL = Detection Limit
Q = Surrogate failure
ND = Not detected at or above the DL
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Volatile Organic Compounds by GC/MS

Client: **AECOM** Laboratory ID: **WD15023-021**

Description: **MRC-SW17A-20210413** Matrix: **Aqueous**

Date Sampled: **04/13/2021 1650** Project Name: **MRC SWS 2021**

Date Received: **04/15/2021** Project Number: **60638276.007.1**

Run	Prep Method	Analytical Method	Dilution	Analysis Date	Analyst	Prep Date	Batch
1	5030B	8260D	1	04/21/2021 1447	BWS		89759

Parameter	CAS Number	Analytical Method	Result	Q	LOQ	DL	Units	Run
Acetone	67-64-1	8260D	ND		10	4.0	ug/L	1
tert-Amyl methyl ether (TAME)	994-05-8	8260D	ND		10	0.42	ug/L	1
Benzene	71-43-2	8260D	ND		0.50	0.40	ug/L	1
Bromobenzene	108-86-1	8260D	ND		0.50	0.40	ug/L	1
Bromochloromethane	74-97-5	8260D	ND		0.50	0.40	ug/L	1
Bromodichloromethane	75-27-4	8260D	ND		0.50	0.40	ug/L	1
Bromoform	75-25-2	8260D	ND		0.50	0.40	ug/L	1
Bromomethane (Methyl bromide)	74-83-9	8260D	ND		0.50	0.40	ug/L	1
2-Butanone (MEK)	78-93-3	8260D	ND		10	2.0	ug/L	1
n-Butylbenzene	104-51-8	8260D	ND		0.50	0.40	ug/L	1
sec-Butylbenzene	135-98-8	8260D	ND		0.50	0.40	ug/L	1
tert-Butylbenzene	98-06-6	8260D	ND		0.50	0.40	ug/L	1
Carbon disulfide	75-15-0	8260D	ND		0.50	0.40	ug/L	1
Carbon tetrachloride	56-23-5	8260D	ND		0.50	0.40	ug/L	1
Chlorobenzene	108-90-7	8260D	ND		0.50	0.40	ug/L	1
Chloroethane	75-00-3	8260D	ND		0.50	0.40	ug/L	1
Chloroform	**67-66-3**	**8260D**	**0.40**	**J**	**0.50**	**0.40**	**ug/L**	**1**
Chloromethane (Methyl chloride)	74-87-3	8260D	ND		0.50	0.40	ug/L	1
2-Chlorotoluene	95-49-8	8260D	ND		0.50	0.40	ug/L	1
4-Chlorotoluene	106-43-4	8260D	ND		0.50	0.40	ug/L	1
Cyclohexane	110-82-7	8260D	ND		0.50	0.40	ug/L	1
1,2-Dibromo-3-chloropropane (DBCP)	96-12-8	8260D	ND		0.50	0.40	ug/L	1
Dibromochloromethane	124-48-1	8260D	ND		0.50	0.40	ug/L	1
1,2-Dibromoethane (EDB)	106-93-4	8260D	ND		0.50	0.40	ug/L	1
Dibromomethane (Methylene bromide)	74-95-3	8260D	ND		0.50	0.40	ug/L	1
1,2-Dichlorobenzene	95-50-1	8260D	ND		0.50	0.40	ug/L	1
1,3-Dichlorobenzene	541-73-1	8260D	ND		0.50	0.40	ug/L	1
1,4-Dichlorobenzene	106-46-7	8260D	ND		0.50	0.40	ug/L	1
Dichlorodifluoromethane	75-71-8	8260D	ND		0.50	0.40	ug/L	1
1,1-Dichloroethane	75-34-3	8260D	ND		0.50	0.40	ug/L	1
1,2-Dichloroethane	107-06-2	8260D	ND		0.50	0.40	ug/L	1
1,2-Dichloroethene (total)		8260D	ND		0.50	0.40	ug/L	1
1,1-Dichloroethene	75-35-4	8260D	ND		0.50	0.40	ug/L	1
cis-1,2-Dichloroethene	156-59-2	8260D	ND		0.50	0.40	ug/L	1
trans-1,2-Dichloroethene	156-60-5	8260D	ND		0.50	0.40	ug/L	1
1,2-Dichloropropane	78-87-5	8260D	ND		0.50	0.40	ug/L	1
1,3-Dichloropropane	142-28-9	8260D	ND		0.50	0.40	ug/L	1
2,2-Dichloropropane	594-20-7	8260D	ND		0.50	0.40	ug/L	1
cis-1,3-Dichloropropene	10061-01-5	8260D	ND		0.50	0.40	ug/L	1
trans-1,3-Dichloropropene	10061-02-6	8260D	ND		0.50	0.40	ug/L	1
Diisopropyl ether (IPE)	108-20-3	8260D	ND		0.50	0.40	ug/L	1
Ethylbenzene	100-41-4	8260D	ND		0.50	0.40	ug/L	1
Ethyl-tert-butyl ether (ETBE)	637-92-3	8260D	ND		1.0	0.40	ug/L	1
Hexachlorobutadiene	87-68-3	8260D	ND		0.50	0.40	ug/L	1

LOQ = Limit of Quantitation
B = Detected in the method blank
E = Quantitation of compound exceeded the calibration range
DL = Detection Limit
Q = Surrogate failure
ND = Not detected at or above the DL
N = Recovery is out of criteria
P = The RPD between two GC columns exceeds 40%
J = Estimated result < LOQ and ≥ DL
L = LCS/LCSD failure
H = Out of holding time
W = Reported on wet weight basis
S = MS/MSD failure

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Volatile Organic Compounds by GC/MS

Client: **AECOM** Laboratory ID: **WD15023-021**

Description: **MRC-SW17A-20210413** Matrix: **Aqueous**

Date Sampled: **04/13/2021 1650** Project Name: **MRC SWS 2021**

Date Received: **04/15/2021** Project Number: **60638276.007.1**

Run	Prep Method	Analytical Method	Dilution	Analysis Date	Analyst	Prep Date	Batch
1	5030B	8260D	1	04/21/2021 1447	BWS		89759

Parameter	CAS Number	Analytical Method	Result	Q	LOQ	DL	Units	Run
2-Hexanone	591-78-6	8260D	ND		10	2.0	ug/L	1
Isopropylbenzene	98-82-8	8260D	ND		0.50	0.40	ug/L	1
p-Isopropyltoluene	99-87-6	8260D	ND		0.50	0.40	ug/L	1
Methyl acetate	79-20-9	8260D	ND		1.0	0.40	ug/L	1
Methyl tertiary butyl ether (MTBE)	1634-04-4	8260D	ND		0.50	0.40	ug/L	1
4-Methyl-2-pentanone	108-10-1	8260D	ND		10	2.0	ug/L	1
Methylcyclohexane	108-87-2	8260D	ND		5.0	0.40	ug/L	1
Methylene chloride	75-09-2	8260D	ND		0.50	0.40	ug/L	1
Naphthalene	91-20-3	8260D	ND		0.50	0.40	ug/L	1
n-Propylbenzene	103-65-1	8260D	ND		0.50	0.40	ug/L	1
Styrene	100-42-5	8260D	ND		0.50	0.41	ug/L	1
tert-butyl alcohol (TBA)	75-65-0	8260D	ND		20	8.0	ug/L	1
1,1,1,2-Tetrachloroethane	630-20-6	8260D	ND		0.50	0.40	ug/L	1
1,1,2,2-Tetrachloroethane	79-34-5	8260D	ND		0.50	0.40	ug/L	1
Tetrachloroethene	127-18-4	8260D	ND		0.50	0.40	ug/L	1
Toluene	108-88-3	8260D	ND		0.50	0.40	ug/L	1
1,1,2-Trichloro-1,2,2-Trifluoroethane	76-13-1	8260D	ND		1.0	0.42	ug/L	1
1,2,3-Trichlorobenzene	87-61-6	8260D	ND		0.50	0.40	ug/L	1
1,2,4-Trichlorobenzene	120-82-1	8260D	ND		0.50	0.40	ug/L	1
1,1,1-Trichloroethane	71-55-6	8260D	ND		0.50	0.40	ug/L	1
1,1,2-Trichloroethane	79-00-5	8260D	ND		0.50	0.40	ug/L	1
Trichloroethene	79-01-6	8260D	ND		0.50	0.40	ug/L	1
Trichlorofluoromethane	75-69-4	8260D	ND		0.50	0.40	ug/L	1
1,2,3-Trichloropropane	96-18-4	8260D	ND		0.50	0.40	ug/L	1
1,2,4-Trimethylbenzene	95-63-6	8260D	ND		0.50	0.40	ug/L	1
Vinyl acetate	108-05-4	8260D	ND		5.0	1.2	ug/L	1
Vinyl chloride	75-01-4	8260D	ND		0.50	0.40	ug/L	1
Xylenes (total)	1330-20-7	8260D	ND		1.0	0.40	ug/L	1
m+p - Xylenes	179601-23-1	8260D	ND		0.50	0.40	ug/L	1
o - Xylenes	95-47-6	8260D	ND		0.50	0.40	ug/L	1

Surrogate	Q	Run 1 % Recovery	Acceptance Limits
Bromofluorobenzene		99	70-130
1,2-Dichloroethane-d4		112	70-130
Toluene-d8		105	70-130

LOQ = Limit of Quantitation
ND = Not detected at or above the DL
H = Out of holding time
B = Detected in the method blank
N = Recovery is out of criteria
W = Reported on wet weight basis
E = Quantitation of compound exceeded the calibration range
P = The RPD between two GC columns exceeds 40%
DL = Detection Limit
J = Estimated result < LOQ and ≥ DL
Q = Surrogate failure
L = LCS/LCSD failure
S = MS/MSD failure

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Semivolatile Organic Compounds by GC/MS (SIM)

Client: **AECOM** Laboratory ID: **WD15023-021**

Description: **MRC-SW17A-20210413** Matrix: **Aqueous**

Date Sampled: **04/13/2021 1650** Project Name: **MRC SWS 2021**

Date Received: **04/15/2021** Project Number: **60638276.007.1**

Run	Prep Method	Analytical Method	Dilution	Analysis Date	Analyst	Prep Date	Batch
1	3520C	8270E (SIM)	1	04/23/2021 2127	JCG	04/19/2021 1600	89524
2	3520C	8270E (SIM)	1	05/14/2021 1421	JCG	05/12/2021 1321	92007

Parameter	CAS Number	Analytical Method	Result	Q	LOQ	DL	Units	Run
1,4-Dioxane	**123-91-1**	**8270E (SIM)**	**0.18**	**BJ**	**0.20**	**0.068**	**ug/L**	**1**

Surrogate	Q	Run 1 % Recovery	Acceptance Limits	Q	Run 2 % Recovery	Acceptance Limits
1,4-Dioxane-d8		53	40-90	H	49	40-90

LOQ = Limit of Quantitation
ND = Not detected at or above the DL
H = Out of holding time
B = Detected in the method blank
N = Recovery is out of criteria
W = Reported on wet weight basis
E = Quantitation of compound exceeded the calibration range
P = The RPD between two GC columns exceeds 40%
DL = Detection Limit
J = Estimated result < LOQ and ≥ DL
Q = Surrogate failure
L = LCS/LCSD failure
S = MS/MSD failure

Semivolatile Organic Compounds by GC/MS (SIM)

Client: **AECOM** Laboratory ID: **WD15023-021**

Description: **MRC-SW17A-20210413** Matrix: **Aqueous**

Date Sampled: **04/13/2021 1650** Project Name: **MRC SWS 2021**

Date Received: **04/15/2021** Project Number: **60638276.007.1**

Run	Prep Method	Analytical Method	Dilution	Analysis Date	Analyst	Prep Date	Batch
1	3520C	8270E (SIM)	1	04/23/2021 2127	JCG	04/19/2021 1600	89524
2	3520C	8270E (SIM)	1	05/14/2021 1421	JCG	05/12/2021 1321	92007

Parameter	CAS Number	Analytical Method	Result	Q	LOQ	DL	Units	Run
1,4-Dioxane	**123-91-1**	**8270E (SIM)**	**0.086**	**HJ**	**0.20**	**0.068**	**ug/L**	**2**

Surrogate	Q	Run 1 % Recovery	Acceptance Limits	Q	Run 2 % Recovery	Acceptance Limits
1,4-Dioxane-d8		53	40-90	H	49	40-90

LOQ = Limit of Quantitation
ND = Not detected at or above the DL
H = Out of holding time
B = Detected in the method blank
N = Recovery is out of criteria
W = Reported on wet weight basis
E = Quantitation of compound exceeded the calibration range
P = The RPD between two GC columns exceeds 40%
DL = Detection Limit
J = Estimated result < LOQ and ≥ DL
Q = Surrogate failure
L = LCS/LCSD failure
S = MS/MSD failure

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Volatile Organic Compounds by GC/MS

Client: **AECOM** Laboratory ID: **WD15023-022**

Description: **MRC-SW1A-20210413** Matrix: **Aqueous**

Date Sampled: **04/13/2021 1550** Project Name: **MRC SWS 2021**

Date Received: **04/15/2021** Project Number: **60638276.007.1**

Run	Prep Method	Analytical Method	Dilution	Analysis Date	Analyst	Prep Date	Batch
1	5030B	8260D	1	04/21/2021 1512	BWS		89759

Parameter	CAS Number	Analytical Method	Result	Q	LOQ	DL	Units	Run
Acetone	67-64-1	8260D	ND		10	4.0	ug/L	1
tert-Amyl methyl ether (TAME)	994-05-8	8260D	ND		10	0.42	ug/L	1
Benzene	71-43-2	8260D	ND		0.50	0.40	ug/L	1
Bromobenzene	108-86-1	8260D	ND		0.50	0.40	ug/L	1
Bromochloromethane	74-97-5	8260D	ND		0.50	0.40	ug/L	1
Bromodichloromethane	75-27-4	8260D	ND		0.50	0.40	ug/L	1
Bromoform	75-25-2	8260D	ND		0.50	0.40	ug/L	1
Bromomethane (Methyl bromide)	74-83-9	8260D	ND		0.50	0.40	ug/L	1
2-Butanone (MEK)	78-93-3	8260D	ND		10	2.0	ug/L	1
n-Butylbenzene	104-51-8	8260D	ND		0.50	0.40	ug/L	1
sec-Butylbenzene	135-98-8	8260D	ND		0.50	0.40	ug/L	1
tert-Butylbenzene	98-06-6	8260D	ND		0.50	0.40	ug/L	1
Carbon disulfide	75-15-0	8260D	ND		0.50	0.40	ug/L	1
Carbon tetrachloride	56-23-5	8260D	ND		0.50	0.40	ug/L	1
Chlorobenzene	108-90-7	8260D	ND		0.50	0.40	ug/L	1
Chloroethane	75-00-3	8260D	ND		0.50	0.40	ug/L	1
Chloroform	67-66-3	8260D	ND		0.50	0.40	ug/L	1
Chloromethane (Methyl chloride)	74-87-3	8260D	ND		0.50	0.40	ug/L	1
2-Chlorotoluene	95-49-8	8260D	ND		0.50	0.40	ug/L	1
4-Chlorotoluene	106-43-4	8260D	ND		0.50	0.40	ug/L	1
Cyclohexane	110-82-7	8260D	ND		0.50	0.40	ug/L	1
1,2-Dibromo-3-chloropropane (DBCP)	96-12-8	8260D	ND		0.50	0.40	ug/L	1
Dibromochloromethane	124-48-1	8260D	ND		0.50	0.40	ug/L	1
1,2-Dibromoethane (EDB)	106-93-4	8260D	ND		0.50	0.40	ug/L	1
Dibromomethane (Methylene bromide)	74-95-3	8260D	ND		0.50	0.40	ug/L	1
1,2-Dichlorobenzene	95-50-1	8260D	ND		0.50	0.40	ug/L	1
1,3-Dichlorobenzene	541-73-1	8260D	ND		0.50	0.40	ug/L	1
1,4-Dichlorobenzene	106-46-7	8260D	ND		0.50	0.40	ug/L	1
Dichlorodifluoromethane	75-71-8	8260D	ND		0.50	0.40	ug/L	1
1,1-Dichloroethane	75-34-3	8260D	ND		0.50	0.40	ug/L	1
1,2-Dichloroethane	107-06-2	8260D	ND		0.50	0.40	ug/L	1
1,2-Dichloroethene (total)		8260D	ND		0.50	0.40	ug/L	1
1,1-Dichloroethene	75-35-4	8260D	ND		0.50	0.40	ug/L	1
cis-1,2-Dichloroethene	156-59-2	8260D	ND		0.50	0.40	ug/L	1
trans-1,2-Dichloroethene	156-60-5	8260D	ND		0.50	0.40	ug/L	1
1,2-Dichloropropane	78-87-5	8260D	ND		0.50	0.40	ug/L	1
1,3-Dichloropropane	142-28-9	8260D	ND		0.50	0.40	ug/L	1
2,2-Dichloropropane	594-20-7	8260D	ND		0.50	0.40	ug/L	1
cis-1,3-Dichloropropene	10061-01-5	8260D	ND		0.50	0.40	ug/L	1
trans-1,3-Dichloropropene	10061-02-6	8260D	ND		0.50	0.40	ug/L	1
Diisopropyl ether (IPE)	108-20-3	8260D	ND		0.50	0.40	ug/L	1
Ethylbenzene	100-41-4	8260D	ND		0.50	0.40	ug/L	1
Ethyl-tert-butyl ether (ETBE)	637-92-3	8260D	ND		1.0	0.40	ug/L	1
Hexachlorobutadiene	87-68-3	8260D	ND		0.50	0.40	ug/L	1

LOQ = Limit of Quantitation
B = Detected in the method blank
E = Quantitation of compound exceeded the calibration range
DL = Detection Limit
Q = Surrogate failure
ND = Not detected at or above the DL
N = Recovery is out of criteria
P = The RPD between two GC columns exceeds 40%
J = Estimated result < LOQ and ≥ DL
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H = Out of holding time
W = Reported on wet weight basis
S = MS/MSD failure

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Volatile Organic Compounds by GC/MS

Client: **AECOM** Laboratory ID: **WD15023-022**

Description: **MRC-SW1A-20210413** Matrix: **Aqueous**

Date Sampled: **04/13/2021 1550** Project Name: **MRC SWS 2021**

Date Received: **04/15/2021** Project Number: **60638276.007.1**

Run	Prep Method	Analytical Method	Dilution	Analysis Date	Analyst	Prep Date	Batch
1	5030B	8260D	1	04/21/2021 1512	BWS		89759

Parameter	CAS Number	Analytical Method	Result	Q	LOQ	DL	Units	Run
2-Hexanone	591-78-6	8260D	ND		10	2.0	ug/L	1
Isopropylbenzene	98-82-8	8260D	ND		0.50	0.40	ug/L	1
p-Isopropyltoluene	99-87-6	8260D	ND		0.50	0.40	ug/L	1
Methyl acetate	79-20-9	8260D	ND		1.0	0.40	ug/L	1
Methyl tertiary butyl ether (MTBE)	1634-04-4	8260D	ND		0.50	0.40	ug/L	1
4-Methyl-2-pentanone	108-10-1	8260D	ND		10	2.0	ug/L	1
Methylcyclohexane	108-87-2	8260D	ND		5.0	0.40	ug/L	1
Methylene chloride	75-09-2	8260D	ND		0.50	0.40	ug/L	1
Naphthalene	91-20-3	8260D	ND		0.50	0.40	ug/L	1
n-Propylbenzene	103-65-1	8260D	ND		0.50	0.40	ug/L	1
Styrene	100-42-5	8260D	ND		0.50	0.41	ug/L	1
tert-butyl alcohol (TBA)	75-65-0	8260D	ND		20	8.0	ug/L	1
1,1,1,2-Tetrachloroethane	630-20-6	8260D	ND		0.50	0.40	ug/L	1
1,1,2,2-Tetrachloroethane	79-34-5	8260D	ND		0.50	0.40	ug/L	1
Tetrachloroethene	127-18-4	8260D	ND		0.50	0.40	ug/L	1
Toluene	108-88-3	8260D	ND		0.50	0.40	ug/L	1
1,1,2-Trichloro-1,2,2-Trifluoroethane	76-13-1	8260D	ND		1.0	0.42	ug/L	1
1,2,3-Trichlorobenzene	87-61-6	8260D	ND		0.50	0.40	ug/L	1
1,2,4-Trichlorobenzene	120-82-1	8260D	ND		0.50	0.40	ug/L	1
1,1,1-Trichloroethane	71-55-6	8260D	ND		0.50	0.40	ug/L	1
1,1,2-Trichloroethane	79-00-5	8260D	ND		0.50	0.40	ug/L	1
Trichloroethene	79-01-6	8260D	ND		0.50	0.40	ug/L	1
Trichlorofluoromethane	75-69-4	8260D	ND		0.50	0.40	ug/L	1
1,2,3-Trichloropropane	96-18-4	8260D	ND		0.50	0.40	ug/L	1
1,2,4-Trimethylbenzene	95-63-6	8260D	ND		0.50	0.40	ug/L	1
Vinyl acetate	108-05-4	8260D	ND		5.0	1.2	ug/L	1
Vinyl chloride	75-01-4	8260D	ND		0.50	0.40	ug/L	1
Xylenes (total)	1330-20-7	8260D	ND		1.0	0.40	ug/L	1
m+p - Xylenes	179601-23-1	8260D	ND		0.50	0.40	ug/L	1
o - Xylenes	95-47-6	8260D	ND		0.50	0.40	ug/L	1

Surrogate	Q	Run 1 % Recovery	Acceptance Limits
Bromofluorobenzene		96	70-130
1,2-Dichloroethane-d4		108	70-130
Toluene-d8		105	70-130

LOQ = Limit of Quantitation
ND = Not detected at or above the DL
H = Out of holding time
B = Detected in the method blank
N = Recovery is out of criteria
W = Reported on wet weight basis
E = Quantitation of compound exceeded the calibration range
P = The RPD between two GC columns exceeds 40%
DL = Detection Limit
J = Estimated result < LOQ and ≥ DL
Q = Surrogate failure
L = LCS/LCSD failure
S = MS/MSD failure

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Semivolatile Organic Compounds by GC/MS (SIM)

Client: **AECOM** Laboratory ID: **WD15023-022**

Description: **MRC-SW1A-20210413** Matrix: **Aqueous**

Date Sampled: **04/13/2021 1550** Project Name: **MRC SWS 2021**

Date Received: **04/15/2021** Project Number: **60638276.007.1**

Run	Prep Method	Analytical Method	Dilution	Analysis Date	Analyst	Prep Date	Batch
1	3520C	8270E (SIM)	1	04/23/2021 2147	JCG	04/19/2021 1600	89524
2	3520C	8270E (SIM)	1	05/14/2021 1441	JCG	05/12/2021 1321	92007

Parameter	CAS Number	Analytical Method	Result	Q	LOQ	DL	Units	Run
1,4-Dioxane	**123-91-1**	**8270E (SIM)**	**0.15**	**BJ**	**0.20**	**0.068**	**ug/L**	**1**

Surrogate	Q	Run 1 % Recovery	Acceptance Limits	Q	Run 2 % Recovery	Acceptance Limits
1,4-Dioxane-d8		53	40-90	H	49	40-90

LOQ = Limit of Quantitation
ND = Not detected at or above the DL
H = Out of holding time
B = Detected in the method blank
N = Recovery is out of criteria
W = Reported on wet weight basis
E = Quantitation of compound exceeded the calibration range
P = The RPD between two GC columns exceeds 40%
DL = Detection Limit
J = Estimated result < LOQ and ≥ DL
Q = Surrogate failure
L = LCS/LCSD failure
S = MS/MSD failure

Semivolatile Organic Compounds by GC/MS (SIM)

Client: **AECOM** Laboratory ID: **WD15023-022**

Description: **MRC-SW1A-20210413** Matrix: **Aqueous**

Date Sampled: **04/13/2021 1550** Project Name: **MRC SWS 2021**

Date Received: **04/15/2021** Project Number: **60638276.007.1**

Run	Prep Method	Analytical Method	Dilution	Analysis Date	Analyst	Prep Date	Batch
1	3520C	8270E (SIM)	1	04/23/2021 2147	JCG	04/19/2021 1600	89524
2	3520C	8270E (SIM)	1	05/14/2021 1441	JCG	05/12/2021 1321	92007

Parameter	CAS Number	Analytical Method	Result	Q	LOQ	DL	Units	Run
1,4-Dioxane	123-91-1	8270E (SIM)	ND	H	0.20	0.068	ug/L	2

Surrogate	Q	Run 1 % Recovery	Acceptance Limits	Q	Run 2 % Recovery	Acceptance Limits
1,4-Dioxane-d8		53	40-90	H	49	40-90

LOQ = Limit of Quantitation
ND = Not detected at or above the DL
H = Out of holding time
B = Detected in the method blank
N = Recovery is out of criteria
W = Reported on wet weight basis
E = Quantitation of compound exceeded the calibration range
P = The RPD between two GC columns exceeds 40%
DL = Detection Limit
J = Estimated result < LOQ and ≥ DL
Q = Surrogate failure
L = LCS/LCSD failure
S = MS/MSD failure

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Volatile Organic Compounds by GC/MS

Client: **AECOM** Laboratory ID: **WD15023-023**

Description: **MRC-SW2A-20210413** Matrix: **Aqueous**

Date Sampled: **04/13/2021 1535** Project Name: **MRC SWS 2021**

Date Received: **04/15/2021** Project Number: **60638276.007.1**

Run	Prep Method	Analytical Method	Dilution	Analysis Date	Analyst	Prep Date	Batch
1	5030B	8260D	1	04/21/2021 1538	BWS		89759

Parameter	CAS Number	Analytical Method	Result	Q	LOQ	DL	Units	Run
Acetone	67-64-1	8260D	ND		10	4.0	ug/L	1
tert-Amyl methyl ether (TAME)	994-05-8	8260D	ND		10	0.42	ug/L	1
Benzene	71-43-2	8260D	ND		0.50	0.40	ug/L	1
Bromobenzene	108-86-1	8260D	ND		0.50	0.40	ug/L	1
Bromochloromethane	74-97-5	8260D	ND		0.50	0.40	ug/L	1
Bromodichloromethane	75-27-4	8260D	ND		0.50	0.40	ug/L	1
Bromoform	75-25-2	8260D	ND		0.50	0.40	ug/L	1
Bromomethane (Methyl bromide)	74-83-9	8260D	ND		0.50	0.40	ug/L	1
2-Butanone (MEK)	78-93-3	8260D	ND		10	2.0	ug/L	1
n-Butylbenzene	104-51-8	8260D	ND		0.50	0.40	ug/L	1
sec-Butylbenzene	135-98-8	8260D	ND		0.50	0.40	ug/L	1
tert-Butylbenzene	98-06-6	8260D	ND		0.50	0.40	ug/L	1
Carbon disulfide	75-15-0	8260D	ND		0.50	0.40	ug/L	1
Carbon tetrachloride	56-23-5	8260D	ND		0.50	0.40	ug/L	1
Chlorobenzene	108-90-7	8260D	ND		0.50	0.40	ug/L	1
Chloroethane	75-00-3	8260D	ND		0.50	0.40	ug/L	1
Chloroform	67-66-3	8260D	ND		0.50	0.40	ug/L	1
Chloromethane (Methyl chloride)	74-87-3	8260D	ND		0.50	0.40	ug/L	1
2-Chlorotoluene	95-49-8	8260D	ND		0.50	0.40	ug/L	1
4-Chlorotoluene	106-43-4	8260D	ND		0.50	0.40	ug/L	1
Cyclohexane	110-82-7	8260D	ND		0.50	0.40	ug/L	1
1,2-Dibromo-3-chloropropane (DBCP)	96-12-8	8260D	ND		0.50	0.40	ug/L	1
Dibromochloromethane	124-48-1	8260D	ND		0.50	0.40	ug/L	1
1,2-Dibromoethane (EDB)	106-93-4	8260D	ND		0.50	0.40	ug/L	1
Dibromomethane (Methylene bromide)	74-95-3	8260D	ND		0.50	0.40	ug/L	1
1,2-Dichlorobenzene	95-50-1	8260D	ND		0.50	0.40	ug/L	1
1,3-Dichlorobenzene	541-73-1	8260D	ND		0.50	0.40	ug/L	1
1,4-Dichlorobenzene	106-46-7	8260D	ND		0.50	0.40	ug/L	1
Dichlorodifluoromethane	75-71-8	8260D	ND		0.50	0.40	ug/L	1
1,1-Dichloroethane	75-34-3	8260D	ND		0.50	0.40	ug/L	1
1,2-Dichloroethane	107-06-2	8260D	ND		0.50	0.40	ug/L	1
1,2-Dichloroethene (total)		8260D	ND		0.50	0.40	ug/L	1
1,1-Dichloroethene	75-35-4	8260D	ND		0.50	0.40	ug/L	1
cis-1,2-Dichloroethene	156-59-2	8260D	ND		0.50	0.40	ug/L	1
trans-1,2-Dichloroethene	156-60-5	8260D	ND		0.50	0.40	ug/L	1
1,2-Dichloropropane	78-87-5	8260D	ND		0.50	0.40	ug/L	1
1,3-Dichloropropane	142-28-9	8260D	ND		0.50	0.40	ug/L	1
2,2-Dichloropropane	594-20-7	8260D	ND		0.50	0.40	ug/L	1
cis-1,3-Dichloropropene	10061-01-5	8260D	ND		0.50	0.40	ug/L	1
trans-1,3-Dichloropropene	10061-02-6	8260D	ND		0.50	0.40	ug/L	1
Diisopropyl ether (IPE)	108-20-3	8260D	ND		0.50	0.40	ug/L	1
Ethylbenzene	100-41-4	8260D	ND		0.50	0.40	ug/L	1
Ethyl-tert-butyl ether (ETBE)	637-92-3	8260D	ND		1.0	0.40	ug/L	1
Hexachlorobutadiene	87-68-3	8260D	ND		0.50	0.40	ug/L	1

LOQ = Limit of Quantitation
B = Detected in the method blank
E = Quantitation of compound exceeded the calibration range
DL = Detection Limit
Q = Surrogate failure
ND = Not detected at or above the DL
N = Recovery is out of criteria
P = The RPD between two GC columns exceeds 40%
J = Estimated result < LOQ and ≥ DL
L = LCS/LCSD failure
H = Out of holding time
W = Reported on wet weight basis
S = MS/MSD failure

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Volatile Organic Compounds by GC/MS

Client: **AECOM** Laboratory ID: **WD15023-023**

Description: **MRC-SW2A-20210413** Matrix: **Aqueous**

Date Sampled: **04/13/2021 1535** Project Name: **MRC SWS 2021**

Date Received: **04/15/2021** Project Number: **60638276.007.1**

Run	Prep Method	Analytical Method	Dilution	Analysis Date	Analyst	Prep Date	Batch
1	5030B	8260D	1	04/21/2021 1538	BWS		89759

Parameter	CAS Number	Analytical Method	Result	Q	LOQ	DL	Units	Run
2-Hexanone	591-78-6	8260D	ND		10	2.0	ug/L	1
Isopropylbenzene	98-82-8	8260D	ND		0.50	0.40	ug/L	1
p-Isopropyltoluene	99-87-6	8260D	ND		0.50	0.40	ug/L	1
Methyl acetate	79-20-9	8260D	ND		1.0	0.40	ug/L	1
Methyl tertiary butyl ether (MTBE)	1634-04-4	8260D	ND		0.50	0.40	ug/L	1
4-Methyl-2-pentanone	108-10-1	8260D	ND		10	2.0	ug/L	1
Methylcyclohexane	108-87-2	8260D	ND		5.0	0.40	ug/L	1
Methylene chloride	75-09-2	8260D	ND		0.50	0.40	ug/L	1
Naphthalene	91-20-3	8260D	ND		0.50	0.40	ug/L	1
n-Propylbenzene	103-65-1	8260D	ND		0.50	0.40	ug/L	1
Styrene	100-42-5	8260D	ND		0.50	0.41	ug/L	1
tert-butyl alcohol (TBA)	75-65-0	8260D	ND		20	8.0	ug/L	1
1,1,1,2-Tetrachloroethane	630-20-6	8260D	ND		0.50	0.40	ug/L	1
1,1,2,2-Tetrachloroethane	79-34-5	8260D	ND		0.50	0.40	ug/L	1
Tetrachloroethene	127-18-4	8260D	ND		0.50	0.40	ug/L	1
Toluene	108-88-3	8260D	ND		0.50	0.40	ug/L	1
1,1,2-Trichloro-1,2,2-Trifluoroethane	76-13-1	8260D	ND		1.0	0.42	ug/L	1
1,2,3-Trichlorobenzene	87-61-6	8260D	ND		0.50	0.40	ug/L	1
1,2,4-Trichlorobenzene	120-82-1	8260D	ND		0.50	0.40	ug/L	1
1,1,1-Trichloroethane	71-55-6	8260D	ND		0.50	0.40	ug/L	1
1,1,2-Trichloroethane	79-00-5	8260D	ND		0.50	0.40	ug/L	1
Trichloroethene	79-01-6	8260D	ND		0.50	0.40	ug/L	1
Trichlorofluoromethane	75-69-4	8260D	ND		0.50	0.40	ug/L	1
1,2,3-Trichloropropane	96-18-4	8260D	ND		0.50	0.40	ug/L	1
1,2,4-Trimethylbenzene	95-63-6	8260D	ND		0.50	0.40	ug/L	1
Vinyl acetate	108-05-4	8260D	ND		5.0	1.2	ug/L	1
Vinyl chloride	75-01-4	8260D	ND		0.50	0.40	ug/L	1
Xylenes (total)	1330-20-7	8260D	ND		1.0	0.40	ug/L	1
m+p - Xylenes	179601-23-1	8260D	ND		0.50	0.40	ug/L	1
o - Xylenes	95-47-6	8260D	ND		0.50	0.40	ug/L	1

Surrogate	Q	Run 1 % Recovery	Acceptance Limits
Bromofluorobenzene		93	70-130
1,2-Dichloroethane-d4		106	70-130
Toluene-d8		104	70-130

LOQ = Limit of Quantitation
ND = Not detected at or above the DL
H = Out of holding time
B = Detected in the method blank
N = Recovery is out of criteria
W = Reported on wet weight basis
E = Quantitation of compound exceeded the calibration range
P = The RPD between two GC columns exceeds 40%
DL = Detection Limit
J = Estimated result < LOQ and ≥ DL
Q = Surrogate failure
L = LCS/LCSD failure
S = MS/MSD failure

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Semivolatile Organic Compounds by GC/MS (SIM)

Client: **AECOM** Laboratory ID: **WD15023-023**

Description: **MRC-SW2A-20210413** Matrix: **Aqueous**

Date Sampled: **04/13/2021 1535** Project Name: **MRC SWS 2021**

Date Received: **04/15/2021** Project Number: **60638276.007.1**

Run	Prep Method	Analytical Method	Dilution	Analysis Date	Analyst	Prep Date	Batch
1	3520C	8270E (SIM)	1	04/23/2021 2208	JCG	04/19/2021 1600	89524
2	3520C	8270E (SIM)	1	05/14/2021 1502	JCG	05/12/2021 1321	92007

Parameter	CAS Number	Analytical Method	Result	Q	LOQ	DL	Units	Run
1,4-Dioxane	**123-91-1**	**8270E (SIM)**	**0.15**	**BJ**	**0.20**	**0.068**	**ug/L**	**1**

Surrogate	Q	Run 1 % Recovery	Acceptance Limits	Q	Run 2 % Recovery	Acceptance Limits
1,4-Dioxane-d8		51	40-90	H	46	40-90

LOQ = Limit of Quantitation
ND = Not detected at or above the DL
H = Out of holding time
B = Detected in the method blank
N = Recovery is out of criteria
W = Reported on wet weight basis
E = Quantitation of compound exceeded the calibration range
P = The RPD between two GC columns exceeds 40%
DL = Detection Limit
J = Estimated result < LOQ and ≥ DL
Q = Surrogate failure
L = LCS/LCSD failure
S = MS/MSD failure

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Semivolatile Organic Compounds by GC/MS (SIM)

Client: **AECOM** Laboratory ID: **WD15023-023**

Description: **MRC-SW2A-20210413** Matrix: **Aqueous**

Date Sampled: **04/13/2021 1535** Project Name: **MRC SWS 2021**

Date Received: **04/15/2021** Project Number: **60638276.007.1**

Run	Prep Method	Analytical Method	Dilution	Analysis Date	Analyst	Prep Date	Batch
1	3520C	8270E (SIM)	1	04/23/2021 2208	JCG	04/19/2021 1600	89524
2	3520C	8270E (SIM)	1	05/14/2021 1502	JCG	05/12/2021 1321	92007

Parameter	CAS Number	Analytical Method	Result	Q	LOQ	DL	Units	Run
1,4-Dioxane	123-91-1	8270E (SIM)	ND	H	0.20	0.068	ug/L	2

Surrogate	Q	Run 1 % Recovery	Acceptance Limits	Q	Run 2 % Recovery	Acceptance Limits
1,4-Dioxane-d8		51	40-90	H	46	40-90

LOQ = Limit of Quantitation
ND = Not detected at or above the DL
H = Out of holding time
B = Detected in the method blank
N = Recovery is out of criteria
W = Reported on wet weight basis
E = Quantitation of compound exceeded the calibration range
P = The RPD between two GC columns exceeds 40%
DL = Detection Limit
J = Estimated result < LOQ and ≥ DL
Q = Surrogate failure
L = LCS/LCSD failure
S = MS/MSD failure

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Volatile Organic Compounds by GC/MS

Client: **AECOM** | Laboratory ID: **WD15023-024**

Description: **TB-20210413** | Matrix: **Aqueous**

Date Sampled: **04/13/2021 0700** | Project Name: **MRC SWS 2021**

Date Received: **04/15/2021** | Project Number: **60638276.007.1**

Run	Prep Method	Analytical Method	Dilution	Analysis Date	Analyst	Prep Date	Batch
1	5030B	8260D	1	04/21/2021 1307	BWS		89759

Parameter	CAS Number	Analytical Method	Result	Q	LOQ	DL	Units	Run
Acetone	67-64-1	8260D	ND		10	4.0	ug/L	1
tert-Amyl methyl ether (TAME)	994-05-8	8260D	ND		10	0.42	ug/L	1
Benzene	71-43-2	8260D	ND		0.50	0.40	ug/L	1
Bromobenzene	108-86-1	8260D	ND		0.50	0.40	ug/L	1
Bromochloromethane	74-97-5	8260D	ND		0.50	0.40	ug/L	1
Bromodichloromethane	75-27-4	8260D	ND		0.50	0.40	ug/L	1
Bromoform	75-25-2	8260D	ND		0.50	0.40	ug/L	1
Bromomethane (Methyl bromide)	74-83-9	8260D	ND		0.50	0.40	ug/L	1
2-Butanone (MEK)	78-93-3	8260D	ND		10	2.0	ug/L	1
n-Butylbenzene	104-51-8	8260D	ND		0.50	0.40	ug/L	1
sec-Butylbenzene	135-98-8	8260D	ND		0.50	0.40	ug/L	1
tert-Butylbenzene	98-06-6	8260D	ND		0.50	0.40	ug/L	1
Carbon disulfide	75-15-0	8260D	ND		0.50	0.40	ug/L	1
Carbon tetrachloride	56-23-5	8260D	ND		0.50	0.40	ug/L	1
Chlorobenzene	108-90-7	8260D	ND		0.50	0.40	ug/L	1
Chloroethane	75-00-3	8260D	ND		0.50	0.40	ug/L	1
Chloroform	67-66-3	8260D	ND		0.50	0.40	ug/L	1
Chloromethane (Methyl chloride)	74-87-3	8260D	ND		0.50	0.40	ug/L	1
2-Chlorotoluene	95-49-8	8260D	ND		0.50	0.40	ug/L	1
4-Chlorotoluene	106-43-4	8260D	ND		0.50	0.40	ug/L	1
Cyclohexane	110-82-7	8260D	ND		0.50	0.40	ug/L	1
1,2-Dibromo-3-chloropropane (DBCP)	96-12-8	8260D	ND		0.50	0.40	ug/L	1
Dibromochloromethane	124-48-1	8260D	ND		0.50	0.40	ug/L	1
1,2-Dibromoethane (EDB)	106-93-4	8260D	ND		0.50	0.40	ug/L	1
Dibromomethane (Methylene bromide)	74-95-3	8260D	ND		0.50	0.40	ug/L	1
1,2-Dichlorobenzene	95-50-1	8260D	ND		0.50	0.40	ug/L	1
1,3-Dichlorobenzene	541-73-1	8260D	ND		0.50	0.40	ug/L	1
1,4-Dichlorobenzene	106-46-7	8260D	ND		0.50	0.40	ug/L	1
Dichlorodifluoromethane	75-71-8	8260D	ND		0.50	0.40	ug/L	1
1,1-Dichloroethane	75-34-3	8260D	ND		0.50	0.40	ug/L	1
1,2-Dichloroethane	107-06-2	8260D	ND		0.50	0.40	ug/L	1
1,2-Dichloroethene (total)		8260D	ND		0.50	0.40	ug/L	1
1,1-Dichloroethene	75-35-4	8260D	ND		0.50	0.40	ug/L	1
cis-1,2-Dichloroethene	156-59-2	8260D	ND		0.50	0.40	ug/L	1
trans-1,2-Dichloroethene	156-60-5	8260D	ND		0.50	0.40	ug/L	1
1,2-Dichloropropane	78-87-5	8260D	ND		0.50	0.40	ug/L	1
1,3-Dichloropropane	142-28-9	8260D	ND		0.50	0.40	ug/L	1
2,2-Dichloropropane	594-20-7	8260D	ND		0.50	0.40	ug/L	1
cis-1,3-Dichloropropene	10061-01-5	8260D	ND		0.50	0.40	ug/L	1
trans-1,3-Dichloropropene	10061-02-6	8260D	ND		0.50	0.40	ug/L	1
Diisopropyl ether (IPE)	108-20-3	8260D	ND		0.50	0.40	ug/L	1
Ethylbenzene	100-41-4	8260D	ND		0.50	0.40	ug/L	1
Ethyl-tert-butyl ether (ETBE)	637-92-3	8260D	ND		1.0	0.40	ug/L	1
Hexachlorobutadiene	87-68-3	8260D	ND		0.50	0.40	ug/L	1

LOQ = Limit of Quantitation | B = Detected in the method blank | E = Quantitation of compound exceeded the calibration range | DL = Detection Limit | Q = Surrogate failure

ND = Not detected at or above the DL | N = Recovery is out of criteria | P = The RPD between two GC columns exceeds 40% | J = Estimated result < LOQ and ≥ DL | L = LCS/LCSD failure

H = Out of holding time | W = Reported on wet weight basis | S = MS/MSD failure

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Volatile Organic Compounds by GC/MS

Client: **AECOM** Laboratory ID: **WD15023-024**

Description: **TB-20210413** Matrix: **Aqueous**

Date Sampled: **04/13/2021 0700** Project Name: **MRC SWS 2021**

Date Received: **04/15/2021** Project Number: **60638276.007.1**

Run	Prep Method	Analytical Method	Dilution	Analysis Date	Analyst	Prep Date	Batch
1	5030B	8260D	1	04/21/2021 1307	BWS		89759

Parameter	CAS Number	Analytical Method	Result	Q	LOQ	DL	Units	Run
2-Hexanone	591-78-6	8260D	ND		10	2.0	ug/L	1
Isopropylbenzene	98-82-8	8260D	ND		0.50	0.40	ug/L	1
p-Isopropyltoluene	99-87-6	8260D	ND		0.50	0.40	ug/L	1
Methyl acetate	79-20-9	8260D	ND		1.0	0.40	ug/L	1
Methyl tertiary butyl ether (MTBE)	1634-04-4	8260D	ND		0.50	0.40	ug/L	1
4-Methyl-2-pentanone	108-10-1	8260D	ND		10	2.0	ug/L	1
Methylcyclohexane	108-87-2	8260D	ND		5.0	0.40	ug/L	1
Methylene chloride	75-09-2	8260D	ND		0.50	0.40	ug/L	1
Naphthalene	91-20-3	8260D	ND		0.50	0.40	ug/L	1
n-Propylbenzene	103-65-1	8260D	ND		0.50	0.40	ug/L	1
Styrene	100-42-5	8260D	ND		0.50	0.41	ug/L	1
tert-butyl alcohol (TBA)	75-65-0	8260D	ND		20	8.0	ug/L	1
1,1,1,2-Tetrachloroethane	630-20-6	8260D	ND		0.50	0.40	ug/L	1
1,1,2,2-Tetrachloroethane	79-34-5	8260D	ND		0.50	0.40	ug/L	1
Tetrachloroethene	127-18-4	8260D	ND		0.50	0.40	ug/L	1
Toluene	108-88-3	8260D	ND		0.50	0.40	ug/L	1
1,1,2-Trichloro-1,2,2-Trifluoroethane	76-13-1	8260D	ND		1.0	0.42	ug/L	1
1,2,3-Trichlorobenzene	87-61-6	8260D	ND		0.50	0.40	ug/L	1
1,2,4-Trichlorobenzene	120-82-1	8260D	ND		0.50	0.40	ug/L	1
1,1,1-Trichloroethane	71-55-6	8260D	ND		0.50	0.40	ug/L	1
1,1,2-Trichloroethane	79-00-5	8260D	ND		0.50	0.40	ug/L	1
Trichloroethene	79-01-6	8260D	ND		0.50	0.40	ug/L	1
Trichlorofluoromethane	75-69-4	8260D	ND		0.50	0.40	ug/L	1
1,2,3-Trichloropropane	96-18-4	8260D	ND		0.50	0.40	ug/L	1
1,2,4-Trimethylbenzene	95-63-6	8260D	ND		0.50	0.40	ug/L	1
Vinyl acetate	108-05-4	8260D	ND		5.0	1.2	ug/L	1
Vinyl chloride	75-01-4	8260D	ND		0.50	0.40	ug/L	1
Xylenes (total)	1330-20-7	8260D	ND		1.0	0.40	ug/L	1
m+p - Xylenes	179601-23-1	8260D	ND		0.50	0.40	ug/L	1
o - Xylenes	95-47-6	8260D	ND		0.50	0.40	ug/L	1

Surrogate	Q	Run 1 % Recovery	Acceptance Limits
Bromofluorobenzene		95	70-130
1,2-Dichloroethane-d4		115	70-130
Toluene-d8		108	70-130

LOQ = Limit of Quantitation
ND = Not detected at or above the DL
H = Out of holding time
B = Detected in the method blank
N = Recovery is out of criteria
W = Reported on wet weight basis
E = Quantitation of compound exceeded the calibration range
P = The RPD between two GC columns exceeds 40%
DL = Detection Limit
J = Estimated result < LOQ and ≥ DL
Q = Surrogate failure
L = LCS/LCSD failure
S = MS/MSD failure

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QC Summary

Volatile Organic Compounds by GC/MS - MB

Sample ID: WQ89607-001
Batch: 89607
Analytical Method: 8260D
Matrix: Aqueous
Prep Method: 5030B

Parameter	Result	Q	Dil	LOQ	DL	Units	Analysis Date
Acetone	ND		1	10	4.0	ug/L	04/20/2021 1001
tert-Amyl methyl ether (TAME)	ND		1	10	0.42	ug/L	04/20/2021 1001
Benzene	ND		1	0.50	0.40	ug/L	04/20/2021 1001
Bromobenzene	ND		1	0.50	0.40	ug/L	04/20/2021 1001
Bromochloromethane	ND		1	0.50	0.40	ug/L	04/20/2021 1001
Bromodichloromethane	ND		1	0.50	0.40	ug/L	04/20/2021 1001
Bromoform	ND		1	0.50	0.40	ug/L	04/20/2021 1001
Bromomethane (Methyl bromide)	ND		1	0.50	0.40	ug/L	04/20/2021 1001
2-Butanone (MEK)	ND		1	10	2.0	ug/L	04/20/2021 1001
n-Butylbenzene	ND		1	0.50	0.40	ug/L	04/20/2021 1001
sec-Butylbenzene	ND		1	0.50	0.40	ug/L	04/20/2021 1001
tert-Butylbenzene	ND		1	0.50	0.40	ug/L	04/20/2021 1001
Carbon disulfide	ND		1	0.50	0.40	ug/L	04/20/2021 1001
Carbon tetrachloride	ND		1	0.50	0.40	ug/L	04/20/2021 1001
Chlorobenzene	ND		1	0.50	0.40	ug/L	04/20/2021 1001
Chloroethane	ND		1	0.50	0.40	ug/L	04/20/2021 1001
Chloroform	ND		1	0.50	0.40	ug/L	04/20/2021 1001
Chloromethane (Methyl chloride)	ND		1	0.50	0.40	ug/L	04/20/2021 1001
2-Chlorotoluene	ND		1	0.50	0.40	ug/L	04/20/2021 1001
4-Chlorotoluene	ND		1	0.50	0.40	ug/L	04/20/2021 1001
Cyclohexane	ND		1	0.50	0.40	ug/L	04/20/2021 1001
1,2-Dibromo-3-chloropropane (DBCP)	ND		1	0.50	0.40	ug/L	04/20/2021 1001
Dibromochloromethane	ND		1	0.50	0.40	ug/L	04/20/2021 1001
1,2-Dibromoethane (EDB)	ND		1	0.50	0.40	ug/L	04/20/2021 1001
Dibromomethane (Methylene bromide)	ND		1	0.50	0.40	ug/L	04/20/2021 1001
1,2-Dichlorobenzene	ND		1	0.50	0.40	ug/L	04/20/2021 1001
1,3-Dichlorobenzene	ND		1	0.50	0.40	ug/L	04/20/2021 1001
1,4-Dichlorobenzene	ND		1	0.50	0.40	ug/L	04/20/2021 1001
Dichlorodifluoromethane	ND		1	0.50	0.40	ug/L	04/20/2021 1001
1,1-Dichloroethane	ND		1	0.50	0.40	ug/L	04/20/2021 1001
1,2-Dichloroethane	ND		1	0.50	0.40	ug/L	04/20/2021 1001
1,2-Dichloroethene (total)	ND		1	0.50	0.40	ug/L	04/20/2021 1001
1,1-Dichloroethene	ND		1	0.50	0.40	ug/L	04/20/2021 1001
cis-1,2-Dichloroethene	ND		1	0.50	0.40	ug/L	04/20/2021 1001
trans-1,2-Dichloroethene	ND		1	0.50	0.40	ug/L	04/20/2021 1001
1,2-Dichloropropane	ND		1	0.50	0.40	ug/L	04/20/2021 1001
1,3-Dichloropropane	ND		1	0.50	0.40	ug/L	04/20/2021 1001
2,2-Dichloropropane	ND		1	0.50	0.40	ug/L	04/20/2021 1001
cis-1,3-Dichloropropene	ND		1	0.50	0.40	ug/L	04/20/2021 1001
trans-1,3-Dichloropropene	ND		1	0.50	0.40	ug/L	04/20/2021 1001
Diisopropyl ether (IPE)	ND		1	0.50	0.40	ug/L	04/20/2021 1001
Ethylbenzene	ND		1	0.50	0.40	ug/L	04/20/2021 1001
Ethyl-tert-butyl ether (ETBE)	ND		1	1.0	0.40	ug/L	04/20/2021 1001
Hexachlorobutadiene	ND		1	0.50	0.40	ug/L	04/20/2021 1001

LOQ = Limit of Quantitation
DL = Detection Limit
ND = Not detected at or above the DL
J = Estimated result < LOQ and ≥ DL
* = RSD is out of criteria
N = Recovery is out of criteria
P = The RPD between two GC columns exceeds 40%
+ = RPD is out of criteria

Note: Calculations are performed before rounding to avoid round-off errors in calculated results

Volatile Organic Compounds by GC/MS - MB

Sample ID: WQ89607-001
Batch: 89607
Analytical Method: 8260D
Matrix: Aqueous
Prep Method: 5030B

Parameter	Result	Q	Dil	LOQ	DL	Units	Analysis Date
2-Hexanone	ND		1	10	2.0	ug/L	04/20/2021 1001
Isopropylbenzene	ND		1	0.50	0.40	ug/L	04/20/2021 1001
p-Isopropyltoluene	ND		1	0.50	0.40	ug/L	04/20/2021 1001
Methyl acetate	ND		1	1.0	0.40	ug/L	04/20/2021 1001
Methyl tertiary butyl ether (MTBE)	ND		1	0.50	0.40	ug/L	04/20/2021 1001
4-Methyl-2-pentanone	ND		1	10	2.0	ug/L	04/20/2021 1001
Methylcyclohexane	ND		1	5.0	0.40	ug/L	04/20/2021 1001
Methylene chloride	ND		1	0.50	0.40	ug/L	04/20/2021 1001
Naphthalene	ND		1	0.50	0.40	ug/L	04/20/2021 1001
n-Propylbenzene	ND		1	0.50	0.40	ug/L	04/20/2021 1001
Styrene	ND		1	0.50	0.41	ug/L	04/20/2021 1001
tert-butyl alcohol (TBA)	ND		1	20	8.0	ug/L	04/20/2021 1001
1,1,1,2-Tetrachloroethane	ND		1	0.50	0.40	ug/L	04/20/2021 1001
1,1,2,2-Tetrachloroethane	ND		1	0.50	0.40	ug/L	04/20/2021 1001
Tetrachloroethene	ND		1	0.50	0.40	ug/L	04/20/2021 1001
Toluene	ND		1	0.50	0.40	ug/L	04/20/2021 1001
1,1,2-Trichloro-1,2,2-Trifluoroethane	ND		1	1.0	0.42	ug/L	04/20/2021 1001
1,2,3-Trichlorobenzene	ND		1	0.50	0.40	ug/L	04/20/2021 1001
1,2,4-Trichlorobenzene	ND		1	0.50	0.40	ug/L	04/20/2021 1001
1,1,1-Trichloroethane	ND		1	0.50	0.40	ug/L	04/20/2021 1001
1,1,2-Trichloroethane	ND		1	0.50	0.40	ug/L	04/20/2021 1001
Trichloroethene	ND		1	0.50	0.40	ug/L	04/20/2021 1001
Trichlorofluoromethane	ND		1	0.50	0.40	ug/L	04/20/2021 1001
1,2,3-Trichloropropane	ND		1	0.50	0.40	ug/L	04/20/2021 1001
1,2,4-Trimethylbenzene	ND		1	0.50	0.40	ug/L	04/20/2021 1001
Vinyl acetate	ND		1	5.0	1.2	ug/L	04/20/2021 1001
Vinyl chloride	ND		1	0.50	0.40	ug/L	04/20/2021 1001
Xylenes (total)	ND		1	1.0	0.40	ug/L	04/20/2021 1001
m+p - Xylenes	ND		1	0.50	0.40	ug/L	04/20/2021 1001
o - Xylenes	ND		1	0.50	0.40	ug/L	04/20/2021 1001

Surrogate	Q	% Rec	Acceptance Limit
Bromofluorobenzene		102	70-130
1,2-Dichloroethane-d4		103	70-130
Toluene-d8		105	70-130

LOQ = Limit of Quantitation
DL = Detection Limit
ND = Not detected at or above the DL
J = Estimated result < LOQ and ≥ DL
* = RSD is out of criteria
N = Recovery is out of criteria
P = The RPD between two GC columns exceeds 40%
+ = RPD is out of criteria

Note: Calculations are performed before rounding to avoid round-off errors in calculated results

Volatile Organic Compounds by GC/MS - LCS

Sample ID: WQ89607-002
Batch: 89607
Analytical Method: 8260D
Matrix: Aqueous
Prep Method: 5030B

Parameter	Spike Amount (ug/L)	Result (ug/L)	Q	Dil	% Rec	%Rec Limit	Analysis Date
Acetone	100	100		1	104	60-140	04/20/2021 0831
Benzene	50	44		1	89	70-130	04/20/2021 0831
Bromobenzene	50	50		1	100	70-130	04/20/2021 0831
Bromochloromethane	50	49		1	98	70-130	04/20/2021 0831
Bromodichloromethane	50	50		1	100	70-130	04/20/2021 0831
Bromoform	50	47		1	94	70-130	04/20/2021 0831
Bromomethane (Methyl bromide)	50	59		1	118	70-130	04/20/2021 0831
2-Butanone (MEK)	100	98		1	98	70-130	04/20/2021 0831
n-Butylbenzene	50	48		1	96	70-130	04/20/2021 0831
sec-Butylbenzene	50	47		1	94	70-130	04/20/2021 0831
tert-Butylbenzene	50	46		1	91	70-130	04/20/2021 0831
Carbon disulfide	50	44		1	87	70-130	04/20/2021 0831
Carbon tetrachloride	50	46		1	92	70-130	04/20/2021 0831
Chlorobenzene	50	48		1	97	70-130	04/20/2021 0831
Chloroethane	50	48		1	95	70-130	04/20/2021 0831
Chloroform	50	44		1	89	70-130	04/20/2021 0831
Chloromethane (Methyl chloride)	50	50		1	100	60-140	04/20/2021 0831
2-Chlorotoluene	50	48		1	96	70-130	04/20/2021 0831
4-Chlorotoluene	50	50		1	101	70-130	04/20/2021 0831
Cyclohexane	50	46		1	93	70-130	04/20/2021 0831
1,2-Dibromo-3-chloropropane (DBCP)	50	42		1	85	70-130	04/20/2021 0831
Dibromochloromethane	50	47		1	95	70-130	04/20/2021 0831
1,2-Dibromoethane (EDB)	50	53		1	107	70-130	04/20/2021 0831
Dibromomethane (Methylene bromide)	50	49		1	99	70-130	04/20/2021 0831
1,2-Dichlorobenzene	50	49		1	98	70-130	04/20/2021 0831
1,3-Dichlorobenzene	50	50		1	99	70-130	04/20/2021 0831
1,4-Dichlorobenzene	50	47		1	94	70-130	04/20/2021 0831
Dichlorodifluoromethane	50	46		1	92	60-140	04/20/2021 0831
1,1-Dichloroethane	50	44		1	88	70-130	04/20/2021 0831
1,2-Dichloroethane	50	45		1	89	70-130	04/20/2021 0831
1,2-Dichloroethene (total)	100	92		1	92	70-130	04/20/2021 0831
1,1-Dichloroethene	50	46		1	91	70-130	04/20/2021 0831
cis-1,2-Dichloroethene	50	45		1	91	70-130	04/20/2021 0831
trans-1,2-Dichloroethene	50	46		1	92	70-130	04/20/2021 0831
1,2-Dichloropropane	50	50		1	100	70-130	04/20/2021 0831
1,3-Dichloropropane	50	49		1	99	70-130	04/20/2021 0831
2,2-Dichloropropane	50	48		1	95	70-130	04/20/2021 0831
cis-1,3-Dichloropropene	50	54		1	108	70-130	04/20/2021 0831
trans-1,3-Dichloropropene	50	46		1	92	70-130	04/20/2021 0831
Diisopropyl ether (IPE)	50	48		1	96	70-130	04/20/2021 0831
Ethylbenzene	50	49		1	98	70-130	04/20/2021 0831
Hexachlorobutadiene	50	45		1	91	60-140	04/20/2021 0831
2-Hexanone	100	92		1	92	70-130	04/20/2021 0831
Isopropylbenzene	50	49		1	99	70-130	04/20/2021 0831

LOQ = Limit of Quantitation
DL = Detection Limit
ND = Not detected at or above the DL
J = Estimated result < LOQ and ≥ DL
* = RSD is out of criteria
N = Recovery is out of criteria
P = The RPD between two GC columns exceeds 40%
+ = RPD is out of criteria

Note: Calculations are performed before rounding to avoid round-off errors in calculated results

Volatile Organic Compounds by GC/MS - LCS

Sample ID: WQ89607-002
Batch: 89607
Analytical Method: 8260D
Matrix: Aqueous
Prep Method: 5030B

Parameter	Spike Amount (ug/L)	Result (ug/L)	Q	Dil	% Rec	%Rec Limit	Analysis Date
p-Isopropyltoluene	50	49		1	99	70-130	04/20/2021 0831
Methyl acetate	50	51		1	102	70-130	04/20/2021 0831
Methyl tertiary butyl ether (MTBE)	50	48		1	95	70-130	04/20/2021 0831
4-Methyl-2-pentanone	100	100		1	105	70-130	04/20/2021 0831
Methylcyclohexane	50	47		1	94	70-130	04/20/2021 0831
Methylene chloride	50	45		1	90	70-130	04/20/2021 0831
Naphthalene	50	45		1	89	70-130	04/20/2021 0831
n-Propylbenzene	50	49		1	97	70-130	04/20/2021 0831
Styrene	50	53		1	106	70-130	04/20/2021 0831
1,1,1,2-Tetrachloroethane	50	51		1	102	70-130	04/20/2021 0831
1,1,2,2-Tetrachloroethane	50	52		1	104	70-130	04/20/2021 0831
Tetrachloroethene	50	48		1	95	70-130	04/20/2021 0831
Toluene	50	48		1	97	70-130	04/20/2021 0831
1,1,2-Trichloro-1,2,2-Trifluoroethane	50	47		1	94	70-130	04/20/2021 0831
1,2,3-Trichlorobenzene	50	51		1	101	70-130	04/20/2021 0831
1,2,4-Trichlorobenzene	50	49		1	99	70-130	04/20/2021 0831
1,1,1-Trichloroethane	50	46		1	92	70-130	04/20/2021 0831
1,1,2-Trichloroethane	50	51		1	102	70-130	04/20/2021 0831
Trichloroethene	50	47		1	95	70-130	04/20/2021 0831
Trichlorofluoromethane	50	49		1	98	70-130	04/20/2021 0831
1,2,3-Trichloropropane	50	49		1	97	70-130	04/20/2021 0831
1,2,4-Trimethylbenzene	50	50		1	100	70-130	04/20/2021 0831
Vinyl acetate	50	44		1	89	60-140	04/20/2021 0831
Vinyl chloride	50	55		1	111	70-130	04/20/2021 0831
Xylenes (total)	100	99		1	99	70-130	04/20/2021 0831
m+p - Xylenes	50	50		1	100	70-130	04/20/2021 0831
o - Xylenes	50	49		1	98	70-130	04/20/2021 0831

Surrogate	Q	% Rec	Acceptance Limit
Bromofluorobenzene		92	70-130
1,2-Dichloroethane-d4		83	70-130
Toluene-d8		91	70-130

LOQ = Limit of Quantitation
DL = Detection Limit
ND = Not detected at or above the DL
J = Estimated result < LOQ and ≥ DL
* = RSD is out of criteria
N = Recovery is out of criteria
P = The RPD between two GC columns exceeds 40%
+ = RPD is out of criteria

Note: Calculations are performed before rounding to avoid round-off errors in calculated results

Volatile Organic Compounds by GC/MS - MS

Sample ID: WD15023-008MS
Batch: 89607
Analytical Method: 8260D
Matrix: Aqueous
Prep Method: 5030B

Parameter	Sample Amount (ug/L)	Spike Amount (ug/L)	Result (ug/L)	Q	Dil	% Rec	%Rec Limit	Analysis Date
Acetone	ND	100	83		1	83	60-140	04/20/2021 1919
tert-Amyl methyl ether (TAME)	ND	50	56		1	112	70-130	04/20/2021 1919
Benzene	ND	100	110		1	114	70-130	04/20/2021 1919
Bromobenzene	ND	50	54		1	108	70-130	04/20/2021 1919
Bromochloromethane	ND	50	53		1	105	70-130	04/20/2021 1919
Bromodichloromethane	ND	50	55		1	110	70-130	04/20/2021 1919
Bromoform	ND	100	100		1	100	70-130	04/20/2021 1919
Bromomethane (Methyl bromide)	ND	50	67	N	1	134	70-130	04/20/2021 1919
2-Butanone (MEK)	ND	100	96		1	96	70-130	04/20/2021 1919
n-Butylbenzene	ND	50	56		1	111	70-130	04/20/2021 1919
sec-Butylbenzene	ND	50	56		1	111	70-130	04/20/2021 1919
tert-Butylbenzene	ND	50	54		1	109	70-130	04/20/2021 1919
Carbon disulfide	ND	50	50		1	99	70-130	04/20/2021 1919
Carbon tetrachloride	ND	50	56		1	111	70-130	04/20/2021 1919
Chlorobenzene	ND	50	110	N	1	216	70-130	04/20/2021 1919
Chloroethane	ND	50	55		1	111	70-130	04/20/2021 1919
Chloroform	ND	50	52		1	105	70-130	04/20/2021 1919
Chloromethane (Methyl chloride)	ND	100	130		1	127	60-140	04/20/2021 1919
2-Chlorotoluene	ND	50	55		1	110	70-130	04/20/2021 1919
4-Chlorotoluene	ND	50	57		1	114	70-130	04/20/2021 1919
Cyclohexane	ND	50	53		1	106	70-130	04/20/2021 1919
1,2-Dibromo-3-chloropropane (DBCP)	ND	50	43		1	87	70-130	04/20/2021 1919
Dibromochloromethane	ND	50	50		1	99	70-130	04/20/2021 1919
1,2-Dibromoethane (EDB)	ND	100	120		1	117	70-130	04/20/2021 1919
Dibromomethane (Methylene bromide)	ND	50	54		1	107	70-130	04/20/2021 1919
1,2-Dichlorobenzene	ND	50	54		1	107	70-130	04/20/2021 1919
1,3-Dichlorobenzene	ND	50	55		1	109	70-130	04/20/2021 1919
1,4-Dichlorobenzene	ND	50	52		1	104	70-130	04/20/2021 1919
Dichlorodifluoromethane	ND	50	59		1	118	60-140	04/20/2021 1919
1,1-Dichloroethane	ND	100	97		1	97	70-130	04/20/2021 1919
1,2-Dichloroethane	ND	100	100		1	104	70-130	04/20/2021 1919
1,2-Dichloroethene (total)	ND	100	100		1	100	70-130	04/20/2021 1919
1,1-Dichloroethene	ND	50	50		1	99	70-130	04/20/2021 1919
cis-1,2-Dichloroethene	ND	50	49		1	99	70-130	04/20/2021 1919
trans-1,2-Dichloroethene	ND	50	51		1	102	70-130	04/20/2021 1919
1,2-Dichloropropane	ND	50	56		1	112	70-130	04/20/2021 1919
1,3-Dichloropropane	ND	50	52		1	104	70-130	04/20/2021 1919
2,2-Dichloropropane	ND	50	43		1	87	70-130	04/20/2021 1919
cis-1,3-Dichloropropene	ND	50	54		1	109	70-130	04/20/2021 1919
trans-1,3-Dichloropropene	ND	50	46		1	92	70-130	04/20/2021 1919
Diisopropyl ether (IPE)	ND	100	97		1	97	70-130	04/20/2021 1919
Ethylbenzene	ND	50	120	N	1	233	70-130	04/20/2021 1919
Ethyl-tert-butyl ether (ETBE)	ND	50	51		1	101	70-130	04/20/2021 1919
Hexachlorobutadiene	ND	50	50		1	100	60-140	04/20/2021 1919

LOQ = Limit of Quantitation
DL = Detection Limit
ND = Not detected at or above the DL
J = Estimated result < LOQ and ≥ DL
* = RSD is out of criteria
N = Recovery is out of criteria
P = The RPD between two GC columns exceeds 40%
+ = RPD is out of criteria

Note: Calculations are performed before rounding to avoid round-off errors in calculated results

Volatile Organic Compounds by GC/MS - MS

Sample ID: WD15023-008MS
Batch: 89607
Analytical Method: 8260D
Matrix: Aqueous
Prep Method: 5030B

Parameter	Sample Amount (ug/L)	Spike Amount (ug/L)	Result (ug/L)	Q	Dil	% Rec	%Rec Limit	Analysis Date
2-Hexanone	ND	100	93		1	93	70-130	04/20/2021 1919
Isopropylbenzene	ND	50	58		1	116	70-130	04/20/2021 1919
p-Isopropyltoluene	ND	50	57		1	113	70-130	04/20/2021 1919
Methyl acetate	ND	50	42		1	84	70-130	04/20/2021 1919
Methyl tertiary butyl ether (MTBE)	ND	100	98		1	98	70-130	04/20/2021 1919
4-Methyl-2-pentanone	ND	100	100		1	104	70-130	04/20/2021 1919
Methylcyclohexane	ND	50	57		1	113	70-130	04/20/2021 1919
Methylene chloride	ND	50	46		1	92	70-130	04/20/2021 1919
Naphthalene	ND	100	98		1	98	70-130	04/20/2021 1919
n-Propylbenzene	ND	50	57		1	114	70-130	04/20/2021 1919
Styrene	ND	50	62		1	124	70-130	04/20/2021 1919
tert-butyl alcohol (TBA)	ND	1000	980		1	98	70-130	04/20/2021 1919
1,1,1,2-Tetrachloroethane	ND	50	56		1	111	70-130	04/20/2021 1919
1,1,2,2-Tetrachloroethane	ND	100	110		1	114	70-130	04/20/2021 1919
Tetrachloroethene	ND	50	56		1	112	70-130	04/20/2021 1919
Toluene	ND	100	110		1	114	70-130	04/20/2021 1919
1,1,2-Trichloro-1,2,2-Trifluoroethane	ND	50	55		1	109	70-130	04/20/2021 1919
1,2,3-Trichlorobenzene	ND	50	52		1	105	70-130	04/20/2021 1919
1,2,4-Trichlorobenzene	ND	50	51		1	103	70-130	04/20/2021 1919
1,1,1-Trichloroethane	ND	50	56		1	111	70-130	04/20/2021 1919
1,1,2-Trichloroethane	ND	50	53		1	107	70-130	04/20/2021 1919
Trichloroethene	0.59	50	55		1	108	70-130	04/20/2021 1919
Trichlorofluoromethane	ND	50	56		1	112	70-130	04/20/2021 1919
1,2,3-Trichloropropane	ND	50	52		1	103	70-130	04/20/2021 1919
1,2,4-Trimethylbenzene	ND	50	57		1	115	70-130	04/20/2021 1919
Vinyl acetate	ND	50	37		1	74	60-140	04/20/2021 1919
Vinyl chloride	ND	50	72	N	1	145	70-130	04/20/2021 1919
Xylenes (total)	ND	200	240		1	118	70-130	04/20/2021 1919
m+p - Xylenes	ND	100	120		1	119	70-130	04/20/2021 1919
o - Xylenes	ND	50	120	N	1	232	70-130	04/20/2021 1919

Surrogate	Q	% Rec	Acceptance Limit
Bromofluorobenzene		103	70-130
1,2-Dichloroethane-d4		99	70-130
Toluene-d8		107	70-130

LOQ = Limit of Quantitation
DL = Detection Limit
ND = Not detected at or above the DL
J = Estimated result < LOQ and ≥ DL
* = RSD is out of criteria
N = Recovery is out of criteria
P = The RPD between two GC columns exceeds 40%
+ = RPD is out of criteria

Note: Calculations are performed before rounding to avoid round-off errors in calculated results

Volatile Organic Compounds by GC/MS - MSD

Sample ID: WD15023-008MD
Batch: 89607
Analytical Method: 8260D
Matrix: Aqueous
Prep Method: 5030B

Parameter	Sample Amount (ug/L)	Spike Amount (ug/L)	Result (ug/L)	Q	Dil	% Rec	% RPD	%Rec Limit	% RPD Limit	Analysis Date
Acetone	ND	100	89		1	89	7.8	60-140	20	04/20/2021 1944
tert-Amyl methyl ether (TAME)	ND	50	54		1	108	4.0	70-130	20	04/20/2021 1944
Benzene	ND	100	110		1	110	3.5	70-130	20	04/20/2021 1944
Bromobenzene	ND	50	55		1	110	1.5	70-130	20	04/20/2021 1944
Bromochloromethane	ND	50	51		1	103	2.1	70-130	20	04/20/2021 1944
Bromodichloromethane	ND	50	54		1	108	1.1	70-130	20	04/20/2021 1944
Bromoform	ND	100	100		1	100	0.59	70-130	20	04/20/2021 1944
Bromomethane (Methyl bromide)	ND	50	63		1	126	6.2	70-130	20	04/20/2021 1944
2-Butanone (MEK)	ND	100	110		1	109	12	70-130	20	04/20/2021 1944
n-Butylbenzene	ND	50	55		1	111	0.36	70-130	20	04/20/2021 1944
sec-Butylbenzene	ND	50	55		1	111	0.36	70-130	20	04/20/2021 1944
tert-Butylbenzene	ND	50	54		1	107	1.4	70-130	20	04/20/2021 1944
Carbon disulfide	ND	50	53		1	107	7.1	70-130	20	04/20/2021 1944
Carbon tetrachloride	ND	50	55		1	110	0.82	70-130	20	04/20/2021 1944
Chlorobenzene	ND	50	110	N	1	215	0.68	70-130	20	04/20/2021 1944
Chloroethane	ND	50	52		1	105	5.6	70-130	20	04/20/2021 1944
Chloroform	ND	50	51		1	102	2.2	70-130	20	04/20/2021 1944
Chloromethane (Methyl chloride)	ND	100	120		1	120	5.8	60-140	20	04/20/2021 1944
2-Chlorotoluene	ND	50	56		1	113	2.0	70-130	20	04/20/2021 1944
4-Chlorotoluene	ND	50	57		1	113	0.79	70-130	20	04/20/2021 1944
Cyclohexane	ND	50	51		1	103	3.3	70-130	20	04/20/2021 1944
1,2-Dibromo-3-chloropropane (DBCP)	ND	50	41		1	83	4.3	70-130	20	04/20/2021 1944
Dibromochloromethane	ND	50	50		1	100	0.79	70-130	20	04/20/2021 1944
1,2-Dibromoethane (EDB)	ND	100	110		1	113	3.9	70-130	20	04/20/2021 1944
Dibromomethane (Methylene bromide)	ND	50	52		1	104	2.8	70-130	20	04/20/2021 1944
1,2-Dichlorobenzene	ND	50	54		1	108	0.65	70-130	20	04/20/2021 1944
1,3-Dichlorobenzene	ND	50	55		1	109	0.0015	70-130	20	04/20/2021 1944
1,4-Dichlorobenzene	ND	50	53		1	105	0.58	70-130	20	04/20/2021 1944
Dichlorodifluoromethane	ND	50	58		1	116	2.0	60-140	20	04/20/2021 1944
1,1-Dichloroethane	ND	100	100		1	104	6.9	70-130	20	04/20/2021 1944
1,2-Dichloroethane	ND	100	100		1	101	2.5	70-130	20	04/20/2021 1944
1,2-Dichloroethene (total)	ND	100	110		1	108	7.2	70-130	20	04/20/2021 1944
1,1-Dichloroethene	ND	50	53		1	106	6.6	70-130	20	04/20/2021 1944
cis-1,2-Dichloroethene	ND	50	53		1	106	7.2	70-130	20	04/20/2021 1944
trans-1,2-Dichloroethene	ND	50	55		1	110	7.2	70-130	20	04/20/2021 1944
1,2-Dichloropropane	ND	50	55		1	109	2.1	70-130	20	04/20/2021 1944
1,3-Dichloropropane	ND	50	53		1	105	1.1	70-130	20	04/20/2021 1944
2,2-Dichloropropane	ND	50	44		1	88	1.3	70-130	20	04/20/2021 1944
cis-1,3-Dichloropropene	ND	50	54		1	108	0.17	70-130	20	04/20/2021 1944
trans-1,3-Dichloropropene	ND	50	47		1	93	0.95	70-130	20	04/20/2021 1944
Diisopropyl ether (IPE)	ND	100	100		1	105	7.7	70-130	20	04/20/2021 1944
Ethylbenzene	ND	50	120	N	1	234	0.50	70-130	20	04/20/2021 1944
Ethyl-tert-butyl ether (ETBE)	ND	50	55		1	109	7.4	70-130	20	04/20/2021 1944
Hexachlorobutadiene	ND	50	50		1	100	0.55	60-140	20	04/20/2021 1944

LOQ = Limit of Quantitation
DL = Detection Limit
ND = Not detected at or above the DL
J = Estimated result < LOQ and ≥ DL
* = RSD is out of criteria
N = Recovery is out of criteria
P = The RPD between two GC columns exceeds 40%
+ = RPD is out of criteria

Note: Calculations are performed before rounding to avoid round-off errors in calculated results

Volatile Organic Compounds by GC/MS - MSD

Sample ID: WD15023-008MD
Batch: 89607
Analytical Method: 8260D
Matrix: Aqueous
Prep Method: 5030B

Parameter	Sample Amount (ug/L)	Spike Amount (ug/L)	Result (ug/L)	Q	Dil	% Rec	% RPD	%Rec Limit	% RPD Limit	Analysis Date
2-Hexanone	ND	100	99		1	99	5.9	70-130	20	04/20/2021 1944
Isopropylbenzene	ND	50	57		1	114	1.7	70-130	20	04/20/2021 1944
p-Isopropyltoluene	ND	50	57		1	114	0.70	70-130	20	04/20/2021 1944
Methyl acetate	ND	50	46		1	92	9.1	70-130	20	04/20/2021 1944
Methyl tertiary butyl ether (MTBE)	ND	100	100		1	102	4.5	70-130	20	04/20/2021 1944
4-Methyl-2-pentanone	ND	100	110		1	107	2.9	70-130	20	04/20/2021 1944
Methylcyclohexane	ND	50	57		1	114	0.38	70-130	20	04/20/2021 1944
Methylene chloride	ND	50	49		1	97	5.4	70-130	20	04/20/2021 1944
Naphthalene	ND	100	99		1	99	0.76	70-130	20	04/20/2021 1944
n-Propylbenzene	ND	50	58		1	116	1.4	70-130	20	04/20/2021 1944
Styrene	ND	50	61		1	122	2.1	70-130	20	04/20/2021 1944
tert-butyl alcohol (TBA)	ND	1000	1100		1	110	12	70-130	20	04/20/2021 1944
1,1,1,2-Tetrachloroethane	ND	50	56		1	112	0.87	70-130	20	04/20/2021 1944
1,1,2,2-Tetrachloroethane	ND	100	120		1	116	1.9	70-130	20	04/20/2021 1944
Tetrachloroethene	ND	50	56		1	113	0.61	70-130	20	04/20/2021 1944
Toluene	ND	100	110		1	112	1.7	70-130	20	04/20/2021 1944
1,1,2-Trichloro-1,2,2-Trifluoroethane	ND	50	57		1	113	3.6	70-130	20	04/20/2021 1944
1,2,3-Trichlorobenzene	ND	50	53		1	105	0.73	70-130	20	04/20/2021 1944
1,2,4-Trichlorobenzene	ND	50	52		1	104	1.7	70-130	20	04/20/2021 1944
1,1,1-Trichloroethane	ND	50	55		1	110	0.57	70-130	20	04/20/2021 1944
1,1,2-Trichloroethane	ND	50	54		1	108	1.2	70-130	20	04/20/2021 1944
Trichloroethene	0.59	50	54		1	107	1.1	70-130	20	04/20/2021 1944
Trichlorofluoromethane	ND	50	55		1	109	2.2	70-130	20	04/20/2021 1944
1,2,3-Trichloropropane	ND	50	53		1	106	3.0	70-130	20	04/20/2021 1944
1,2,4-Trimethylbenzene	ND	50	57		1	115	0.042	70-130	20	04/20/2021 1944
Vinyl acetate	ND	50	41		1	83	12	60-140	20	04/20/2021 1944
Vinyl chloride	ND	50	68	N	1	136	6.2	70-130	20	04/20/2021 1944
Xylenes (total)	ND	200	230		1	115	2.0	70-130	20	04/20/2021 1944
m+p - Xylenes	ND	100	120		1	117	2.1	70-130	20	04/20/2021 1944
o - Xylenes	ND	50	110	N	1	228	1.8	70-130	20	04/20/2021 1944

Surrogate	Q	% Rec	Acceptance Limit
Bromofluorobenzene		101	70-130
1,2-Dichloroethane-d4		97	70-130
Toluene-d8		106	70-130

LOQ = Limit of Quantitation
DL = Detection Limit
ND = Not detected at or above the DL
J = Estimated result < LOQ and ≥ DL
* = RSD is out of criteria
N = Recovery is out of criteria
P = The RPD between two GC columns exceeds 40%
+ = RPD is out of criteria

Note: Calculations are performed before rounding to avoid round-off errors in calculated results

Volatile Organic Compounds by GC/MS - MB

Sample ID: WQ89759-001
Batch: 89759
Analytical Method: 8260D
Matrix: Aqueous
Prep Method: 5030B

Parameter	Result	Q	Dil	LOQ	DL	Units	Analysis Date
Acetone	ND		1	10	4.0	ug/L	04/21/2021 1102
tert-Amyl methyl ether (TAME)	ND		1	10	0.42	ug/L	04/21/2021 1102
Benzene	ND		1	0.50	0.40	ug/L	04/21/2021 1102
Bromobenzene	ND		1	0.50	0.40	ug/L	04/21/2021 1102
Bromochloromethane	ND		1	0.50	0.40	ug/L	04/21/2021 1102
Bromodichloromethane	ND		1	0.50	0.40	ug/L	04/21/2021 1102
Bromoform	ND		1	0.50	0.40	ug/L	04/21/2021 1102
Bromomethane (Methyl bromide)	ND		1	0.50	0.40	ug/L	04/21/2021 1102
2-Butanone (MEK)	ND		1	10	2.0	ug/L	04/21/2021 1102
n-Butylbenzene	ND		1	0.50	0.40	ug/L	04/21/2021 1102
sec-Butylbenzene	ND		1	0.50	0.40	ug/L	04/21/2021 1102
tert-Butylbenzene	ND		1	0.50	0.40	ug/L	04/21/2021 1102
Carbon disulfide	ND		1	0.50	0.40	ug/L	04/21/2021 1102
Carbon tetrachloride	ND		1	0.50	0.40	ug/L	04/21/2021 1102
Chlorobenzene	ND		1	0.50	0.40	ug/L	04/21/2021 1102
Chloroethane	ND		1	0.50	0.40	ug/L	04/21/2021 1102
Chloroform	ND		1	0.50	0.40	ug/L	04/21/2021 1102
Chloromethane (Methyl chloride)	ND		1	0.50	0.40	ug/L	04/21/2021 1102
2-Chlorotoluene	ND		1	0.50	0.40	ug/L	04/21/2021 1102
4-Chlorotoluene	ND		1	0.50	0.40	ug/L	04/21/2021 1102
Cyclohexane	ND		1	0.50	0.40	ug/L	04/21/2021 1102
1,2-Dibromo-3-chloropropane (DBCP)	ND		1	0.50	0.40	ug/L	04/21/2021 1102
Dibromochloromethane	ND		1	0.50	0.40	ug/L	04/21/2021 1102
1,2-Dibromoethane (EDB)	ND		1	0.50	0.40	ug/L	04/21/2021 1102
Dibromomethane (Methylene bromide)	ND		1	0.50	0.40	ug/L	04/21/2021 1102
1,2-Dichlorobenzene	ND		1	0.50	0.40	ug/L	04/21/2021 1102
1,3-Dichlorobenzene	ND		1	0.50	0.40	ug/L	04/21/2021 1102
1,4-Dichlorobenzene	ND		1	0.50	0.40	ug/L	04/21/2021 1102
Dichlorodifluoromethane	ND		1	0.50	0.40	ug/L	04/21/2021 1102
1,1-Dichloroethane	ND		1	0.50	0.40	ug/L	04/21/2021 1102
1,2-Dichloroethane	ND		1	0.50	0.40	ug/L	04/21/2021 1102
1,2-Dichloroethene (total)	ND		1	0.50	0.40	ug/L	04/21/2021 1102
1,1-Dichloroethene	ND		1	0.50	0.40	ug/L	04/21/2021 1102
cis-1,2-Dichloroethene	ND		1	0.50	0.40	ug/L	04/21/2021 1102
trans-1,2-Dichloroethene	ND		1	0.50	0.40	ug/L	04/21/2021 1102
1,2-Dichloropropane	ND		1	0.50	0.40	ug/L	04/21/2021 1102
1,3-Dichloropropane	ND		1	0.50	0.40	ug/L	04/21/2021 1102
2,2-Dichloropropane	ND		1	0.50	0.40	ug/L	04/21/2021 1102
cis-1,3-Dichloropropene	ND		1	0.50	0.40	ug/L	04/21/2021 1102
trans-1,3-Dichloropropene	ND		1	0.50	0.40	ug/L	04/21/2021 1102
Diisopropyl ether (IPE)	ND		1	0.50	0.40	ug/L	04/21/2021 1102
Ethylbenzene	ND		1	0.50	0.40	ug/L	04/21/2021 1102
Ethyl-tert-butyl ether (ETBE)	ND		1	1.0	0.40	ug/L	04/21/2021 1102
Hexachlorobutadiene	ND		1	0.50	0.40	ug/L	04/21/2021 1102

LOQ = Limit of Quantitation
DL = Detection Limit
ND = Not detected at or above the DL
J = Estimated result < LOQ and ≥ DL
* = RSD is out of criteria
N = Recovery is out of criteria
P = The RPD between two GC columns exceeds 40%
+ = RPD is out of criteria

Note: Calculations are performed before rounding to avoid round-off errors in calculated results

Volatile Organic Compounds by GC/MS - MB

Sample ID: WQ89759-001
Batch: 89759
Analytical Method: 8260D
Matrix: Aqueous
Prep Method: 5030B

Parameter	Result	Q	Dil	LOQ	DL	Units	Analysis Date
2-Hexanone	ND		1	10	2.0	ug/L	04/21/2021 1102
Isopropylbenzene	ND		1	0.50	0.40	ug/L	04/21/2021 1102
p-Isopropyltoluene	ND		1	0.50	0.40	ug/L	04/21/2021 1102
Methyl acetate	ND		1	1.0	0.40	ug/L	04/21/2021 1102
Methyl tertiary butyl ether (MTBE)	ND		1	0.50	0.40	ug/L	04/21/2021 1102
4-Methyl-2-pentanone	ND		1	10	2.0	ug/L	04/21/2021 1102
Methylcyclohexane	ND		1	5.0	0.40	ug/L	04/21/2021 1102
Methylene chloride	ND		1	0.50	0.40	ug/L	04/21/2021 1102
Naphthalene	ND		1	0.50	0.40	ug/L	04/21/2021 1102
n-Propylbenzene	ND		1	0.50	0.40	ug/L	04/21/2021 1102
Styrene	ND		1	0.50	0.41	ug/L	04/21/2021 1102
tert-butyl alcohol (TBA)	ND		1	20	8.0	ug/L	04/21/2021 1102
1,1,1,2-Tetrachloroethane	ND		1	0.50	0.40	ug/L	04/21/2021 1102
1,1,2,2-Tetrachloroethane	ND		1	0.50	0.40	ug/L	04/21/2021 1102
Tetrachloroethene	ND		1	0.50	0.40	ug/L	04/21/2021 1102
Toluene	ND		1	0.50	0.40	ug/L	04/21/2021 1102
1,1,2-Trichloro-1,2,2-Trifluoroethane	ND		1	1.0	0.42	ug/L	04/21/2021 1102
1,2,3-Trichlorobenzene	ND		1	0.50	0.40	ug/L	04/21/2021 1102
1,2,4-Trichlorobenzene	ND		1	0.50	0.40	ug/L	04/21/2021 1102
1,1,1-Trichloroethane	ND		1	0.50	0.40	ug/L	04/21/2021 1102
1,1,2-Trichloroethane	ND		1	0.50	0.40	ug/L	04/21/2021 1102
Trichloroethene	ND		1	0.50	0.40	ug/L	04/21/2021 1102
Trichlorofluoromethane	ND		1	0.50	0.40	ug/L	04/21/2021 1102
1,2,3-Trichloropropane	ND		1	0.50	0.40	ug/L	04/21/2021 1102
1,2,4-Trimethylbenzene	ND		1	0.50	0.40	ug/L	04/21/2021 1102
Vinyl acetate	ND		1	5.0	1.2	ug/L	04/21/2021 1102
Vinyl chloride	ND		1	0.50	0.40	ug/L	04/21/2021 1102
Xylenes (total)	ND		1	1.0	0.40	ug/L	04/21/2021 1102
m+p - Xylenes	ND		1	0.50	0.40	ug/L	04/21/2021 1102
o - Xylenes	ND		1	0.50	0.40	ug/L	04/21/2021 1102

Surrogate	Q	% Rec	Acceptance Limit
Bromofluorobenzene		97	70-130
1,2-Dichloroethane-d4		104	70-130
Toluene-d8		104	70-130

LOQ = Limit of Quantitation
DL = Detection Limit
ND = Not detected at or above the DL
J = Estimated result < LOQ and ≥ DL
* = RSD is out of criteria
N = Recovery is out of criteria
P = The RPD between two GC columns exceeds 40%
+ = RPD is out of criteria

Note: Calculations are performed before rounding to avoid round-off errors in calculated results

Volatile Organic Compounds by GC/MS - LCS

Sample ID: WQ89759-002
Batch: 89759
Analytical Method: 8260D
Matrix: Aqueous
Prep Method: 5030B

Parameter	Spike Amount (ug/L)	Result (ug/L)	Q	Dil	% Rec	%Rec Limit	Analysis Date
Acetone	100	93		1	93	60-140	04/21/2021 0858
Benzene	50	52		1	104	70-130	04/21/2021 0858
Bromobenzene	50	59		1	118	70-130	04/21/2021 0858
Bromochloromethane	50	51		1	101	70-130	04/21/2021 0858
Bromodichloromethane	50	52		1	103	70-130	04/21/2021 0858
Bromoform	50	45		1	91	70-130	04/21/2021 0858
Bromomethane (Methyl bromide)	50	60		1	120	70-130	04/21/2021 0858
2-Butanone (MEK)	100	110		1	110	70-130	04/21/2021 0858
n-Butylbenzene	50	53		1	107	70-130	04/21/2021 0858
sec-Butylbenzene	50	53		1	105	70-130	04/21/2021 0858
tert-Butylbenzene	50	53		1	107	70-130	04/21/2021 0858
Carbon disulfide	50	47		1	94	70-130	04/21/2021 0858
Carbon tetrachloride	50	51		1	101	70-130	04/21/2021 0858
Chlorobenzene	50	52		1	105	70-130	04/21/2021 0858
Chloroethane	50	49		1	99	70-130	04/21/2021 0858
Chloroform	50	50		1	99	70-130	04/21/2021 0858
Chloromethane (Methyl chloride)	50	56		1	111	60-140	04/21/2021 0858
2-Chlorotoluene	50	58		1	116	70-130	04/21/2021 0858
4-Chlorotoluene	50	61		1	122	70-130	04/21/2021 0858
Cyclohexane	50	46		1	93	70-130	04/21/2021 0858
1,2-Dibromo-3-chloropropane (DBCP)	50	44		1	87	70-130	04/21/2021 0858
Dibromochloromethane	50	48		1	96	70-130	04/21/2021 0858
1,2-Dibromoethane (EDB)	50	54		1	108	70-130	04/21/2021 0858
Dibromomethane (Methylene bromide)	50	52		1	103	70-130	04/21/2021 0858
1,2-Dichlorobenzene	50	52		1	103	70-130	04/21/2021 0858
1,3-Dichlorobenzene	50	54		1	108	70-130	04/21/2021 0858
1,4-Dichlorobenzene	50	52		1	104	70-130	04/21/2021 0858
Dichlorodifluoromethane	50	50		1	99	60-140	04/21/2021 0858
1,1-Dichloroethane	50	50		1	100	70-130	04/21/2021 0858
1,2-Dichloroethane	50	50		1	100	70-130	04/21/2021 0858
1,2-Dichloroethene (total)	100	100		1	100	70-130	04/21/2021 0858
1,1-Dichloroethene	50	49		1	99	70-130	04/21/2021 0858
cis-1,2-Dichloroethene	50	49		1	99	70-130	04/21/2021 0858
trans-1,2-Dichloroethene	50	50		1	101	70-130	04/21/2021 0858
1,2-Dichloropropane	50	53		1	106	70-130	04/21/2021 0858
1,3-Dichloropropane	50	52		1	105	70-130	04/21/2021 0858
2,2-Dichloropropane	50	50		1	99	70-130	04/21/2021 0858
cis-1,3-Dichloropropene	50	54		1	109	70-130	04/21/2021 0858
trans-1,3-Dichloropropene	50	47		1	94	70-130	04/21/2021 0858
Diisopropyl ether (IPE)	50	51		1	103	70-130	04/21/2021 0858
Ethylbenzene	50	53		1	107	70-130	04/21/2021 0858
Hexachlorobutadiene	50	45		1	90	60-140	04/21/2021 0858
2-Hexanone	100	95		1	95	70-130	04/21/2021 0858
Isopropylbenzene	50	54		1	108	70-130	04/21/2021 0858

LOQ = Limit of Quantitation
DL = Detection Limit
ND = Not detected at or above the DL
J = Estimated result < LOQ and ≥ DL
* = RSD is out of criteria
N = Recovery is out of criteria
P = The RPD between two GC columns exceeds 40%
+ = RPD is out of criteria

Note: Calculations are performed before rounding to avoid round-off errors in calculated results

Volatile Organic Compounds by GC/MS - LCS

Sample ID: WQ89759-002
Batch: 89759
Analytical Method: 8260D
Matrix: Aqueous
Prep Method: 5030B

Parameter	Spike Amount (ug/L)	Result (ug/L)	Q	Dil	% Rec	%Rec Limit	Analysis Date
p-Isopropyltoluene	50	55		1	109	70-130	04/21/2021 0858
Methyl acetate	50	54		1	108	70-130	04/21/2021 0858
Methyl tertiary butyl ether (MTBE)	50	48		1	96	70-130	04/21/2021 0858
4-Methyl-2-pentanone	100	110		1	106	70-130	04/21/2021 0858
Methylcyclohexane	50	50		1	99	70-130	04/21/2021 0858
Methylene chloride	50	47		1	95	70-130	04/21/2021 0858
Naphthalene	50	44		1	88	70-130	04/21/2021 0858
n-Propylbenzene	50	61		1	121	70-130	04/21/2021 0858
Styrene	50	56		1	113	70-130	04/21/2021 0858
1,1,1,2-Tetrachloroethane	50	54		1	109	70-130	04/21/2021 0858
1,1,2,2-Tetrachloroethane	50	62		1	123	70-130	04/21/2021 0858
Tetrachloroethene	50	52		1	104	70-130	04/21/2021 0858
Toluene	50	53		1	106	70-130	04/21/2021 0858
1,1,2-Trichloro-1,2,2-Trifluoroethane	50	50		1	101	70-130	04/21/2021 0858
1,2,3-Trichlorobenzene	50	49		1	98	70-130	04/21/2021 0858
1,2,4-Trichlorobenzene	50	47		1	95	70-130	04/21/2021 0858
1,1,1-Trichloroethane	50	50		1	100	70-130	04/21/2021 0858
1,1,2-Trichloroethane	50	53		1	107	70-130	04/21/2021 0858
Trichloroethene	50	50		1	100	70-130	04/21/2021 0858
Trichlorofluoromethane	50	48		1	95	70-130	04/21/2021 0858
1,2,3-Trichloropropane	50	59		1	118	70-130	04/21/2021 0858
1,2,4-Trimethylbenzene	50	56		1	112	70-130	04/21/2021 0858
Vinyl acetate	50	46		1	91	60-140	04/21/2021 0858
Vinyl chloride	50	60		1	121	70-130	04/21/2021 0858
Xylenes (total)	100	110		1	107	70-130	04/21/2021 0858
m+p - Xylenes	50	55		1	109	70-130	04/21/2021 0858
o - Xylenes	50	52		1	105	70-130	04/21/2021 0858

Surrogate	Q	% Rec	Acceptance Limit
Bromofluorobenzene		95	70-130
1,2-Dichloroethane-d4		91	70-130
Toluene-d8		96	70-130

LOQ = Limit of Quantitation
DL = Detection Limit
ND = Not detected at or above the DL
J = Estimated result < LOQ and ≥ DL
* = RSD is out of criteria
N = Recovery is out of criteria
P = The RPD between two GC columns exceeds 40%
+ = RPD is out of criteria

Note: Calculations are performed before rounding to avoid round-off errors in calculated results

Volatile Organic Compounds by GC/MS - MS

Sample ID: WD15023-018MS
Batch: 89759
Analytical Method: 8260D
Matrix: Aqueous
Prep Method: 5030B

Parameter	Sample Amount (ug/L)	Spike Amount (ug/L)	Result (ug/L)	Q	Dil	% Rec	%Rec Limit	Analysis Date
Acetone	ND	100	99		1	99	60-140	04/21/2021 1921
tert-Amyl methyl ether (TAME)	ND	50	54		1	107	70-130	04/21/2021 1921
Benzene	ND	100	110		1	114	70-130	04/21/2021 1921
Bromobenzene	ND	50	55		1	109	70-130	04/21/2021 1921
Bromochloromethane	ND	50	53		1	105	70-130	04/21/2021 1921
Bromodichloromethane	ND	50	55		1	110	70-130	04/21/2021 1921
Bromoform	ND	100	98		1	98	70-130	04/21/2021 1921
Bromomethane (Methyl bromide)	ND	50	70	N	1	140	70-130	04/21/2021 1921
2-Butanone (MEK)	ND	100	110		1	110	70-130	04/21/2021 1921
n-Butylbenzene	ND	50	56		1	112	70-130	04/21/2021 1921
sec-Butylbenzene	ND	50	55		1	110	70-130	04/21/2021 1921
tert-Butylbenzene	ND	50	54		1	107	70-130	04/21/2021 1921
Carbon disulfide	ND	50	55		1	109	70-130	04/21/2021 1921
Carbon tetrachloride	ND	50	56		1	112	70-130	04/21/2021 1921
Chlorobenzene	ND	100	110		1	108	70-130	04/21/2021 1921
Chloroethane	ND	50	61		1	121	70-130	04/21/2021 1921
Chloroform	ND	50	54		1	108	70-130	04/21/2021 1921
Chloromethane (Methyl chloride)	ND	100	140	N	1	141	60-140	04/21/2021 1921
2-Chlorotoluene	ND	50	57		1	113	70-130	04/21/2021 1921
4-Chlorotoluene	ND	50	57		1	114	70-130	04/21/2021 1921
Cyclohexane	ND	50	56		1	112	70-130	04/21/2021 1921
1,2-Dibromo-3-chloropropane (DBCP)	ND	50	44		1	89	70-130	04/21/2021 1921
Dibromochloromethane	ND	50	49		1	99	70-130	04/21/2021 1921
1,2-Dibromoethane (EDB)	ND	100	120		1	117	70-130	04/21/2021 1921
Dibromomethane (Methylene bromide)	ND	50	54		1	108	70-130	04/21/2021 1921
1,2-Dichlorobenzene	ND	50	54		1	108	70-130	04/21/2021 1921
1,3-Dichlorobenzene	ND	50	55		1	110	70-130	04/21/2021 1921
1,4-Dichlorobenzene	ND	50	53		1	106	70-130	04/21/2021 1921
Dichlorodifluoromethane	ND	50	62		1	123	60-140	04/21/2021 1921
1,1-Dichloroethane	ND	50	110	N	1	222	70-130	04/21/2021 1921
1,2-Dichloroethane	ND	50	110	N	1	218	70-130	04/21/2021 1921
1,2-Dichloroethene (total)	ND	100	110		1	110	70-130	04/21/2021 1921
1,1-Dichloroethene	ND	50	55		1	110	70-130	04/21/2021 1921
cis-1,2-Dichloroethene	ND	50	54		1	107	70-130	04/21/2021 1921
trans-1,2-Dichloroethene	ND	50	57		1	113	70-130	04/21/2021 1921
1,2-Dichloropropane	ND	50	55		1	110	70-130	04/21/2021 1921
1,3-Dichloropropane	ND	50	53		1	107	70-130	04/21/2021 1921
2,2-Dichloropropane	ND	50	48		1	96	70-130	04/21/2021 1921
cis-1,3-Dichloropropene	ND	50	53		1	106	70-130	04/21/2021 1921
trans-1,3-Dichloropropene	ND	50	47		1	94	70-130	04/21/2021 1921
Diisopropyl ether (IPE)	ND	100	110		1	107	70-130	04/21/2021 1921
Ethylbenzene	ND	100	120		1	117	70-130	04/21/2021 1921
Ethyl-tert-butyl ether (ETBE)	ND	50	55		1	109	70-130	04/21/2021 1921
Hexachlorobutadiene	ND	50	50		1	99	60-140	04/21/2021 1921

LOQ = Limit of Quantitation
DL = Detection Limit
ND = Not detected at or above the DL
J = Estimated result < LOQ and ≥ DL
* = RSD is out of criteria
N = Recovery is out of criteria
P = The RPD between two GC columns exceeds 40%
+ = RPD is out of criteria

Note: Calculations are performed before rounding to avoid round-off errors in calculated results

Volatile Organic Compounds by GC/MS - MS

Sample ID: WD15023-018MS
Batch: 89759
Analytical Method: 8260D
Matrix: Aqueous
Prep Method: 5030B

Parameter	Sample Amount (ug/L)	Spike Amount (ug/L)	Result (ug/L)	Q	Dil	% Rec	%Rec Limit	Analysis Date
2-Hexanone	ND	100	96		1	96	70-130	04/21/2021 1921
Isopropylbenzene	ND	50	57		1	114	70-130	04/21/2021 1921
p-Isopropyltoluene	ND	50	57		1	114	70-130	04/21/2021 1921
Methyl acetate	ND	50	49		1	98	70-130	04/21/2021 1921
Methyl tertiary butyl ether (MTBE)	ND	100	110		1	108	70-130	04/21/2021 1921
4-Methyl-2-pentanone	ND	100	100		1	104	70-130	04/21/2021 1921
Methylcyclohexane	ND	50	55		1	110	70-130	04/21/2021 1921
Methylene chloride	ND	50	51		1	101	70-130	04/21/2021 1921
Naphthalene	ND	100	99		1	99	70-130	04/21/2021 1921
n-Propylbenzene	ND	50	58		1	117	70-130	04/21/2021 1921
Styrene	ND	50	61		1	122	70-130	04/21/2021 1921
tert-butyl alcohol (TBA)	ND	1000	1100		1	114	70-130	04/21/2021 1921
1,1,1,2-Tetrachloroethane	ND	50	56		1	113	70-130	04/21/2021 1921
1,1,2,2-Tetrachloroethane	ND	100	120		1	116	70-130	04/21/2021 1921
Tetrachloroethene	ND	50	56		1	112	70-130	04/21/2021 1921
Toluene	ND	100	110		1	113	70-130	04/21/2021 1921
1,1,2-Trichloro-1,2,2-Trifluoroethane	ND	50	59		1	119	70-130	04/21/2021 1921
1,2,3-Trichlorobenzene	ND	50	51		1	103	70-130	04/21/2021 1921
1,2,4-Trichlorobenzene	ND	50	51		1	102	70-130	04/21/2021 1921
1,1,1-Trichloroethane	ND	50	55		1	111	70-130	04/21/2021 1921
1,1,2-Trichloroethane	ND	50	54		1	109	70-130	04/21/2021 1921
Trichloroethene	ND	50	54		1	108	70-130	04/21/2021 1921
Trichlorofluoromethane	ND	50	61		1	121	70-130	04/21/2021 1921
1,2,3-Trichloropropane	ND	50	53		1	107	70-130	04/21/2021 1921
1,2,4-Trimethylbenzene	ND	50	58		1	115	70-130	04/21/2021 1921
Vinyl acetate	ND	50	40		1	80	60-140	04/21/2021 1921
Vinyl chloride	ND	50	77	N	1	154	70-130	04/21/2021 1921
Xylenes (total)	ND	200	230		1	117	70-130	04/21/2021 1921
m+p - Xylenes	ND	100	120		1	119	70-130	04/21/2021 1921
o - Xylenes	ND	100	120		1	116	70-130	04/21/2021 1921

Surrogate	Q	% Rec	Acceptance Limit
Bromofluorobenzene		103	70-130
1,2-Dichloroethane-d4		104	70-130
Toluene-d8		100	70-130

LOQ = Limit of Quantitation
DL = Detection Limit
ND = Not detected at or above the DL
J = Estimated result < LOQ and ≥ DL
* = RSD is out of criteria
N = Recovery is out of criteria
P = The RPD between two GC columns exceeds 40%
+ = RPD is out of criteria

Note: Calculations are performed before rounding to avoid round-off errors in calculated results

Volatile Organic Compounds by GC/MS - MSD

Sample ID: WD15023-018MD
Batch: 89759
Analytical Method: 8260D
Matrix: Aqueous
Prep Method: 5030B

Parameter	Sample Amount (ug/L)	Spike Amount (ug/L)	Result (ug/L)	Q	Dil	% Rec	% RPD	%Rec Limit	% RPD Limit	Analysis Date
Acetone	ND	100	94		1	94	5.3	60-140	20	04/21/2021 1946
tert-Amyl methyl ether (TAME)	ND	50	56		1	111	3.7	70-130	20	04/21/2021 1946
Benzene	ND	100	110		1	110	3.8	70-130	20	04/21/2021 1946
Bromobenzene	ND	50	53		1	105	3.5	70-130	20	04/21/2021 1946
Bromochloromethane	ND	50	52		1	103	1.8	70-130	20	04/21/2021 1946
Bromodichloromethane	ND	50	55		1	110	0.26	70-130	20	04/21/2021 1946
Bromoform	ND	100	97		1	97	1.6	70-130	20	04/21/2021 1946
Bromomethane (Methyl bromide)	ND	50	66	N	1	132	5.9	70-130	20	04/21/2021 1946
2-Butanone (MEK)	ND	100	110		1	105	3.9	70-130	20	04/21/2021 1946
n-Butylbenzene	ND	50	55		1	109	2.5	70-130	20	04/21/2021 1946
sec-Butylbenzene	ND	50	54		1	107	2.8	70-130	20	04/21/2021 1946
tert-Butylbenzene	ND	50	52		1	103	3.6	70-130	20	04/21/2021 1946
Carbon disulfide	ND	50	53		1	107	2.3	70-130	20	04/21/2021 1946
Carbon tetrachloride	ND	50	55		1	110	1.3	70-130	20	04/21/2021 1946
Chlorobenzene	ND	100	110		1	105	2.9	70-130	20	04/21/2021 1946
Chloroethane	ND	50	59		1	117	3.3	70-130	20	04/21/2021 1946
Chloroform	ND	50	52		1	104	3.8	70-130	20	04/21/2021 1946
Chloromethane (Methyl chloride)	ND	100	130		1	129	9.0	60-140	20	04/21/2021 1946
2-Chlorotoluene	ND	50	54		1	107	5.1	70-130	20	04/21/2021 1946
4-Chlorotoluene	ND	50	56		1	111	2.4	70-130	20	04/21/2021 1946
Cyclohexane	ND	50	53		1	105	6.4	70-130	20	04/21/2021 1946
1,2-Dibromo-3-chloropropane (DBCP)	ND	50	43		1	85	3.9	70-130	20	04/21/2021 1946
Dibromochloromethane	ND	50	49		1	98	0.64	70-130	20	04/21/2021 1946
1,2-Dibromoethane (EDB)	ND	100	120		1	116	0.62	70-130	20	04/21/2021 1946
Dibromomethane (Methylene bromide)	ND	50	54		1	108	0.22	70-130	20	04/21/2021 1946
1,2-Dichlorobenzene	ND	50	52		1	105	3.0	70-130	20	04/21/2021 1946
1,3-Dichlorobenzene	ND	50	53		1	106	3.4	70-130	20	04/21/2021 1946
1,4-Dichlorobenzene	ND	50	51		1	103	3.1	70-130	20	04/21/2021 1946
Dichlorodifluoromethane	ND	50	63		1	126	2.0	60-140	20	04/21/2021 1946
1,1-Dichloroethane	ND	50	100	N	1	208	6.6	70-130	20	04/21/2021 1946
1,2-Dichloroethane	ND	50	110	N	1	213	2.4	70-130	20	04/21/2021 1946
1,2-Dichloroethene (total)	ND	100	110		1	107	2.8	70-130	20	04/21/2021 1946
1,1-Dichloroethene	ND	50	54		1	108	1.5	70-130	20	04/21/2021 1946
cis-1,2-Dichloroethene	ND	50	52		1	105	2.7	70-130	20	04/21/2021 1946
trans-1,2-Dichloroethene	ND	50	55		1	110	3.0	70-130	20	04/21/2021 1946
1,2-Dichloropropane	ND	50	55		1	109	0.78	70-130	20	04/21/2021 1946
1,3-Dichloropropane	ND	50	52		1	104	3.0	70-130	20	04/21/2021 1946
2,2-Dichloropropane	ND	50	49		1	97	1.8	70-130	20	04/21/2021 1946
cis-1,3-Dichloropropene	ND	50	54		1	107	1.2	70-130	20	04/21/2021 1946
trans-1,3-Dichloropropene	ND	50	46		1	92	2.7	70-130	20	04/21/2021 1946
Diisopropyl ether (IPE)	ND	100	100		1	104	2.6	70-130	20	04/21/2021 1946
Ethylbenzene	ND	100	110		1	114	2.5	70-130	20	04/21/2021 1946
Ethyl-tert-butyl ether (ETBE)	ND	50	53		1	106	2.8	70-130	20	04/21/2021 1946
Hexachlorobutadiene	ND	50	47		1	95	4.8	60-140	20	04/21/2021 1946

LOQ = Limit of Quantitation
DL = Detection Limit
ND = Not detected at or above the DL
J = Estimated result < LOQ and ≥ DL
* = RSD is out of criteria
N = Recovery is out of criteria
P = The RPD between two GC columns exceeds 40%
+ = RPD is out of criteria

Note: Calculations are performed before rounding to avoid round-off errors in calculated results

Volatile Organic Compounds by GC/MS - MSD

Sample ID: WD15023-018MD
Batch: 89759
Analytical Method: 8260D
Matrix: Aqueous
Prep Method: 5030B

Parameter	Sample Amount (ug/L)	Spike Amount (ug/L)	Result (ug/L)	Q	Dil	% Rec	% RPD	%Rec Limit	% RPD Limit	Analysis Date
2-Hexanone	ND	100	94		1	94	2.0	70-130	20	04/21/2021 1946
Isopropylbenzene	ND	50	56		1	111	2.6	70-130	20	04/21/2021 1946
p-Isopropyltoluene	ND	50	55		1	110	3.8	70-130	20	04/21/2021 1946
Methyl acetate	ND	50	45		1	89	9.5	70-130	20	04/21/2021 1946
Methyl tertiary butyl ether (MTBE)	ND	100	110		1	107	0.81	70-130	20	04/21/2021 1946
4-Methyl-2-pentanone	ND	100	100		1	105	1.3	70-130	20	04/21/2021 1946
Methylcyclohexane	ND	50	54		1	109	0.93	70-130	20	04/21/2021 1946
Methylene chloride	ND	50	49		1	97	3.9	70-130	20	04/21/2021 1946
Naphthalene	ND	100	97		1	97	2.2	70-130	20	04/21/2021 1946
n-Propylbenzene	ND	50	56		1	111	4.8	70-130	20	04/21/2021 1946
Styrene	ND	50	58		1	117	3.9	70-130	20	04/21/2021 1946
tert-butyl alcohol (TBA)	ND	1000	1100		1	111	3.4	70-130	20	04/21/2021 1946
1,1,1,2-Tetrachloroethane	ND	50	55		1	109	2.8	70-130	20	04/21/2021 1946
1,1,2,2-Tetrachloroethane	ND	100	110		1	113	2.7	70-130	20	04/21/2021 1946
Tetrachloroethene	ND	50	55		1	110	2.2	70-130	20	04/21/2021 1946
Toluene	ND	100	110		1	111	2.3	70-130	20	04/21/2021 1946
1,1,2-Trichloro-1,2,2-Trifluoroethane	ND	50	60		1	120	1.4	70-130	20	04/21/2021 1946
1,2,3-Trichlorobenzene	ND	50	50		1	100	2.8	70-130	20	04/21/2021 1946
1,2,4-Trichlorobenzene	ND	50	49		1	99	3.3	70-130	20	04/21/2021 1946
1,1,1-Trichloroethane	ND	50	55		1	111	0.13	70-130	20	04/21/2021 1946
1,1,2-Trichloroethane	ND	50	53		1	105	3.1	70-130	20	04/21/2021 1946
Trichloroethene	ND	50	53		1	106	1.3	70-130	20	04/21/2021 1946
Trichlorofluoromethane	ND	50	62		1	123	1.5	70-130	20	04/21/2021 1946
1,2,3-Trichloropropane	ND	50	52		1	103	3.0	70-130	20	04/21/2021 1946
1,2,4-Trimethylbenzene	ND	50	55		1	110	4.3	70-130	20	04/21/2021 1946
Vinyl acetate	ND	50	39		1	78	3.0	60-140	20	04/21/2021 1946
Vinyl chloride	ND	50	72	N	1	145	5.9	70-130	20	04/21/2021 1946
Xylenes (total)	ND	200	230		1	113	4.0	70-130	20	04/21/2021 1946
m+p - Xylenes	ND	100	110		1	115	3.7	70-130	20	04/21/2021 1946
o - Xylenes	ND	100	110		1	111	4.3	70-130	20	04/21/2021 1946

Surrogate	Q	% Rec	Acceptance Limit
Bromofluorobenzene		97	70-130
1,2-Dichloroethane-d4		101	70-130
Toluene-d8		103	70-130

LOQ = Limit of Quantitation
DL = Detection Limit
ND = Not detected at or above the DL
J = Estimated result < LOQ and ≥ DL
* = RSD is out of criteria
N = Recovery is out of criteria
P = The RPD between two GC columns exceeds 40%
+ = RPD is out of criteria

Note: Calculations are performed before rounding to avoid round-off errors in calculated results

Semivolatile Organic Compounds by GC/MS (SIM) - MB

Sample ID: WQ89524-001
Batch: 89524
Analytical Method: 8270E (SIM)

Matrix: Aqueous
Prep Method: 3520C
Prep Date: 04/19/2021 1600

Parameter	Result	Q	Dil	LOQ	DL	Units	Analysis Date
1,4-Dioxane	**0.24**		**1**	**0.20**	**0.068**	**ug/L**	**04/23/2021 1417**

Surrogate	Q	% Rec	Acceptance Limit
1,4-Dioxane-d8		55	40-90

LOQ = Limit of Quantitation
DL = Detection Limit

ND = Not detected at or above the DL
J = Estimated result < LOQ and ≥ DL
* = RSD is out of criteria

N = Recovery is out of criteria
P = The RPD between two GC columns exceeds 40%
+ = RPD is out of criteria

Note: Calculations are performed before rounding to avoid round-off errors in calculated results

Semivolatile Organic Compounds by GC/MS (SIM) - LCS

Sample ID: WQ89524-002
Batch: 89524
Analytical Method: 8270E (SIM)

Matrix: Aqueous
Prep Method: 3520C
Prep Date: 04/19/2021 1600

Parameter	Spike Amount (ug/L)	Result (ug/L)	Q	Dil	% Rec	%Rec Limit	Analysis Date
1,4-Dioxane	2.0	1.1		1	57	40-90	04/23/2021 1438

Surrogate	Q	% Rec	Acceptance Limit
1,4-Dioxane-d8		52	40-90

LOQ = Limit of Quantitation
DL = Detection Limit
ND = Not detected at or above the DL
J = Estimated result < LOQ and ≥ DL
* = RSD is out of criteria
N = Recovery is out of criteria
P = The RPD between two GC columns exceeds 40%
+ = RPD is out of criteria

Note: Calculations are performed before rounding to avoid round-off errors in calculated results

Semivolatile Organic Compounds by GC/MS (SIM) - MS

Sample ID: WD15023-008MS
Batch: 89524
Analytical Method: 8270E (SIM)

Matrix: Aqueous
Prep Method: 3520C
Prep Date: 04/19/2021 1600

Parameter	Sample Amount (ug/L)	Spike Amount (ug/L)	Result (ug/L)	Q	Dil	% Rec	%Rec Limit	Analysis Date
1,4-Dioxane	0.15	2.0	1.0		1	45	40-90	04/23/2021 2309

Surrogate	Q	% Rec	Acceptance Limit
1,4-Dioxane-d8		49	40-90

LOQ = Limit of Quantitation
DL = Detection Limit
ND = Not detected at or above the DL
J = Estimated result < LOQ and ≥ DL
* = RSD is out of criteria
N = Recovery is out of criteria
P = The RPD between two GC columns exceeds 40%
+ = RPD is out of criteria

Note: Calculations are performed before rounding to avoid round-off errors in calculated results

Semivolatile Organic Compounds by GC/MS (SIM) - MSD

Sample ID: WD15023-008MD
Batch: 89524
Analytical Method: 8270E (SIM)

Matrix: Aqueous
Prep Method: 3520C
Prep Date: 04/19/2021 1600

Parameter	Sample Amount (ug/L)	Spike Amount (ug/L)	Result (ug/L)	Q	Dil	% Rec	% RPD	%Rec Limit	% RPD Limit	Analysis Date
1,4-Dioxane	0.15	2.0	1.2		1	52	13	40-90	20	04/23/2021 2329

Surrogate	Q	% Rec	Acceptance Limit
1,4-Dioxane-d8		54	40-90

LOQ = Limit of Quantitation
DL = Detection Limit
ND = Not detected at or above the DL
J = Estimated result < LOQ and ≥ DL
* = RSD is out of criteria
N = Recovery is out of criteria
P = The RPD between two GC columns exceeds 40%
+ = RPD is out of criteria

Note: Calculations are performed before rounding to avoid round-off errors in calculated results

Semivolatile Organic Compounds by GC/MS (SIM) - MB

Sample ID: WQ92007-001
Batch: 92007
Analytical Method: 8270E (SIM)
Matrix: Aqueous
Prep Method: 3520C
Prep Date: 05/12/2021 1321

Parameter	Result	Q	Dil	LOQ	DL	Units	Analysis Date
1,4-Dioxane	ND		1	0.20	0.068	ug/L	05/14/2021 1116

Surrogate	Q	% Rec	Acceptance Limit
1,4-Dioxane-d8		61	40-90

LOQ = Limit of Quantitation
DL = Detection Limit
ND = Not detected at or above the DL
J = Estimated result < LOQ and ≥ DL
* = RSD is out of criteria
N = Recovery is out of criteria
P = The RPD between two GC columns exceeds 40%
+ = RPD is out of criteria

Note: Calculations are performed before rounding to avoid round-off errors in calculated results

Semivolatile Organic Compounds by GC/MS (SIM) - LCS

Sample ID: WQ92007-002
Batch: 92007
Analytical Method: 8270E (SIM)

Matrix: Aqueous
Prep Method: 3520C
Prep Date: 05/12/2021 1321

Parameter	Spike Amount (ug/L)	Result (ug/L)	Q	Dil	% Rec	%Rec Limit	Analysis Date
1,4-Dioxane	2.0	1.1		1	53	40-90	05/14/2021 1136

Surrogate	Q	% Rec	Acceptance Limit
1,4-Dioxane-d8		53	40-90

LOQ = Limit of Quantitation
DL = Detection Limit
ND = Not detected at or above the DL
J = Estimated result < LOQ and ≥ DL
* = RSD is out of criteria
N = Recovery is out of criteria
P = The RPD between two GC columns exceeds 40%
+ = RPD is out of criteria

Note: Calculations are performed before rounding to avoid round-off errors in calculated results

Semivolatile Organic Compounds by GC/MS (SIM) - MS

Sample ID: WD15023-008MS
Batch: 92007
Analytical Method: 8270E (SIM)

Matrix: Aqueous
Prep Method: 3520C
Prep Date: 05/12/2021 1321

Parameter	Sample Amount (ug/L)	Spike Amount (ug/L)	Result (ug/L)	Q	Dil	% Rec	%Rec Limit	Analysis Date
1,4-Dioxane	ND	2.0	0.93		1	46	40-90	05/14/2021 1319

Surrogate	Q	% Rec	Acceptance Limit
1,4-Dioxane-d8		47	40-90

LOQ = Limit of Quantitation
DL = Detection Limit
ND = Not detected at or above the DL
J = Estimated result < LOQ and ≥ DL
* = RSD is out of criteria
N = Recovery is out of criteria
P = The RPD between two GC columns exceeds 40%
+ = RPD is out of criteria

Note: Calculations are performed before rounding to avoid round-off errors in calculated results

Semivolatile Organic Compounds by GC/MS (SIM) - MSD

Sample ID: WD15023-008MD
Batch: 92007
Analytical Method: 8270E (SIM)

Matrix: Aqueous
Prep Method: 3520C
Prep Date: 05/12/2021 1321

Parameter	Sample Amount (ug/L)	Spike Amount (ug/L)	Result (ug/L)	Q	Dil	% Rec	% RPD	%Rec Limit	% RPD Limit	Analysis Date
1,4-Dioxane	ND	2.0	0.95		1	48	2.2	40-90	20	05/14/2021 1340

Surrogate	Q	% Rec	Acceptance Limit
1,4-Dioxane-d8		47	40-90

LOQ = Limit of Quantitation
DL = Detection Limit

ND = Not detected at or above the DL
J = Estimated result < LOQ and ≥ DL
* = RSD is out of criteria

N = Recovery is out of criteria
P = The RPD between two GC columns exceeds 40%
+ = RPD is out of criteria

Note: Calculations are performed before rounding to avoid round-off errors in calculated results

Chain of Custody
and
Miscellaneous Documents

Pace Analytical Services, LLC
106 Vantage Point Drive
West Columbia, South Carolina 29172
Telephone No. (803) 791-9700 Fax No. (803) 791-9111
www.pacelabs.com

Pace Analytical® Chain of Custody Record

Number

Client: AECOM	Report to Contact: Zachary Neigh and Holly Brown	Telephone No. / E-mail: zachary.neigh@aecom.com; holly.brown@aecom.com	Quote No.
Address: 12420 Milestone Center Dr, Suite 150	Sampler's Signature: X	Analysis (Attach list if more space is needed)	Page: 1 of 3
City: Germantown / State: MD / Zip Code: 20876	Printed Name: Holly Brown		
Project Name: MRC SWS 2021			
Project Number: 60638276.007.1	P.O. No.: 132771		

WD15023

csp

Sample ID / Description (Containers for each sample may be combined on one line)	Collection Date(s)	Collection Time (military)	G=Grab C=Composite	Matrix: Aqueous	Solid	Non-Aqueous	No of Containers by Preservative Type: Unpres.	H2SO4	HNO3	HCl	NaOH	5035 Kit	Field Filtered	VOCs by 8260D	1,4-Dioxane by 8270E-SIM	Remarks / Cooler I.D.
MRC-SW5A1-S-20210413	4/13/2021	1310	G	X						3			N	X		
MRC-SW5A2-S-20210413	4/13/2021	1440	G	X						3			N	X		
MRC-SW5B-S-20210413	4/13/2021	1455	G	X						3			N	X		
MRC-SW6A-S-20210413	4/13/2021	0955	G	X			2			3			N	X	X	
MRC-SW6B-S-20210413	4/13/2021	1025	G	X			2			3			N	X	X	
MRC-SW7A-S-20210413	4/13/2021	0911	G	X						3			N	X		
MRC-SW8A-S-20210413	4/13/2021	1045	G	X			2			3			N	X	X	
MRC-SW8B-S-20210413	4/13/2021	1105	G	X			6			3			N	X	X	MS/MSD
MRC-SW8B-S-DUP-20210413	4/13/2021	1125	G	X			2			3			N	X	X	field duplicate
MRC-SW9A-S-20210413	4/13/2021	0931	G	X						3			N	X		

Turn Around Time Required (Prior lab approval required for expedited TAT): ☑ Standard ☐ Rush (Please Specify)

Sample Disposal: ☐ Return to Client ☑ Disposal by Lab

Possible Hazard Identification (List any known hazards in the remarks): ☐ Non-Hazardous ☐ Flammable ☐ Skin Irritant ☐ EDS provided ☐ Unknown

QC Requirements: Level II; AECOM EQuIS EDD

		Date	Time		Date	Time
1. Relinquished by	AECOM	4-13-2021	1500	1. Received by: Pace	4-14-21	1500
2. Relinquished by	Pace	4-14-21	1800	2. Received by		
3. Relinquished by				3. Received by		
4. Relinquished by	fedex	4/15/21	0940	4. Laboratory Received by: [illegible]	4/14/21	0940

Note: All samples are retained for four weeks from receipt unless other arrangements are made

LAB USE ONLY — Received on Ice (Check): ☑ Y ☐ N ☐ Ice Pack

Receipt Temp [°C]: 1.3 °C, 4.3 °C, 3.7 °C — Temp Blank: ☑ Y ☐ N

PACE ANALYTICAL SERVICES, LLC

Pace Analytical® **Chain of Custody Record**

Pace Analytical Services, LLC.
106 Vantage Point Drive
West Columbia, South Carolina 29172
Telephone No. (803) 791-9700 Fax No. (803) 791-9111
www.pacelabs.com

Number

Client: AECOM	Report to Contact: Zachary Neigh and Holly Brown	Telephone No. / E-mail: zachary.neigh@aecom.com; holly.brown@aecom.com	Quote No.
Address: 12420 Milestone Center Dr, Suite 150	Sampler's Signature: x Holly Brown	Analysis (Attach list if more space is needed)	Page: 2 of 3
City: Germantown / State: MD / Zip Code: 20876	Printed Name:		Lot # Bar Code: WD15023
Project Name: MRC SWS 2021			CSD
Project Number: 60638276.007.1	P.O. No.: 132771		Remarks / Cooler I.D.

Sample ID / Description (Containers for each sample may be combined on one line)	Collection Date(s)	Collection Time (military)	G=Grab C=Composite	Matrix: Aqueous	Matrix: Solid	Matrix: Non-Aqueous	Matrix:	No of Containers by Preservative Type: Unpres.	H2SO4	HNO3	HCl	NaOH	5035 Kit	Field Filtered	VOCs by 8260D								Remarks
MRC-SW11A-S-20210413	4/13/2021	1225	G	X						3				N	X								
MRC-SW11B-S-20210413	4/13/2021	1245	G	X						3				N	X								
MRC-SW12A-S-20210413	4/13/2021	1300	G	X						3				N	X								
MRC-SW13A-S-20210413	4/13/2021	1330	G	X						3				N	X								
MRC-SW20A-S-20210413	4/13/2021	1400	G	X						3				N	X								
MRC-SW15A-S-20210413	4/13/2021	1210	G	X						3				N	X								
MRC-SW16A-S-20210413	4/13/2021	1200	G	X						3				N	X								
MRC-SW18A-S-20210413	4/13/2021	1410	G	X						9				N	X								MS/MSD
MRC-SW18A-S-DUP-20210413	4/13/2021	1430	G	X						3				N	X								Field Duplicate
MRC-SW14A-S-20210413	4/13/2021	1350	G	X						3				N	X								

Turn Around Time Required (Prior lab approval required for expedited TAT): ☑ Standard ☐ Rush (Please Specify)

Sample Disposal: ☐ Return to Client ☑ Disposal by Lab

Possible Hazard Identification (List any known hazards in the remarks): ☐ Non-Hazardous ☐ Flammable ☐ Skin Irritant ☐ SDS provided ☐ Unknown

QC Requirements: Level II; AECOM EQuIS EDD

	Date	Time		Date	Time
1. Relinquished by: AECOM	4-14-2021	1500	1. Received by: PACE	4-14-21	1500
2. Relinquished by: PACE	4-14-21	1800	2. Received by:	Date	Time
3. Relinquished by:	Date	Time	3. Received by:	Date 4/15/21	Time
4. Relinquished by: fedex	Date 4/15/21	Time 0940	4. Laboratory Received by:	Date 4/15/21	Time 0940

Note: All samples are retained for four weeks from receipt unless other arrangements are made

LAB USE ONLY — Received on Ice (Check) ☑ Y ☐ N ☐ Ice Pack

Receipt Temp: 4.3 °C 4/15/21 (3.7 °C, 3.2 °C)

Temp. Blank: ☑ Y / ☐ N

Pace Analytical Services, LLC (formerly Shealy Environmental Services, Inc.)
106 Vantage Point Drive West Columbia, SC 29172 (803) 791-9700 Fax (803) 791-9111 www.pacelabs.com

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Pace Analytical Services, LLC.
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West Columbia, South Carolina 29172
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Number

Client: AECOM	Report to Contact: Zachary Neigh and Holly Brown	Telephone No. / E-mail: zachary.neigh@aecom.com; holly.brown@aecom.com	Quote No.
Address: 12420 Milestone Center Dr, Suite 150	Sampler's Signature: X	Analysis (Attach list if more space is needed)	Page: 3 of 3
City: Germantown / State: MD / Zip Code: 20876	Printed Name: Holly Brown		
Project Name: MRC SWS 2021			WD15023
Project Number: 60636276.007.1	P.O. No.: 132771		CSD

Sample ID / Description (Containers for each sample may be combined on one line)	Collection Date(s)	Collection Time (military)	G-Grab C-Composite	Matrix: Aqueous	Solid	Non-Aqueous	No of Containers by Preservative Type: Unpres.	H2SO4	HNO3	HCl	NaOH	5035 kit	Field Filtered	VOCs by 8260D	1,4-Dioxane by 8270E-SIM	Remarks / Cooler I.D.
MRC-SW17A-20210413	4/13/2021	1450	G	X			2		3				N	X	X	
MRC-SW1A-20210413	4/13/2021	1550	G	X			2		3				N	X	X	
MRC-SW2A-20210413	4/13/2021	1535	G	X			2		3				N	X	X	
TB-20210413	4/13/2021	700	-	X					2				N	X		trip blank

Turn Around Time Required (Prior lab approval required for expedited TAT): ☑ Standard ☐ Rush (Please Specify)	Sample Disposal: ☐ Return to Client ☑ Disposal by Lab	Possible Hazard Identification (List any known hazards in the remarks): ☐ Non-Hazardous ☐ Flammable ☐ Skin Irritant ☐ SDS provided ☐ Unknown			QC Requirements Level II: AECOM EQuIS EDD
1. Relinquished by: AECOM	Date: 4-14-2021	Time: 1500	1. Received by: Pace	Date: 4-14-21	Time: 1500
2. Relinquished by: Pace	Date: 4-14-21	Time: 1900	2. Received by:	Date:	Time:
3. Relinquished by:	Date:	Time:	3. Received by:	Date:	Time:
4. Relinquished by: fedex	Date: 4/15/21	Time: 0940	4. Laboratory Received by: [illegible]	Date: 4/15/21	Time: 0940
Note: All samples are retained for four weeks from receipt unless other arrangements are made	LAB USE ONLY Received on Ice (Check) ☑ Y ☐ N ☐ Ice Pack		Receipt Temp.: 3.7 °C		Temp. Blank: ☑ Y ☐ N

4.3°C
-1.3°C

Pace Analytical

Samples Receipt Checklist (SRC) (ME0018C-15)
Issuing Authority: Pace ENV - WCOL

Revised:9/29/2020
Page 1 of 1

Sample Receipt Checklist (SRC)

Client: AECOM Cooler Inspected by/date: MEH / 04/15/2021 Lot #: WD15023

Means of receipt: ☐ Pace ☐ Client: ☐ UPS ☑ FedEx ☐ Other:

☐ Yes	☑ No		1. Were custody seals present on the cooler?
☐ Yes	☐ No	☑ NA	2. If custody seals were present, were they intact and unbroken?

pH Strip ID: NA Chlorine Strip ID: NA Tested by: NA

Original temperature upon receipt / Derived (Corrected) temperature upon receipt %Solid Snap-Cup ID: NA

1.3 / 1.3 °C 4.3 / 4.3 °C 3.7 / 3.7 °C NA / NA °C

Method: ☑ Temperature Blank ☐ Against Bottles IR Gun ID: 6 IR Gun Correction Factor: 0 °C

Method of coolant: ☑ Wet Ice ☐ Ice Packs ☐ Dry Ice ☐ None

☐ Yes	☐ No	☑ NA	3. If temperature of any cooler exceeded 6.0°C, was Project Manager Notified? PM was Notified by: phone / email / face-to-face (circle one).
☑ Yes	☐ No	☐ NA	4. Is the commercial courier's packing slip attached to this form?
☑ Yes	☐ No		5. Were proper custody procedures (relinquished/received) followed?
☑ Yes	☐ No		6. Were sample IDs listed on the COC?
☑ Yes	☐ No		7. Were sample IDs listed on all sample containers?
☑ Yes	☐ No		8. Was collection date & time listed on the COC?
☑ Yes	☐ No		9. Was collection date & time listed on all sample containers?
☑ Yes	☐ No		10. Did all container label information (ID, date, time) agree with the COC?
☑ Yes	☐ No		11. Were tests to be performed listed on the COC?
☑ Yes	☐ No		12. Did all samples arrive in the proper containers for each test and/or in good condition (unbroken, lids on, etc.)?
☑ Yes	☐ No		13. Was adequate sample volume available?
☑ Yes	☐ No		14. Were all samples received within ½ the holding time or 48 hours, whichever comes first?
☐ Yes	☑ No		15. Were any samples containers missing/excess (circle one) samples Not listed on COC?
☐ Yes	☑ No	☐ NA	16. For VOA and RSK-175 samples, were bubbles present >"pea-size" (¼"or 6mm in diameter) in any of the VOA vials?
☐ Yes	☐ No	☑ NA	17. Were all DRO/metals/nutrient samples received at a pH of < 2?
☐ Yes	☐ No	☑ NA	18. Were all cyanide samples received at a pH > 12 and sulfide samples received at a pH > 9?
☐ Yes	☐ No	☑ NA	19. Were all applicable NH_3/TKN/cyanide/phenol/625.1/608.3 (< 0.5mg/L) samples free of residual chlorine?
☐ Yes	☐ No	☑ NA	20. Were client remarks/requests (i.e. requested dilutions, MS/MSD designations, etc…) correctly transcribed from the COC into the comment section in LIMS?
☑ Yes	☐ No		21. Was the quote number listed on the container label? If yes, Quote # 24552

Sample Preservation (Must be completed for any sample(s) incorrectly preserved or with headspace.)

Sample(s) NA were received incorrectly preserved and were adjusted accordingly in sample receiving with NA mL of circle one: H_2SO_4, HNO_3, HCl, NaOH using SR # NA.
Time of preservation NA. If more than one preservative is needed, please note in the comments below.

Sample(s) NA were received with bubbles >6 mm in diameter.

Samples(s) NA were received with TRC > 0.5 mg/L (If #19 is ***no***) and were adjusted accordingly in sample receiving with sodium thiosulfate ($Na_2S_2O_3$) with Shealy ID: NA.

SR barcode labels applied by: MEH Date: 04/15/2021

Comments:


ORIGIN ID:THVA (111) 111-1111
SHEALY ENVIRONMENTAL
106 VANTAGE POINT DR
WEST COLUMBIA, SC 29172
UNITED STATES US

SHIP DATE: 14APR21
ACTWGT: 80.50 LB
CAD: 8995074/SSFE2201
DIMS: 26x13x17 IN
BILL THIRD PARTY

TO
SHEALY ENVIRONMENTAL
106 VANTAGE POINT DR

WEST COLUMBIA SC 29172
(111) 111-1111
REF:
DEPT:

FedEx Express

2 of 3
MPS# 7859 9040 7073
Mstr# 7859 9040 7062

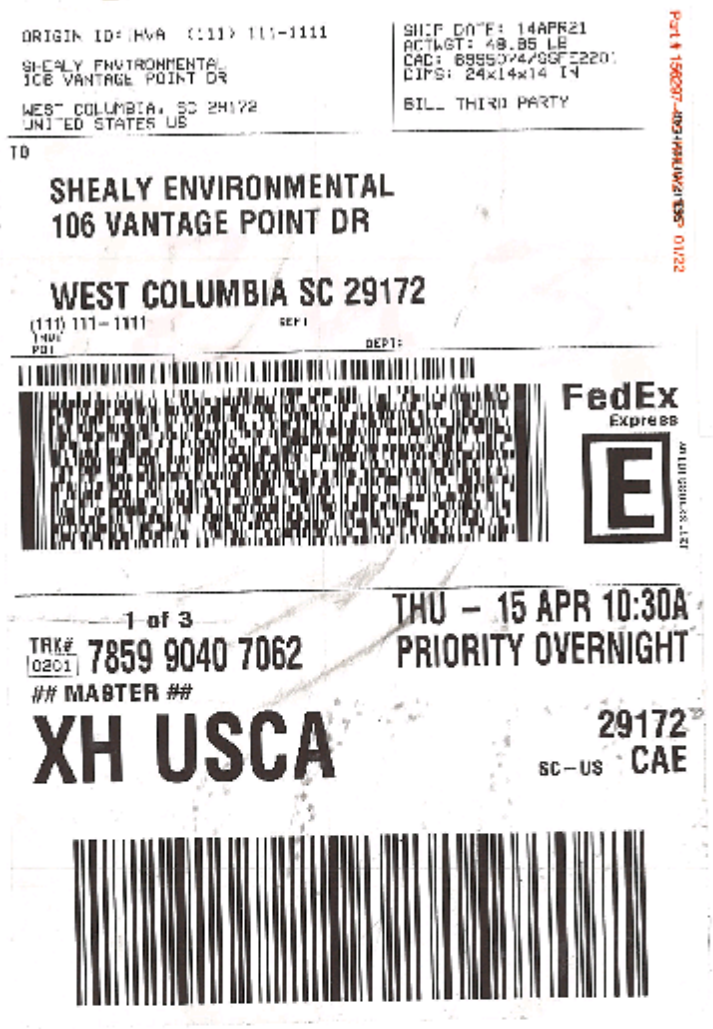
THU - 15 APR 10:30A
PRIORITY OVERNIGHT

XH USCA
29172
SC-US CAE

Cooler 1
TB voa

T = 1.3°C
CS = X
TB = ✓
Q = 24552

Cooler 2



ORIGIN ID: HVA (111) 111-1111
SHEALY ENVIRONMENTAL
106 VANTAGE POINT DR
WEST COLUMBIA, SC 29172
UNITED STATES US

SHIP DATE: 14APR21
ACTWGT: 48.85 LB
CAD: 6955247/SSFE2201
DIMS: 24x14x14 IN

BILL THIRD PARTY

TO
SHEALY ENVIRONMENTAL
106 VANTAGE POINT DR

WEST COLUMBIA SC 29172
(111) 111-1111
INV:
PO:
DEPT:

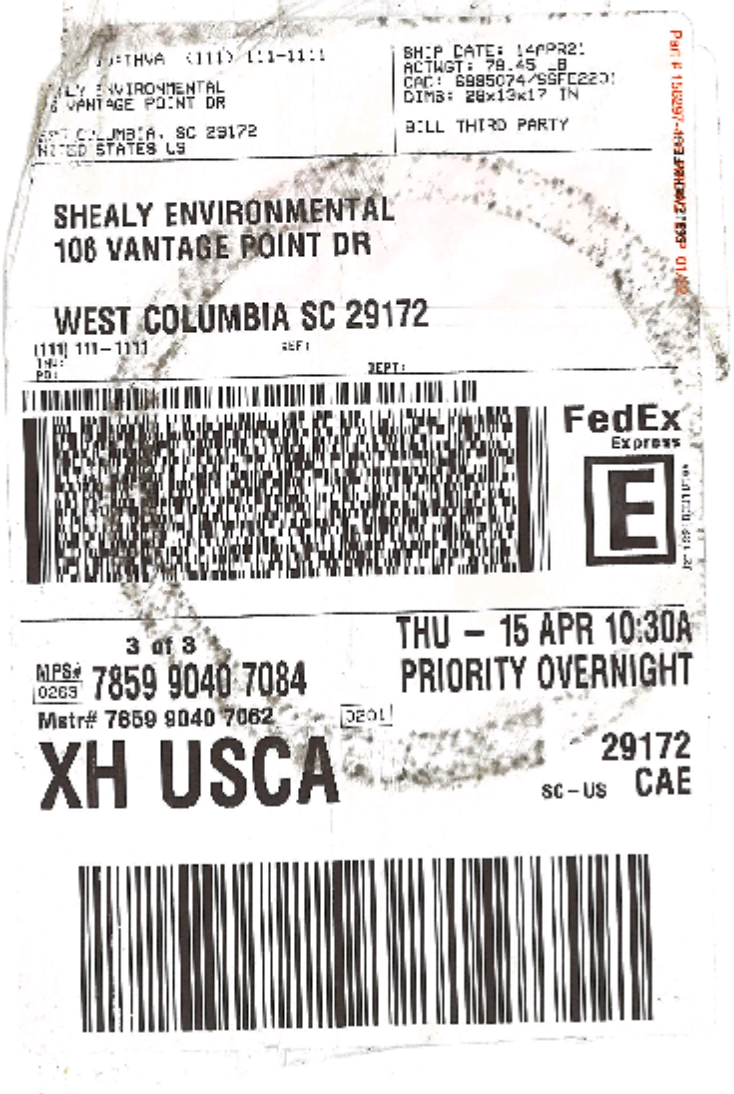
FedEx Express

1 of 3
TRK# 0201 7859 9040 7062
THU - 15 APR 10:30A
PRIORITY OVERNIGHT

MASTER
XH USCA
29172
SC-US CAE

T= 4.3°C
CS=X
TB=✓
Q= 24552

Cooler 3



T = 3.7°C
CS = x
TB = ✓
Q = 24552

APPENDIX D
Laboratory Analytical Result Table

Analyte	CAS Number	National Recommended Water Quality		Ecological Surface Water Screening Level (2)	Human Health Consumption (Organism Only) (1) (3)	Swimming Screening Levels (4)	MRC-SW11A-S 04/13/2021 Field Sample					MRC-SW11B-S 04/13/2021 Field Sample					MRC-SW12A-S 04/13/2021 Field Sample					MRC-SW13A-S 04/13/2021 Field Sample					MRC-SW14A-S 04/13/2021 Field Sample					MRC-SW15A-S 04/13/2021 Field Sample					MRC-SW16A-S 04/13/2021 Field Sample					MRC-SW17A 04/13/2021 Field Sample					MRC-SW18A-S 04/13/2021 Field Sample					MRC-SW18A-S-DUP 04/13/2021 Field Duplicate				
		Acute	Chronic				Result	MDL	RL	FQ	RC	Result	MDL	RL	FQ	RC	Result	MDL	RL	FQ	RC	Result	MDL	RL	FQ	RC	Result	MDL	RL	FQ	RC	Result	MDL	RL	FQ	RC	Result	MDL	RL	FQ	RC	Result	MDL	RL	FQ	RC	Result	MDL	RL	FQ	RC	Result	MDL	RL	FQ	RC
VOLATILES (µg/L)																																																													
1,1,1,2-Tetrachloroethane	630-20-6	NE	NE	85	NE	NE	ND	0.40	0.50	U		ND	0.40	0.50	U		ND	0.40	0.50	U		ND	0.40	0.50	U		ND	0.40	0.50	U		ND	0.40	0.50	U		ND	0.40	0.50	U		ND	0.40	0.50	U		ND	0.40	0.50	U		ND	0.40	0.50	U	
1,1,1-Trichloroethane	71-55-6	NE	NE	11	NE	NE	ND	0.40	0.50	U		ND	0.40	0.50	U		ND	0.40	0.50	U		ND	0.40	0.50	U		ND	0.40	0.50	U		ND	0.40	0.50	U		ND	0.40	0.50	U		ND	0.40	0.50	U		ND	0.40	0.50	U		ND	0.40	0.50	U	
1,1,2,2-Tetrachloroethane	79-34-5	NE	NE	610	40	NE	ND	0.40	0.50	U		ND	0.40	0.50	U		ND	0.40	0.50	U		ND	0.40	0.50	U		ND	0.40	0.50	U		ND	0.40	0.50	U		ND	0.40	0.50	U		ND	0.40	0.50	U		ND	0.40	0.50	U		ND	0.40	0.50	U	
1,1,2-Trichloroethane	79-00-5	NE	NE	1200	160	NE	ND	0.40	0.50	U		ND	0.40	0.50	U		ND	0.40	0.50	U		ND	0.40	0.50	U		ND	0.40	0.50	U		ND	0.40	0.50	U		ND	0.40	0.50	U		ND	0.40	0.50	U		ND	0.40	0.50	U		ND	0.40	0.50	U	
1,1-Dichloroethane	75-34-3	NE	NE	47	NE	NE	ND	0.40	0.50	U		ND	0.40	0.50	U		ND	0.40	0.50	U		ND	0.40	0.50	U		ND	0.40	0.50	U		ND	0.40	0.50	U		ND	0.40	0.50	U		ND	0.40	0.50	U		ND	0.40	0.50	U		ND	0.40	0.50	U	
1,1-Dichloroethene	75-35-4	NE	NE	25	7100	NE	ND	0.40	0.50	U		ND	0.40	0.50	U		ND	0.40	0.50	U		ND	0.40	0.50	U		ND	0.40	0.50	U		ND	0.40	0.50	U		ND	0.40	0.50	U		ND	0.40	0.50	U		ND	0.40	0.50	U		ND	0.40	0.50	U	
1,2,3-Trichlorobenzene	87-61-6	NE	NE	8	NE	NE	ND	0.40	0.50	U		ND	0.40	0.50	U		ND	0.40	0.50	U		ND	0.40	0.50	U		ND	0.40	0.50	U		ND	0.40	0.50	U		ND	0.40	0.50	U		ND	0.40	0.50	U		ND	0.40	0.50	U		ND	0.40	0.50	U	
1,2,3-Trichloropropane	96-18-4	NE	NE	NE	NE	NE	ND	0.40	0.50	U		ND	0.40	0.50	U		ND	0.40	0.50	U		ND	0.40	0.50	U		ND	0.40	0.50	U		ND	0.40	0.50	U		ND	0.40	0.50	U		ND	0.40	0.50	U		ND	0.40	0.50	U		ND	0.40	0.50	U	
1,2,4-Trichlorobenzene	120-82-1	NE	NE	24	70	8	ND	0.40	0.50	U		ND	0.40	0.50	U		ND	0.40	0.50	U		ND	0.40	0.50	U		ND	0.40	0.50	U		ND	0.40	0.50	U		ND	0.40	0.50	U		ND	0.40	0.50	U		ND	0.40	0.50	U		ND	0.40	0.50	U	
1,2,4-Trimethylbenzene	95-63-6	NE	NE	33	NE	NE	ND	0.40	0.50	U		ND	0.40	0.50	U		ND	0.40	0.50	U		ND	0.40	0.50	U		ND	0.40	0.50	U		ND	0.40	0.50	U		ND	0.40	0.50	U		ND	0.40	0.50	U		ND	0.40	0.50	U		ND	0.40	0.50	U	
1,2-Dibromo-3-chloropropane (DBCP)	96-12-8	NE	NE	NE	NE	NE	ND	0.40	0.50	U		ND	0.40	0.50	U		ND	0.40	0.50	U		ND	0.40	0.50	U		ND	0.40	0.50	U		ND	0.40	0.50	U		ND	0.40	0.50	U		ND	0.40	0.50	U		ND	0.40	0.50	U		ND	0.40	0.50	U	
1,2-Dibromoethane	106-93-4	NE	NE	NE	NE	NE	ND	0.40	0.50	U		ND	0.40	0.50	U		ND	0.40	0.50	U		ND	0.40	0.50	U		ND	0.40	0.50	U		ND	0.40	0.50	U		ND	0.40	0.50	U		ND	0.40	0.50	U		ND	0.40	0.50	U		ND	0.40	0.50	U	
1,2-Dichlorobenzene	95-50-1	NE	NE	0.7	1300	NE	ND	0.40	0.50	U		ND	0.40	0.50	U		ND	0.40	0.50	U		ND	0.40	0.50	U		ND	0.40	0.50	U		ND	0.40	0.50	U		ND	0.40	0.50	U		ND	0.40	0.50	U		ND	0.40	0.50	U		ND	0.40	0.50	U	
1,2-Dichloroethane	107-06-2	NE	NE	100	370	NE	ND	0.40	0.50	U		ND	0.40	0.50	U		ND	0.40	0.50	U		ND	0.40	0.50	U		ND	0.40	0.50	U		ND	0.40	0.50	U		ND	0.40	0.50	U		ND	0.40	0.50	U		ND	0.40	0.50	U		ND	0.40	0.50	U	
1,2-Dichloroethylene (total)	540-59-0	NE	NE	590	NE	NE	ND	0.40	0.50	U		ND	0.40	0.50	U		ND	0.40	0.50	U		ND	0.40	0.50	U		ND	0.40	0.50	U		ND	0.40	0.50	U		ND	0.40	0.50	U		ND	0.40	0.50	U		ND	0.40	0.50	U		ND	0.40	0.50	U	
1,2-Dichloropropane	78-87-5	NE	NE	520	150	NE	ND	0.40	0.50	U		ND	0.40	0.50	U		ND	0.40	0.50	U		ND	0.40	0.50	U		ND	0.40	0.50	U		ND	0.40	0.50	U		ND	0.40	0.50	U		ND	0.40	0.50	U		ND	0.40	0.50	U		ND	0.40	0.50	U	
1,3-Dichlorobenzene	541-73-1	NE	NE	150	960	NE	ND	0.40	0.50	U		ND	0.40	0.50	U		ND	0.40	0.50	U		ND	0.40	0.50	U		ND	0.40	0.50	U		ND	0.40	0.50	U		ND	0.40	0.50	U		ND	0.40	0.50	U		ND	0.40	0.50	U		ND	0.40	0.50	U	
1,3-Dichloropropane	142-28-9	NE	NE	NE	NE	NE	ND	0.40	0.50	U		ND	0.40	0.50	U		ND	0.40	0.50	U		ND	0.40	0.50	U		ND	0.40	0.50	U		ND	0.40	0.50	U		ND	0.40	0.50	U		ND	0.40	0.50	U		ND	0.40	0.50	U		ND	0.40	0.50	U	
1,4-Dichlorobenzene	106-46-7	NE	NE	26	190	NE	ND	0.40	0.50	U		ND	0.40	0.50	U		ND	0.40	0.50	U		ND	0.40	0.50	U		ND	0.40	0.50	U		ND	0.40	0.50	U		ND	0.40	0.50	U		ND	0.40	0.50	U		ND	0.40	0.50	U		ND	0.40	0.50	U	
2,2-Dichloropropane	594-20-7	NE	NE	NE	NE	NE	ND	0.40	0.50	U		ND	0.40	0.50	U		ND	0.40	0.50	U		ND	0.40	0.50	U		ND	0.40	0.50	U		ND	0.40	0.50	U		ND	0.40	0.50	U		ND	0.40	0.50	U		ND	0.40	0.50	U		ND	0.40	0.50	U	
2-Butanone	78-93-3	NE	NE	14000	NE	NE	ND	2.0	10	U		ND	2.0	10	U		ND	2.0	10	U		ND	2.0	10	U		ND	2.0	10	U		ND	2.0	10	U		ND	2.0	10	U		ND	2.0	10	U		ND	2.0	10	U		ND	2.0	10	U	
2-Chlorotoluene	95-49-8	NE	NE	NE	NE	NE	ND	0.40	0.50	U		ND	0.40	0.50	U		ND	0.40	0.50	U		ND	0.40	0.50	U		ND	0.40	0.50	U		ND	0.40	0.50	U		ND	0.40	0.50	U		ND	0.40	0.50	U		ND	0.40	0.50	U		ND	0.40	0.50	U	
2-Hexanone	591-78-6	NE	NE	99	NE	NE	ND	2.0	10	U		ND	2.0	10	U		ND	2.0	10	U		ND	2.0	10	U		ND	2.0	10	U		ND	2.0	10	U		ND	2.0	10	U		ND	2.0	10	U		ND	2.0	10	U		ND	2.0	10	U	
2-Phenylbutane	135-98-8	NE	NE	NE	NE	NE	ND	0.40	0.50	U		ND	0.40	0.50	U		ND	0.40	0.50	U		ND	0.40	0.50	U		ND	0.40	0.50	U		ND	0.40	0.50	U		ND	0.40	0.50	U		ND	0.40	0.50	U		ND	0.40	0.50	U		ND	0.40	0.50	U	
4-Chlorotoluene	106-43-4	NE	NE	NE	NE	NE	ND	0.40	0.50	U		ND	0.40	0.50	U		ND	0.40	0.50	U		ND	0.40	0.50	U		ND	0.40	0.50	U		ND	0.40	0.50	U		ND	0.40	0.50	U		ND	0.40	0.50	U		ND	0.40	0.50	U		ND	0.40	0.50	U	
4-Methyl-2-pentanone	108-10-1	NE	NE	170	NE	NE	ND	2.0	10	U		ND	2.0	10	U		ND	2.0	10	U		ND	2.0	10	U		ND	2.0	10	U		ND	2.0	10	U		ND	2.0	10	U		ND	2.0	10	U		ND	2.0	10	U		ND	2.0	10	U	
Acetone	67-64-1	NE	NE	1500	NE	NE	ND	4.0	10	U		ND	4.0	10	U		ND	4.0	10	U		ND	4.0	10	U		ND	4.0	10	U		ND	4.0	10	U		ND	4.0	10	U		ND	4.0	10	U		ND	4.0	10	U		ND	4.0	10	U	
Benzene	71-43-2	NE	NE	370	510	NE	ND	0.40	0.50	U		ND	0.40	0.50	U		ND	0.40	0.50	U		ND	0.40	0.50	U		ND	0.40	0.50	U		ND	0.40	0.50	U		ND	0.40	0.50	U		ND	0.40	0.50	U		ND	0.40	0.50	U		ND	0.40	0.50	U	
Bromobenzene	108-86-1	NE	NE	NE	NE	NE	ND	0.40	0.50	U		ND	0.40	0.50	U		ND	0.40	0.50	U		ND	0.40	0.50	U		ND	0.40	0.50	U		ND	0.40	0.50	U		ND	0.40	0.50	U		ND	0.40	0.50	U		ND	0.40	0.50	U		ND	0.40	0.50	U	
Bromochloromethane	74-97-5	NE	NE	NE	NE	NE	ND	0.40	0.50	U		ND	0.40	0.50	U		ND	0.40	0.50	U		ND	0.40	0.50	U		ND	0.40	0.50	U		ND	0.40	0.50	U		ND	0.40	0.50	U		ND	0.40	0.50	U		ND	0.40	0.50	U		ND	0.40	0.50	U	
Bromodichloromethane	75-27-4	NE	NE	340	170	NE	ND	0.40	0.50	U		ND	0.40	0.50	U		ND	0.40	0.50	U		ND	0.40	0.50	U		ND	0.40	0.50	U		ND	0.40	0.50	U		ND	0.40	0.50	U		ND	0.40	0.50	U		ND	0.40	0.50	U		ND	0.40	0.50	U	
Bromoform	75-25-2	NE	NE	320	1400	NE	ND	0.40	0.50	U		ND	0.40	0.50	U		ND	0.40	0.50	U		ND	0.40	0.50	U		ND	0.40	0.50	U		ND	0.40	0.50	U		ND	0.40	0.50	U		ND	0.40	0.50	U		ND	0.40	0.50	U		ND	0.40	0.50	U	
Bromomethane	74-83-9	NE	NE	16	1500	NE	ND	0.40	0.50	U		ND	0.40	0.50	U		ND	0.40	0.50	U		ND	0.40	0.50	U		ND	0.40	0.50	U		ND	0.40	0.50	U		ND	0.40	0.50	U		ND	0.40	0.50	U		ND	0.40	0.50	U		ND	0.40	0.50	U	
Carbon Disulfide	75-15-0	NE	NE	0.92	NE	NE	ND	0.40	0.50	U		ND	0.40	0.50	U		ND	0.40	0.50	U		ND	0.40	0.50	U		ND	0.40	0.50	U		ND	0.40	0.50	U		ND	0.40	0.50	U		ND	0.40	0.50	U		ND	0.40	0.50	U		ND	0.40	0.50	U	
Carbon tetrachloride	56-23-5	NE	NE	13.3	16	NE	ND	0.40	0.50	U		ND	0.40	0.50	U		ND	0.40	0.50	U		ND	0.40	0.50	U		ND	0.40	0.50	U		ND	0.40	0.50	U		ND	0.40	0.50	U		ND	0.40	0.50	U		ND	0.40	0.50	U		ND	0.40	0.50	U	
Chlorobenzene	108-90-7	NE	NE	1.3	1600	30	ND	0.40	0.50	U		ND	0.40	0.50	U		ND	0.40	0.50	U		ND	0.40	0.50	U		ND	0.40	0.50	U		ND	0.40	0.50	U		ND	0.40	0.50	U		ND	0.40	0.50	U		ND	0.40	0.50	U		ND	0.40	0.50	U	
Chloroethane	75-00-3	NE	NE	NE	NE	NE	ND	0.40	0.50	U		ND	0.40	0.50	U		ND	0.40	0.50	U		ND	0.40	0.50	U		ND	0.40	0.50	U		ND	0.40	0.50	U		ND	0.40	0.50	U		ND	0.40	0.50	U		ND	0.40	0.50	U		ND	0.40	0.50	U	
Chloroform	67-66-3	NE	NE	1.8	4700	NE	ND	0.40	0.50	U		ND	0.40	0.50	U		ND	0.40	0.50	U		ND	0.40	0.50	U		ND	0.40	0.50	U		ND	0.40	0.50	U		ND	0.40	0.50	U		**0.40**	**0.40**	**0.50**	**J**		ND	0.40	0.50	U		ND	0.40	0.50	U	
chloromethane	74-87-3	NE	NE	NE	NE	NE	ND	0.40	0.50	U		ND	0.40	0.50	U		ND	0.40	0.50	U		ND	0.40	0.50	U		ND	0.40	0.50	U		ND	0.40	0.50	U		ND	0.40	0.50	U		ND	0.40	0.50	U		ND	0.40	0.50	U		ND	0.40	0.50	U	
cis-1,2-Dichloroethene	156-59-2	NE	NE	590	NE	20	ND	0.40	0.50	U		ND	0.40	0.50	U		ND	0.40	0.50	U		ND	0.40	0.50	U		ND	0.40	0.50	U		ND	0.40	0.50	U		ND	0.40	0.50	U		ND	0.40	0.50	U		ND	0.40	0.50	U		ND	0.40	0.50	U	
cis-1,3-Dichloropropene	10061-01-5	NE	NE	0.055	210	NE	ND	0.40	0.50	U		ND	0.40	0.50	U		ND	0.40	0.50	U		ND	0.40	0.50	U		ND	0.40	0.50	U		ND	0.40	0.50	U		ND	0.40	0.50	U		ND	0.40	0.50	U		ND	0.40	0.50	U		ND	0.40	0.50	U	
Cyclohexane	110-82-7	NE	NE	158	NE	NE	ND	0.40	0.50	U		ND	0.40	0.50	U		ND	0.40	0.50	U		ND	0.40	0.50	U		ND	0.40	0.50	U		ND	0.40	0.50	U		ND	0.40	0.50	U		ND	0.40	0.50	U		ND	0.40	0.50	U		ND	0.40	0.50	U	
Cymene	99-87-6	NE	NE	85	NE	NE	ND	0.40	0.50	U		ND	0.40	0.50	U		ND	0.40	0.50	U		ND	0.40	0.50	U		ND	0.40	0.50	U		ND	0.40	0.50	U		ND	0.40	0.50	U		ND	0.40	0.50	U		ND	0.40	0.50	U		ND	0.40	0.50	U	
Dibromochloromethane	124-48-1	NE	NE	320	130	NE	ND	0.40	0.50	U		ND	0.40	0.50	U		ND	0.40	0.50	U		ND	0.40	0.50	U		ND	0.40	0.50	U		ND	0.40	0.50	U		ND	0.40	0.50	U		ND	0.40	0.50	U		ND	0.40	0.50	U		ND	0.40	0.50	U	
Dibromomethane	74-95-3	NE	NE	NE	NE	NE	ND	0.40	0.50	U		ND	0.40	0.50	U		ND	0.40	0.50	U		ND	0.40	0.50	U		ND	0.40	0.50	U		ND	0.40	0.50	U		ND	0.40	0.50	U		ND	0.40	0.50	U		ND	0.40	0.50	U		ND	0.40	0.50	U	
Dichlorodifluoromethane (CFC-12)	75-71-8	NE	NE	NE	NE	NE	ND	0.40	0.50	U		ND	0.40	0.50	U		ND	0.40	0.50	U		ND	0.40	0.50	U		ND	0.40	0.50	U		ND	0.40	0.50	U		ND	0.40	0.50	U		ND	0.40	0.50	U		ND	0.40	0.50	U		ND	0.40	0.50	U	
Diisopropyl Ether	108-20-3	NE	NE	NE	NE	NE	ND	0.40	0.50	U		ND	0.40	0.50	U		ND	0.40	0.50	U		ND	0.40	0.50	U		ND	0.40	0.50	U		ND	0.40	0.50	U		ND	0.40	0.50	U		ND	0.40	0.50	U		ND	0.40	0.50	U		ND	0.40	0.50	U	
Ethyl Tertiary-Butyl Ether	637-92-3	NE	NE	NE	NE	NE	ND	0.40	1.0	U		ND	0.40	1.0	U		ND	0.40	1.0	U		ND	0.40	1.0	U		ND	0.40	1.0	U		ND	0.40	1.0	U		ND	0.40	1.0	U		ND	0.40	1.0	U		ND	0.40	1.0	U		ND	0.40	1.0	U	
Ethylbenzene	100-41-4	NE	NE	90	2100	NE	ND	0.40	0.50	U		ND	0.40	0.50	U		ND	0.40	0.50	U		ND	0.40	0.50	U		ND	0.40	0.50	U		ND	0.40	0.50	U		ND	0.40	0.50	U		ND	0.40	0.50	U		ND	0.40	0.50	U		ND	0.40	0.50	U	
Freon TF (Chlorinated fluorocarbon)	76-13-1	NE	NE	NE	NE	NE	ND	0.42	1.0	U		ND	0.42	1.0	U		ND	0.42	1.0	U		ND	0.42	1.0	U		ND	0.42	1.0	U		ND	0.42	1.0	U		ND	0.42	1.0	U		ND	0.42	1.0	U		ND	0.42	1.0	U		ND	0.42	1.0	U	
Hexachloro-1,3-Butadiene	87-68-3	NE	NE	1.3	180	NE	ND	0.40	0.50	U		ND	0.40	0.50	U		ND	0.40	0.50	U		ND	0.40	0.50	U		ND	0.40	0.50	U		ND	0.40	0.50	U		ND	0.40	0.50	U		ND	0.40	0.50	U		ND	0.40	0.50	U		ND	0.40	0.50	U	
Isopropylbenzene	98-82-8	NE	NE	2.6	NE	NE	ND	0.40	0.50	U		ND	0.40	0.50	U		ND	0.40	0.50	U		ND	0.40	0.50	U		ND	0.40	0.50	U		ND	0.40	0.50	U		ND	0.40	0.50	U		ND	0.40	0.50	U		ND	0.40	0.50	U		ND	0.40	0.50	U	
Methyl acetate	79-20-9	NE	NE	NE	NE	NE	ND	0.40	1.0	U		ND	0.40	1.0	U		ND	0.40	1.0	U		ND	0.40	1.0	U		ND	0.40	1.0	U		ND	0.40	1.0	U		ND	0.40	1.0	U		ND	0.40	1.0	U		ND	0.40	1.0	U		ND	0.40	1.0	U	
Methyl tert-butyl ether	1634-04-4	NE	NE	11070	NE	NE	ND	0.40	0.50	U		ND	0.40	0.50	U		ND	0.40	0.50	U		ND	0.40	0.50	U		ND	0.40	0.50	U		ND	0.40	0.50	U		ND	0.40	0.50	U		ND	0.40	0.50	U		ND	0.40	0.50	U		ND	0.40	0.50	U	
Methylcyclohexane	108-87-2	NE	NE	52	NE	NE	ND	0.40	5.0	U		ND	0.40	5.0	U		ND	0.40	5.0	U		ND	0.40	5.0	U		ND	0.40	5.0	U		ND	0.40	5.0	U		ND	0.40	5.0	U		ND	0.40	5.0	U		ND	0.40	5.0	U		ND	0.40	5.0	U	
Methylene Chloride	75-09-2	NE	NE	98.1	5900	NE	ND	0.40	0.50	U		ND	0.40	0.50	U		ND	0.40	0.50	U		ND	0.40	0.50	U		ND	0.40	0.50	U		ND	0.40	0.50	U		ND	0.40	0.50	U		ND	0.40	0.50	U		ND	0.40	0.50	U		ND	0.40	0.50	U	
mp-xylene	1330-20-7-MP	NE	NE	1.8	NE	NE	ND	0.40	0.50	U		ND	0.40	0.50	U		ND	0.40	0.50	U		ND	0.40	0.50	U		ND	0.40	0.50	U		ND	0.40	0.50	U		ND	0.40	0.50	U		ND	0.40	0.50	U		ND	0.40	0.50	U		ND	0.40	0.50	U	
Naphthalene	91-20-3	NE	NE	1.1	NE	NE	ND	0.40	0.50	U		ND	0.40	0.50	U		ND	0.40	0.50	U		ND	0.40	0.50	U		ND	0.40	0.50	U		ND	0.40	0.50	U		ND	0.40	0.50	U		ND	0.40	0.50	U		ND	0.40	0.50	U		ND	0.40	0.50	U	
N-Butylbenzene	104-51-8	NE	NE	NE	NE	NE	ND	0.40	0.50	U		ND	0.40	0.50	U		ND	0.40	0.50	U		ND	0.40	0.50	U		ND	0.40	0.50	U		ND	0.40	0.50	U		ND	0.40	0.50	U		ND	0.40	0.50	U		ND	0.40	0.50	U		ND	0.40	0.50	U	
N-Propylbenzene	103-65-1	NE	NE	128	NE	NE	ND	0.40	0.50	U		ND	0.40	0.50	U		ND	0.40	0.50	U		ND	0.40	0.50	U		ND	0.40	0.50	U		ND	0.40	0.50	U		ND	0.40	0.50	U		ND	0.40	0.50	U		ND	0.40	0.50	U		ND	0.40	0.50	U	
o-Xylene	95-47-6	NE	NE	13	NE	NE	ND	0.40	0.50	U		ND	0.40	0.50	U		ND	0.40	0.50	U		ND	0.40	0.50	U		ND	0.40	0.50	U		ND	0.40	0.50	U		ND	0.40	0.50	U		ND	0.40	0.50	U		ND	0.40	0.50	U		ND	0.40	0.50	U	
Styrene	100-42-5	NE	NE	72	NE	NE	ND	0.41	0.50	U		ND	0.41	0.50	U		ND	0.41	0.50	U		ND	0.41	0.50	U		ND	0.41	0.50	U		ND	0.41	0.50	U		ND	0.41	0.50	U		ND	0.41	0.50	U		ND	0.41	0.50	U		ND	0.41	0.50	U	
Tert-Butyl Alcohol	75-65-0	NE	NE	NE	NE	NE	ND	8.0	20	U		ND	8.0	20	U		ND	8.0	20	U		ND	8.0	20	U		ND	8.0	20	U		ND	8.0	20	U		ND	8.0	20	U		ND	8.0	20	U		ND	8.0	20	U		ND	8.0	20	U	
Tert-Butylbenzene	98-06-6	NE	NE	NE	NE	NE	ND	0.40	0.50	U		ND	0.40	0.50	U		ND	0.40	0.50	U		ND	0.40	0.50	U		ND	0.40	0.50	U		ND	0.40	0.50	U		ND	0.40	0.50	U		ND	0.40	0.50	U		ND	0.40	0.50	U		ND	0.40	0.50	U	
Tertiary-Amyl Methyl Ether	994-05-8	NE	NE	NE	NE	NE	ND	0.42	10	U		ND	0.42	10	U		ND	0.42	10	U		ND	0.42	10	U		ND	0.42	10	U		ND	0.42	10	U		ND	0.42	10	U		ND	0.42	10	U		ND	0.42	10	U		ND	0.42	10	U	
Tetrachloroethene	127-18-4	NE	NE	111	33	NE	ND	0.40	0.50	U		ND	0.40	0.50	U		ND	0.40	0.50	U		ND	0.40	0.50	U		ND	0.40	0.50	U		ND	0.40	0.50	U		ND	0.40	0.50	U		ND	0.40	0.50	U		ND	0.40	0.50	U		ND	0.40	0.50	U	
Toluene	108-88-3	NE	NE	2	15000	NE	ND	0.40	0.50	U		ND	0.40	0.50	U		ND	0.40	0.50	U		ND	0.40	0.50	U		ND	0.40	0.50	U		ND	0.40	0.50	U		ND	0.40	0.50	U		ND	0.40	0.50	U		ND	0.40	0.50	U		ND	0.40	0.50	U	
trans-1,2-Dichloroethene	156-60-5	NE	NE	970	10000	NE	ND	0.40	0.50	U		ND	0.40	0.50	U		ND	0.40	0.50	U		ND	0.40	0.50	U		ND	0.40	0.50	U		ND	0.40	0.50	U		ND	0.40	0.50	U		ND	0.40	0.50	U		ND	0.40	0.50	U		ND	0.40	0.50	U	
trans-1,3-Dichloropropene	10061-02-6	NE	NE	0.055	210	NE	ND	0.40	0.50	U		ND	0.40	0.50	U		ND	0.40	0.50	U		ND	0.40	0.50	U		ND	0.40	0.50	U		ND	0.40	0.50	U		ND	0.40	0.50	U		ND	0.40	0.50	U		ND	0.40	0.50	U		ND	0.40	0.50	U	
Trichloroethene	79-01-6	NE	NE	21	300	30	**0.53**	**0.40**	**0.50**			ND	0.40	0.50	U		**1.2**	**0.40**	**0.50**			**0.57**	**0.40**	**0.50**			**0.53**	**0.40**	**0.50**			**0.86**	**0.40**	**0.50**			**0.85**	**0.40**	**0.50**			ND	0.40	0.50	U		ND	0.40	0.50	U		ND	0.40	0.50	U	
Trichlorofluoromethane	75-69-4	NE	NE	NE	NE	NE	ND	0.40	0.50	U		ND	0.40	0.50	U		ND	0.40	0.50	U		ND	0.40	0.50	U		ND	0.40	0.50	U		ND	0.40	0.50	U		ND	0.40	0.50	U		ND	0.40	0.50	U		ND	0.40	0.50	U		ND	0.40	0.50	U	
Vinyl Acetate	108-05-4	NE	NE	16	NE	NE	ND	1.2	5.0	U		ND	1.2	5.0	U		ND	1.2	5.0	U		ND	1.2	5.0	U		ND	1.2	5.0	U		ND	1.2	5.0	U		ND	1.2	5.0	U		ND	1.2	5.0	U		ND	1.2	5.0	U		ND	1.2	5.0	U	
Vinyl chloride	75-01-4	NE	NE	930	24	NE	ND	0.40	0.50	U		ND	0.40	0.50	U		ND	0.40	0.50	U		ND	0.40	0.50	U		ND	0.40	0.50	U		ND	0.40	0.50	U		ND	0.40	0.50	U		ND	0.40	0.50	U		ND	0.40	0.50	U		ND	0.40	0.50	U	
Xylenes (Total)	1330-20-7	NE	NE	13	NE	NE	ND	0.40	1.0	U		ND	0.40	1.0	U		ND	0.40	1.0	U		ND	0.40	1.0	U		ND	0.40	1.0	U		ND	0.40	1.0	U		ND	0.40	1.0	U		ND	0.40	1.0	U		ND	0.40	1.0	U		ND	0.40	1.0	U	
POLYCHLORINATED BIPHENYLS (ng/L)																																																												
Monochlorobiphenyls, Total	27323-18-8	NE	NE	NE	NE	NE	ND	0.263	0.526	U		ND	0.263	0.526	U		ND	0.250	0.500	U		ND	0.258	0.515	U		NS					ND	0.263	0.526	U		ND	0.263	0.526	U		NS					ND	0.250	0.500	U		NS				
Dichlorobiphenyls, Total	25512-42-9	NE	NE	NE	NE	NE	ND	0.263	0.526	U		**0.295**	**0.263**	**0.526**	**J**		**0.299**	**0.250**	**0.500**	**J**		**0.301**	**0.258**	**0.515**	**J**		NS					**0.305**	**0.263**	**0.526**	**J**		**0.317**	**0.263**	**0.526**	**J**		NS					**0.265**	**0.250**	**0.500**	**J**		NS				
Trichlorobiphenyls, Total	25323-68-6	NE	NE	NE	NE	NE	**0.350**	**0.263**	**0.526**	**J**		**0.316**	**0.263**	**0.526**	**J**		**0.510**	**0.250**	**0.500**			**0.589**	**0.258**	**0.515**			NS					**0.313**	**0.263**	**0.526**	**J**		**0.604**	**0.263**	**0.526**			NS					**0.350**	**0.250**	**0.500**	**J**		NS				
Tetrachlorobiphenyls, Total	26914-33-0	NE	NE	NE	NE	NE	ND	0.263	0.526	U		ND	0.263	0.526	U		ND	0.250	0.500	U		ND	0.258	0.515	U		NS					ND	0.263	0.526	U		ND	0.263	0.526	U		NS					ND	0.250	0.500	U		NS				
Pentachlorobiphenyls, Total	25429-29-2	NE	NE	NE	NE	NE	ND	0.263	0.526	U		ND	0.263	0.526	U		ND	0.250	0.500	U		ND	0.258	0.515	U		NS					ND	0.263	0.526	U		ND	0.263	0.526	U		NS					ND	0.250	0.500	U		NS				
Hexachlorobiphenyls, Total	26601-64-9	NE	NE	NE	NE	NE	**0.287**	**0.263**	**0.526**	**J**		ND	0.263	0.526	U		ND	0.250	0.500	U		ND	0.258	0.515	U		NS					**0.355**	**0.263**	**0.526**	**J**		ND	0.263	0.526	U		NS					ND	0.250	0.500	U		NS				
Heptachlorobiphenyls, Total	28655-71-2	NE	NE	NE	NE	NE	ND	0.263	0.526	U		ND	0.263	0.526	U		**0.289**	**0.250**	**0.500**	**J**		ND	0.258	0.515	U		NS					ND	0.263	0.526	U		ND	0.263	0.526	U		NS					ND	0.250	0.500	U		NS				
Octachlorobiphenyls, Total	55722-26-4	NE	NE	NE	NE	NE	ND	0.263	0.526	U		ND	0.263	0.526	U		ND	0.250	0.500	U		ND	0.258	0.515	U		NS					ND	0.263	0.526	U		ND	0.263	0.526	U		NS					ND	0.250	0.500	U		NS				
Nonachlorobiphenyls, Total	53742-07-7	NE	NE	NE	NE	NE	ND	0.263	0.526	U		ND	0.263	0.526	U		ND	0.250	0.500	U		ND	0.258	0.515	U		NS					ND	0.263	0.526	U		ND	0.263	0.526	U		NS					ND	0.250	0.500	U		NS				
Decachlorobiphenyl	2051-24-3	NE	NE	NE	NE	NE	ND	0.263	0.526	U		ND	0.263	0.526	U		ND	0.250	0.500	U		ND	0.258	0.515	U		NS					ND	0.263	0.526	U		ND	0.263	0.526	U		NS					ND	0.250	0.500	U		NS				
Total Polychlorinated biphenyls (PCBs)	1336-36-3	NE	14	0.074	0.64	5000	**0.637**	**0.263**	**0.526**			**0.611**	**0.263**	**0.526**			**1.10**	**0.250**	**0.500**			**0.890**	**0.258**	**0.515**			NS					**0.973**	**0.263**	**0.526**			**0.921**	**0.263**	**0.526**			NS					**0.615**	**0.250**	**0.500**			NS				
SEMIVOLATILES (µg/L)																																																												
1,4-Dioxane	123-91-1	NE	NE	22000	NE	20	NS					NS					NS					NS					NS					NS					NS					**0.18**	**0.068**	**0.20**	**B**	**bl**	NS					NS				

Bold values indicate detections

Yellow shading indicates a results that exceeds a screening criterion

References

1 National Recommended Water Quality Criteria, http://water.epa.gov/scitech/swguidance/standards/current/index.cfm; and Maryland Numerical Criteria for Toxic Substances in Surface Waters, Code of Maryland Regulations (COMAR) 26.08.02.03, http://www.dsd.state.md.us./comar/comarhtml/26/26.08.02.03-2.htm

2 United States Environmental Protection Agency (USEPA) Region 3 Biological Technical Advisory Group (BTAG) Freshwater Screening Benchmarks. Value for 1,4-dioxane is the USEPA Region 5 ecological screening value (USEPA, 2003).

3 For carcinogens, criterion is for incremental cancer risk of $1x10^{-5}$

4 Risk-based swimming screening levels were developed for trichloroethene, *cis*-1,2-dichloroethene, 1,4 dioxane, 1,2,4-trichlorobenzene and Total PCBs for Dark Head Cove.

Acronyms

FQ - Final qualifier
MDL - Method Detection Limit
MRC - Middle River Complex
ND - Not detected
NS - Not sampled
RC - Reason code
RL - Reporting limit
SW - Surface water
µg/L - micrograms per liter

Data Validation Flags

B = The associated method blank or field blank displayed a detection greater than the MDL. The reported result value is unchanged and did not require further qualification by data reviewers.
J = Estimated concentration
U = The analyte was analyzed for, but not detected at a level greater than or equal to the level of the Method Detection Limit (MDL) for sample and method.
bl = Method blank contamination

Appendix D
Laboratory Analytical Result Table
Lockheed Martin Corporation, Middle River Complex, Middle River, Maryland

Analyte	CAS Number	National Recommended Water Quality Acute	National Recommended Water Quality Chronic	Ecological Surface Water Screening Level (2)	Human Health Consumption (Organism Only) (1) (3)	Swimming Screening Levels (4)	MRC-SW1A 04/13/2021 Field Sample Result	MDL	RL	FQ	RC	MRC-SW20A-S 04/13/2021 Field Sample Result	MDL	RL	FQ	RC	MRC-SW2A 04/13/2021 Field Sample Result	MDL	RL	FQ	RC
VOLATILES (µg/L)																					
1,1,1,2-Tetrachloroethane	630-20-6	NE	NE	85	NE	NE	ND	0.40	0.50	U		ND	0.40	0.50	U		ND	0.40	0.50	U	
1,1,1-Trichloroethane	71-55-6	NE	NE	11	NE	NE	ND	0.40	0.50	U		ND	0.40	0.50	U		ND	0.40	0.50	U	
1,1,2,2-Tetrachloroethane	79-34-5	NE	NE	610	40	NE	ND	0.40	0.50	U		ND	0.40	0.50	U		ND	0.40	0.50	U	
1,1,2-Trichloroethane	79-00-5	NE	NE	1200	160	NE	ND	0.40	0.50	U		ND	0.40	0.50	U		ND	0.40	0.50	U	
1,1-Dichloroethane	75-34-3	NE	NE	47	NE	NE	ND	0.40	0.50	U		ND	0.40	0.50	U		ND	0.40	0.50	U	
1,1-Dichloroethene	75-35-4	NE	NE	25	7100	NE	ND	0.40	0.50	U		ND	0.40	0.50	U		ND	0.40	0.50	U	
1,2,3-Trichlorobenzene	87-61-6	NE	NE	8	NE	NE	ND	0.40	0.50	U		ND	0.40	0.50	U		ND	0.40	0.50	U	
1,2,3-Trichloropropane	96-18-4	NE	NE	NE	NE	NE	ND	0.40	0.50	U		ND	0.40	0.50	U		ND	0.40	0.50	U	
1,2,4-Trichlorobenzene	120-82-1	NE	NE	24	70	8	ND	0.40	0.50	U		ND	0.40	0.50	U		ND	0.40	0.50	U	
1,2,4-Trimethylbenzene	95-63-6	NE	NE	33	NE	NE	ND	0.40	0.50	U		ND	0.40	0.50	U		ND	0.40	0.50	U	
1,2-Dibromo-3-chloropropane (DBCP)	96-12-8	NE	NE	NE	NE	NE	ND	0.40	0.50	U		ND	0.40	0.50	U		ND	0.40	0.50	U	
1,2-Dibromoethane	106-93-4	NE	NE	NE	NE	NE	ND	0.40	0.50	U		ND	0.40	0.50	U		ND	0.40	0.50	U	
1,2-Dichlorobenzene	95-50-1	NE	NE	0.7	1300	NE	ND	0.40	0.50	U		ND	0.40	0.50	U		ND	0.40	0.50	U	
1,2-Dichloroethane	107-06-2	NE	NE	100	370	NE	ND	0.40	0.50	U		ND	0.40	0.50	U		ND	0.40	0.50	U	
1,2-Dichloroethylene (total)	540-59-0	NE	NE	590	NE	NE	ND	0.40	0.50	U		ND	0.40	0.50	U		ND	0.40	0.50	U	
1,2-Dichloropropane	78-87-5	NE	NE	520	150	NE	ND	0.40	0.50	U		ND	0.40	0.50	U		ND	0.40	0.50	U	
1,3-Dichlorobenzene	541-73-1	NE	NE	150	960	NE	ND	0.40	0.50	U		ND	0.40	0.50	U		ND	0.40	0.50	U	
1,3-Dichloropropane	142-28-9	NE	NE	NE	NE	NE	ND	0.40	0.50	U		ND	0.40	0.50	U		ND	0.40	0.50	U	
1,4-Dichlorobenzene	106-46-7	NE	NE	26	190	NE	ND	0.40	0.50	U		ND	0.40	0.50	U		ND	0.40	0.50	U	
2,2-Dichloropropane	594-20-7	NE	NE	NE	NE	NE	ND	0.40	0.50	U		ND	0.40	0.50	U		ND	0.40	0.50	U	
2-Butanone	78-93-3	NE	NE	14000	NE	NE	ND	2.0	10	U		ND	2.0	10	U		ND	2.0	10	U	
2-Chlorotoluene	95-49-8	NE	NE	NE	NE	NE	ND	0.40	0.50	U		ND	0.40	0.50	U		ND	0.40	0.50	U	
2-Hexanone	591-78-6	NE	NE	99	NE	NE	ND	2.0	10	U		ND	2.0	10	U		ND	2.0	10	U	
2-Phenylbutane	135-98-8	NE	NE	NE	NE	NE	ND	0.40	0.50	U		ND	0.40	0.50	U		ND	0.40	0.50	U	
4-Chlorotoluene	106-43-4	NE	NE	NE	NE	NE	ND	0.40	0.50	U		ND	0.40	0.50	U		ND	0.40	0.50	U	
4-Methyl-2-pentanone	108-10-1	NE	NE	170	NE	NE	ND	2.0	10	U		ND	2.0	10	U		ND	2.0	10	U	
Acetone	67-64-1	NE	NE	1500	NE	NE	ND	4.0	10	U		ND	4.0	10	U		ND	4.0	10	U	
Benzene	71-43-2	NE	NE	370	510	NE	ND	0.40	0.50	U		ND	0.40	0.50	U		ND	0.40	0.50	U	
Bromobenzene	108-86-1	NE	NE	NE	NE	NE	ND	0.40	0.50	U		ND	0.40	0.50	U		ND	0.40	0.50	U	
Bromochloromethane	74-97-5	NE	NE	NE	NE	NE	ND	0.40	0.50	U		ND	0.40	0.50	U		ND	0.40	0.50	U	
Bromodichloromethane	75-27-4	NE	NE	340	170	NE	ND	0.40	0.50	U		ND	0.40	0.50	U		ND	0.40	0.50	U	
Bromoform	75-25-2	NE	NE	320	1400	NE	ND	0.40	0.50	U		ND	0.40	0.50	U		ND	0.40	0.50	U	
Bromomethane	74-83-9	NE	NE	16	1500	NE	ND	0.40	0.50	U		ND	0.40	0.50	U		ND	0.40	0.50	U	
Carbon Disulfide	75-15-0	NE	NE	0.92	NE	NE	ND	0.40	0.50	U		ND	0.40	0.50	U		ND	0.40	0.50	U	
Carbon tetrachloride	56-23-5	NE	NE	13.3	16	NE	ND	0.40	0.50	U		ND	0.40	0.50	U		ND	0.40	0.50	U	
Chlorobenzene	108-90-7	NE	NE	1.3	1600	30	ND	0.40	0.50	U		ND	0.40	0.50	U		ND	0.40	0.50	U	
Chloroethane	75-00-3	NE	NE	NE	NE	NE	ND	0.40	0.50	U		ND	0.40	0.50	U		ND	0.40	0.50	U	
Chloroform	67-66-3	NE	NE	1.8	4700	NE	ND	0.40	0.50	U		ND	0.40	0.50	U		ND	0.40	0.50	U	
chloromethane	74-87-3	NE	NE	NE	NE	NE	ND	0.40	0.50	U		ND	0.40	0.50	U		ND	0.40	0.50	U	
cis-1,2-Dichloroethene	156-59-2	NE	NE	590	NE	20	ND	0.40	0.50	U		ND	0.40	0.50	U		ND	0.40	0.50	U	
cis-1,3-Dichloropropene	10061-01-5	NE	NE	0.055	210	NE	ND	0.40	0.50	U		ND	0.40	0.50	U		ND	0.40	0.50	U	
Cyclohexane	110-82-7	NE	NE	158	NE	NE	ND	0.40	0.50	U		ND	0.40	0.50	U		ND	0.40	0.50	U	
Cymene	99-87-6	NE	NE	85	NE	NE	ND	0.40	0.50	U		ND	0.40	0.50	U		ND	0.40	0.50	U	
Dibromochloromethane	124-48-1	NE	NE	320	130	NE	ND	0.40	0.50	U		ND	0.40	0.50	U		ND	0.40	0.50	U	
Dibromomethane	74-95-3	NE	NE	NE	NE	NE	ND	0.40	0.50	U		ND	0.40	0.50	U		ND	0.40	0.50	U	
Dichlorodifluoromethane (CFC-12)	75-71-8	NE	NE	NE	NE	NE	ND	0.40	0.50	U		ND	0.40	0.50	U		ND	0.40	0.50	U	
Diisopropyl Ether	108-20-3	NE	NE	NE	NE	NE	ND	0.40	0.50	U		ND	0.40	0.50	U		ND	0.40	0.50	U	
Ethyl Tertiary-Butyl Ether	637-92-3	NE	NE	NE	NE	NE	ND	0.40	1.0	U		ND	0.40	1.0	U		ND	0.40	1.0	U	
Ethylbenzene	100-41-4	NE	NE	90	2100	NE	ND	0.40	0.50	U		ND	0.40	0.50	U		ND	0.40	0.50	U	
Freon TF (Chlorinated fluorocarbon)	76-13-1	NE	NE	NE	NE	NE	ND	0.42	1.0	U		ND	0.42	1.0	U		ND	0.42	1.0	U	
Hexachloro-1,3-Butadiene	87-68-3	NE	NE	1.3	180	NE	ND	0.40	0.50	U		ND	0.40	0.50	U		ND	0.40	0.50	U	
Isopropylbenzene	98-82-8	NE	NE	2.6	NE	NE	ND	0.40	0.50	U		ND	0.40	0.50	U		ND	0.40	0.50	U	
Methyl acetate	79-20-9	NE	NE	NE	NE	NE	ND	0.40	1.0	U		ND	0.40	1.0	U		ND	0.40	1.0	U	
Methyl tert-butyl ether	1634-04-4	NE	NE	11070	NE	NE	ND	0.40	0.50	U		ND	0.40	0.50	U		ND	0.40	0.50	U	
Methylcyclohexane	108-87-2	NE	NE	52	NE	NE	ND	0.40	5.0	U		ND	0.40	5.0	U		ND	0.40	5.0	U	
Methylene Chloride	75-09-2	NE	NE	98.1	5900	NE	ND	0.40	0.50	U		ND	0.40	0.50	U		ND	0.40	0.50	U	
mp-xylene	1330-20-7-MP	NE	NE	1.8	NE	NE	ND	0.40	0.50	U		ND	0.40	0.50	U		ND	0.40	0.50	U	
Naphthalene	91-20-3	NE	NE	1.1	NE	NE	ND	0.40	0.50	U		ND	0.40	0.50	U		ND	0.40	0.50	U	
N-Butylbenzene	104-51-8	NE	NE	NE	NE	NE	ND	0.40	0.50	U		ND	0.40	0.50	U		ND	0.40	0.50	U	
N-Propylbenzene	103-65-1	NE	NE	128	NE	NE	ND	0.40	0.50	U		ND	0.40	0.50	U		ND	0.40	0.50	U	
o-Xylene	95-47-6	NE	NE	13	NE	NE	ND	0.40	0.50	U		ND	0.40	0.50	U		ND	0.40	0.50	U	
Styrene	100-42-5	NE	NE	72	NE	NE	ND	0.41	0.50	U		ND	0.41	0.50	U		ND	0.41	0.50	U	
Tert-Butyl Alcohol	75-65-0	NE	NE	NE	NE	NE	ND	8.0	20	U		ND	8.0	20	U		ND	8.0	20	U	
Tert-Butylbenzene	98-06-6	NE	NE	NE	NE	NE	ND	0.40	0.50	U		ND	0.40	0.50	U		ND	0.40	0.50	U	
Tertiary-Amyl Methyl Ether	994-05-8	NE	NE	NE	NE	NE	ND	0.42	10	U		ND	0.42	10	U		ND	0.42	10	U	
Tetrachloroethene	127-18-4	NE	NE	111	33	NE	ND	0.40	0.50	U		ND	0.40	0.50	U		ND	0.40	0.50	U	
Toluene	108-88-3	NE	NE	2	15000	NE	ND	0.40	0.50	U		ND	0.40	0.50	U		ND	0.40	0.50	U	
trans-1,2-Dichloroethene	156-60-5	NE	NE	970	10000	NE	ND	0.40	0.50	U		ND	0.40	0.50	U		ND	0.40	0.50	U	
trans-1,3-Dichloropropene	10061-02-6	NE	NE	0.055	210	NE	ND	0.40	0.50	U		ND	0.40	0.50	U		ND	0.40	0.50	U	
Trichloroethene	79-01-6	NE	NE	21	300	30	ND	0.40	0.50	U		ND	0.40	0.50	U		ND	0.40	0.50	U	
Trichlorofluoromethane	75-69-4	NE	NE	NE	NE	NE	ND	0.40	0.50	U		ND	0.40	0.50	U		ND	0.40	0.50	U	
Vinyl Acetate	108-05-4	NE	NE	16	NE	NE	ND	1.2	5.0	U		ND	1.2	5.0	U		ND	1.2	5.0	U	
Vinyl chloride	75-01-4	NE	NE	930	24	NE	ND	0.40	0.50	U		ND	0.40	0.50	U		ND	0.40	0.50	U	
Xylenes (Total)	1330-20-7	NE	NE	13	NE	NE	ND	0.40	1.0	U		ND	0.40	1.0	U		ND	0.40	1.0	U	
POLYCHLORINATED BIPHENYLS (ng/L)																					
Monochlorobiphenyls, Total	27323-18-8	NE	NE	NE	NE	NE	NS					ND	0.258	0.515	U		NS				
Dichlorobiphenyls, Total	25512-42-9	NE	NE	NE	NE	NE	NS					**0.314**	**0.258**	**0.515**	**J**		NS				
Trichlorobiphenyls, Total	25323-68-6	NE	NE	NE	NE	NE	NS					**0.582**	**0.258**	**0.515**			NS				
Tetrachlorobiphenyls, Total	26914-33-0	NE	NE	NE	NE	NE	NS					ND	0.258	0.515	U		NS				
Pentachlorobiphenyls, Total	25429-29-2	NE	NE	NE	NE	NE	NS					ND	0.258	0.515	U		NS				
Hexachlorobiphenyls, Total	26601-64-9	NE	NE	NE	NE	NE	NS					ND	0.258	0.515	U		NS				
Heptachlorobiphenyls, Total	28655-71-2	NE	NE	NE	NE	NE	NS					ND	0.258	0.515	U		NS				
Octachlorobiphenyls, Total	55722-26-4	NE	NE	NE	NE	NE	NS					ND	0.258	0.515	U		NS				
Nonachlorobiphenyls, Total	53742-07-7	NE	NE	NE	NE	NE	NS					ND	0.258	0.515	U		NS				
Decachlorobiphenyl	2051-24-3	NE	NE	NE	NE	NE	NS					ND	0.258	0.515	U		NS				
Total Polychlorinated biphenyls (PCBs)	1336-36-3	NE	14	0.074	0.64	5000	NS					**0.896**	**0.258**	**0.515**			NS				
SEMIVOLATILES (µg/L)																					
1,4-Dioxane	123-91-1	NE	NE	22000	NE	20	**0.15**	**0.068**	**0.20**	**B**	**bl**	NS					**0.15**	**0.068**	**0.20**	**B**	**bl**

Analyte	MRC-SW5A1-S 04/13/2021 Field Sample Result	MDL	RL	FQ	RC	MRC-SW5A2-S 04/13/2021 Field Sample Result	MDL	RL	FQ	RC	MRC-SW5B-S 04/13/2021 Field Sample Result	MDL	RL	FQ	RC
VOLATILES (µg/L)															
1,1,1,2-Tetrachloroethane	ND	0.40	0.50	U		ND	0.40	0.50	U		ND	0.40	0.50	U	
1,1,1-Trichloroethane	ND	0.40	0.50	U		ND	0.40	0.50	U		ND	0.40	0.50	U	
1,1,2,2-Tetrachloroethane	ND	0.40	0.50	U		ND	0.40	0.50	U		ND	0.40	0.50	U	
1,1,2-Trichloroethane	ND	0.40	0.50	U		ND	0.40	0.50	U		ND	0.40	0.50	U	
1,1-Dichloroethane	ND	0.40	0.50	U		ND	0.40	0.50	U		ND	0.40	0.50	U	
1,1-Dichloroethene	ND	0.40	0.50	U		ND	0.40	0.50	U		ND	0.40	0.50	U	
1,2,3-Trichlorobenzene	ND	0.40	0.50	U		ND	0.40	0.50	U		ND	0.40	0.50	U	
1,2,3-Trichloropropane	ND	0.40	0.50	U		ND	0.40	0.50	U		ND	0.40	0.50	U	
1,2,4-Trichlorobenzene	ND	0.40	0.50	U		ND	0.40	0.50	U		ND	0.40	0.50	U	
1,2,4-Trimethylbenzene	ND	0.40	0.50	U		ND	0.40	0.50	U		ND	0.40	0.50	U	
1,2-Dibromo-3-chloropropane (DBCP)	ND	0.40	0.50	U		ND	0.40	0.50	U		ND	0.40	0.50	U	
1,2-Dibromoethane	ND	0.40	0.50	U		ND	0.40	0.50	U		ND	0.40	0.50	U	
1,2-Dichlorobenzene	ND	0.40	0.50	U		ND	0.40	0.50	U		ND	0.40	0.50	U	
1,2-Dichloroethane	ND	0.40	0.50	U		ND	0.40	0.50	U		ND	0.40	0.50	U	
1,2-Dichloroethylene (total)	ND	0.40	0.50	U		ND	0.40	0.50	U		ND	0.40	0.50	U	
1,2-Dichloropropane	ND	0.40	0.50	U		ND	0.40	0.50	U		ND	0.40	0.50	U	
1,3-Dichlorobenzene	ND	0.40	0.50	U		ND	0.40	0.50	U		ND	0.40	0.50	U	
1,3-Dichloropropane	ND	0.40	0.50	U		ND	0.40	0.50	U		ND	0.40	0.50	U	
1,4-Dichlorobenzene	ND	0.40	0.50	U		ND	0.40	0.50	U		ND	0.40	0.50	U	
2,2-Dichloropropane	ND	0.40	0.50	U		ND	0.40	0.50	U		ND	0.40	0.50	U	
2-Butanone	ND	2.0	10	U		ND	2.0	10	U		ND	2.0	10	U	
2-Chlorotoluene	ND	0.40	0.50	U		ND	0.40	0.50	U		ND	0.40	0.50	U	
2-Hexanone	ND	2.0	10	U		ND	2.0	10	U		ND	2.0	10	U	
2-Phenylbutane	ND	0.40	0.50	U		ND	0.40	0.50	U		ND	0.40	0.50	U	
4-Chlorotoluene	ND	0.40	0.50	U		ND	0.40	0.50	U		ND	0.40	0.50	U	
4-Methyl-2-pentanone	ND	2.0	10	U		ND	2.0	10	U		ND	2.0	10	U	
Acetone	ND	4.0	10	U		ND	4.0	10	U		ND	4.0	10	U	
Benzene	ND	0.40	0.50	U		ND	0.40	0.50	U		ND	0.40	0.50	U	
Bromobenzene	ND	0.40	0.50	U		ND	0.40	0.50	U		ND	0.40	0.50	U	
Bromochloromethane	ND	0.40	0.50	U		ND	0.40	0.50	U		ND	0.40	0.50	U	
Bromodichloromethane	ND	0.40	0.50	U		ND	0.40	0.50	U		ND	0.40	0.50	U	
Bromoform	ND	0.40	0.50	U		ND	0.40	0.50	U		ND	0.40	0.50	U	
Bromomethane	ND	0.40	0.50	U		ND	0.40	0.50	U		ND	0.40	0.50	U	
Carbon Disulfide	ND	0.40	0.50	U		ND	0.40	0.50	U		ND	0.40	0.50	U	
Carbon tetrachloride	ND	0.40	0.50	U		ND	0.40	0.50	U		ND	0.40	0.50	U	
Chlorobenzene	ND	0.40	0.50	U		ND	0.40	0.50	U		ND	0.40	0.50	U	
Chloroethane	ND	0.40	0.50	U		ND	0.40	0.50	U		ND	0.40	0.50	U	
Chloroform	ND	0.40	0.50	U		ND	0.40	0.50	U		ND	0.40	0.50	U	
chloromethane	ND	0.40	0.50	U		ND	0.40	0.50	U		ND	0.40	0.50	U	
cis-1,2-Dichloroethene	ND	0.40	0.50	U		ND	0.40	0.50	U		ND	0.40	0.50	U	
cis-1,3-Dichloropropene	ND	0.40	0.50	U		ND	0.40	0.50	U		ND	0.40	0.50	U	
Cyclohexane	ND	0.40	0.50	U		ND	0.40	0.50	U		ND	0.40	0.50	U	
Cymene	ND	0.40	0.50	U		ND	0.40	0.50	U		ND	0.40	0.50	U	
Dibromochloromethane	ND	0.40	0.50	U		ND	0.40	0.50	U		ND	0.40	0.50	U	
Dibromomethane	ND	0.40	0.50	U		ND	0.40	0.50	U		ND	0.40	0.50	U	
Dichlorodifluoromethane (CFC-12)	ND	0.40	0.50	U		ND	0.40	0.50	U		ND	0.40	0.50	U	
Diisopropyl Ether	ND	0.40	0.50	U		ND	0.40	0.50	U		ND	0.40	0.50	U	
Ethyl Tertiary-Butyl Ether	ND	0.40	1.0	U		ND	0.40	1.0	U		ND	0.40	1.0	U	
Ethylbenzene	ND	0.40	0.50	U		ND	0.40	0.50	U		ND	0.40	0.50	U	
Freon TF (Chlorinated fluorocarbon)	ND	0.42	1.0	U		ND	0.42	1.0	U		ND	0.42	1.0	U	
Hexachloro-1,3-Butadiene	ND	0.40	0.50	U		ND	0.40	0.50	U		ND	0.40	0.50	U	
Isopropylbenzene	ND	0.40	0.50	U		ND	0.40	0.50	U		ND	0.40	0.50	U	
Methyl acetate	ND	0.40	1.0	U		ND	0.40	1.0	U		ND	0.40	1.0	U	
Methyl tert-butyl ether	ND	0.40	0.50	U		ND	0.40	0.50	U		ND	0.40	0.50	U	
Methylcyclohexane	ND	0.40	5.0	U		ND	0.40	5.0	U		ND	0.40	5.0	U	
Methylene Chloride	ND	0.40	0.50	U		ND	0.40	0.50	U		ND	0.40	0.50	U	
mp-xylene	ND	0.40	0.50	U		ND	0.40	0.50	U		ND	0.40	0.50	U	
Naphthalene	ND	0.40	0.50	U		ND	0.40	0.50	U		ND	0.40	0.50	U	
N-Butylbenzene	ND	0.40	0.50	U		ND	0.40	0.50	U		ND	0.40	0.50	U	
N-Propylbenzene	ND	0.40	0.50	U		ND	0.40	0.50	U		ND	0.40	0.50	U	
o-Xylene	ND	0.40	0.50	U		ND	0.40	0.50	U		ND	0.40	0.50	U	
Styrene	ND	0.41	0.50	U		ND	0.41	0.50	U		ND	0.41	0.50	U	
Tert-Butyl Alcohol	ND	8.0	20	U		ND	8.0	20	U		ND	8.0	20	U	
Tert-Butylbenzene	ND	0.40	0.50	U		ND	0.40	0.50	U		ND	0.40	0.50	U	
Tertiary-Amyl Methyl Ether	ND	0.42	10	U		ND	0.42	10	U		ND	0.42	10	U	
Tetrachloroethene	ND	0.40	0.50	U		ND	0.40	0.50	U		ND	0.40	0.50	U	
Toluene	ND	0.40	0.50	U		ND	0.40	0.50	U		ND	0.40	0.50	U	
trans-1,2-Dichloroethene	ND	0.40	0.50	U		ND	0.40	0.50	U		ND	0.40	0.50	U	
trans-1,3-Dichloropropene	ND	0.40	0.50	U		ND	0.40	0.50	U		ND	0.40	0.50	U	
Trichloroethene	ND	0.40	0.50	U		ND	0.40	0.50	U		ND	0.40	0.50	U	
Trichlorofluoromethane	ND	0.40	0.50	U		ND	0.40	0.50	U		ND	0.40	0.50	U	
Vinyl Acetate	ND	1.2	5.0	U		ND	1.2	5.0	U		ND	1.2	5.0	U	
Vinyl chloride	ND	0.40	0.50	U		ND	0.40	0.50	U		ND	0.40	0.50	U	
Xylenes (Total)	ND	0.40	1.0	U		ND	0.40	1.0	U		ND	0.40	1.0	U	
POLYCHLORINATED BIPHENYLS (ng/L)															
Monochlorobiphenyls, Total	ND	0.250	0.500	U		ND	0.250	0.500	U		ND	0.245	0.490	U	
Dichlorobiphenyls, Total	ND	0.250	0.500	U		**0.286**	**0.250**	**0.500**	**J**		**0.274**	**0.245**	**0.490**	**J**	
Trichlorobiphenyls, Total	ND	0.250	0.500	U		**0.352**	**0.250**	**0.500**	**J**		**0.327**	**0.245**	**0.490**	**J**	
Tetrachlorobiphenyls, Total	ND	0.250	0.500	U		ND	0.250	0.500	U		ND	0.245	0.490	U	
Pentachlorobiphenyls, Total	ND	0.250	0.500	U		ND	0.250	0.500	U		ND	0.245	0.490	U	
Hexachlorobiphenyls, Total	ND	0.250	0.500	U		**0.304**	**0.250**	**0.500**	**J**		ND	0.245	0.490	U	
Heptachlorobiphenyls, Total	ND	0.250	0.500	U		ND	0.250	0.500	U		ND	0.245	0.490	U	
Octachlorobiphenyls, Total	ND	0.250	0.500	U		ND	0.250	0.500	U		ND	0.245	0.490	U	
Nonachlorobiphenyls, Total	ND	0.250	0.500	U		ND	0.250	0.500	U		ND	0.245	0.490	U	
Decachlorobiphenyl	ND	0.250	0.500	U		ND	0.250	0.500	U		ND	0.245	0.490	U	
Total Polychlorinated biphenyls (PCBs)	ND	0.250	0.500	U		**0.942**	**0.250**	**0.500**			**0.601**	**0.245**	**0.490**		
SEMIVOLATILES (µg/L)															
1,4-Dioxane	NS					NS					NS				

Analyte	MRC-SW6A-S 04/13/2021 Field Sample Result	MDL	RL	FQ	RC	MRC-SW6B-S 04/13/2021 Field Sample Result	MDL	RL	FQ	RC	MRC-SW7A-S 04/13/2021 Field Sample Result	MDL	RL	FQ	RC
VOLATILES (µg/L)															
1,1,1,2-Tetrachloroethane	ND	0.40	0.50	U		ND	0.40	0.50	U		ND	0.40	0.50	U	
1,1,1-Trichloroethane	ND	0.40	0.50	U		ND	0.40	0.50	U		ND	0.40	0.50	U	
1,1,2,2-Tetrachloroethane	ND	0.40	0.50	U		ND	0.40	0.50	U		ND	0.40	0.50	U	
1,1,2-Trichloroethane	ND	0.40	0.50	U		ND	0.40	0.50	U		ND	0.40	0.50	U	
1,1-Dichloroethane	ND	0.40	0.50	U		ND	0.40	0.50	U		ND	0.40	0.50	U	
1,1-Dichloroethene	ND	0.40	0.50	U		ND	0.40	0.50	U		ND	0.40	0.50	U	
1,2,3-Trichlorobenzene	ND	0.40	0.50	U		ND	0.40	0.50	U		ND	0.40	0.50	U	
1,2,3-Trichloropropane	ND	0.40	0.50	U		ND	0.40	0.50	U		ND	0.40	0.50	U	
1,2,4-Trichlorobenzene	ND	0.40	0.50	U		ND	0.40	0.50	U		ND	0.40	0.50	U	
1,2,4-Trimethylbenzene	ND	0.40	0.50	U		ND	0.40	0.50	U		ND	0.40	0.50	U	
1,2-Dibromo-3-chloropropane (DBCP)	ND	0.40	0.50	U		ND	0.40	0.50	U		ND	0.40	0.50	U	
1,2-Dibromoethane	ND	0.40	0.50	U		ND	0.40	0.50	U		ND	0.40	0.50	U	
1,2-Dichlorobenzene	ND	0.40	0.50	U		ND	0.40	0.50	U		ND	0.40	0.50	U	
1,2-Dichloroethane	ND	0.40	0.50	U		ND	0.40	0.50	U		ND	0.40	0.50	U	
1,2-Dichloroethylene (total)	ND	0.40	0.50	U		ND	0.40	0.50	U		ND	0.40	0.50	U	
1,2-Dichloropropane	ND	0.40	0.50	U		ND	0.40	0.50	U		ND	0.40	0.50	U	
1,3-Dichlorobenzene	ND	0.40	0.50	U		ND	0.40	0.50	U		ND	0.40	0.50	U	
1,3-Dichloropropane	ND	0.40	0.50	U		ND	0.40	0.50	U		ND	0.40	0.50	U	
1,4-Dichlorobenzene	ND	0.40	0.50	U		ND	0.40	0.50	U		ND	0.40	0.50	U	
2,2-Dichloropropane	ND	0.40	0.50	U		ND	0.40	0.50	U		ND	0.40	0.50	U	
2-Butanone	ND	2.0	10	U		ND	2.0	10	U		ND	2.0	10	U	
2-Chlorotoluene	ND	0.40	0.50	U		ND	0.40	0.50	U		ND	0.40	0.50	U	
2-Hexanone	ND	2.0	10	U		ND	2.0	10	U		ND	2.0	10	U	
2-Phenylbutane	ND	0.40	0.50	U		ND	0.40	0.50	U		ND	0.40	0.50	U	
4-Chlorotoluene	ND	0.40	0.50	U		ND	0.40	0.50	U		ND	0.40	0.50	U	
4-Methyl-2-pentanone	ND	2.0	10	U		ND	2.0	10	U		ND	2.0	10	U	
Acetone	ND	4.0	10	U		ND	4.0	10	U		ND	4.0	10	U	
Benzene	ND	0.40	0.50	U		ND	0.40	0.50	U		ND	0.40	0.50	U	
Bromobenzene	ND	0.40	0.50	U		ND	0.40	0.50	U		ND	0.40	0.50	U	
Bromochloromethane	ND	0.40	0.50	U		ND	0.40	0.50	U		ND	0.40	0.50	U	
Bromodichloromethane	ND	0.40	0.50	U		ND	0.40	0.50	U		ND	0.40	0.50	U	
Bromoform	ND	0.40	0.50	U		ND	0.40	0.50	U		ND	0.40	0.50	U	
Bromomethane	ND	0.40	0.50	U		ND	0.40	0.50	U		ND	0.40	0.50	U	
Carbon Disulfide	ND	0.40	0.50	U		ND	0.40	0.50	U		ND	0.40	0.50	U	
Carbon tetrachloride	ND	0.40	0.50	U		ND	0.40	0.50	U		ND	0.40	0.50	U	
Chlorobenzene	ND	0.40	0.50	U		ND	0.40	0.50	U		ND	0.40	0.50	U	
Chloroethane	ND	0.40	0.50	U		ND	0.40	0.50	U		ND	0.40	0.50	U	
Chloroform	ND	0.40	0.50	U		ND	0.40	0.50	U		ND	0.40	0.50	U	
chloromethane	ND	0.40	0.50	U		ND	0.40	0.50	U		ND	0.40	0.50	U	
cis-1,2-Dichloroethene	ND	0.40	0.50	U		ND	0.40	0.50	U		ND	0.40	0.50	U	
cis-1,3-Dichloropropene	ND	0.40	0.50	U		ND	0.40	0.50	U		ND	0.40	0.50	U	
Cyclohexane	ND	0.40	0.50	U		ND	0.40	0.50	U		ND	0.40	0.50	U	
Cymene	ND	0.40	0.50	U		ND	0.40	0.50	U		ND	0.40	0.50	U	
Dibromochloromethane	ND	0.40	0.50	U		ND	0.40	0.50	U		ND	0.40	0.50	U	
Dibromomethane	ND	0.40	0.50	U		ND	0.40	0.50	U		ND	0.40	0.50	U	
Dichlorodifluoromethane (CFC-12)	ND	0.40	0.50	U		ND	0.40	0.50	U		ND	0.40	0.50	U	
Diisopropyl Ether	ND	0.40	0.50	U		ND	0.40	0.50	U		ND	0.40	0.50	U	
Ethyl Tertiary-Butyl Ether	ND	0.40	1.0	U		ND	0.40	1.0	U		ND	0.40	1.0	U	
Ethylbenzene	ND	0.40	0.50	U		ND	0.40	0.50	U		ND	0.40	0.50	U	
Freon TF (Chlorinated fluorocarbon)	ND	0.42	1.0	U		ND	0.42	1.0	U		ND	0.42	1.0	U	
Hexachloro-1,3-Butadiene	ND	0.40	0.50	U		ND	0.40	0.50	U		ND	0.40	0.50	U	
Isopropylbenzene	ND	0.40	0.50	U		ND	0.40	0.50	U		ND	0.40	0.50	U	
Methyl acetate	ND	0.40	1.0	U		ND	0.40	1.0	U		ND	0.40	1.0	U	
Methyl tert-butyl ether	ND	0.40	0.50	U		ND	0.40	0.50	U		ND	0.40	0.50	U	
Methylcyclohexane	ND	0.40	5.0	U		ND	0.40	5.0	U		ND	0.40	5.0	U	
Methylene Chloride	ND	0.40	0.50	U		ND	0.40	0.50	U		ND	0.40	0.50	U	
mp-xylene	ND	0.40	0.50	U		ND	0.40	0.50	U		ND	0.40	0.50	U	
Naphthalene	ND	0.40	0.50	U		ND	0.40	0.50	U		ND	0.40	0.50	U	
N-Butylbenzene	ND	0.40	0.50	U		ND	0.40	0.50	U		ND	0.40	0.50	U	
N-Propylbenzene	ND	0.40	0.50	U		ND	0.40	0.50	U		ND	0.40	0.50	U	
o-Xylene	ND	0.40	0.50	U		ND	0.40	0.50	U		ND	0.40	0.50	U	
Styrene	ND	0.41	0.50	U		ND	0.41	0.50	U		ND	0.41	0.50	U	
Tert-Butyl Alcohol	ND	8.0	20	U		ND	8.0	20	U		ND	8.0	20	U	
Tert-Butylbenzene	ND	0.40	0.50	U		ND	0.40	0.50	U		ND	0.40	0.50	U	
Tertiary-Amyl Methyl Ether	ND	0.42	10	U		ND	0.42	10	U		ND	0.42	10	U	
Tetrachloroethene	ND	0.40	0.50	U		ND	0.40	0.50	U		ND	0.40	0.50	U	
Toluene	ND	0.40	0.50	U		ND	0.40	0.50	U		ND	0.40	0.50	U	
trans-1,2-Dichloroethene	ND	0.40	0.50	U		ND	0.40	0.50	U		ND	0.40	0.50	U	
trans-1,3-Dichloropropene	ND	0.40	0.50	U		ND	0.40	0.50	U		ND	0.40	0.50	U	
Trichloroethene	**0.51**	**0.40**	**0.50**			**0.86**	**0.40**	**0.50**			ND	0.40	0.50	U	
Trichlorofluoromethane	ND	0.40	0.50	U		ND	0.40	0.50	U		ND	0.40	0.50	U	
Vinyl Acetate	ND	1.2	5.0	U		ND	1.2	5.0	U		ND	1.2	5.0	U	
Vinyl chloride	ND	0.40	0.50	U		ND	0.40	0.50	U		ND	0.40	0.50	U	
Xylenes (Total)	ND	0.40	1.0	U		ND	0.40	1.0	U		ND	0.40	1.0	U	
POLYCHLORINATED BIPHENYLS (ng/L)															
Monochlorobiphenyls, Total	ND	0.263	0.526	U		ND	0.263	0.526	U		ND	0.263	0.526	U	
Dichlorobiphenyls, Total	**0.269**	**0.263**	**0.526**	**J**		ND	0.263	0.526	U		**0.312**	**0.263**	**0.526**	**J**	
Trichlorobiphenyls, Total	**0.330**	**0.263**	**0.526**	**J**		**0.317**	**0.263**	**0.526**	**J**		**0.324**	**0.263**	**0.526**	**J**	
Tetrachlorobiphenyls, Total	ND	0.263	0.526	U		ND	0.263	0.526	U		ND	0.263	0.526	U	
Pentachlorobiphenyls, Total	ND	0.263	0.526	U		ND	0.263	0.526	U		ND	0.263	0.526	U	
Hexachlorobiphenyls, Total	ND	0.263	0.526	U		**0.352**	**0.263**	**0.526**	**J**		ND	0.263	0.526	U	
Heptachlorobiphenyls, Total	ND	0.263	0.526	U		**0.279**	**0.263**	**0.526**	**J**		ND	0.263	0.526	U	
Octachlorobiphenyls, Total	ND	0.263	0.526	U		ND	0.263	0.526	U		ND	0.263	0.526	U	
Nonachlorobiphenyls, Total	ND	0.263	0.526	U		ND	0.263	0.526	U		ND	0.263	0.526	U	
Decachlorobiphenyl	ND	0.263	0.526	U		ND	0.263	0.526	U		ND	0.263	0.526	U	
Total Polychlorinated biphenyls (PCBs)	**0.599**	**0.263**	**0.526**			**0.948**	**0.263**	**0.526**			**0.636**	**0.263**	**0.526**		
SEMIVOLATILES (µg/L)															
1,4-Dioxane	**0.099**	**0.068**	**0.20**	**B**	**bl**	**0.088**	**0.068**	**0.20**	**B**	**bl**	NS				

Bold values indicate detections

Yellow shading indicates a results that exceeds a screening criterion

References

1 National Recommended Water Quality Criteria, http://water.epa.gov/scitech/swguidance/standards/current/index.cfm; and Maryland Numerical Criteria for Toxic Substances in Surface Waters, Code of Maryland Regulations (COMAR) 26.08.02.03, http://www.dsd.state.md.us./comar/comarhtml/26/26.08.02.03-2.htm

2 United States Environmental Protection Agency (USEPA) Region 3 Biological Technical Advisory Group (BTAG) Freshwater Screening Benchmarks. Value for 1,4-dioxane is the USEPA Region 5 ecological screening value (USEPA, 2003).

3 For carcinogens, criterion is for incremental cancer risk of $1x10^{-5}$

4 Risk-based swimming screening levels were developed for trichloroethene, *cis*-1,2-dichloroethene, 1,4 dioxane, 1,2,4-trichlorobenzene and Total PCBs for Dark Head Cove.

Acronyms

FQ - Final qualifier
MDL - Method Detection Limit
MRC - Middle River Complex
ND - Not detected
NS - Not sampled
RC - Reason code
RL - Reporting limit
SW - Surface water
µg/L - micrograms per liter

Data Validation Flags

B = The associated method blank or field blank displayed a detection greater than the MDL. The reported result value is unchanged and did not require further qualification by data reviewers.
J = Estimated concentration
U = The analyte was analyzed for, but not detected at a level greater than or equal to the level of the Method Detection Limit (MDL) for sample and method.
bl = Method blank contamination

Appendix D
Laboratory Analytical Result Table
Lockheed Martin Corporation, Middle River Complex, Middle River, Maryland

Analyte	CAS Number	National Recommended Water Quality Acute	National Recommended Water Quality Chronic	Ecological Surface Water Screening Level (2)	Human Health Consumption (Organism Only) (1) (3)	Swimming Screening Levels (4)	MRC-SW8A-S 04/13/2021 Field Sample Result	MDL	RL	FQ	RC	MRC-SW8B-S 04/13/2021 Field Sample Result	MDL	RL	FQ	RC	MRC-SW8B-S-DUP 04/13/2021 Field Duplicate Result	MDL	RL	FQ	RC	MRC-SW9A-S 04/13/2021 Field Sample Result	MDL	RL	FQ	RC
VOLATILES (µg/L)																										
1,1,1,2-Tetrachloroethane	630-20-6	NE	NE	85	NE	NE	ND	0.40	0.50	U		ND	0.40	0.50	U		ND	0.40	0.50	U		ND	0.40	0.50	U	
1,1,1-Trichloroethane	71-55-6	NE	NE	11	NE	NE	ND	0.40	0.50	U		ND	0.40	0.50	U		ND	0.40	0.50	U		ND	0.40	0.50	U	
1,1,2,2-Tetrachloroethane	79-34-5	NE	NE	610	40	NE	ND	0.40	0.50	U		ND	0.40	0.50	U		ND	0.40	0.50	U		ND	0.40	0.50	U	
1,1,2-Trichloroethane	79-00-5	NE	NE	1200	160	NE	ND	0.40	0.50	U		ND	0.40	0.50	U		ND	0.40	0.50	U		ND	0.40	0.50	U	
1,1-Dichloroethane	75-34-3	NE	NE	47	NE	NE	ND	0.40	0.50	U		ND	0.40	0.50	U		ND	0.40	0.50	U		ND	0.40	0.50	U	
1,1-Dichloroethene	75-35-4	NE	NE	25	7100	NE	ND	0.40	0.50	U		ND	0.40	0.50	U		ND	0.40	0.50	U		ND	0.40	0.50	U	
1,2,3-Trichlorobenzene	87-61-6	NE	NE	8	NE	NE	ND	0.40	0.50	U		ND	0.40	0.50	U		ND	0.40	0.50	U		ND	0.40	0.50	U	
1,2,3-Trichloropropane	96-18-4	NE	NE	NE	NE	NE	ND	0.40	0.50	U		ND	0.40	0.50	U		ND	0.40	0.50	U		ND	0.40	0.50	U	
1,2,4-Trichlorobenzene	120-82-1	NE	NE	24	70	8	ND	0.40	0.50	U		ND	0.40	0.50	U		ND	0.40	0.50	U		ND	0.40	0.50	U	
1,2,4-Trimethylbenzene	95-63-6	NE	NE	33	NE	NE	ND	0.40	0.50	U		ND	0.40	0.50	U		ND	0.40	0.50	U		ND	0.40	0.50	U	
1,2-Dibromo-3-chloropropane (DBCP)	96-12-8	NE	NE	NE	NE	NE	ND	0.40	0.50	U		ND	0.40	0.50	U		ND	0.40	0.50	U		ND	0.40	0.50	U	
1,2-Dibromoethane	106-93-4	NE	NE	NE	NE	NE	ND	0.40	0.50	U		ND	0.40	0.50	U		ND	0.40	0.50	U		ND	0.40	0.50	U	
1,2-Dichlorobenzene	95-50-1	NE	NE	0.7	1300	NE	ND	0.40	0.50	U		ND	0.40	0.50	U		ND	0.40	0.50	U		ND	0.40	0.50	U	
1,2-Dichloroethane	107-06-2	NE	NE	100	370	NE	ND	0.40	0.50	U		ND	0.40	0.50	U		ND	0.40	0.50	U		ND	0.40	0.50	U	
1,2-Dichloroethylene (total)	540-59-0	NE	NE	590	NE	NE	ND	0.40	0.50	U		ND	0.40	0.50	U		ND	0.40	0.50	U		ND	0.40	0.50	U	
1,2-Dichloropropane	78-87-5	NE	NE	520	150	NE	ND	0.40	0.50	U		ND	0.40	0.50	U		ND	0.40	0.50	U		ND	0.40	0.50	U	
1,3-Dichlorobenzene	541-73-1	NE	NE	150	960	NE	ND	0.40	0.50	U		ND	0.40	0.50	U		ND	0.40	0.50	U		ND	0.40	0.50	U	
1,3-Dichloropropane	142-28-9	NE	NE	NE	NE	NE	ND	0.40	0.50	U		ND	0.40	0.50	U		ND	0.40	0.50	U		ND	0.40	0.50	U	
1,4-Dichlorobenzene	106-46-7	NE	NE	26	190	NE	ND	0.40	0.50	U		ND	0.40	0.50	U		ND	0.40	0.50	U		ND	0.40	0.50	U	
2,2-Dichloropropane	594-20-7	NE	NE	NE	NE	NE	ND	0.40	0.50	U		ND	0.40	0.50	U		ND	0.40	0.50	U		ND	0.40	0.50	U	
2-Butanone	78-93-3	NE	NE	14000	NE	NE	ND	2.0	10	U		ND	2.0	10	U		ND	2.0	10	U		ND	2.0	10	U	
2-Chlorotoluene	95-49-8	NE	NE	NE	NE	NE	ND	0.40	0.50	U		ND	0.40	0.50	U		ND	0.40	0.50	U		ND	0.40	0.50	U	
2-Hexanone	591-78-6	NE	NE	99	NE	NE	ND	2.0	10	U		ND	2.0	10	U		ND	2.0	10	U		ND	2.0	10	U	
2-Phenylbutane	135-98-8	NE	NE	NE	NE	NE	ND	0.40	0.50	U		ND	0.40	0.50	U		ND	0.40	0.50	U		ND	0.40	0.50	U	
4-Chlorotoluene	106-43-4	NE	NE	NE	NE	NE	ND	0.40	0.50	U		ND	0.40	0.50	U		ND	0.40	0.50	U		ND	0.40	0.50	U	
4-Methyl-2-pentanone	108-10-1	NE	NE	170	NE	NE	ND	2.0	10	U		ND	2.0	10	U		ND	2.0	10	U		ND	2.0	10	U	
Acetone	67-64-1	NE	NE	1500	NE	NE	ND	4.0	10	U		ND	4.0	10	U		ND	4.0	10	U		ND	4.0	10	U	
Benzene	71-43-2	NE	NE	370	510	NE	ND	0.40	0.50	U		ND	0.40	0.50	U		ND	0.40	0.50	U		ND	0.40	0.50	U	
Bromobenzene	108-86-1	NE	NE	NE	NE	NE	ND	0.40	0.50	U		ND	0.40	0.50	U		ND	0.40	0.50	U		ND	0.40	0.50	U	
Bromochloromethane	74-97-5	NE	NE	NE	NE	NE	ND	0.40	0.50	U		ND	0.40	0.50	U		ND	0.40	0.50	U		ND	0.40	0.50	U	
Bromodichloromethane	75-27-4	NE	NE	340	170	NE	ND	0.40	0.50	U		ND	0.40	0.50	U		ND	0.40	0.50	U		ND	0.40	0.50	U	
Bromoform	75-25-2	NE	NE	320	1400	NE	ND	0.40	0.50	U		ND	0.40	0.50	U		ND	0.40	0.50	U		ND	0.40	0.50	U	
Bromomethane	74-83-9	NE	NE	16	1500	NE	ND	0.40	0.50	U		ND	0.40	0.50	U		ND	0.40	0.50	U		ND	0.40	0.50	U	
Carbon Disulfide	75-15-0	NE	NE	0.92	NE	NE	ND	0.40	0.50	U		ND	0.40	0.50	U		ND	0.40	0.50	U		ND	0.40	0.50	U	
Carbon tetrachloride	56-23-5	NE	NE	13.3	16	NE	ND	0.40	0.50	U		ND	0.40	0.50	U		ND	0.40	0.50	U		ND	0.40	0.50	U	
Chlorobenzene	108-90-7	NE	NE	1.3	1600	30	ND	0.40	0.50	U		ND	0.40	0.50	U		ND	0.40	0.50	U		ND	0.40	0.50	U	
Chloroethane	75-00-3	NE	NE	NE	NE	NE	ND	0.40	0.50	U		ND	0.40	0.50	U		ND	0.40	0.50	U		ND	0.40	0.50	U	
Chloroform	67-66-3	NE	NE	1.8	4700	NE	ND	0.40	0.50	U		ND	0.40	0.50	U		ND	0.40	0.50	U		ND	0.40	0.50	U	
chloromethane	74-87-3	NE	NE	NE	NE	NE	ND	0.40	0.50	U		ND	0.40	0.50	U		ND	0.40	0.50	U		ND	0.40	0.50	U	
cis-1,2-Dichloroethene	156-59-2	NE	NE	590	NE	20	ND	0.40	0.50	U		ND	0.40	0.50	U		ND	0.40	0.50	U		ND	0.40	0.50	U	
cis-1,3-Dichloropropene	10061-01-5	NE	NE	0.055	210	NE	ND	0.40	0.50	U		ND	0.40	0.50	U		ND	0.40	0.50	U		ND	0.40	0.50	U	
Cyclohexane	110-82-7	NE	NE	158	NE	NE	ND	0.40	0.50	U		ND	0.40	0.50	U		ND	0.40	0.50	U		ND	0.40	0.50	U	
Cymene	99-87-6	NE	NE	85	NE	NE	ND	0.40	0.50	U		ND	0.40	0.50	U		ND	0.40	0.50	U		ND	0.40	0.50	U	
Dibromochloromethane	124-48-1	NE	NE	320	130	NE	ND	0.40	0.50	U		ND	0.40	0.50	U		ND	0.40	0.50	U		ND	0.40	0.50	U	
Dibromomethane	74-95-3	NE	NE	NE	NE	NE	ND	0.40	0.50	U		ND	0.40	0.50	U		ND	0.40	0.50	U		ND	0.40	0.50	U	
Dichlorodifluoromethane (CFC-12)	75-71-8	NE	NE	NE	NE	NE	ND	0.40	0.50	U		ND	0.40	0.50	U		ND	0.40	0.50	U		ND	0.40	0.50	U	
Diisopropyl Ether	108-20-3	NE	NE	NE	NE	NE	ND	0.40	0.50	U		ND	0.40	0.50	U		ND	0.40	0.50	U		ND	0.40	0.50	U	
Ethyl Tertiary-Butyl Ether	637-92-3	NE	NE	NE	NE	NE	ND	0.40	1.0	U		ND	0.40	1.0	U		ND	0.40	1.0	U		ND	0.40	1.0	U	
Ethylbenzene	100-41-4	NE	NE	90	2100	NE	ND	0.40	0.50	U		ND	0.40	0.50	U		ND	0.40	0.50	U		ND	0.40	0.50	U	
Freon TF (Chlorinated fluorocarbon)	76-13-1	NE	NE	NE	NE	NE	ND	0.42	1.0	U		ND	0.42	1.0	U		ND	0.42	1.0	U		ND	0.42	1.0	U	
Hexachloro-1,3-Butadiene	87-68-3	NE	NE	1.3	180	NE	ND	0.40	0.50	U		ND	0.40	0.50	U		ND	0.40	0.50	U		ND	0.40	0.50	U	
Isopropylbenzene	98-82-8	NE	NE	2.6	NE	NE	ND	0.40	0.50	U		ND	0.40	0.50	U		ND	0.40	0.50	U		ND	0.40	0.50	U	
Methyl acetate	79-20-9	NE	NE	NE	NE	NE	ND	0.40	1.0	U		ND	0.40	1.0	U		ND	0.40	1.0	U		ND	0.40	1.0	U	
Methyl tert-butyl ether	1634-04-4	NE	NE	11070	NE	NE	ND	0.40	0.50	U		ND	0.40	0.50	U		ND	0.40	0.50	U		ND	0.40	0.50	U	
Methylcyclohexane	108-87-2	NE	NE	52	NE	NE	ND	0.40	5.0	U		ND	0.40	5.0	U		ND	0.40	5.0	U		ND	0.40	5.0	U	
Methylene Chloride	75-09-2	NE	NE	98.1	5900	NE	ND	0.40	0.50	U		ND	0.40	0.50	U		ND	0.40	0.50	U		ND	0.40	0.50	U	
mp-xylene	1330-20-7-MP	NE	NE	1.8	NE	NE	ND	0.40	0.50	U		ND	0.40	0.50	U		ND	0.40	0.50	U		ND	0.40	0.50	U	
Naphthalene	91-20-3	NE	NE	1.1	NE	NE	ND	0.40	0.50	U		ND	0.40	0.50	U		ND	0.40	0.50	U		ND	0.40	0.50	U	
N-Butylbenzene	104-51-8	NE	NE	NE	NE	NE	ND	0.40	0.50	U		ND	0.40	0.50	U		ND	0.40	0.50	U		ND	0.40	0.50	U	
N-Propylbenzene	103-65-1	NE	NE	128	NE	NE	ND	0.40	0.50	U		ND	0.40	0.50	U		ND	0.40	0.50	U		ND	0.40	0.50	U	
o-Xylene	95-47-6	NE	NE	13	NE	NE	ND	0.40	0.50	U		ND	0.40	0.50	U		ND	0.40	0.50	U		ND	0.40	0.50	U	
Styrene	100-42-5	NE	NE	72	NE	NE	ND	0.41	0.50	U		ND	0.41	0.50	U		ND	0.41	0.50	U		ND	0.41	0.50	U	
Tert-Butyl Alcohol	75-65-0	NE	NE	NE	NE	NE	ND	8.0	20	U		ND	8.0	20	U		ND	8.0	20	U		ND	8.0	20	U	
Tert-Butylbenzene	98-06-6	NE	NE	NE	NE	NE	ND	0.40	0.50	U		ND	0.40	0.50	U		ND	0.40	0.50	U		ND	0.40	0.50	U	
Tertiary-Amyl Methyl Ether	994-05-8	NE	NE	NE	NE	NE	ND	0.42	10	U		ND	0.42	10	U		ND	0.42	10	U		ND	0.42	10	U	
Tetrachloroethene	127-18-4	NE	NE	111	33	NE	ND	0.40	0.50	U		ND	0.40	0.50	U		ND	0.40	0.50	U		ND	0.40	0.50	U	
Toluene	108-88-3	NE	NE	2	15000	NE	ND	0.40	0.50	U		ND	0.40	0.50	U		ND	0.40	0.50	U		ND	0.40	0.50	U	
trans-1,2-Dichloroethene	156-60-5	NE	NE	970	10000	NE	ND	0.40	0.50	U		ND	0.40	0.50	U		ND	0.40	0.50	U		ND	0.40	0.50	U	
trans-1,3-Dichloropropene	10061-02-6	NE	NE	0.055	210	NE	ND	0.40	0.50	U		ND	0.40	0.50	U		ND	0.40	0.50	U		ND	0.40	0.50	U	
Trichloroethene	79-01-6	NE	NE	21	300	30	**0.88**	**0.40**	**0.50**			**0.59**	**0.40**	**0.50**			**0.56**	**0.40**	**0.50**			**1.1**	**0.40**	**0.50**		
Trichlorofluoromethane	75-69-4	NE	NE	NE	NE	NE	ND	0.40	0.50	U		ND	0.40	0.50	U		ND	0.40	0.50	U		ND	0.40	0.50	U	
Vinyl Acetate	108-05-4	NE	NE	16	NE	NE	ND	1.2	5.0	U		ND	1.2	5.0	U		ND	1.2	5.0	U		ND	1.2	5.0	U	
Vinyl chloride	75-01-4	NE	NE	930	24	NE	ND	0.40	0.50	U		ND	0.40	0.50	U		ND	0.40	0.50	U		ND	0.40	0.50	U	
Xylenes (Total)	1330-20-7	NE	NE	13	NE	NE	ND	0.40	1.0	U		ND	0.40	1.0	U		ND	0.40	1.0	U		ND	0.40	1.0	U	
POLYCHLORINATED BIPHENYLS (ng/L)																										
Monochlorobiphenyls, Total	27323-18-8	NE	NE	NE	NE	NE	ND	0.263	0.526	U		ND	0.245	0.490	U		ND	0.263	0.526	U		ND	0.263	0.526	U	
Dichlorobiphenyls, Total	25512-42-9	NE	NE	NE	NE	NE	**0.273**	**0.263**	**0.526**	**J**		**0.264**	**0.245**	**0.490**	**J**		**0.268**	**0.263**	**0.526**	**J**		**0.285**	**0.263**	**0.526**	**J**	
Trichlorobiphenyls, Total	25323-68-6	NE	NE	NE	NE	NE	**0.306**	**0.263**	**0.526**	**J**		**0.334**	**0.245**	**0.490**	**J**		**0.307**	**0.263**	**0.526**	**J**		**0.378**	**0.263**	**0.526**	**J**	
Tetrachlorobiphenyls, Total	26914-33-0	NE	NE	NE	NE	NE	ND	0.263	0.526	U		ND	0.245	0.490	U		ND	0.263	0.526	U		ND	0.263	0.526	U	
Pentachlorobiphenyls, Total	25429-29-2	NE	NE	NE	NE	NE	ND	0.263	0.526	U		ND	0.245	0.490	U		ND	0.263	0.526	U		ND	0.263	0.526	U	
Hexachlorobiphenyls, Total	26601-64-9	NE	NE	NE	NE	NE	ND	0.263	0.526	U		**0.248**	**0.245**	**0.490**	**J**		ND	0.263	0.526	U		**0.345**	**0.263**	**0.526**	**J**	
Heptachlorobiphenyls, Total	28655-71-2	NE	NE	NE	NE	NE	ND	0.263	0.526	U		ND	0.245	0.490	U		ND	0.263	0.526	U		ND	0.263	0.526	U	
Octachlorobiphenyls, Total	55722-26-4	NE	NE	NE	NE	NE	ND	0.263	0.526	U		ND	0.245	0.490	U		ND	0.263	0.526	U		ND	0.263	0.526	U	
Nonachlorobiphenyls, Total	53742-07-7	NE	NE	NE	NE	NE	ND	0.263	0.526	U		ND	0.245	0.490	U		ND	0.263	0.526	U		ND	0.263	0.526	U	
Decachlorobiphenyl	2051-24-3	NE	NE	NE	NE	NE	ND	0.263	0.526	U		ND	0.245	0.490	U		ND	0.263	0.526	U		ND	0.263	0.526	U	
Total Polychlorinated biphenyls (PCBs)	1336-36-3	NE	14	0.074	0.64	5000	**0.579**	**0.263**	**0.526**			**0.846**	**0.245**	**0.490**			**0.575**	**0.263**	**0.526**			**1.01**	**0.263**	**0.526**		
SEMIVOLATILES (µg/L)																										
1,4-Dioxane	123-91-1	NE	NE	22000	NE	20	**0.12**	**0.068**	**0.20**	**B**	**bl**	0.15	0.068	0.20	**B**	**bl**	0.13	0.068	0.20	**B**	**bl**	NS				

Bold values indicate detections

Yellow shading indicates a results that exceeds a screening criterion

References

1 National Recommended Water Quality Criteria, http://water.epa.gov/scitech/swguidance/standards/current/index.cfm; and Maryland Numerical Criteria for Toxic Substances in Surface Waters, Code of Maryland Regulations (COMAR) 26.08.02.03, http://www.dsd.state.md.us./comar/comarhtml/26/26.08.02.03-2.htm

2 United States Environmental Protection Agency (USEPA) Region 3 Biological Technical Advisory Group (BTAG) Freshwater Screening Benchmarks. Value for 1,4-dioxane is the USEPA Region 5 ecological screening value (USEPA, 2003).

3 For carcinogens, criterion is for incremental cancer risk of $1x10^{-5}$

4 Risk-based swimming screening levels were developed for trichloroethene, cis-1,2-dichloroethene, 1,4 dioxane, 1,2,4-trichlorobenzene and Total PCBs for Dark Head Cove.

Acronyms

FQ - Final qualifier
MDL - Method Detection Limit
MRC - Middle River Complex
ND - Not detected
NS - Not sampled
RC - Reason code
RL - Reporting limit
SW - Surface water
µg/L - micrograms per liter

Data Validation Flags

B = The associated method blank or field blank displayed a detection greater than the MDL. The reported result value is unchanged and did not require further qualification by data reviewers.
J = Estimated concentration
U = The analyte was analyzed for, but not detected at a level greater than or equal to the level of the Method Detection Limit (MDL) for sample and method.
bl = Method blank contamination